



MC 7516 / 7524 / 7532

MEMORY LIGHTING CONTROLLER

Software Revision 1.10 and above

OPERATION MANUAL

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Document Revised:8/13/98

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NSI CORPORATION

Tualatin, OR

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1

Introduction

Welcome

You are entering a new era of microprocessor controlled stage lighting technology. The powerful NSI Micro-Plex designs involve the electrical marriage of microprocessor technology and digitally controlled multiplexing. The result is a control package with the flexibility for a variety of innovative applications.

The NSI MC 7500 Series Lighting Console features an advanced microprocessor based design containing many benefits found in today's personal computers. This technology provides for the option of adding programmable Memory Scene Masters and Chase effects to the simplicity of a familiar two scene console.

The NSI MC 7500 Series Lighting Console represents our continuing commitment of leading the industry in defining technological advances for stage lighting.

Welcome to the era of microprocessor controlled stage lighting!

2 Installation\Setup

Power Supply Requirements

The MC 75 SERIES requires a source of 120 / 240 volts AC (1 amp) in order to operate satisfactorily.

Power Supply Voltage Selection: The console contains a power supply designed to operate on AC power at a nominal voltage of 120V OR 240V, 50/60Hz. The voltage selected is indicated in the window on the console inlet connector on the back of the console. To change that selection (1) remove the power supply cable, (2) insert a screwdriver in the slot exposed by removing the cable and pry out the fuse block, (3) slide the printed-circuit board out of the fuse block and reverse it, and (4) re-insert the fuse block with its arrow pointing up. CAUTION!!! Verify that the nominal input voltage selection as indicated in the window on the console inlet is compatible with the nominal voltage of the available power.

Power Supply Connection: The console is shipped set for operation at 120V and with a power supply cord containing a North American NEMA 5-15P plug (Edison, parallel-blade, U-ground type). In other countries with different connector systems and/or operating voltages, the user must obtain and use a H05VV-F or better grade power cord with plug rated for at least 0.8A and at least the nominal operating voltage of that country. The mating connector to the console is a female IEC 320, Sheet C13 connector rated 10A, 250V.

Dimmer Equipment Connection

The MC 75 Series consoles come standard from the factory with two types of dimmer output connections; Microplex (3 pin XLR connectors) and Isolated DMX 512 (5 pin XLR connector). Optional dimmer outputs include 0-10V Analog (37 pin connector) or AMX-192 (4 pin connector).

Microplex

Connecting the MC 75 SERIES to NSI dimming systems is very simple. You need only connect a single 3 conductor audio cable (standard microphone cable with 3-pin XLR connectors) or equivalent shielded cable to the Micro-plex output jack on the back of the console. The other end of the cable is then connected to the first NSI dimmer pack. Another 3 conductor cable is used to connect the first dimmer pack to the second dimmer pack. Additional NSI dimmer packs may be connected in the same manner.

NOTE. Minimum 20ga. high quality shield cable is highly recommended in the run between the console and the dimmers to prevent interference and dimmer flickering from noise. This heavy duty cable is required in runs over 100ft.

DMX 512

DMX 512 is a digital signal that provides highest speed, precision, and noise immunity. Rules for connecting DMX 512 are more stringent:

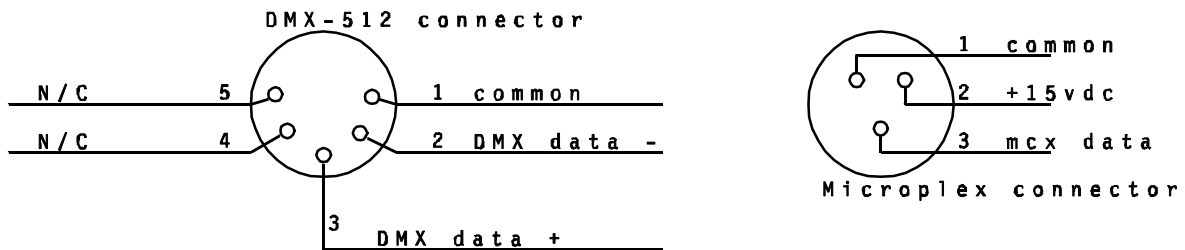


Fig. 1 Dimmer Output Connectors

- Use cable that is specified as RS-485 or RS-422 compatible (1 or 2 twisted pair w/ shield) and use largest gauge available (22 - 18 gauge is good for long runs of 1000ft).
- Daisy chain the cable only (no star or home runs) and terminate the end of the cable with a 120 ohm resistor. (See dimmer manual for proper terminating practice).

- The DMX 512 output of the 75 Series console is OPTICALLY ISOLATED to prevent ground loops. **Make sure that the shell of the 5 pin connector is NOT connected to pin 1 else the isolation will be of no help.**

Connect the cable from the dimmers to the marked connector on the rear of the console.

Configuration

The first time the MC 75 SERIES is used, the configuration parameters may need to be set, otherwise the unit may appear to be operating improperly. Please see reference part of manual on CONSOLE SETUP.

3 Overview

Front Panel MC 7516

1. *Channel Levels* These 16 led's show the current intensity of the first 16 console control channels. "Wide mode" (snl scn) control channels are not displayed on these leds.
2. *Scene A* These 16 slide controls are used to control the intensities of channels 1 - 16. The overall intensity of the scene created is controlled with the A Crossfader.
3. *Scene B* These 16 slide controls are used to control the intensities of channels 1 - 16, channels 17 - 32, or submasters (memory scenes of a page of memory) 1 - 16 depending upon the consoles current operating mode. The overall intensity of the scene created is controlled with the B Crossfader. Chases may also be programmed into submasters.

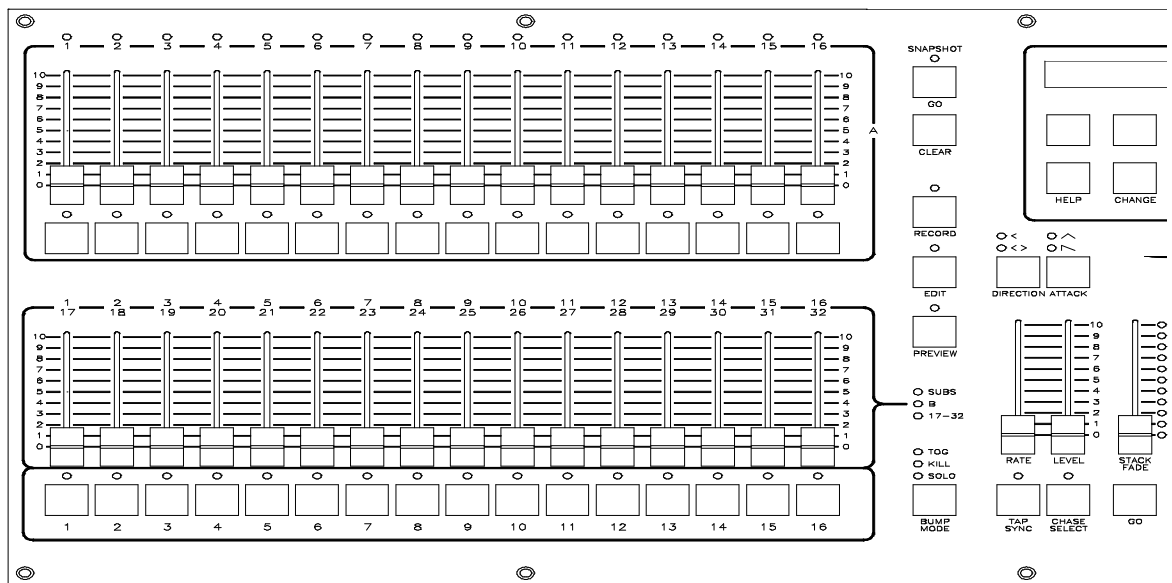


Fig. 2 Preset Section MC 7516

4. *Bump Buttons* These 16 buttons are used to bring an individual channel to the maximum intensity set by the Bump Master control.
5. *Scene select leds* These leds are used to indicate when a Scene Bump button is active (green), or when a scene is being previewed (red). Also, when a scene is active and the page is changed, the respective led will flash orange indicating that the new scene from the new page will be loaded when the control is brought to minimum.
6. *Scene Bump Buttons* These 16 buttons control the memory scene on the current page of memory. These buttons can bring the scene to full intensity (normal bump mode), toggle the scene off and on (toggle mode), allow only one button to toggle at a time (kill mode), or solo the scene by turning all other console output off (solo mode). Fade will work with all modes except normal bump mode.
7. *Mode leds* These leds indicate whether the Scene B Sliders are in the Submaster, 1-16 (Scene B mode), or 17-32 (wide mode). The operating mode is changed by the SETUP and MODE function buttons under the LCD display. The current mode is indicated by the lit LED.
8. *Submaster Bump Mode* This button and its leds controls the function of the Submaster Bump buttons. Pressing this buttons cycles through the 4 operating modes: Toggle, Kill, Solo, and Normal Bump. The leds indicate the current selection. When the leds are off, the Normal Bump mode is selected.

Front Panel MC 7524

1. *Channel Levels* These 24 led's show the current intensity of the first 24 console control channels. "Wide mode" (sngl scn) control channels are not displayed on these leds.
2. *Scene A* These 24 slide controls are used to control the intensities of channels 1 - 24. The overall intensity of the scene created is controlled with the A Crossfader.
3. *Scene B* These 24 slide controls are used to control the intensities of channels 1 - 24, channels 25 - 48, or submasters (memory scenes of a page of memory) 1 - 24 depending upon the consoles current operating mode. The overall intensity of the scene created is controlled with the B Crossfader. Chases may also be programmed into submasters.
4. *Bump Buttons* These 24 buttons are used to bring an individual channel to the maximum intensity set by the Bump Master control.

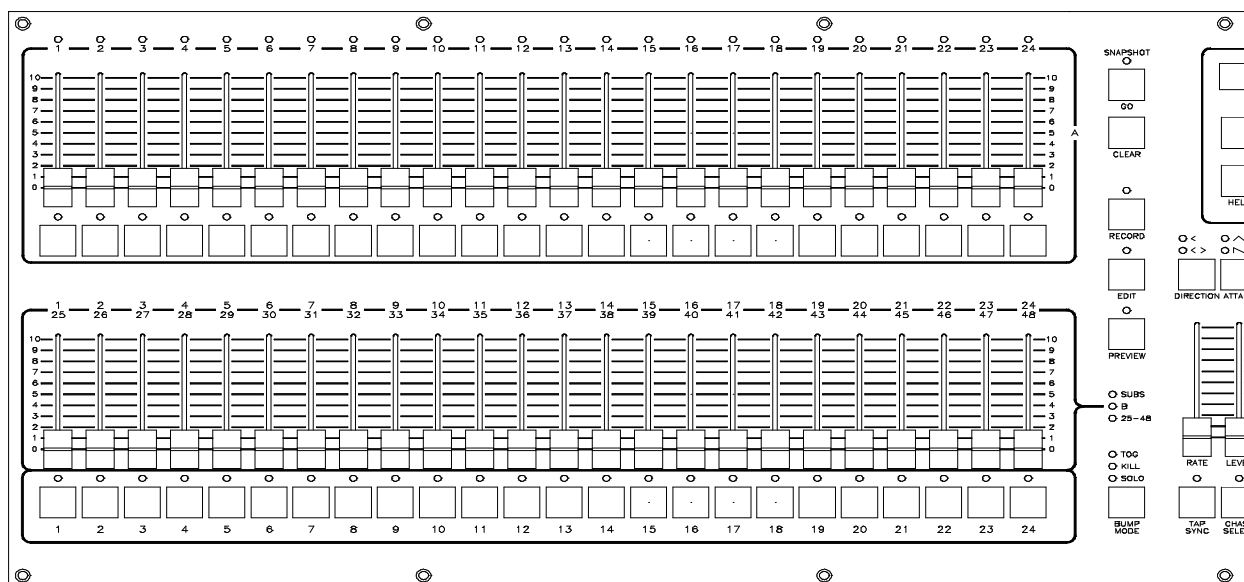


Fig. 3 Preset Section MC 7524

5. *Scene select leds* These leds are used to indicate when a Scene Bump button is active (green), or when a scene is being previewed (red). Also, when a scene is active and the page is changed, the respective led will flash orange indicating that the new scene from the new page will be loaded when the control is brought to minimum.
6. *Scene Bump Buttons* These 24 buttons control the memory scene on the current page of memory. These buttons can bring the scene to full intensity (normal bump mode), toggle the scene off and on (toggle mode), allow only one button to toggle at a time (kill mode), or solo the scene by turning all other console output off (solo mode). Fade will work with all modes except normal bump mode.
7. *Mode leds* These leds indicate whether the Scene B Sliders are in the Submaster, 1-24 (Scene B mode), or 25-48 (wide mode). The operating mode is changed by the MORE and MODE function buttons under the LCD display. The current mode is indicated by the lit LED.
8. *Submaster Bump Mode* This button and its leds controls the function of the Submaster Bump buttons. Pressing this buttons cycles through the 4 operating modes: Toggle, Kill, Solo, and Normal Bump. The leds indicate the current selection. When the leds are off, the Normal Bump mode is selected.

Front Panel MC 7532

1. *Channel Levels* These 24 led's show the current intensity of the first 24 console control channels. "Wide mode" (sngl scn) control channels are not displayed on these leds.
2. *Scene A* These 32 slide controls are used to control the intensities of channels 1 - 32. The overall intensity of the scene created is controlled with the A Crossfader.
3. *Scene B* These 32 slide controls are used to control the intensities of channels 1 - 32, channels 33 - 64, or submasters (memory scenes of a page of memory) 1 - 32 depending upon the consoles current operating mode. The overall intensity of the scene created is controlled with the B Crossfader. Chases may also be programmed into submasters.
4. *Bump Buttons* These 32 buttons are used to bring an individual channel to the maximum intensity as set by the Bump Master control.

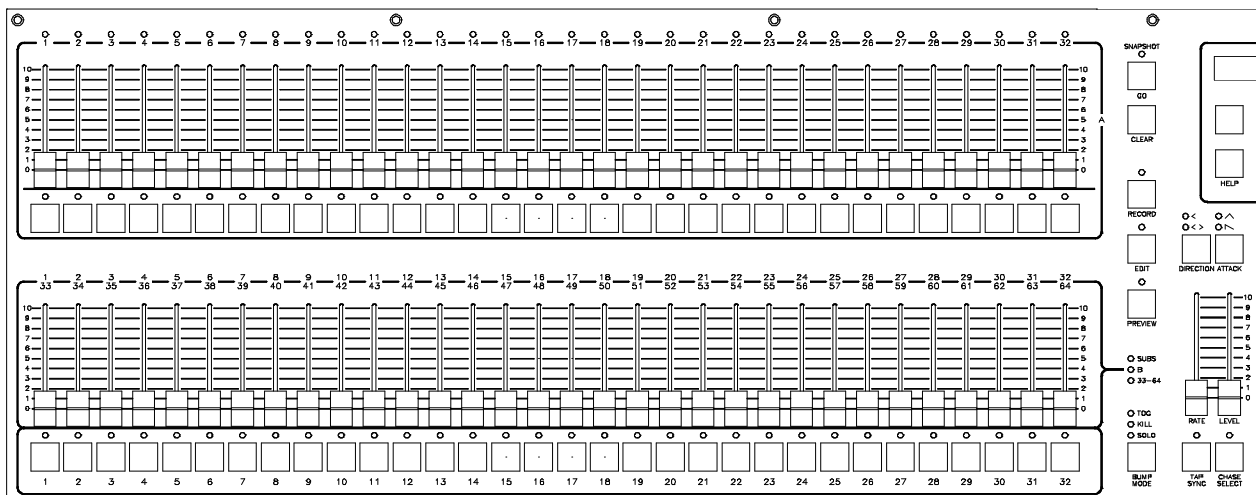


Fig. 4 Preset Section MC 7532

5. *Scene select leds* These leds are used to indicate when a Scene Bump button is active (green), or when a scene is being previewed (red). Also, when a scene is active and the page is changed, the respective led will flash orange indicating that the new scene from the new page will be loaded when the control is brought to minimum.
6. *Scene Bump Buttons* These 32 buttons control the memory scene on the current page of memory. These buttons can bring the scene to full intensity (normal bump mode), toggle the scene off and on (toggle mode), allow only one button to toggle at a time (kill mode), or solo the scene by turning all other console output off (solo mode). Fade will work with all modes except normal bump mode.
7. *Mode leds* These leds indicate whether the Scene B Sliders are in the Submaster, 1-32 (Scene B mode), or 32-64 (wide mode). The operating mode is changed by the MORE and MODE function buttons under the LCD display. The current mode is indicated by the lit LED.
8. *Submaster Bump Mode* This button and its leds controls the function of the Submaster Bump buttons. Pressing this buttons cycles through the 4 operating modes: Toggle, Kill, Solo, and Normal Bump. The leds indicate the current selection. When the leds are off, the Normal Bump mode is selected.

Front Panel Master Section

9. *Record Button* This button is used to initiate recording of the submasters (memory scenes), Chases, and the Cue Stacks. Programming is active when the Program LED is lit. (See section on Programming and Recording).
10. *Edit Button* This button is used to initiate editing of the submasters (memory scenes), Chases, and the Cue Stacks. Editing is active when the Edit LED is lit. (See section on Programming and Recording).
11. *Preview* This button is used to select a memory scene on the current page to preview on the console LED's and LCD display. The Submaster Bump buttons are used to select the scene.
12. *Direction* This button and its respective leds controls the direction of the current chase selected (**has no effect on submaster chases or cue stack chases**).

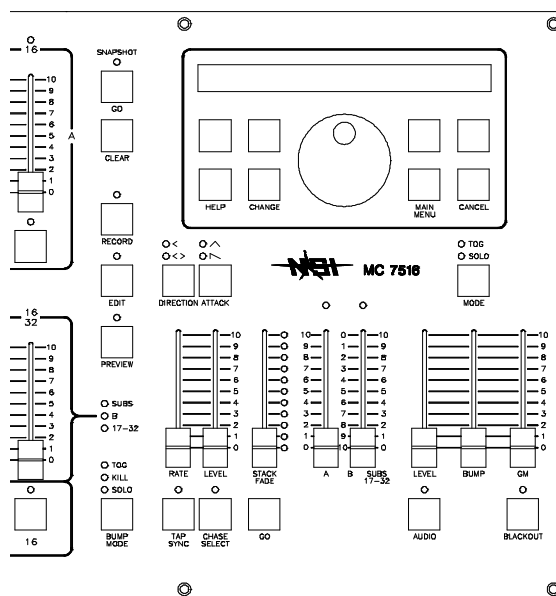


Fig.5 7500 Master Section

13. *Attack* This button and its respective leds controls the chase fading between each step. The leds indicate the attack mode selected. A normal instant-on instant-off mode is selected when both leds are off
14. *Tap Sync* Repeatedly tapping this button establishes the chase rate.
15. *Chase Rate Slider* This control selects the chase rate for the entire console.
16. *Chase Select* This button selects one of the possible chases to be active. The Submaster bump buttons are used to select the chase number.
17. *Chase Level Slider* This control sets the master level of only the selected chase. Submaster or stack chases are not affected
18. *Stack Go Button* This button causes the next cue in the stack sequence to execute when a stack is loaded (see section on Cue Stacks).
19. *Stack Crossfader* Used to manually crossfade the next scene in the Cue stack. When the control reaches it's full up or down position, the next scene is loaded.

20. *A Crossfader* This slide control is used to proportionally vary the intensity of all of the Scene A sliders. When the control is at the top of it's travel, the intensity is at maximum. The led above the control reflects the relative setting of the control.
21. *B Crossfader* This slide control is used to proportionally vary the intensity of all of the Scene B sliders. The direction of travel for this slider is affected by the operating mode.
- In the Two Scene mode (B), when the control is at the bottom of it's travel, the intensity is at maximum. This provides split, dipless crossfading.
- In the Submaster (SUBS) and Wide Mode (SNGL SCN or addition channels), when the control is the top of it's travel, it is at maximum.
- The led above the control reflects the relative setting of the control.
22. *Audio button* This button toggles the audio mode on and off. When the led above the button is lit, the audio mode is active.
23. *Bump master* This slider controls the intensity of the channel bump buttons always and the submaster bump buttons when they are in the normal bump mode only.
24. *Channel Bump mode.* This button and the respective led's control the operating mode of the Channel Bump buttons. Normally the bump buttons cause the respective channel to go to full intensity while pressed. In the Toggle mode, the bump buttons toggle on and off. In the Solo mode, the bump buttons will kill all other console output except for the bump buttons that are pressed. The leds above the button indicated the channel bump mode. The normal mode is indicated when both leds are out.
25. *Blackout* This button is used to kill all output to stage except from the Bump buttons. The console is in Blackout whenever the Blackout Led is lit red. Blackout is off whenever the Blackout Led is green.
26. *Grand Master (GM)* This slide control is used to proportionally vary the overall console intensities to stage except those from the Bump buttons. Whenever the Grand Master is not at full, the Blackout led will flash.
27. *Worklight Connector* This connector supplies 12 VAC at 1A to operate standard gooseneck work lights. Since the light is powered by the same supply that provides power to the isolated DMX-512 circuit, **the metal portion of the gooseneck and lamp should not be allowed to touch the chassis ground** or other metal objects to prevent DMX-512 interference. The lamp power is protected by a special internal fuse that will interrupt power to the lamp while retaining isolated DMX-512 power in case of a lamp short.

Front Panel LCD Section

28. LCD Function Buttons

These four buttons are located directly under the LCD display. Functions of these buttons change with the LCD display. The current function of each button is displayed directly above the button on the display.

29. Help Button

This button activates the help system. To display help on any other button, tap the help button, followed by tapping any other button desired. The LCD will display a short message describing the function. To exit help, tap the help button or any other button again.

30. Change Button

This button is used to cause the encoder wheel to effect a change on most parameters displayed in the center of the LCD. To change a parameter, hold the Change button down while rotating the encoder wheel. Note that changing the fade rate does not require that the Change button be held down whenever fade rate is displayed.

31. Main Menu Button

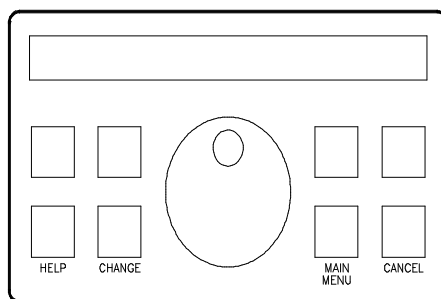
This button forces any changes to LCD parameter to be save and returns the LCD display to the main menu display (fade rate is displayed).

32. Cancel Button

This button cancels selected functions and parameter changes in some cases.

33. Encoder Wheel

This rotary knob is used for changing fade rate and other data entry. Rotating the wheel slowly cause fine, incremental changes. While rotating quickly cause the rate of change to be significantly increased for coarse changes.



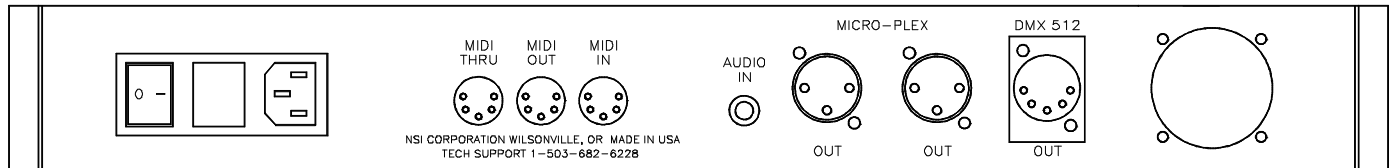
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Fig. 6 Front Panel LCD Section

Rear Panel all models

- 1. Power Inlet block** This provides for connection of a power cord that is appropriate for the country that the console is used in, voltage selection, fuse access, and power switch.

It is important that the voltage selector is set for the correct voltage.
Fuses should only be replaced with ones of same type and rating.
- 1. Micro-Plex Outputs** These 2 outputs provide NSI's microphone dimmer connection via a 3 pin XLR type connector.
- 2. DMX-512** This optically isolated output is used to provide dimmer control information to dimmers using this protocol. Its 5 pin XLR connector conforms to the USITT standard. To maintain optical isolation, it is important that the metal shell of the connector that is used NOT be connected to any cable wiring.
- 3. MIDI IN/OUT/THRU** These connectors are for connecting to a MIDI sequencer or disk drive.
- 4. Audio input** This phono jack will accept audio signals for controlling some console functions.
- 5. Analog Output Option** 37 pin connector install here for the analog output option. (See Dealer for details).



4

Operation Guide

General

The MC 7500 Series Lighting Console has the basic features of two manual scenes mastered by two split/dipless crossfaders, individual channel bump buttons, programmable chase effects, a master control and a blackout button. Several record / edit features are provided as well as a menu driven LCD and help system. The console is designed to allow tailoring to your needs. Three modes of operation vary the function of the second scene (B) to memory scene submasters, a second scene, or an expanded channel scene (Wide Mode).

To give the user channel intensity feedback, channel intensity LED's are provided above the Scene A slide controls. These LED's show the relative intensities from all console functions and are not affected by the Master control or the Blackout button. These LED's do not represent expanded channels.

Operation Modes

The MC 7500 Series Lighting Console has three operating modes; the Submaster mode (Subs), the two scene mode (B), and the "wide" mode (additional channels). These modes are selected with the LCD function buttons.

To change mode select the "Setup" function button under the LCD display, followed by pressing the mode function button that appeared until the desired mode is selected. The current mode is also indicated by the lit LED.

EXAMPLE: Set Operating Mode to Submaster Mode

→ *Make sure LCD is at Main Menu by pressing MAIN MENU.*

→ *Press button under the word "Setup" on the LCD display.*

→ *Press button under the word "Mode" until the word "Subs" appears.*

→ *Press the MAIN MENU button to save setting and return to main menu..*

In standard two scene mode (**Scn B**) the Scene B sliders control the individual channel levels and the B Crossfader controls the overall intensity or mix of all of scene B. The B Crossfader operates inversely in the mode in order to provide split, dipless crossfading from scene A to scene B. Note that a separate scale is provided for the B crossfader indicating that 10 (max level) is at the bottom of the control.

In Submaster Mode (**Subs**) the Scene B sliders control respective memory scenes on each page of memory. There can be as many memory scenes on each page as there are sliders on scene B. The B Crossfader becomes the master level by controlling the overall intensity of the submasters providing maximum intensity at the top of the slider. Note that a separate scale is provided for the B crossfader indicating that 10 (max level) is at the top of the control.

In Wide Mode (expanded channels or **sngl scn**) the Scene B Sliders control these additional channels; MC 7516: ch. 17-32, MC 7524: ch. 25-48, MC 7532: ch. 33-64. The B Crossfader becomes a master for these additional channels with maximum level at the top of the slider movement. **The following conditions apply to wide mode operation:**

- Normally, only the primary channels will be recorded into memory or chase, unless the memory is configured for the additional channels thus reducing the number of pages in half. The submaster bump buttons will always reflect the memory configuration in all modes.
- Channel Level Leds indicate only the primary channels. Although the LCD will display levels and edits of memory scenes if memory is configured for the extra channels.

- After recording in wide mode, the Operating Mode may be set to submaster mode and the submasters will contain the additional channels in memory only if memory was configured for the additional channels. Recording and editing must be done in wide mode to effect changes to the additional channels.

Using Chase

There are two ways to activate a chase; using the chaser section or by programming into submasters.

Running

The chaser section will run any chase by pressing the CHASE SELECT button followed by selecting a chase number using the Submaster Bump buttons. Each Submaster Bump button corresponds to a chase number.

Once selected, the chase will immediately begin with the first step, at the chase rate represented by the current setting of the Chase Rate control. The Chase Level slide control must be up for the chase to be active. **The chase will fade in at the selected master fade rate as indicated on the LCD's main menu.**

Only one chase can run in the chaser section at one time. When a new chase is selected, the previous one will cancel and fade out at the set fade rate.

EXAMPLE: Select Chase number one. (Chase #1 must be already recorded)

- Chase level to maximum
- Chase rate to midway
- Rotate encoder until fade rate = 0:00.0
- Press Chase Select Button
- Press Submaster 1 Bump Button
- Chase 1 is running. (IF not see recording chases)

Modifying

Chases running in the chaser may be modified in that the direction and attack may be changed by pressing the DIRECTION and ATTACK buttons. Chase rate may be set by using the Chase Rate slide control or by tapping the TAP SYNC button at the desired rate.

EXAMPLE: Modify Chase number one. (Chase #1 must be running as above ex.)

- Press Direction Button to change direction.
- Press Attack button to change attack
- Move Chase Rate or Press Tap Sync to change rate.

Cancelling

To cancel the chase running in the chaser, press the CHASE SELECT followed by pressing the BLACKOUT BUTTON. This will cause the chase to fade out and will not change the state of the blackout mode.

EXAMPLE: Cancel Chase number one. (Chase #1 must be running as above ex.)

- Press Chase Select Button

→ Press Blackout Button

Recording into submasters

Chases may be recorded into submasters allowing multiple chases to run at the same time by raising the appropriate submasters or activating the Submaster bump button. Chases running in submasters use the same chase rate as the chaser section and the Chase Rate slide control and TAP SYNC button have the same affect. To record a chase into a submaster see the section on “**Editing Submasters**”.

Using Cue Stack

The cue stack feature allows combinations of scenes and chases already stored in memory to be arranged as steps in a stack.

Display

The LCD displays the stack information as follows:

Current STACK:STEP < Next STACK:STEP

An asterisks in the STEP field indicates that the selected stack is empty (ie. 12:* where there are no steps programmed for this stack). An asterisks alone without a STACK:STEP field indicates that the stack has been cleared (ie. 1:8<* where the next step is a cleared stack).

Selecting Stack

The stack may be selected as a stack number from 1 to 16 by pressing the “Stack” function key of the LCD display. Pressing the key will increment the stack number. Holding the key and turning the encoder will change the number up and down.

Selecting Step

The stack always executes steps in numerical order from the first or selected step, starting over when the last step is reached. Any step may be directly accessed by using the “Step” function button of the LCD’s main menu. Pressing the key will increment the step number while holding the key and turning the encoder will change the number up and down.

Executing

Pressing the STACK FADE GO button will cause the current step to fade out and the next step to fade in at the preprogrammed fade rate.

Manual fading

Steps may be executed manually by moving the Stack Fade crossfader control up and down. Each time the control reaches the end of movement, the step will be advanced.

Clearing

The STACK function button indicated on the LCD will change to the CLEAR function button, once a stack has been executed using the GO Button or the Stack Fade crossfader. Pressing this button will cause the next step to become a cleared stack, and pressing the GO button or moving the Stack Fade crossfader will cause a fadeout of the stack. Further pressing of this button will cause a new stack to be selected.

EXAMPLE: Select and execute stack 1 (assuming stack one 1 been recorded)

→ Press Stack Function button until 1:1 is displayed as next stack (see above)

→ Press Stack Fade GO Button (current now 1:1, next now 1:2)

→ Press Stack Fade GO Button (current now 1:2, next now 1:4)

→ Press Stack Fade GO Button (current now 1:3, next now 1:4)

→ etc.

EXAMPLE: Clear Stack 1 (assuming stack 1 set as above ex.)

→ *Press Clear Function button (next stack shows *)*

→ *Press Stack Fade GO Button (stack shows *<*)*

Substitute moving the Stack Fade Crossfader instead of pressing the Stack Fade GO Button in the above examples.

Snapshot

This feature allows a “snapshot” to be taken of the Scene A slide controls and sent to stage, fading at the master fade rate.

Go Each press of the SNAPSHOT GO button will cause a new “snapshot” to fade to stage.

Clear Pressing the SNAPSHOT CLEAR button causes the snapshot scene to fade out.

Wide Mode In the “Wide mode” (sngl scn) Scene B slide controls will represent the additional channels and will be set to stage as one complete snapshot with scene A.

EXAMPLE: Take snapshot of scene A twice then clear it.

→ *Rotate encoder until fade rate = 0:02.0 (to show fading)*

→ *Set Scene A Preset sliders to various levels*

→ *Tap Snapshot Go button and note channels fading on channel level leds*

→ *Set Scene A Preset sliders to different levels*

→ *Tap Snapshot Go button and note channels fading on channel level leds*

→ *Tap Snapshot Clear button and note channels fading out.*

Grand Master

The Grand Master (GM) slide control provides proportional level control over all console functions to stage with the exception of the Bump buttons.

For example, whenever the Master slide control is at minimum all stage outputs will be at zero except for any resulting from a Bump button press. If the Master is at 50% all stage outputs will be at only 50% of their current console settings except for any resulting from a Bump button. If the Master is at full all stage outputs will be at 100% of the console settings.

Whenever the Grand Master is not at maximum, the led below it will flash.

Blackout

The Blackout button is used to disable all outputs to stage with the exception of those resulting from a Bump button. This provides for quick dousing of stage levels or for creating solo effects when used in conjunction with the Bump buttons. Blackout is active whenever the Blackout led is lit RED

5 Programming and Recording

General

To initiate programming, first tap the Record button. This will light the Record LED indicating that the program mode is active. Then tap the function button to be programmed. All programming is stored in non-volatile memory which retains information for at least 10 years, even when power is removed.

Memory Pages

Depending on how the memory is configured, there are 8 or 16 pages of memory. A “page” consists of lighting levels for all available submasters. The number of pages depends on whether or not the memory is setup to record normal channels or wide mode channels.

Pages are changed by pressing the LCD function key marked “Page” on the LCD main menu to advance the page or by pressing and holding this key while rotating the encoder wheel to change page number up or down. If the page is changed while a submaster is above minimum or a Submaster Bump button is active, the scene from the previous page will remain and the Submaster Bump Led will flash amber. The new scene from the new page will load and the led will stop flashing when the submaster is reduced to minimum or the bump button is deactivated.

Recording Submasters (memory scenes)

Submasters and Submaster Bump buttons provide access to memory scenes. Recording lighting levels from stage into Submasters is easy. Tap the RECORD button followed by pressing the bump button of the Submaster to record. A memory of what was on stage (minus any levels from chases) will now be stored in that submaster on the current page.

EXAMPLE: Program the Submaster 1 with channels 1 and 6 at full and 7 and 8 at 50% (assumes console in Submaster Mode (SUBS)).

- Lower all Scene A slide controls and Submasters to minimum.
- Both A and B crossfaders at maximum.
- Raise Scene A slide controls 1 and 6 to maximum.
- Raise Scene A slide controls 7 and 8 to 50%.
- Tap the Record button. The Record LED should now be lit.
- Tap Submaster 1 bump button.
- Lower all scene A slide controls.
- Raise submaster 1 to see scene recorded..

If the submaster is recorded while the submaster slider is above minimum or a Submaster Bump button is active, the previous memory scene will remain and the Submaster Bump Led will flash amber. The new scene recorded will load and the led will stop flashing when the submaster is reduced to minimum or the bump button is deactivated.

Previewing Submasters

Submasters memories may be previewed on the Channel Level leds without affecting anything on stage. This is done by pressing the PREVIEW button to activate the preview mode. The preview mode is active whenever the led above the PREVIEW button is lit. Now pressing any Submaster Bump button will cause the scene contained in the submaster to display on the Channel Level leds and the percentages of each channel will be displayed on the LCD. The LCD may be “panned” to display all channels by using the encoder wheel. Pressing the PREVIEW button again will deactivate the preview mode and the leds and LCD will return to normal.

Editing Submasters

Submasters may be edited “live” (on stage) or “blind” (not on stage). To enter the edit mode press the EDIT button followed by pressing a Submaster Bump button of the desired.

Displays

The current levels in the selected submaster memory will be displayed on the Channel Level Leds and the LCD display much like the Preview mode. If the Submaster memory being edited is active (submaster slider up or bump button active) then the edit is considered “live”, else it is “blind”.

Changing levels

Levels contained in memory are changed when the Scene A sliders are moved to match the current level and can then be set to a new level. The LCD will indicate the “match point” when the LCD “auto-pans” to display the channel and indicates a changing level. Also the Channel Level leds and the stage, if live, will indicate new levels once the match has been made.

The encoder wheel may be used to change levels precisely by moving the encoder wheel until the cursor on the LCD display is on the channel level to be changed. Hold down the CHANGE button while turning the encoder to set the new level.

Adding Chases

A chase may be added to the Submaster memory at this point if desired by pressing the LCD function key marked “Chs” on the LCD to increment the chase number. The “Chs” button may be held down and the encoder may be used to select a chase number. Chase numbers range from * (no chase) to 1 to as many submasters that the particular console has. To deactivate a chase, set the chase number to *. Chases may be added to empty submasters via the edit mode for chase-only submasters.

Saving Changes

To save the changes press the record button. The LCD display will indicate the option of saving the stage levels or just the modifications to memory. Once channels have had their levels changed while in the edit mode, they are considered “captured” or “modified”. When modified edits (mods) are saved to memory, only the modified channels levels are changed. All other levels in memory will remain the same.

Cancel changes

Pressing the CANCEL button or pressing the EDIT button again will abort the edit process and discard any changes.

→ *EXAMPLE: Edit submaster 1.*

→ *Tap the EDIT button*

→ *Tap the Submaster Bump button 1.*

→ *Using the Scene A slide controls, slowly move channel 1 slider from minimum to full until a match is made.*

- *Then move the slider to a new level.*
- *Press the RECORD button and select the select the “Mods” function key on the LCD display.*
- *The change to Submaster one is now recorded*

Recording Chases

Chases may be recorded in memory as a sequence of steps of different channel levels. When a chase is played back, the channel levels of each step will appear on stage sequentially with the rate of step change set by the Chase Rate control or the TAP SYNC button. At the end of the recorded sequence, the sequence repeats.

Start recording

To record a chase press the RECORD button followed by the CHASE SELECT button. The LCD will prompt for the chase number to record. Use the Submaster Bump Buttons or the encoder wheel to select the desired chase number. Chase numbers available are from 1 to the maximum chases for the particular model (equal to the number of submasters). Press the “Do Rec” function button to start the chase recording procedure.

Overwriting old chase

If the chase memory is not empty than a warning message will appear on the display, select “Yes” to erase the selected chase memory and start recording.

Set levels

Set the lighting levels for the first step with the scene A slide controls then press the “Rec Step” function button to record the first step. The LCD will show the next step in sequence.

Attack and direction

The attack for the entire chase may be recorded by selecting the “Attk” function key or the ATTACK Button prior to recording any step. The default direction for the **entire chase** may be recorded by selecting the “Dir” function key or the DIRECTION Button prior to recording any step.

End recording

The number of steps that may be recorded depends on the memory configuration. To end the recording process, press the MAIN MENU key.

EXAMPLE: Program a 4 step chase consisting of channels 1 - 4 into Chase 2.

- *Tap the Program button. The Program LED should now be lit.*
- *Tap Chase Select button.*
- *Select chase number 2 on the LCD and select “Do Rec”*
- *If chase not empty select “Yes”*
- *Move all Scene A slide controls to minimum.*
- *Raise Scene A slider 1 to maximum.*
- *Tap “Rec Step” function key..*
- *Lower Scene A slider 1 to minimum and 2 to maximum.*
- *Tap “Rec Step” function key..*

- Lower Scene A slider 2 to minimum and 3 to maximum.
- Tap "Rec Step" function key..
- Lower Scene A slider 3 to minimum and 4 to maximum.
- Tap "Rec Step" function key..
- Tap the MAIN MENU button.

*Recording while
chase active*

If the Chase is active when programming is initiated, the Chase will halt during programming and resume with the new programming when completed. If the Chase was not active, it will not be running when programming is complete.

Recording Cue Stacks

Cue Stacks are a collection of scenes and chases that are already programmed in the submaster memories. Each step of a stack may consist of scenes from any page in memory. Precise fade times in tenths of seconds may be programmed into each step and each step may be manually played back using the GO button, manually crossfaded using the Stack fader, or a wait time may be set for automatic execution.

Start Recording

To record a stack press the RECORD button followed by the Stack Fade GO button. The LCD will prompt for the stack number to record. Stack numbers available are from 1 to 16. Press the respective Submaster Bump button or use the encoder wheel to select the desired stack number. Press the "Do Rec" function button to start the stack recording procedure.

Stack not empty

If the stack memory is not empty than a warning message will appear on the display, select "Yes" to erase the selected chase memory and start recording.

*Selecting scenes to
record*

Select the memory scene for the first step by selecting the desired Submaster Bump button. To temporarily change the page; press the Page function key hold this key down and turn the encoder wheel.

The selected scene will appear on the channel leds per the bump mode, and will appear on the stage if the GM is at maximum. If the wrong scene was chosen, simply select another scene. The levels in a particular scene may be edited later if desired. The Sub function key may be used to change the scene number if you do not wish to view the scene.

The Page number for the Submasters will revert back to the original one once recording is completed.

Setting Fade Time

Setting fade time for each step is done by holding the change button down and rotating the encoder. The fade time appears in the LCD display.

*Chase number and
Wait time*

The user has the option to skip right to recording the step if desired, or you can add a chase number and/or wait time by pressing the More function key. This will change the LCD screen and function keys to allow chase and wait time. Select a chase number by pressing the Chs function key or hold this key down and turn the encoder wheel.

The Wait time is used for automatic execution of the stack. This is the time before the next step of the stack automatically advances and fades. A Wait time of zero indicates normal manual execution using the Stack Fade Go button or Crossfader. Select a wait time by pressing the Wait function key or hold this key down and turn the encoder wheel.

SMPTE Time, MIDI time code or real time clock If you wish to enter a real, SMPTE, or MIDI time instead of wait time (for advanced users only) press the More function key again to advance to the SMPTE LCD screen. Press and hold the first function key while turning the encoder wheel to adjust the Hour (HH) and Minutes (MM) parameters. Press and hold the second function key while turning the encoder wheel to adjust the Seconds (SS) and Frames (FF) parameters. Entering SMPTE time overrides Wait time and visa versa. (See discussion on SMPTE in MIDI Impementation Section.

Recording the step Record the step by pressing the LCD Rec function key. The step number will advance to the next step. At this time you can record more steps by selecting scenes to record and following the above procedure again.

To finish recording the entire stack, press the Main Menu key or the RECORD Button (not the LCD Rec button) and the stack will be saved. The maximum number of steps that may be recorded is 255

6 Configuration

Console Setup	The "Setup" function key of the LCD main menu is used to access the console configuration. All setup information is stored in non-volatile memory.
<i>Locked</i>	If the console is locked, then a key code will have to be entered. (6157 or 4257 or 2357). NOTE: THE KEYCODE IS FACTORY SET AS THE CONSOLE NUMBER IN REVERSE.
<i>Menus</i>	Once setup is selected, a series of menus can be displayed by pressing the MORE function key. To return to a previous menu, press Main Menu key and re-enter the Setup mode.
<i>Mode / Softpatch menu</i>	The first menu displayed allows selection of the current operating mode, current softpatch (1 or 2) and access to the softpatch setup. Press "More" for other menus.
<i>Console Mode</i>	The Console Operating Mode may be selected by pressing the "Mode" function key until the LCD indicates the desired mode (also indicated by the Console Mode leds). The available modes are "Subs" (Submaster mode), "ScnB" (Two scene mode), and "Sng1" (Wide expanded channels mode). For mode information on the characteristics of each of the modes, refer back to the section on Operation Modes.
<i>Patch number</i>	There are two softpatch tables that are stored in the MC 7500 series non volatile memory. One of these may be selected to be active by pressing the "Patch" function key until the desired number is shown. Changing a patch number will result in an immediate change of the patch and may affect stage levels. The patch number shown is also the patch that will be edited when the "Patch Setup" function is selected.
<i>Patch setup</i>	To edit the softpatch, first press the "Patch Setup" function key. This will bring up a menu of editing functions.
<i>Clearing Patch</i>	Pressing the "Clr" function will completely zero out all patch information for the active patch in non-volatile memory, leave a blank or empty patch to start with. A confirmation screen will appear on the LCD, select "Yes" to proceed or "No" to cancel and return to the previous screen. NOTE: Console will have no output to stage with empty patch.
<i>Defaulting Patch</i>	Pressing the "Default" function will set up a one to one patch for the active patch in non-volatile memory. This patches channel 1 to dimmer 1, channel 2 to dimmer 2, and so forth. Any previous edits will be lost, but the patch may be edited after defaulting. A confirmation screen will appear on the LCD, select "Yes" to proceed or "No" to cancel and return to the previous screen. This is the standard factory setup.
<i>Editing Patch</i>	Pressing the "Edit Patch" function key will display the patch edit screen on the LCD. Shown are dimmer numbers on the top row. Turning the encoder wheel will cause the dimmer numbers to scroll back and forth as the cursor moves along the bottom line. All dimmers up to the maximum number of dimmers configured will be displayed. The LCD shows the channel number patched and patch level on the bottom row in the following format: Channel > Level. The channel number may be changed. Each dimmer may be assigned to one channel and any channel may have several dimmers. To change the channel assignments, use the encoder wheel to place the cursor on the channel number position under the desired dimmer. Hold down the Change key while rotating the encoder until the desired channel is indicated, and then release the Change key. If a level other than 100% is desired, move the cursor to the level to change using the encoder. Hold down the Change key while rotating the encoder until the desired level is indicated, and then release the Change key. Use the "Clr" key to unpatch any dimmer (dimmer is disconnected). Use the "Full" key the set a unpatched dimmer to a 1 to 1 patch, or a patched dimmer to full.
<i>Saving Patch</i>	Press the Main Menu key to save the patch to non-volatile memory. The patch edits will be lost if the console is interrupted before pressing Main Menu key. So use the Main Menu key often when editing a large patch.

<i>Dimmer / Memory Menu</i>	The next menu allows changing the type of dimmer output (DMX or MCX), setting preheat (0-50), number of dimmers to be output (MAX DIMS) and channel size of the memory. The “More” function button leads to the next menu of options.
<i>Dimmer output mode</i>	Pressing the “Out” function key will select the type of dimmer output. Available options are “MCX” (Microplex with DMX-512) or “DMX” (DMX-512 only, full speed). Other options may be purchased for the console and are discussed in information provided with the options.
<i>Preheat</i>	To set preheat, hold down the “Preheat” function key and rotate the encoder. In order to provide the finest adjustment of preheat, the preheat value is set in 1/255 increments (this corresponds to the 8 bit resolution of DMX-512). So each 1% increase in brightness is approximately 2.5 increments (10% would be a setting of 25). The Maximum value is 50 (about 20%). Most dimmers will not show much change for the first few increments.
<i>Maximum Dimmers</i>	This sets the number of dimmers that the console will output. Set this number by holding down the Change key while turning the encoder. For greatest console performance, set this number to the number of dimmers connected to the console. This will result in a shorter dimmer data stream.
<i>Memory Size</i>	This sets the size of the console’s memory in channels. Increasing this number will result in a reduction of the number of available pages. Change this parameter only if you will be working in the wide mode most of the time. NOTE: The memory must be cleared in order to change memory size. All programming will be lost except configuration and Softpatch. Press the “Size” key to change this setting. A confirmation screen will appear on the LCD, select “Yes” to proceed and clear memory or “No” to cancel and return.
<i>MIDI Menu</i>	This menu allows changing MIDI parameters and Saving memory to MIDI devices. Pressing the “More” key will advance to the Lock Menu.
<i>MIDI Channel</i>	The MIDI send/receive channel number may be set by holding the “Chan” function key and turning the encoder.
<i>MIDI Device</i>	The MIDI device number is the number defined in the MIDI Show Control Protocol. This number may be set by holding the “Device” function key and turning the encoder. A brief description of MIDI SCP functions that this console uses follow this section. (Contact the International MIDI Association for more information on MIDI Show Control Protocol.)
<i>Save Memory</i>	The consoles entire memory may be dumped to a MIDI device that stores SYSTEM EXCLUSIVE messages from MIDI (Such as a MIDI Disk). Press the “Save Mem” function key to access the save menu.
<i>Select Memory</i>	Use the “Mem” function key to select the type of memory to save. For each type of memory displayed, use the “Yes/No” function key to select it. Several types may be selected at a time.
<i>Start dump</i>	Press the save key when the MIDI device is ready to accept the memory dump.
<i>Reloading memory</i>	Memory is automatically reloaded when the console receives a proper MIDI system exclusive message. IMPORTANT: Test saving and reloading with your MIDI device, before programming the console with an important show.
<i>Real time clock</i>	Allows a stack to free run as if MIDI Time code (or SMPTE) was being input. With this enabled, the stack will continue to run even if time code is received and then lost.
<i>Locks</i>	The last menu sets the record and setup locks. The record lock prevents the RECORD button from operating. The Setup lock locks the configuration system. IMPORTANT: Once the Setup lock is set, the keycode is required to access the setup (configuration) parameters and change the locks. See top of previous page for keycode.

7

MIDI Implementation

MIDI Show Control:

Format:

<sys ex = F0H><real time = 7FH><dev ID><msc = 02><lighting = 01>
<command ><data><end sys ex = F7H>

Receives:

Command:

1: Go - Starts current step of active stack or loads stack and step indicated in the data field and executes.

Data (optional):

nn ... nn Cue (Step) number, ASCII encoded. 1 - 255
are the only valid numbers. Any characters
after a decimal point will be ignored.
00: Delimiter
ll ... ll Cue list (Stack number), ASCII encoded. 1 - 16
are the only valid numbers.
Any characters after a decimal point will be ignored.
Ex. Start Step 2 of Stack 4.
F0H 7FH <ID> 02 01 <01> <32H 00 34H> F7H

6: Set

Data: nn nn Control Number, 7-bit, LSB first
vv vv Control value, 7-bit, LSB first

Control: 0 - 31 = Fading Memories 1 - 32

Value: 0 - 255

Values above 255 ignored.

Ex. Memory 2 at full (255)

F0H 7FH <ID> 02 01 <06><01 00 7FH 01> F7H

Control: 32 - 63 = Memories Bumps 1 - 32

Value: 0 - 255

Values above 255 ignored.

Control: 1024 = Memory Page

Value: 0 - 15

Values above 15 ignored.

Control: 512 - 631 = Channels 1 - 64

Value: 0 - 255

Values above 255 ignored.

Control: 1026 = Activate Chase

Value: 0 - 32 = 0 = Chase off, 1 - 32 = Chases 1 - 32

Values above 31 ignored.

Control: 1027 = Chase Rate

Value: 150 - 16383, BPM = (1 / (.0005 X Value)) X 60

Values below 150 ignored.

Control: 1028 = Fade Rate

Value: 0 - 1200, Seconds = Value / 10

Note On:

Format:

<note on = 9cH, c = MIDI chan><note num = 0 - 127>< veloc= 0-127>

Receives:

Notes 0 - 63 map to channels 1 - 64

Velocity field sets level of channel with 0 representing off and 127 representing full on.

Example. Channel 16 set to 50% with MIDI channel set to 3.
93H 15H 64H

**MIDI Time
Code /
SMPTE**

In addition to linking steps of a Stack together through Wait times to create an automated sequence, each step of a Stack can be assigned a SMPTE time. The Stack will then keep itself in sync with the time code allowing the console to perfectly follow a SMPTE sync'd presentation. SMPTE Time Code is input into the console via the MIDI ports, therefore the code needs to be converted to MIDI Time Code. The code is broken down into hours, minutes, seconds and frames. All 4 styles of SMPTE (24, 25, 30 drop and 30 non-drop frame) are recognized.

If time code is input into the console with no Stack active, each stack, starting with the first, is scanned until one is found that has time code programmed. The Stack is then automatically activated. This allows a presentation to start itself without having to load the Stack first. If a Stack is loaded it will sync with the time code regardless of whether it is the first Stack to have time code programmed in it. The time code will be displayed above the Fade Time whenever the main menu is active, verifying that the code is being received and indicating what the current time is. If the time code is removed or stopped, the Stack will stop at the current step, unless the Real Time Clock feature is active, in which case the internal time keeping mechanism will keep the Stack running. If the external time code is again applied, it will take over from the internal time base.

8 Specifications

Console Specifications

Control Channels	16/32 (24/48) [32/64] *
Max. Dimmers	512
Submasters	16 (24) [32]
Pages	16/8
Chases	16 (24) [32] 400 steps total 203 steps in wide mode.
Memory	Non-volatile EEPROM (10 year retention)
Dimmer Outputs	NSI Micro-plex DMX-512
Input Power	120/240 volts AC, 1A
Approx Dimensions (HxWxD)"	4x23x15 (4x29x15) [4x35x15]
Weight (lbs)	13 (15) [16]

* Values in parenthesis () are for MC 7524.
Values in brackets [] are for MC 7532.

9 Trouble Shooting

Checklist

- | | |
|--|--|
| <i>Channel Level LED's do not respond.</i> | <ul style="list-style-type: none">• Check to see if the 1 x 32 (1 x 48) [1 x 64] mode is selected. Since all channels cannot be viewed, the LED's are disabled in this mode. |
| <i>Chase functions do not work.</i> | <ul style="list-style-type: none">• Make sure a rate has been established with the Tap Sync button or chase rate slider. The rate is indicated by the flashing LED located directly above the Tap Sync button. |
| <i>Lights on stage do not operate even though Channel Level LED's do.</i> | <ul style="list-style-type: none">• Check that the Master slide control is not set at minimum and that the Blackout LED is not on.• Make sure softpatch table is not cleared. |
| <i>Channel and/or Submaster slide controls have no effect on channel levels.</i> | <ul style="list-style-type: none">• Make sure that the X or Y Crossfader is not in its minimum position. |
| <i>Stage lights are on, but will not respond or respond erratically.</i> | <ul style="list-style-type: none">• Make sure the dimmer packs are programmed correctly.• Check for a bad control cable by replacing it.• The dimmer pack may be defective. |
| <i>Unit will not record wide mode channels 17-32 (25-48) [33-64]</i> | <ul style="list-style-type: none">• Check memory size setting in SETUP menu. |
| <i>Program button inoperative.</i> | <ul style="list-style-type: none">• Locked. Check SETUP menu for console locks. |
| <i>Corrupt parameters error message on powerup</i> | <ul style="list-style-type: none">• Check all Setup parameters in SETUP menu before other operations or programming. Report this to NSI factory service for advice. |

Reset and Memory Clear

The following procedure causes the entire memory of the console to be cleared and factory default parameters to be installed. All programming and softpatches will be lost. This procedure may be used to clear the console to a known starting point prior to new programming or rental.

1. Turn power switch off.
2. Hold down the following buttons: Function 1, Function 2, Help, Change
3. Turn power switch on while holding buttons.
4. Release buttons after 10 seconds.

Memory will be cleared after a few moments. A default softpatch will be installed.

10

Warranty

NSI Corporation Limited Warranty

NSI Corporation warrants new electronics products to be free from defective materials and workmanship for a period of one (1) year from the date of purchase to the original owner when purchased from an authorized NSI dealer.

The purchaser is responsible for completing and mailing to NSI, within 15 days of purchase, the warranty registration card enclosed with each product. NSI products that have been subject to accident, alteration, abuse, or defacing of the serial number are not covered by this warranty. The normal wear and tear of items such as knobs, jacks, and switches are not covered under this warranty.

If your NSI product requires service during the warranty period, NSI will repair or replace, at its option, defective materials provided you have identified yourself as the original owner of the product to NSI or any authorized NSI dealer. Transportation charges to and from an authorized dealer or the NSI factory for repair shall be the responsibility of the owner. All products returned to NSI must have factory authorization for return prior to shipping.

NSI Corporation is not liable for any incidental or consequential damages resulting from defect or failure other than repairs of the NSI product subject to the terms of this warranty. This warranty gives you specific legal rights, and you may have other rights which vary from state to state. This warranty is expressly in lieu of all other agreements and warranties expressed or implied except as may be otherwise required by law.