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To return a dimmer to a 2.4K (normal) type, repeat the above (the second 6K entry deletes the previous 6K entry):

Enter: 2 5 6K * (as shown at right)

The 6K indicator has gone out, indicating that dimmer 25 is a 2.4K dimmer.

A dimmer group may also be assigned as 6K types in the same manner. In this example, dimmers 32 through 48 are designated as 6K types (as shown at left):

Enter: 3 2 > 4 8 6K *

Any one or more of a group of dimmers designated as 6K dimmers may be returned to 2.4K types on an individual basis, or in a group. If some dimmers in a group are 2.4K and some 6K, all dimmers in the group will be changed to 6K type.

PATCH/LOCKOUT Keyswitch

The PATCH position of the keyswitch is used when making Dimmer-Channel patch assignments. After the assignments have been made, turn the keyswitch to LOCKOUT to prevent any accidental changes to the assignments.

Dimmer assignments may be previewed when the keyswitch is in the LOCKOUT position; however, all dimmer-channel assignments will be ignored by the MANTRIX.

When the MANTRIX is first turned on, all patch assignments are automatically set up in a one-to-one correspondence up to the highest number of channels available on the particular MANTRIX channel configuration. All other dimmers remain unassigned. The Patch assignments may be reset to the one-to-one state at any time by pressing the CLEAR key, and turning the keyswitch from LOCKOUT to PATCH, while holding the CLEAR key depressed.
INTRODUCTION

The Strand Century MANTRIX is a modular, four-scene preset console, with a split crossfader, master, eight submasters, and an optional matrix patch module. Additional channel modules may be used with the MANTRIX, expanding the channel capacity to a maximum of 84 channels.

The MANTRIX provides a reliable, compact, portable lighting control system to control the multiplexed CD80 Dimmer and CD80 Pack. Analog +10-volt dimmers can be controlled by use of an external +10-volt interface. When used with the optional matrix patch module, the MANTRIX can operate a maximum of three CD80 racks or 24 CD80 packs. The optional matrix patch module provides a means for patching the MANTRIX channel outputs to up to 288 dimmers, in as many combinations as the lighting designer may desire.

The typical MANTRIX (Model 8003) shown in the accompanying figure has the basic Control Module, One Channel Module, the Matrix Patch Module, and a blank module. The blank (non-functioning) module is available as shown, as an AUX module, or as a 12-inch wide Q-sheet Module. The typical MANTRIX shown is approximately 33 inches wide. Each panel is 9-1/2 inches high. Other variations are shown in the configuration diagram, illustrating the single-tier and two-tier models, providing channel capacities of 24, 36, 48, 60, 72, and 84. The two-tier models are approximately 20-3/4 inches in depth. The overall height of the single-tier arrangement is 2-1/2 inches, the two-tier arrangement increases overall height to 6-3/4 inches.

All modules are painted flat black for non-glare operating appearance, with silk-screened legends, covered with clear epoxy splatter for long-life protection.

The modules are electrically interconnected with ribbon cables for simple maintenance.

The MANTRIX operates from 120 volt, 60 Hz power, and is protected by a 2-ampere fuse. The unit may be factory-modified for use on 240 volt and 50 Hz power if desired.

MANTRIX – Configuration Diagram
Section II
Operation

For example, to determine to what channel dimmer 6 is assigned, enter:

6 *

(as shown at left)

The dimmer assignments may be previewed in increasing numerical order by simply pressing the * key.

For example, preview the next dimmer by depressing * key (as shown at right).

A dimmer number larger than 288 or a channel number larger than the number of available MANTRIX channels installed cannot be entered.

2.4KW and 6KW Dimmer Type Assignments

If the MANTRIX is being used in a system utilizing the CD80 Dimmer, all 6K dimmers must be designated. To designate a 6K dimmer, enter:

[DIMMER NO.] 6K *

The 6K indicator above the DIMMER display will illuminate, showing that the dimmer in the display is of the 6K type.

In the following example, dimmer 25 is to be designated as a 6K dimmer:

Enter: 2 5 6K * (as shown at left)
CONTROLS AND DISPLAYS

CONTROL MODULE

The Control Module (figure 1-1) is a complete control system with an integrated four-scene preset for 12 channels. The unit is mounted on a 9-1/2 inch high panel, 16 inches wide, and includes the following controls.

ON/OFF Keyswitch

The ON/OFF Keyswitch turns the MANTRIX system on and off. In the OFF position, all electrical power is removed from the system. In the ON position the red LED indicator above the Key switch is illuminated, the MANTRIX is energized, and ready for all operations.

NOTE: When the keyswitch is turned OFF, all patch assignments are protected, provided the BATTERY switch is ON.

MASTER Control

The MASTER control functions as a grand master over all level settings on-stage, overriding control of all active channels, and permitting the operator to bring down the level of all channels simultaneously. With the MASTER at 10, all channels are unaffected, while 0 corresponds to a blackout.

BLACKOUT Switch

The BLACKOUT switch permits the operator to instantly black out the stage. In the 0 position, MANTRIX level control and fades are unaffected; in the # position, all outputs to the stage are at zero (blackout).

Figure 1-1. MANTRIX Control Module
4. Depress the [4] key on the Matrix Patch Module to complete the dimmer assignment. The ENTER indicator returns to the DIMMER display to indicate that the Matrix Patch Module is ready for another dimmer-channel assignment (as shown at right).

**NOTE:** To repeat the same list specified in the previous command, enter [0], channel number, and [4]. No dimmer number entry automatically defaults to the previous dimmer list.

During the entry of dimmer and channel assignment information, the [C] key may be used to clear any errors before the [4] key is pushed. The [C] key clears the last entry. If pushed twice, it will clear both the CHANNEL and DIMMER entries and displays. For example, dimmer 20 is to be assigned to channel 24, but during the entry, the first number of the channel is accidentally pushed before the [4] key, resulting in:

```
2 0 2 @ 4
```

1. Depress the [C] key twice to delete the channel and dimmer entries.
2. Now, enter the data correctly:

```
2 0 @ 2 4
```
3. Depress the [4] key to store the assignment in the MANTRIX. The ENTER indicator will move to the DIMMER display.

The [C] key can only be used to correct or change a dimmer-channel assignment prior to use of the [4] key. If the command execution key [4] is depressed, then the dimmer-channel assignment can only be changed by going through a complete assignment. For example, in the previous example, if the [4] key had been pushed before the error was noticed, dimmer 202 would have been assigned to channel 4.

If a dimmer number is to be deleted from a channel, and not reassigned, enter:

```
DIMMER NO. @ 0 [4]
```

In the above error example, this would be accomplished as follows:

```
2 0 2 @ 0 [4]
```

Dimmer 202 would be deleted from channel 4, and assigned to inactive channel 0.

Patch assignments are previewed (to determine the channels to which the dimmers are assigned) by entering:

```
DIMMER NO. [4]
```
CROSSFADE

The CROSSFADE is a split, dipless, crossfader, with a Fade Progress indicator to indicate the progress of the fade. The split fader permits individual manual control of the fade in and out of each scene, and when used with the FADE TIME control, permits automatic fade time control with manual interrupt at any time desired during the fade. The CROSSFADE provides the operator with smooth, dipless crossfades, lead-lag fades, and scene pile-on fades. Stage blackout can also be performed with the CROSSFADE (both scenes faded completely down).

FADE TIME Control

The FADE TIME control permits manual (MAN) control of the fade under direct control of the CROSSFADE, or at selected fade times of up to 4 minutes in continuously variable increments (5, 10, 15, 30, 45 second, and 2 and 4 minute increments marked on the control). The FADE TIME control allows timed lead-lag and pile-on fades, as well as timed crossfades.

SCENE ONE/SCENE TWO Channel Level Controls

The standard Control Module includes two rows of twelve level controls for setting the lighting levels desired for Presets One and Two. The knobs on the fader handles are color-coded to identify the two different scenes. Transition between the two scenes is under control of the CROSSFADE.

HOLD Buttons

These buttons provide a means to "hold" the levels of a preset scene, so that new levels may be set for two more scenes. Thus, Presets One and Two may be set, "held" with the HOLD buttons, and Presets Three and Four set. The HOLD buttons are self-illuminated when a preset is being "held".

SUBMASTERS

The eight SUBMASTERS are used to add sub-scenes to the stage on a highest-takes precedence basis, and can function as submasters, scene masters, or independents. Each channel and an associated level can be assigned to any one of the SUBMASTERS. The position of the SUBMASTER handle controls the proportion of the channel levels assigned to the submaster that will pile on to the output of the CROSSFADE.

O-TEMP Indicator

This red indicator illuminates if an over-temperature condition occurs in the external dimmer racks.

ASSIGN Button

The ASSIGN button is used when assigning current lighting levels on-stage to a selected submaster. The ASSIGN button is illuminated when in the activated condition. A channel may be assigned to only one submaster.

REAR PANEL

The rear panel (figure 1-2) of the Control Module contains the AC power receptacle for the power cable, a replaceable line fuse, an OVERTEMP connector, DIMMER 1 connector, and a BATTERY ON-OFF switch.
Groups of dimmers can also be assigned to a channel in the same manner. A dimmer group is a series of up to 16 dimmer numbers joined by the $\mathbf{\text{+}}$ (and) or $\mathbf{\text{\#}}$ (through) symbols. When a group of dimmers is assigned, only the last dimmer number will appear in the DIMMER display. This number will flash to indicate that it is the end of a series of dimmer numbers. For example, assign dimmers 1 through 4, 6, 8, and 10 to channel 2:

1. Enter dimmer numbers for this example as follows (as shown at left):
   \[ 1 \mathbf{\text{\#}} 4 \mathbf{\text{+}} 6 \mathbf{\text{+}} 8 \mathbf{\text{+}} 1 \mathbf{\text{0}} \]

2. Depress $\mathbf{\text{\#}}$ key. The ENTER indicator will move to CHANNEL display, indicating that dimmer entries have been made, and the Matrix Patch Module is ready for the channel assignment to be made (as shown at right).

3. Enter channel number $\mathbf{\text{\#}} 2$ for this example (as shown at left).
CHANNEL MODULE

The Channel Module (figure 1-3) adds twelve channels per module to the four-scene preset capacity of the MANTRIX, permitting expansion to a total of 84 channels. Each Channel Module is mounted on a 9-1/2 inch high panel, and is 8 inches wide. Paint and trim match the basic Control Module. The module is connected to the Control Module by a ribbon cable, and does not change the operation of the other components of the MANTRIX except to add twelve additional channels.

MATRIX PATCH MODULE

The Matrix Patch Module (figure 1-4) expands the capability of the MANTRIX beyond a simple one-to-one correspondence between dimmers and channels. The Matrix Patch Module gives the MANTRIX operator the facilities to set and display the dimmer to channel patch assignments and the dimmer type (2.4kW or 6kW) when used with CD80 dimmers.

The Matrix Patch Module keyboard (figure 1-4) is used to enter the dimmer and channel numbers, which are then displayed in the DIMMER and CHANNEL windows. ENTER indicators in each window indicate what information is to be entered (either dimmer or channel), and the 6K indicator indicates when the displayed dimmer is a 6k dimmer type. The operator can make the 6k and 2.4k assignments through the Matrix Patch Module keyboard.

The Matrix Patch Module is mounted on a 9-1/2 inch high panel, and is 4 inches wide. Paint and trim of the module match the Control Module. The module is electrically connected to the Control Module by a ribbon cable, and is controlled by the ON/OFF keyswitch on the Control Module. A DIMMER II connector is located on the rear of the Matrix Patch Module (figure 1-2).
5. Depress the numerical key(s) corresponding to the desired channel number to which the dimmer is to be assigned, and the channel number will show up in the CHANNEL display.

In this example, channel number 2 has been entered (as shown at right).

6. To complete the dimmer-channel assignment, and store the assignment in the MANTRIX, depress the move key. The ENTER indicator moves back to the DIMMER display, indicating that the Patch Module is ready for another dimmer-channel assignment (as shown at left).
Section I
Controls and Displays

Figure 1-3. Channel Module

Figure 1-4. Patch Module

PATCH/LOCKOUT Keyswitch

This switch provides a means of protecting the patch assignment from accidental or unauthorized change. It is placed at PATCH when making patch assignments, and in the LOCKOUT position when no further changes are to be made.

PATCH Keyboard

The patch keyboard is used to enter patch assignments. The keyboard may be used to make initial assignments of dimmers to channels, to change assignments at any time, to preview the patch assignments, and to identify the 6K dimmers.

DIMMER Display

During patch assignment or preview, the number of the dimmer being assigned or the number of the dimmer being previewed is shown in the DIMMER display. If the dimmer assignment includes a group of dimmers (more than one), only the last dimmer number is shown, and this number will flash to remind the operator that more than one dimmer is being assigned to a particular channel. There is room for three digits on the DIMMER display. (MANTRIX maximum dimmer control is 288.)

CHANNEL Display

During patch assignment when dimmers are being assigned to particular channels, the CHANNEL display shows the channel number entered into the Patch Keyboard. There is room for two digits on the CHANNEL display. (MANTRIX channel capacity is a maximum of 84.)
PATCH

The optional Matrix Patch Module is used to patch dimmers to MANTRIX channels in other than a one-to-one correspondence. The Matrix Patch Module is also used to preview patch assignments and to set 6K dimmer assignments. (NOTE: Systems with 6K CD80 type dimmers require a Matrix Patch Module.)

When the MANTRIX is first turned on, the dimmer patch assignments are on a one-to-one assignment basis, with dimmer 1 assigned to channel 1, dimmer 2 assigned to channel 2, etc. If there are 24 channels on the MANTRIX, the first 24 dimmers will be assigned to the 24 channels of the MANTRIX. If there are more dimmers than MANTRIX channels, the extra dimmers will be unassigned.

The keyboard of the Matrix Patch Module is used to assign and/or change dimmer assignments with the following basic command:

<table>
<thead>
<tr>
<th>DIMMER NO.</th>
<th>CHANNEL NO.</th>
</tr>
</thead>
</table>

For example (as shown at right):

1. Position LOCKOUT/PATCH keyswitch to PATCH.

2. Check that ENTER indicator in the DIMMER display is on. If not, depress [C] (clear) key to clear Matrix Patch Module for the next entry.

3. Depress the numerical key(s) corresponding to the desired dimmer number, and the dimmer number will show up on the DIMMER display. In this example, dimmer number 5 has been entered.

4. Depress the [G] key. The ENTER indicator moves to the CHANNEL display, indicating that the MANTRIX is now ready for entry of the channel number to which the dimmer is to be assigned (as shown at left). The number 5 appearing in the CHANNEL display indicates that dimmer 5 is currently assigned to channel 5.
OPERATION

PREPARATION FOR OPERATION

1. Plug the electrical power cable (furnished with the MANTRIX) into the AC POWER connector on the back of the Control Module. Plug the other end of the power cable into a 120-volt 60 Hz power source used exclusively for the MANTRIX control system.

2. Check that dimmer control extension cables between the MANTRIX and dimmer packs/ racks are connected.

3. Check that the BATTERY ON-OFF switch on the back of the Control Module is ON. During system storage, the BATTERY switch should be OFF. In double-tiered consoles, the BATTERY switch on the Cue Sheet Module should be ON and the BATTERY switch on the Control Module should be OFF. During system storage both BATTERY switches should be OFF.

4. Turn the ON/OFF keyswitch on the Control Module (figure 1-1) to ON. The green power-on indicator above the keyswitch will illuminate to indicate that power is turned on. The CROSSFAADER fader progress indicators come on corresponding to the position of the CROSSFAADER handles. If the Matrix Patch Panel is installed, DIMMER and CHANNEL numbers will appear.

5. Set the MASTER control at 10, the BLACKOUT switch to 0, the FADE TIME control to MAN, and all eight of the SUBMASTERS at 0. The MANTRIX is now ready for use.

OPERATION OF MANTRIX – TWO-SCENE PRESET

The transition between presets is controlled by the CROSSFAADER. The channel levels set for Preset One will be on stage when the CROSSFAADER SCENE ONE handle is in the SCENE ONE 10 position; the channel levels for Preset Two will be on stage when the CROSSFAADER SCENE TWO handle is in the SCENE TWO 10 position. When the SCENE ONE control is at SCENE ONE 10 and the SCENE TWO control is at SCENE TWO 0 (both handles brought up together), only the Preset One channel levels will be on stage. When the SCENE TWO control is at SCENE TWO 10 and the SCENE ONE control is at SCENE ONE 0 (both controls brought down together), only the Preset Two channel levels will be on stage.

The 0 through 10 markings on the CROSSFAADER indicate the percentage of the particular fade completed to that point. The LED indicators on the markings illuminate to indicate the position of the fade at any given instant. If the SCENE ONE and SCENE TWO controls are brought up and down together and the FADE TIME control is set to MAN, the indicator will stay with the position of the CROSSFAADER controls. If the SCENE ONE and SCENE TWO controls are operated independently of each other, the positions of each fade control will be shown by the indicators, at reduced intensity.

With the channel levels set for Preset One, moving the CROSSFAADER controls to SCENE ONE will put the level settings of Preset One on stage. Now, setting the next preset channel levels for SCENE TWO can be accomplished without affecting the Preset One levels on stage. When the cue for the next preset is given, moving the CROSSFAADER handles to SCENE TWO will fade down the Preset One level settings, and the Preset Two levels will be brought onto stage in a smooth, dipless crossfade.

While a preset is on stage, the channel level controls for that preset can be adjusted to new levels, and additional channels brought into the active cue.
3. Raise SUBMASTER 2 to 10 as shown below. Since this Submaster controls channels 1, 2, 9, and 10 (to a maximum level of 50%), the Submaster will bring on-stage channels 1, 2, 9, and 10 up to 50%.

If the preset is changed while the submasters are up, the levels on-stage will be a function of the channels assigned to the new preset, and the submaster levels.

To clear a submaster:

1. Set all SUBMASTERS and channels on SCENE ONE and SCENE TWO to 0.
2. Depress ASSIGN button (ASSIGN light will come on).
3. Advance SUBMASTER to be cleared to 10, and press ASSIGN button. ASSIGN light will flash to indicate that selected SUBMASTER has been cleared.
4. Return SUBMASTER to 0.

To clear all submasters simultaneously:

1. Press ASSIGN button, and hold.
2. Turn system power keyswitch OFF, and then return to ON (while still pressing the ASSIGN button). All submasters will have been cleared.
EXAMPLES OF MANTRIX TWO-SCENE PRESET OPERATION

1. Set SCENE TWO (Preset Two) channel levels as shown below.

2. Move CROSSFADER controls to SCENE TWO. The channel levels selected for Preset Two will appear on stage as shown below. Note that the channel levels come up as the CROSSFADER handles are moved.
4. Raise SUBMASTER 2 handle to 10, and then back to 0. Channels 1, 2, 9, and 10 will come up to 50% when SUBMASTER 2 reaches 10, and fade out when the Submaster is returned to 0.

Example: To use the SUBMasters with preset stage levels:
1. Set SCENE ONE as shown below.

2. Raise SUBMASTER 1 to 10. Since this Submaster controls channels 4 through 8 (to a maximum level of 75%), the Submaster is attempting to set the on-stage channels 4 through 8 at 75%. Channel 4 is set at 10% by Preset One, so the Submaster will bring this channel up to 75%. But channels 5, 6, 7, and 8 are already preset by the scene at 85%, so the Submaster will have no effect on these channels.
3. Set SCENE ONE (Preset One) levels as shown below.

4. Fade from Preset Two into Preset One by moving CROSSFADE from SCENE TWO to SCENE ONE. The Preset Two levels will fade into the Preset One levels as shown below.
1. To check out assignments to SUBMASTER 1, raise SUBMASTER 1 handle to 10. Channels 4 through 8 will come up to a 75% level on stage (as shown below).

2. Move SUBMASTER 1 back down to 0. The on-stage levels will drop proportionally from 75% to blackout as the SUBMASTER 1 handle reduces the output to the stage.

3. Raise SUBMASTER 2 handle to 5 (as shown below). Channels 1, 2, 9, and 10 will come up to approximately 25% on stage (half of their preset 50% assigned level).
5. When moving the CROSSFADE controls, note that the fade progress indicator follows the CROSSFADE handle (FADE TIME control at MAN).

SPLIT CROSSFADE

The two handles of the split CROSSFADE permit independent up-fade and down-fade control of the two preset scenes. When moved together as previously described, the preset on-stage will fade down and the next preset will fade up in unison. However, if it is desired to bring in the upcoming preset sooner (lead-fade), start moving the up-coming preset CROSSFADE handle, leaving the on-stage preset CROSSFADE handle at its 10 position. If it is desired to bring the down-coming preset sooner (lag-fade), move the on-stage preset CROSSFADE handle towards 0 while holding the up-coming preset CROSSFADE handle at its 10 position.

When lead-fade and lag-fade operations are performed, the fade progress indicators will show the position of both handles of the CROSSFADE, but at half-intensity until the two are again aligned.

PILE ON OR BLACK OUT WITH CROSSFADE

The CROSSFADE may be used to pile Preset One on to Preset Two or to black out the stage.

1. To pile Preset Two on to Preset One, move SCENE TWO control down to 10 as shown below.

2. To blackout the stage with the CROSSFADE, move the SCENE ONE control down to 0, and move the SCENE TWO control up to 0. Since both scenes are faded out by this action, the stage will black out as shown.
4. After a submaster assignment has been made, press the ASSIGN button again to reactivate the submaster for the next assignment operation. For example, to assign channels 1, 2, 9, and 10 to SUBMASTER 2 at a 50% level, raise SUBMASTER 2 to 10, and set SCENE ONE channel levels as desired (shown below). Then, press ASSIGN button. The ASSIGN light will blink a few times, and then go off, indicating that the assignment to SUBMASTER 2 has been completed. Finally, lower SUBMASTER 2 to 0. Channels 1, 2, 9, and 10 have been assigned to SUBMASTER 2, and any time the SUBMASTER 2 handle is moved up, channels 1, 2, 9, and 10 will come up on stage, to a maximum level of 50%.

The Submaster assignments can continue until channels are assigned to each of the eight Submasters if desired, noting that if a channel already assigned to a Submaster is assigned to a new submaster, the channel will be deleted from the Submaster to which it was previously assigned. For example, if channel 6 were to be assigned to SUBMASTER 3 after the above examples, channel 6 would be removed from control to SUBMASTER 1, and reassigned to SUBMASTER 3. For this reason, a log should be made of Submaster assignments to keep a record of what channels (and levels) have been assigned to each Submaster.

Example: To check out Submaster assignments, return all channel level controls on SCENE ONE to 0, and use the SUBMASTER handles to bring up the assigned channels.
TIMED CROSSFADES

The FADE TIME control (figure 1-1) provides a means for making very smooth timed fades, and is especially useful for very long fades which are very difficult to produce manually.

The control has a MAN (manual fade) position and eight marked time positions, running from 5 seconds (5) to 4 minutes (4M). The time positions are not indexed or notched so that times between the marked positions may be selected. The time may be changed during a fade increased or decreased. If the control is moved to MAN during a timed fade, the fade will complete instantaneously.

The timed fade starts from the instant that the CROSSFADE is moved off of the 0 position towards 10, and proceeds at the fade time selected.

For example, set a 10-second crossfade from Preset One to Preset Two:

1. Set the FADE TIME control to 10 (ten seconds).
2. Initiate the fade by moving the CROSSFADE controls to SCENE TWO as shown below.
3. Press ASSIGN button (above SUBMASTER controls). The ASSIGN light will come on, indicating that the MANTRIX is ready for a Submaster assignment. For example, to assign channels 4 through 8 to SUBMASTER 1, at a 75% level, raise SUBMASTER 1 handle to 10 and set SCENE ONE channel levels as desired (as shown below). Then, press ASSIGN.
The Fade Progress indicator will start moving after about one second, and in approximately five seconds will reach the half-way position on the CROSSFAADER as shown below.

In ten seconds the fade will be complete as shown below.
c. Move CROSSFADER to SCENE TWO. Preset Four will now appear on stage (as shown below).

The HOLD function can be cancelled by pressing the illuminated HOLD button. However, this should not be done while a hold cue is live on-stage as the lighting levels will cut to the preset levels appearing on the Control and Channel Modules.

SUBMASTERS

The eight SUBMASTERS provide a means for adding up to eight preset groups of channels to the stage lighting, under quickly accessible manual control. The Submasters can be used as conventional submasters, scene masters, or independent controls.

Any number of channels can be assigned to a Submaster; however, any one channel can be assigned to only one Submaster at a time. If a channel is assigned to a Submaster, and then later assigned to another Submaster, it will be deleted from the first Submaster.

Typically, a group of channels will be set to selected levels and assigned to one of the Submasters. Then, those channels may be brought onto stage at any time by raising the Submaster. At position 10, the channels assigned to the Submaster will be at 100% of their assigned levels. At position 0, the channels will be at 0%.

If a Preset is on stage that uses any or all of the channels assigned to the Submaster, the level on stage will be the higher of either the Preset level or the Submaster level.

Channels and levels are assigned to submasters as follows:

1. Set all SUBMASTERS and channels on SCENE ONE and SCENE TWO at 0.

2. Move CROSSFADER to either SCENE ONE or SCENE TWO, depending upon where it is desired to set the submaster channel levels (SCENE ONE shown in the following example).
Whenever a timed fade coincides with the position of a CROSSFAADER handle (Fade Progress indicator reaches the handle position), the fade on that crossfader will stop until the crossfader is again moved. If the crossfader is moved towards the beginning position of the fade, the fade will follow the CROSSFAADER. When the crossfader is again moved towards the ending position for that fade, the fade will resume at the timed rate selected on the FADE TIME control.

MANUAL TAKEOVER OF TIMED FADES

A timed fade may be stopped and taken back under manual control at any time during the fade. This is accomplished by moving the CROSSFAADER handles to the position of the Fade Progress indicator, stopping the fade, and then setting the FADE TIME control to MAN. The fade is then completed manually with the CROSSFAADER.

NOTE: Moving the FADE TIME control to MAN during an active timed fade will not stop the fade, but will instantaneously complete the fade. The CROSSFAADER handles must be used to stop the fade before transferring to manual control to make a smooth transition.

In the following example, a timed fade is established, and then interrupted to complete the fade manually:

1. Set FADE TIME control to 30 (30 seconds).
2. Move CROSSFAADER handles to SCENE ONE to initiate fade. The crossfade will start. After approximately 12 seconds, the Fade Progress indicator will have moved to the position shown below.
5. To play back the four scenes in rapid progression:

a. Move CROSSFAADER to SCENE TWO. Preset Two held by the SCENE TWO HOLD button will appear on stage. The HOLD button on SCENE ONE will go out, indicating that Preset One has been played, and that Preset Three as now set on the SCENE ONE Control Module is ready.

b. Move CROSSFAADER to SCENE ONE. Preset Three held in the SCENE ONE position will appear on stage. The HOLD button on SCENE TWO will go out, indicating that Preset Two has been played, and that Preset Four as now set on the SCENE TWO Control Module is ready.
3. Move the CROSSFADER handles to the same point as the Fade Progress indicator, stopping the fade as shown below.

4. Move FADE TIME control to MAN.
5. Return CROSSFADER to SCENE ONE manually as shown below.
1. Press SCENE ONE HOLD button. The SCENE ONE HOLD button light will illuminate. Preset One (on SCENE ONE) is held on-stage.

2. Set Preset Three (on SCENE ONE) as shown.

3. Press SCENE TWO HOLD button. Preset Two (on SCENE TWO) is held in the MANTRIX.

4. Set Preset Four (on SCENE TWO) as shown.
A timed fade may be stopped, and then continued as a timed fade by bringing the CROSSFADER handles back to the Fade Progress indicator, stopping the fade, and then resuming the timed fade by simply advancing the CROSSFADER back to the upcoming preset. When this feature is used, either the up-fade or down-fade, or both together, may be stopped, and then continued as a timed fade if desired.

MASTER AND BLACKOUT SWITCH

The MASTER control is a proportional grand master over all stage lighting levels. It can be used to trim the overall lighting on stage, to fade up the first scene in a sequence after a blackout, or to fade the last scene to a blackout.

The BLACKOUT switch is an on-off control of the stage levels, and can be used for quick blackouts, and to cut in the first scene in a sequence quickly.

To use the MASTER control, move towards 0 to lower the on-stage levels, and move towards 10 to bring up the on-stage levels. The 0 through 10 settings are proportional settings, indicating the percentage of the channel level settings on the Control and Channel Modules reaching the stage. When the MASTER control is not being used, it should be left in the 10 position.

Example: Fade the stage settings in Preset One (scene on-stage) to approximately 70% of their on-stage levels:

1. Move MASTER to 7 as shown below.
BLACKOUT

The BLACKOUT switch is set to ○ for normal operation, and to ● to blackout the stage.

Example: Blackout Preset One

1. Set BLACKOUT switch to ●.
   All outputs to the stage drop to zero.

2. Change Preset One level settings on SCENE ONE Control Module to 100% (from 80%). The level settings on stage (blackout) will not change.

3. Position BLACKOUT switch to ○.
   Channels 6 through 10 will come up on stage at the new (100%) level settings. Fade time will be zero.

HOLD FUNCTION

The Hold Function permits up to four presets to be set into the MANTRIX, permitting fast lighting changes where there is insufficient time between fades to set the next preset. There are two HOLD buttons: one for the SCENE ONE Control Module, and one for the SCENE TWO Control Module. Depressing either HOLD button holds the preset levels as set, and permits presetting new levels without loss of the levels in HOLD. The HOLD buttons illuminate when holding a preset.

Example: A series of three quick preset changes are required. The preset on-stage is currently SCENE ONE (as shown below).
Example: Blackout stage with MASTER Control.

1. Move MASTER control to 0 as shown below.
   All levels on stage will fade to zero.

2. Change channel level settings on Preset One from 100% to 80%. The level settings on-stage will not change.

3. Move MASTER control to 10 to fade in the new scene as shown here.