Lecture Theatre

A lecture theatre is a place for group communication, so the lighting should be designed to enhance the various communication media. This is a theatre, so a sense of theatricality is also a powerful tool to enhance effective communication.

An essential part of this lighting is the control, for both practical and aesthetic purposes.

The room itself has a projection room where slide, video and data projectors would be housed, along with all of the audio and audiovisual controls. When the lecture hall is used for a slide projection, circuit 1 needs to be dimmed to a low level ensuring that there is no distracting light spill into the lecture theatre. To provide the maximum range of dimming, and for aesthetic reasons, directional Low Voltage fittings would be used. This has the advantage that the light can be focused precisely where they are needed.

Within the body of the lecture theatre, the primary lighting would be provided by recessed High Frequency Fluorescent luminaries and down lighters fitted with twin 26 Watt TC-DEL lamps (circuits 2, 3 and 4). The purpose of splitting the HF fluorescent luminaries into two circuits is to cater for the Lecture theatre being occupied by a small number of people who would then all sit in the front half of the seating. If this was a raked auditorium, it would be necessary to set different intensities of illumination to get a balanced lighting effect over the seating area.

Over the podium area, additional down lighters with single 26 Watt TC-DEL lamps would be provided (circuit 8). Accent lighting of the lectern positions (2) and demonstration bench would be provided from a three circuit lighting track, fitted with low voltage spot lights (circuits 5, 6 and 7). Note that when track lighting spots are used, it is quite common for the integral transformers to be of

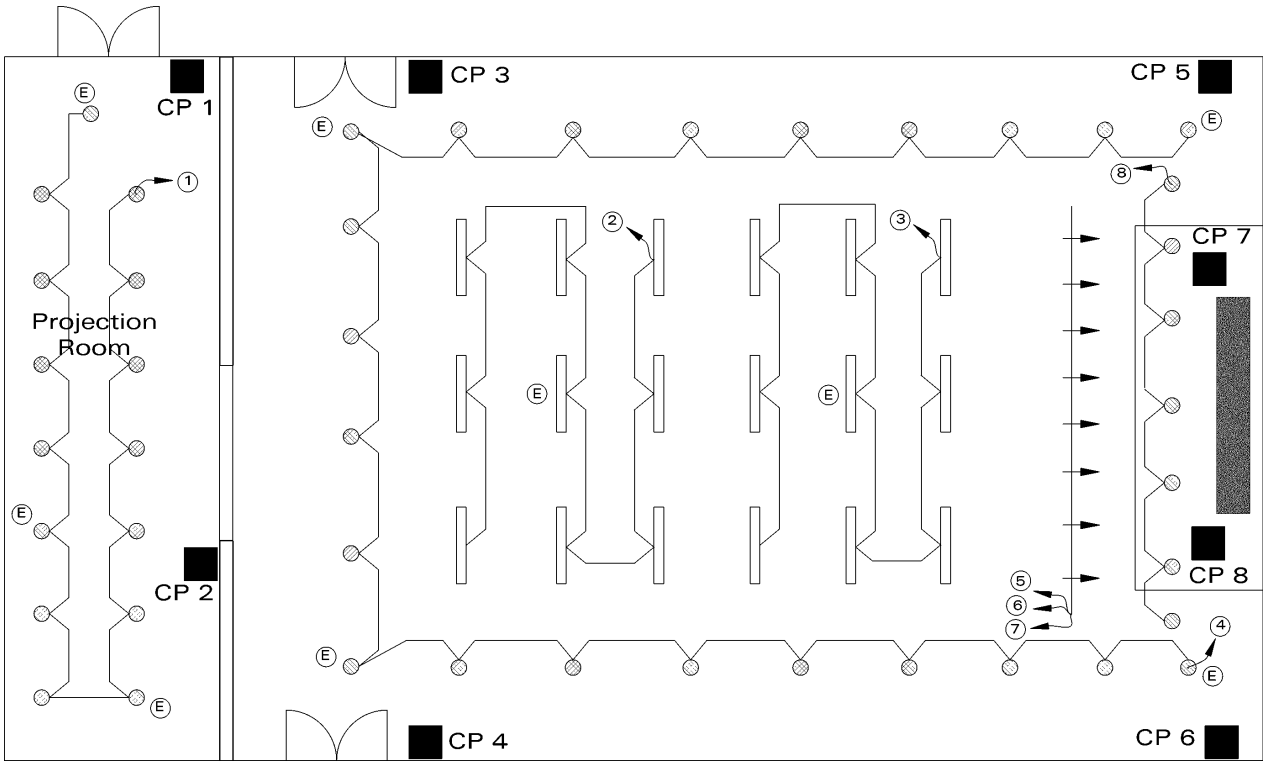


Figure 1 above is a drawing of a typical lecture theatre, detailing an appropriate lighting arrangement.

the electronic type that are suitable only for trailing edge dimming. Flexibility should be included in the design as additional or different fixtures may be added at a later date. We would recommend that all of the low voltage lighting control channels be under the control of an adaptive, universal source controller to ensure that this installation is as future proof as possible. This type of unit monitors the types of load connected to each of its circuits. It then selects either leading or trailing edge dimming techniques as appropriate. This has the added advantage that this type of source controller constantly monitors the current and voltage of the connected load. Should both capacitive and inductive loads be connected to the same circuit, thus creating a reactive circuit, it will automatically protect the transformers by switching to full output. This universal module has a patented lamp protection circuit to dramatically extend lamp life.

The scenes:

A typical requirement might be as follows: -

Scene 1: *Welcome:* A general scene used for students entering and leaving the auditorium and for cleaners' usage.

Scene 2: *Discussion:* The lighting within the auditorium would be dimmed to around 70%, whilst the lighting over the podium and onto the display bench would be full on. This would draw the eye to the persons on the Stage area, and so ensure maximum concentration by the audience.

Scene 3: *Presentation - Left Lectern:* The lighting in the auditorium would be reduced to 50%, the lighting over the podium down to 30% and the accent spots on the track that are focused on the left lectern and presenters face would be at 100%. All other lighting in the room would be off.

Scene 4: *Presentation - Right Lectern:* As scene 3, but for this scene the accent track spots would be on the right lectern and presenters face all other lighting in this room would be again off.

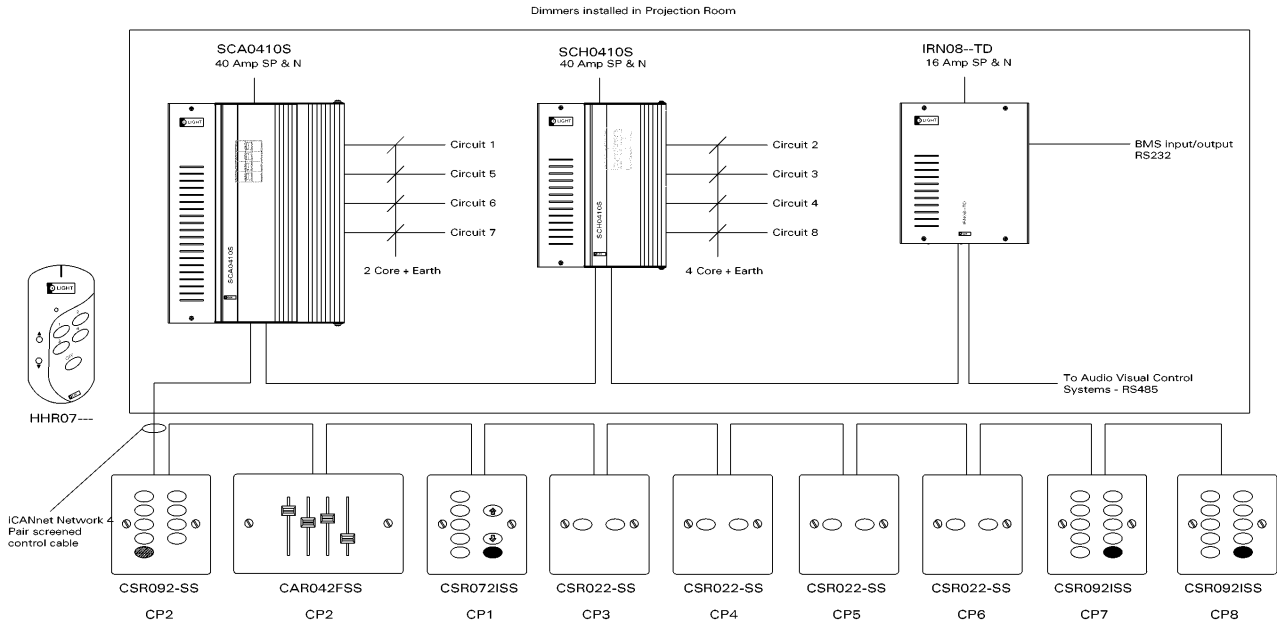
Scene 5: *AV - Left Lectern:* Similar to scene 3, except that circuit 8 over the podium would be off, to stop any light spill onto the projection screen. The auditorium lighting would be reduced to 25% intensity, to get the best possible contrast for the slides or video data projection, whilst at the same time providing sufficient illumination for the students to take notes. The accent spots on the track would be reduced to 50% intensity onto the presenter at the left lectern only.

Scene 6: *AV - Right Lectern:* As scene 5, but the presenter at the right lectern.

Scene 7: *Video - Demonstration Bench:* The lecturer would be providing an equipment demonstration or conducting an experiment on the demonstration bench. There would be a video camera onto the bench area on the podium which would relay video images of the activity to the large screen video projector, ensuring that all the students can clearly see the detail. This scene would be like scene 6, except that the lighting over the podium would be raised to 25% and the accent spots onto the podium demonstration bench would be set to 80%. This is to provide the lecturer with enough illumination to see and at the same time provide sufficient light for the video camera to function.

Scene 8: *Off:* This scene would fade the lighting to off at a predetermined fade rate. Note that in the iLight™ system, the off button is a true off. It is not normally possible to program a positive lighting scene to this button. As a default, it is also a toggle. Press once to fade the current lighting scene to off. Press a second time to return the lighting to the previous scene.

Figure 2



The controls

The block schematic diagram as detailed in figure 2 above shows a typical arrangement for a lecture theatre such as that described above.

CP 1 and 2 are installed in the projection room. As with all iCAN™ control panels, CP1 is fully configurable. This panel is installed next to the entrance door to the projection room and would be configured to control the lighting, within this panel, to Full, 60%, 25% and Off. It would also be provided with raise and lower buttons to temporarily over-ride the settings of a selected scene. The off button would also turn off all the lighting within the whole lecture theatre over a 10 second fade period. All other scene buttons would typically have a fade time of two seconds.

CP2 would be installed into the master control console in the projection room, with a clear view of the podium area through the glazed partition. It would be provided with seven scene selection buttons, a manual mode button and four slider faders. When the manual mode button is pressed, the four faders would become active. These four faders would be connected to the three channels on the lighting track and circuit eight over the podium. This control enables the operator to provide a lecturer(s) with live control.

All scenes would have a fade time of five seconds to avoid visual discomfort when the lighting changes from a dark scene to a bright one.

CP3 to CP8 would be installed within the Lecture theatre.

CP3 to 6 would be installed adjacent to the four entrance/exit doors into the auditorium. They would be provided with two buttons. One to select the *"Welcome"* scene, and the other to select the *"Off"* scene. From these, the control panels the welcome scene would have relatively fast fade time, (say) three seconds. However, the fade time for the *off* scene would be in the region of ten to fifteen seconds. This is to ensure that the person operating the control panel has adequate time to leave the room before the lighting fades out. All four of these control panels would work in parallel.

CP7 and CP8 would be installed into the lecterns. These would select all of the eight scenes previously described. As with all of the iLight™ control panels on the iCANnet™ bus network, the buttons are internally illuminated. Each button has a legend, which is clearly illuminated when the scene is active. Thus these buttons "track" the current scene, irrespective of which control panel is used to select it. Off is a toggle. If this button is pressed in error by a nervous presenter, it can simply be pressed a second time to return to the previously selected scene.

Lecture Theatre

Programming Note

Programming of the various scenes within the lecture theatre would normally be carried out once the installed system has been electrically commissioned and all of the furniture is in place. The iLight™ products can be programmed to their required pre-set scene levels by several methods. The most common of these is our iCANsoft™ dedicated software program, which is designed to run on a laptop PC. The computer is connected to the iCANnet™ bus by means of an RJ11 socket provided behind the face plate of each of the iCAN™ control panels. Once the PC is connected to the network, the parameters relating to the various devices on the network can be modified and the data stored in the devices Flash Memory. Pre-set scene levels and fade times are stored in EEPROM memory modules within each device.

Remote Controls

In addition to the controls detailed above, this system would also provide a remote hand held control unit. Due to the large size and volume of such auditoriums, there would need to be several sensor receiver units mounted throughout the auditorium. This would ensure that the controller will work from any position in the room.

BMS control: The system would also accept serial data or contact closure inputs from a BMS system. These could be used for monitoring purposes, for example to hold all of the corridor lighting and escape routes whilst the lecture theatre is occupied and automatically turn off the lighting when the building is not occupied.

Audio Visual System Control: The iCAN™ series dimmers from iLight™ are provided with an AV port (RS485) and this would be directly linked to an audio visual control system. This ensures that the correct lighting scene is selected to harmonise with the projection selected by the AV system. Any scene selected via this AV port, would then have the same message re-transmitted over the iCAN™ network, to ensure that all devices on the network track the current status of the lighting.

Fire Alarm/Panic: The iCAN™ source controllers are also provided with an auxiliary port which enable a fire alarm signal to be connected to the source controllers. If this input is activated, the source controllers' output will automatically switch to the "panic" scene. This sends the units to full output so the lighting is full on. It is not possible to over-ride this from the control panels as long as this input is triggered. This in no way affects the emergency lighting, which would trigger on failure of the mains supply or an MCB tripping*.

* Please refer to the section on Emergency Lighting in Application Notes for details on emergency lighting and dimmers.