CASE STUDY
SHOWING COMPLETE CONTROL

First published: IQ News June 2004

Trend's ability to provide total control and monitoring solutions is amply demonstrated by the advanced building management system designed and supplied by Integrated BMS Ltd for phase one of The Royals Business Park, a major speculative office development in London's Docklands. The system comprises a wide variety of Trend products, including the Ethernet connectable IQ3xcite controller and 963 supervisor, Lonworks-based IQL fan coil unit controls, energy saving NX variable speed drives and EM/MPO2 multi-parameter electricity meters – as well as numerous valves, actuators and sensors. Features such as the use of Ethernet/TCP/IP will allow considerable flexibility – for owner and tenants.

Occupying a 50 acre site overlooking the Royal Albert Dock, the £500million Royals Business Park will eventually provide some 150,000m^2 of office space, making it the largest development of its type in the capital. Phase one comprises a 22,770m^2 building made up of two, 4-storey blocks linked by spectacular winter garden. It is a joint venture between Standard Life, Development Securities and the London Development Agency, and was built by Bowmer & Kirkland Ltd.

All the heating and air conditioning services in the building are closely controlled and monitored by the Trend BMS. The IQ3xcites are responsible for the main plant, while the offices' 600 or so fan coil units are each fitted with an IQL, with other functions being performed by IQ212 and 223 controllers. The 963 supervisor serves as the system's main operator interface.

The Ethernet network to which the IQ3s and 963 connect will be easy to link to the IT infrastructure (which as in most modern buildings also runs over Ethernet), thus allowing the supervisor to be re-located virtually anywhere in the building. Access to the 963 from multiple points on the IT network will be another option available; all an authorised user will need is a PC running Internet Explorer. Remote access will be possible too – eg, via the landlord's Intranet. Furthermore, the BMS's extensive use of an 'open' system like Ethernet/TCP/IP, should make future integration with third party products much easier to achieve.

Launched last year, the IQ3xcite controller offers a number of benefits to the controls specialists who engineer and supply Trend systems. To Jason Harper, managing director of Integrated BMS, a particular advantage is its use of input/output modules: "From a control panel manufacturing point-of-view this enables us to put a lot of i/o into a very small space. It also helps us to design systems that exactly match the requirements of the application."

Owing to Trend's policy of backward compatibility, combining different types and generations of IQ controller has not posed a problem. The new IQ3xcites and the IQ2series controllers have been seamlessly integrated, as have the IQLs.

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Most of the offices' fan coil units have been fitted with IQL10 type controllers. However, for the perimeter units on the fourth floor, IBMS opted for the higher spec IQL13+ (which offers fan speed control) and also devised a special control strategy that limits the degree to which the air is heated during the morning 'boost' period. If the temperature of the air were too high it would be too 'buoyant' to force down to floor level, the ceiling height on the fourth floor being over 4m.

Employed to reduce power consumption, the NX variable speed drives control the fan motors on the building's four large air handling units, plus the pumps on CT and VT circuits. The AHU fans are controlled on the basis of readings from CO2 detectors in the extracts ducts, thereby maintaining acceptable air quality while limiting energy use. Every NX drive is fitted with an interface that has allowed it to be directly connected to the BMS network, enabling all of them to be managed and monitored from the 963 supervisor. It is possible to monitor up to 30 operational variables.

The four EM/MPO2 electricity meters also have network interfaces, giving access via the supervisor to a range of useful data – including kWh, kVAh, maximum demand and power factor values. In addition, provision has been made to add Trend thermal meters if required. This would allow accurate measurement of the energy used by each tenant's heating and cooling plant.

The M&E contractor on this first phase of the Royals Business Park was Derry Building Services Ltd. The complete development has been designed by architects Aukett Europe.

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Current issue: March 2008




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