MEMORY CONTROL

The memory console emulates a large manual desk by following the four basic operations of a stage lighting control desk:

1 - adjusting the lighting intensity on stage to give the desired effect.

2 - recording the levels so they can be recalled and repeated during the performance.

3 - modifying the recorded state during rehearsal, and recording the changes.

4 - taking the recorded information and replaying it during the performance.

Using a memory console, the operator creates the lighting state by entering the numerical reference of the luminaire on a keyboard and either moving a continuous fader wheel or typing in an intensity level directly. When all the lights are set up, and the stage is properly lit, a memory number is allocated to the scene (by typing in another number), and the lighting state is recorded. To reproduce the same scene during the rehearsal, the original memory number is recalled, and the lighting levels are transferred to the playback - this is similar to setting up a blind (inactive) preset on a manual desk. When the fade button is pressed, the memory system fades the 'preset' onto stage, in the same way that the manual system crossfades between presets. If the scene has to be altered (if part of the stage is too dark, for example), the offending channel number is typed in again, and the wheel acts on the level of the channel in question to increase or decrease the lighting level from its current position. The revised state is then re-recorded, and the control system is set up for the show. During the performance, the memory numbers are normally used in sequence, each one being transferred to the playback in the correct order, and faded on stage in the time required by the designer.

The first memory controls were developed primarily to make more efficient use of the lighting designer's time during rehearsal and plotting sessions. Developments continued over the years, as the power and capacity of the electronics increased. In response to the ever-broadening expectations from spectacular shows, the capabilities of the machines has likewise increased. The modern memory system is not only a 'productivity enhancer', it offers the creative designer a host of techniques to manipulate huge numbers of channels and dimmers, and to control a large number of lighting changes in subtle ways.

Inevitably, advances in microprocessor design and the reduction in the cost of memory chips has meant a great increase in the capabilities of modern memory systems. We are now entering an era of automation, and memory systems are available to control position and colour (referred to as attributes) as well as the intensity of the light. Digital dimmers are capable of sending information to the operator on their performance and current status to receive, display, or log.

The Savoy Theatre, which gained a Special Design Award in the LIF's Lighting Design Awards 1994.

Matthew Weinreb/Max Fordham & Partners.

GLOSSARY OF TERMS

AMX *Multiplex protocol for transmitting information using analogue levels from a control console to dimmers.*

Application Software *A software programme that adds specific features to the Foundation Software used with a lighting console.*

ASCII Basic text file format *Adopted for memory lighting consoles to provide a common file transfer format for sharing lighting data between different consoles.*

Blind *When changes made at the control do not affect the current lighting state. For example, when a master fader is at zero and a preset is being prepared for the next scene.*

Blackout *To switch all channels off.*

Board *One of the names for a control desk, derived from 'switchboard'.*

Build *A gradual increase in light.*

Bump *To momentarily flash channels up or down.*

Channel *The control path from the desk to the dimmer.*

Channel Number *Reference number which is entered on the keypad to control the intensity of a light.*

Chase *Continuous effect comprising a series of steps which are activated in sequence, each containing a channel or group of channels.*

Circuit *The electrical path from the dimmer to the luminaire.*

Console *One of the names for a control desk, derived from organ console.*

Crossfade *The gradual change of lighting where one lighting state completely replaces another. By definition only one crossfade can occur at a time.*

Cue *(1) A change in a given lighting state (2) A signal given by the stage manager to start a change in the lighting.*

Cue Number *Reference number given to a lighting change memory. Typically an integer, but decimal numbers are given to cues inserted into a previously recorded sequence.*

Decimal Number *A reference number for a cue which includes a decimal point. This is used to insert a new lighting change between two other previously recorded cues.*

Delay Time *The time associated with either the outgoing or incoming part of a lighting change, which lapses after the beginning of the cue, before the part commences.*

Dimmer *The part of a lighting system which controls the power to the light, and thus intensity of the light source.*

Dipless Crossfade *A type of fade between two presets where channels with the same intensity in both presets do not dim and then brighten during the change.*

DMX *Multiplex protocol for transmitting information digitally from a control console to dimmers, or automated lighting units.*

Effects *Automatic sequence of lighting events (eg. chase, flash, flicker etc).*

Ethernet *Data signal wiring system for computer networks which is being adopted for high speed data transmission connecting lighting consoles, dimmers, remote video displays as a complete network.*

Fader *A linear potentiometer used for manual control of intensity, either as an individual channel control device, or a submaster, or Grandmaster.*

Fade Time *The time associated with a cue between the start and completion of the lighting change.*

Flicker *Effect which oscillates channel levels randomly to give the effect of flames.*

Foundation Software *A software programme that provides basic operating features for the lighting console. (see also Application Software).*

Grandmaster *A master controller which has total control of the output of the desk. Also the name of a large resistance dimmer switchboard of the 1930's.*

Independent *Channels which are locked to one part of a lighting console (e.g. one submaster) and therefore only respond to actions from that controller.*

Inhibitive *Refers to a submaster which sets the maximum level of the channels associated with it. Sometimes referred to as a "Front of House" master.*

LCD Liquid Crystal Display

Macro *A sequence of instructions used on a memory console to perform a function, which can be memorised to be performed by a single instruction.*

Master *A fader which has over-riding control over other faders. For example, the 'A' master of a manual control desk controls the individual levels of each fader in the 'A' preset.*

Memory *An electronic record of a lighting state which can be re-called during the performance.*

MIDI Musical Instrument Digital Interface *A Communication protocol used to synchronise lighting consoles with other control systems, or to link two consoles together to duplicate the actions for backup purposes.*

Move Fade *A fade from one lighting state to another in which only the channels with a new intensity level move; all others remain static. Many move fades can occur at the same time.*

Page (of Submasters) *A collection of memories used simultaneously across a group of submasters.*

Patching *The process of temporarily linking a luminaire circuit to a particular dimmer.*

Playback *The part of a memory control which changes the current lighting to another lighting state recorded in the memory.*

Plot *A list of instructions detailing the changes in lighting for the entire production.*

Pot *Abbreviation for 'Potentiometer'. Potentiometer A variable resistance control element.*

Preset *For manual desks, the group of faders which control the dimmers. Most manual desks have two presets so one scene can be set up 'blind' whilst the other is active.*

Proportional Patch *A software feature to connect a group of dimmers to a control channel, where the dimmer levels may be set to be a proportion of the current level of relevant channel.*

Random *An effect where a series of presets are activated individually, in a random sequence.*

Record *The action of electronically storing the lighting state.*

Remainder Dim *An instruction which maintains the levels of any currently selected channels, while forcing all other active channels to zero.*

Remote *A method of controlling the lighting at a distance from the main lighting console.*

ShowNet™ *Strand Lighting's Ethernet data protocol for the transmission of video and DMX signals.*

Slider *A linear potentiometer used for manual control of intensity, either as an individual channel control device, or a submaster, or Grandmaster.*

Soft Key *Control push button where the function can change dynamically depending on the current status of the system.*

SWC System Wide Control *A control protocol which permits simple remote devices (push button wall stations, or hand-held controls) to control dimmer levels and presets directly.*

Undo *A memory system feature which cancels the last instruction, and returns the console to its previous condition.*

Wait Time *The time a following cue waits after the start of the preceding cue, before it automatically commences.*