

BASIC PRINCIPLES OF

LIGHTING CONTROL

We frequently talk and write about 'entertainment lighting' as a collective term for lighting performances in the theatre, for television, motion picture, concerts and others. One factor links these diverse activities together - creating a visual composition with light.

Where these areas of entertainment lighting diverge is on the subject of controlling the light. In the theatre and with concerts, the audience stays in one place. The action is live and continuous. Lighting is tuned to the response of the human eye, and is stylised, sometimes in contradiction to that of nature. Changes between one lighting 'state' and another can be complex and sophisticated, fast or imperceptibly slow.

In television, the audience views a scene through a camera from a variety of angles, dictating a different approach to lighting. A subtle change from one scene to another - a primary function for a theatre control - is performed by a vision mixer. A fade to blackout is rare.

Cinematography, motion picture lighting is different again, with each sequence being painstakingly set up and lit separately, in a similar manner to a portrait photographer's.

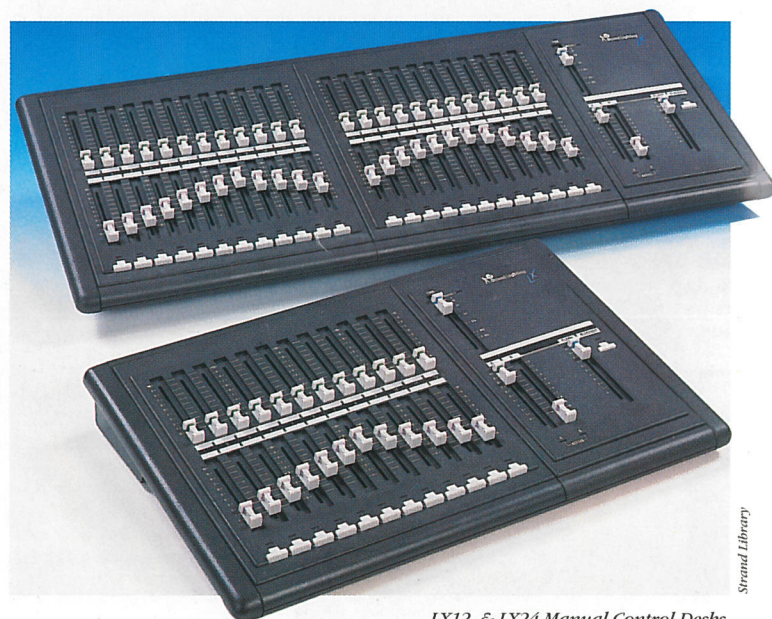
Thus the art of lighting for 'entertainment' consists of two elements - the static and the dynamic. It is the dynamic effects - the way the lights fade from one picture or 'state' to the next - that is the business of the lighting control system.

TWO PRESET MANUAL CONTROL

In its simplest form, a lighting control desk changes intensities from the current 'state' to the succeeding one. This requires two settings or 'presets'. A manual control desk, such as the Strand LX12 or LX24, has two presets, each with its own master control slider. One preset can be active (i.e. controlling the lighting currently on stage) by moving its master control to full, while the other is 'blind' (i.e. inactive - a change to any channel fader will not affect the lighting on stage) by moving its master control to zero. This two-preset way of working allows each scene to be noted as a complete list of dimmer levels, and reproduced by manually pre-setting each new scene in sequence.

The change from one scene to the other is performed by reducing the master fader controlling the active preset, and increasing the master fader on the 'blind' preset. This action is called a 'crossfade', and enables a smooth transition from one scene to another. Early manual control desks had a characteristic which could seriously affect the change of lighting, and ruin the planned effect. With two presets set up for two scenes, one is live and the other is blind, and a spotlight set to the same intensity in both scenes will begin and finish at the correct intensity. But during the crossfade the light will have dimmed (because the live master was moved down) and then brightened (because the blind master was moved up). This can destroy a picture where the actor is downstage centre for a soliloquy whilst the scene around him changes. If the light on him remains constant the audience will not notice the subtle change of mood or location but if the actor's light fades and then brightens the audience is distracted and the dramatic moment may be lost.

The problem of crossfade 'dip' has been resolved with modern manual controls incorporating dipless crossfade circuits. But to avoid the problem in performance with an older type of desk, two methods are possible: firstly if the lighting change is not very complicated (say, two or three lights have to change, with the remainder staying at their present levels), then the fade can be performed on the live preset only. This is called a 'move fade', and in the dictionary of lighting control definitions, it has a special characteristic. There can be many 'move fades' occurring at the same time. Depending on how many fingers the console operator has available, a series of moves can be plotted and performed with



LX12 & LX24 Manual Control Desks.

different fade times, all on the same preset. This is in contrast to the crossfade, of which only one may be performed at a time. The other method of minimising 'dip' is if the change is more complex (only one spotlight remains at a constant level) with all others moving to new levels, then a 'split' crossfade can be used. Moving the incoming preset master in advance of the live master enables the dip to be minimised.

Manual preset desks can give many special lighting effects to your performance. Some desks have a choice of manual or timed crossfades. A timed crossfade enables you to perform something like a dawn sequence or the change from day to night so smoothly that the audience is unaware of the change.

If your desk is fitted with flash buttons, the range of possible effects is enormous. A flash button causes a

channel to be switched instantly to full, or to the level set by a flash master fader. This gives the opportunity for lightning effects, flickering firelight effects or chase effects, depending on your dexterity, of course!

In the past, the trend was for manual control desks to become larger and larger. More channels were required as lighting styles changed. More presets were added to allow a series of fast cues to be performed without frantic re-setting of two presets. However, the time taken to adjust the lighting levels and note the positions of each fader (so that they could be reproduced during the show) was getting too long, and there was an obvious need for an automated system to relieve the console operator of this burden, and to speed-up rehearsal time. Thus was born the concept of the memory console.