

# Commercial Case Study

## Channel 5 Televison - London

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From its new HQ in central London, Pearson Television transmits various satellite channels plus the output of Britain's newest terrestrial station, Channel 5. In parts of the building that are in use round-the-clock the air conditioning runs continuously; were it to stop, vital transmission equipment would quickly overheat, which could cause broadcasting to be interrupted. The use of Trend IQ 241 controllers on critical air handling plant has helped reduce the risk of faults occurring, and also produced significant cost and time savings.

Pearson Television, one of the world's largest independent TV production companies, has sited its new broadcasting headquarters and production offices in a ten-storey office block off London's Tottenham Court Road. The building, which is 18 years old, has had to undergo extensive refurbishment to meet its new tenant's needs.

Floors one, two and three house the 'technical' areas, including the transmission suites and several studios, while on the ground floor a further two studios have gone in. A new VAV air conditioning system extends throughout the building. Fourteen air handling units and some 600 VAV boxes have been installed, all of which plant is Trend IQ controlled.

The technical areas - which are constantly occupied and require air conditioning 24hrs/day, 365 days a year - have a novel supply arrangement comprising four air handlers working in parallel. These units deliver tempered air (at 12oC) via risers to two ring ducts, one on each floor. The ducts connect to the VAV boxes, some of which feed a cooling air flow directly through racks of remotely operated transmission equipment (eg, vision mixer switchers, video machines, amplifiers, etc), much of which is never switched off.

Fitted to each air handler is an IQ241, which performs all control and monitoring functions. Normally, all four units will operate simultaneously, the speed of their supply fans being regulated by the IQs (via inverter drives) to maintain a constant static pressure in the ring ducts. However, the plant has been sized to allow for the loss of one unit. When this happens, the IQ241s will automatically compensate by increasing fan speed on the remaining three.

Unusually, the air handlers do not have conventional starter panels. Southern Control Services Ltd of Sidcup, who engineered and commissioned most of the technical areas' Trend equipment, have taken advantage of the 241's design to allow each plant to be manually enabled/disabled directly from its controller, through a simple-to-use, built-in operator interface. To prevent misuse by unauthorised personnel, a PIN number has to be entered before any action can be taken. The interface's screen display will also show any alarms that occur.

On applications such as this, where they are not intended for installation within panels, the 241s are supplied in wall mounting form with an integral cable management system. Relay modules, which are housed in an extension to the controller enclosure, simply clip into position and are linked to the appropriate outputs by means of plug-on ribbon cables, rather than having to be wired in the normal fashion. In this case, relay outputs have been required for the supply and extract fan inverters and the plant dampers. Power for the plant is provided from an ordinary circuit breaker board, an off-the-shelf commodity.

Doing without bespoke motor control panels - which would have taken four to six weeks to manufacture - has saved both cost and time, the latter being in very short supply because of the project's exceptionally fast-track nature. Moreover, the use of panels would have meant added complexity owing to the need for panel/controller interfacing. Pearson TV's Peter Horton, who is responsible for the building's services, was particularly eager to keep matters simple: "The fewer connections there are the

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lower the likelihood of things going wrong and the easier it will be to pinpoint any faults. It is important for us to be able to quickly rectify any problems that do occur. Fault-finding on panels can be very time consuming.”

To minimise installation time, all the VAV terminal units in the building - even those with preheaters - came fully pre-wired with a Trend IQ72 controller fitted to each one. Once on site they only needed to be connected to the bus-bar track power supply and the controllers linked to their sensors and communication networks.

IQ 70 series controllers also provide compensated zone control of the building's old perimeter heating system. Other IQ models perform critical tasks such as monitoring equipment power loads and water leak detection in toilet and kitchen areas - this being necessary because of the amount of cabling running beneath floors.

There are 14 controller networks, all of them linked. Peter Horton is able to gain access to any part of the system using a Trend 943 supervisor and Pearson's FM company has been supplied with a Trend 945. Access to the whole system is also possible through any of the NDPs (network display panels) that have been used as the operator interfaces on the IQ241s.

All Trend controls on plant outside the technical areas were supplied and engineered by Mid-Con Systems of Leicester.

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