



## INTEGRATED CONTROL Ltd

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### Case Studies For C-BUS Control and Management Systems

Project : Energy Management and Control

Project No

Revision

Client : Runshaw College, Leyland

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#### Project Introduction :

Integrated Control Ltd (ICL) in association with Nortec Electrical Services were asked by Runshaw College in Lancashire to Design, Supply, Install and commission an energy management control system that would control the lighting and other electrical loads in one of the buildings at the award winning college.

The system chosen by ICL to achieve this was C-BUS, a product manufactured by Schneider Electric. The main decision for using this product is the flexibility and expandability of the system, along with the free network topology utilised by the system.

The trial building on the main campus was so successful in saving energy that it returned an investment on capital in less than 3 years. Since this initial project, ICL and Nortec have worked closely with the college identifying other areas where savings in energy could be accomplished and have expanded the first project from one building to 16 other buildings covering 28 C-Bus networks over two of their current campus sites.



Every building had a set of unique features that required specific lighting control, these included scene setting in lecture theatres, conference facilities and meeting rooms, manual class room overrides for exams or projection use, kitchens and a restaurant were afforded more local control, large communal areas like corridors, dining and sports halls required different solutions and where possible day light harvesting was incorporated to reduce the amount of artificial light used.

Individually programmed Passive Infra-Red sensors and intelligent wall Switches are used to control the lighting in each building. PIR Sensors are programmed for presence or absence detection depending on the area requirement and will turn lights off automatically after a set period. In addition Light Level Sensors keep unneeded lights off. At times when full lighting is not required i.e. out of hours, the lighting can be set into energy save mode so only every other fitting in that area will illuminate, the fittings can alternate each time to maintain even usage. All these features help to greatly reduce energy usage and costs.

In some areas of the campus where more lighting control is required, like a lecture theatre, local DLT switches are used to provide extra control that includes

scene setting. Simple one button actions cause the numerous lighting circuit in those areas to be quickly adjusted to a pre-set level. The scene levels are stored in the central control software, and can be adjusted at any time by the engineering staff.

All building controls work standalone in their normal day to day operations, but they are all monitored in real time and able to be controlled from one central location. Custom controls have been provided to allow the college to override building controls for special events like open evenings and Exam's. They can disable PIR's and change time clocks that automatically turn all building lighting off, there are also numerous other functions that are user changeable. This central control has been programmed using SchedulePlus, a CBUS software solution provided by Schneider, on a standard windows PC platform.

All C-Bus networks are connected to the colleges' high speed Ethernet fibre-optic IT Network using C-Bus Computer Network Interfaces. Constructing the network in this manner means messages can be sent to and from any point on any network and between networks this allows network devices to be utilised more effectively so we can use one light level sensor for the whole campus and provide a switch for the external tennis courts in the caretaker's office which is on the other side of the campus and on a different network.

The entire system is remotely maintained by ICL from our Manchester Office, we are able to log into any building or the central control system via the internet to change any aspect of the control system, so items like PIR timers can be simply adjusted by ICL with any need to attend site.



#### System Summary :

Total Networks :- 28  
Total Circuits Controlled :- 2600 Circuits  
Total Switches :- +300  
Total PIR's :- +1200  
Network Interfaces :- 1900 CBUS units  
Return on Investment :- Max 5 Years