

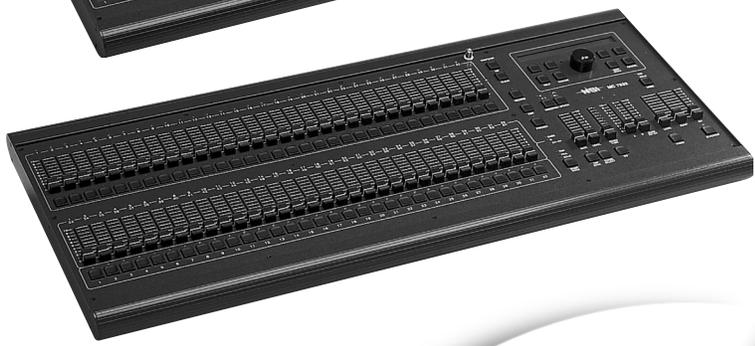
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MC 7516



MC 7524



MC 7532

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# MC 7516 / 7524 / 7532

## MEMORY LIGHTING CONTROLLERS

# USER GUIDE

Software Revision 1.29 and above  
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Leviton Manufacturing Co., Inc.

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## OVERVIEW

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### Welcome

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Thank you for your decision to purchase a Leviton-NSI product. The powerful Leviton-NSI Micro-plex design involves 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.

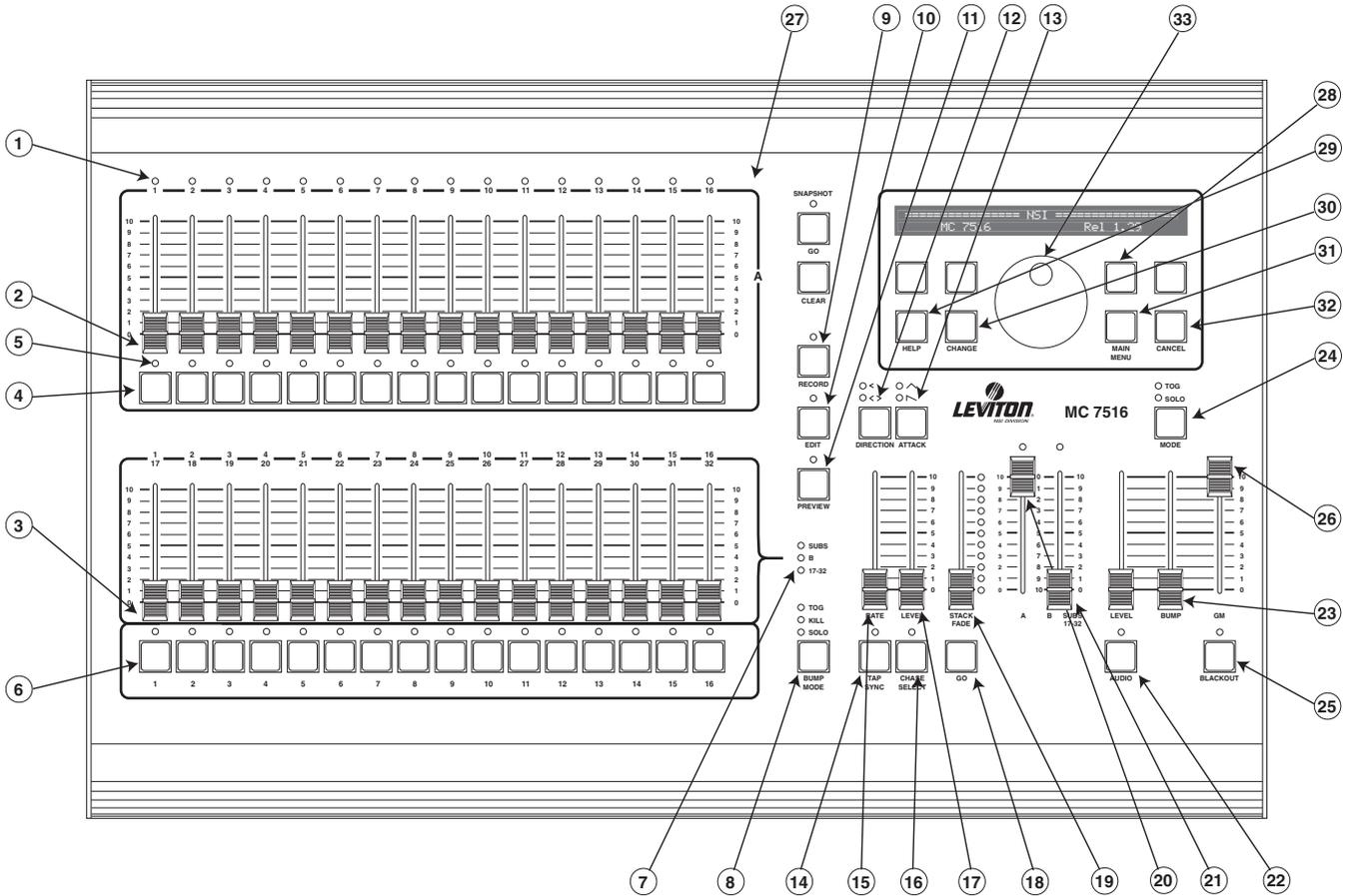
The Leviton-NSI MC 7500 Series Lighting Consoles features an advanced microprocessor based design containing many benefits found in today's personal computers. This technology provides for the option of adding programmable Memory Scene Masters and Chase effects to the simplicity of a familiar two-scene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

The Leviton-NSI Micro-plex technology found in all Leviton-NSI products allows components of your lighting system to be interconnected by way of a standard 3-conductor microphone cables or audio snakes. Up to 128 individual control signals may be transmitted to dimmer packs through a single microphone cable.

Throughout this User Guide, specifications are listed for the MC 7516, followed by specifications for the MC 7524 in parenthesis ( ) and MC 7532 in brackets [ ].

The Leviton-NSI MC 7500 Series Lighting Consoles represent our continuing commitment of leading the industry in defining technological advances for stage lighting.

# CONSOLE



## Front Panel

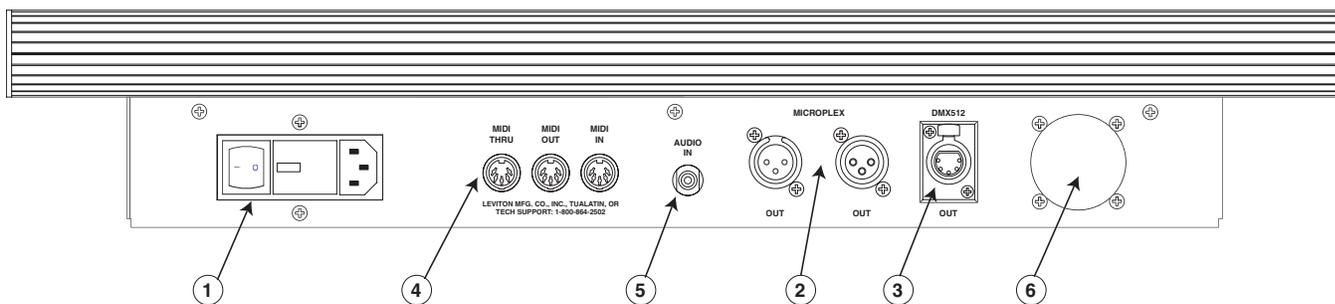
- 1. Channel LEDs:** These 16 (24) [32] LEDs above the channel sliders are variable in intensity and give a relative indication of the current output level of that channel. “Wide mode” (**sngl scn**) control channels are not displayed on these LEDs.
- 2. Scene A:** These 16 (24) [32] slide controls are used to control the intensities of channels 1 – 16 (1 – 24) [1 – 24]. The overall intensity of the scene created is controlled with the A Crossfader.
- 3. Scene B:** These 16 (24) [32] slide controls are used to control the intensities of channels 1 – 16 (1 – 24) [1 – 32], channels 17 – 32 (25 – 48) [33 – 64], or submasters (memory scenes of a page of memory) 1 - 16 (1 – 24) [1 – 32] depending upon the console's 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 16 (24) [32] 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 (24) [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 controller 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 (1 - 24) [1 - 32] (Scene B Mode), or 17 - 32 (25 - 48) [32 - 64] (wide mode). The Setup and Mode function buttons under the LCD display change the operating mode. The lit LED indicates the current mode.
- 8. BUMP MODE Button:** This button controls the function of the Submaster Bump buttons. Pressing this button cycles through the 4 operating modes: Toggle, Kill, Solo, and Momentary Bump. The LEDs above indicate the current selection. When the LEDs are OFF, the Momentary Bump mode is selected.
- 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 Record LED is lit.
- 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.
- 11. PREVIEW Button:** This button is used to select a memory scene on the current page to preview on the console LEDs and LCD display. The Submaster Bump buttons are used to select the scene.
- 12. DIRECTION Button:** This button and its respective LEDs controls the direction of the current chase selected (has no effect on submaster chases or cue stack chases).
- 13. ATTACK Button:** This button controls the fading between each chase step. The LEDs above indicate the attack mode selected. A normal instant-ON instant-OFF mode is selected when both LEDs are OFF.
- 14. TAP SYNC Button:** Repeatedly pressing this button establishes the chase rate to be the time between taps.
- 15. Chase Rate Slider:** This control selects the chase rate for the entire controller.
- 16. CHASE SELECT Button:** 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 stack sequence to execute when a stack is loaded.
- 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 slider is used to proportionally vary the intensity of all of the Scene A sliders. When the slider is at the top of it's travel, the control is at maximum. The LED above the slider reflects the relative setting of the control.
- 21. B Crossfader:** This slider 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), the control is at maximum when the slider is at the bottom of its travel. This provides easy split, dipless crossfading.
- In the Submaster (SUBS) and Wide Mode (SNGL SCN or addition channels), the control is at maximum when the slider is at the top of it's travel.
- The LED above the slider reflects the relative setting of the control.

## User Guide

- 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 Slider:** 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. MODE Button:** This button controls the operating mode of the Channel Bump buttons. Normally the bump buttons cause the respective channel to go to the intensity of the Bump Master Slider while pressed and back to normal when released. 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 indicate the channel bump mode. The normal mode is indicated when both LEDs are out.
- 25. BLACKOUT Button:** This button is used to kill all output to stage except from the Bump buttons. The controller is in Blackout whenever the Blackout LED is lit red. Blackout is OFF whenever the Blackout LED is green.
- 26. Grand Master (GM) Slider:** 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 DMX512 circuit, **the metal portion of the gooseneck and lamp should not be allowed to touch the chassis ground** or other metal objects to prevent DMX512 interference. The lamp power is protected by a special internal fuse that will interrupt power to the lamp while retaining isolated DMX512 power in case of a lamp short.
- 28. LCD Function Buttons:** These four buttons are located directly under the LCD display. The 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, press the help button, followed by pressing any other button desired. The LCD will display a short message describing the function. To exit help, press 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.

## Rear Panel (All Models)



- 1. Power Inlet Block:** This provides for connection of a power cord that is appropriate for the country that the controller 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.
- 2. Micro-plex Outputs:** These 2 outputs provide Leviton-NSI microphone dimmer connection via a 3-pin XLR type connector. Either connector may be used.
- 3. DMX512:** 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 NOT be connected to any cable wiring.
- 4. MIDI IN/OUT/THRU:** These connectors are for connecting to a MIDI sequencer or disk drive.
- 5. Audio Input:** This phono jack will accept audio signals for controlling some console functions.
- 6. Analog Output Option:** 37-pin connector installs here for the analog output option.

## LCD Display

When you turn ON power to the console, the LCD display shows the current version of the software, followed by the MC 7516 Main Screen.



The lower portion of the display shows several values that you can modify from this screen.

# INSTALLATION AND SETUP

## Power Supply

The MC 7500 Series Lighting Consoles require a source of 120/240 volts AC (1 Amp) 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, 50/60 Hz. 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) reinsert the fuse block with its arrow pointing up.

### NOTE

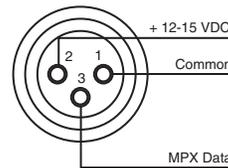
**CAUTION:** Verify that the nominal input voltage selection as indicated in the window on the controller inlet is compatible with the nominal voltage of the available power.

**Power Supply Connection:** The controller 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 0.8 A 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.

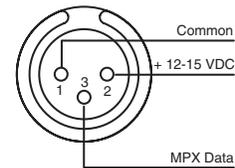
## Dimmer Equipment Connection

Connecting the MC 7500 Series console to Leviton-NSI dimming equipment is very simple. You need only to connect a single 3-conductor audio cable (standard microphone cable equipped with a 3-pin XLR type connector) to either of the jacks marked MICROPLEX on the rear apron of the console. It doesn't matter which jack is used; two jacks are provided for convenience. Connect the other end of the cable to the Leviton-NSI dimming equipment.

Female Micro-plex XRL Pin Configuration



Male Micro-plex XRL Pin Configuration



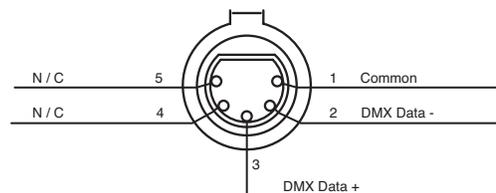
### NOTE

**Minimum 20-gauge 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 100 ft.**

The DMX512 digital signal provides the highest speed, precision, and noise immunity. When connecting DMX512:

- Use cable that is specified as RS-485 or RS-422 compatible (shielded, 1 or 2 twisted pair) and use the largest gauge available (22-18 gauge is good for long runs of 1000 of).
- Daisy chain the cable only (no star or home runs) and terminate the end of the cable with a 120-ohm resistor.
- The DMX512 output of the MC 7500 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.

Female DMX512 XLR Pin Configuration



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# CONFIGURATION

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## General

---

The Setup function button of the LCD main menu is used to access the console configuration. All setup information is stored in nonvolatile memory.

```
Stack Step      Fade      Page  Setup
  *<*<      0:00.0      1
```

### Locked:

If the console is locked, then a key code will have to be entered (6157 or 4257 or 2357)

```
Setup parameters are locked.
Enter keycode: 0000
```

### NOTE

**THE KEY CODE IS FACTORY SET AS THE CONSOLE NUMBER IN REVERSE.**

### Menus:

Once Setup is selected, a series of menus can be displayed by pressing the **MORE** button. To return to a previous menu, press **MAIN MENU** button and re-enter the Setup mode.

## Mode/Softpatch Menu

---

The first menu displayed allows selection of the current operating mode, current softpatch (1 or 2) and access to the Softpatch setup. Press the Function button 4 to **Select More** for other menus.

```
Mode Patch      Patch  More
ScnB  1          Setup
```

### Console Mode:

The Console Operating Mode may be selected by pressing the **Mode** function button 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 **Sngl** (Wide expanded channels mode).

### Patch Number:

There are two softpatch tables that are stored in the MC 7500 Series nonvolatile memory. One of these may be selected to be active by pressing the **Patch** function button 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.

### Patch Setup:

To edit the softpatch, first press the **Patch Setup** function button. This will bring up a menu of editing functions.

```
Edit      Default  Clr
Patch     Patch   Patch
```

## User Guide

### Clearing Patch:

Pressing the **Clr** function will completely zero out all patch information for the active patch in nonvolatile memory, leaving 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 an empty patch.**

```
Are you sure?  Yes  No
```

### Defaulting Patch:

Pressing the **Default** function button will set up a one-to-one patch for the active patch in nonvolatile 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.

```
Are you sure?  Yes  No
```

### Editing Patch:

Pressing the **Edit Patch** function button 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 number 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.

```
Dim:  1      2      3      Full  Clr
Ch:  1>100%  2>100%  3>100%
```

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** button while rotating the encoder until the desired channel is indicated, and then release the **CHANGE** button. If a level other than 100% is desired, move the cursor to the level to change using the encoder. Hold down the **CHANGE** button key while rotating the encoder until the desired level is indicated, and then release the **CHANGE** button. Use the **Clr** function button to unpatch any dimmer (dimmer is disconnected). Use the **Full** function button to set an unpatched dimmer to a 1-to-1 patch, or a patched dimmer to full.

### Saving Patch:

Press the **MAIN MENU** button to save the patch to nonvolatile memory. **The patch edits will be lost if the controller is interrupted before pressing MAIN MENU button. So use the MAIN MENU button often when editing a large patch.**

## Dimmer/Memory Menu

---

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.

```
Out  Preheat  Max Dims  Size  More
MCX  15        16        16    16
```

**Dimmer Output Mode:**

Pressing the **Out** function button will select the type of dimmer output. Available options are **MCX** (Micro-plex with DMX512) or **DMX** (DMX512 only, full speed). Other options may be purchased for the controller and are discussed in information provided with the options.

**Preheat:**

To set preheat, hold down the **Preheat** function button and rotate the encoder. In order to provide the finest adjustment of preheat, the preheat value is set to 1/255 increments (this corresponds to the 8-bit resolution of DMX512). 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.

**Maximum Dimmers:**

This sets the number of dimmers that the controller will output. Set this number by holding down the **Change** button while turning the encoder. **For greater controller performance, set this number to the number of dimmers connected to the controller. This will result in a shorter dimmer data stream.**

**Memory Size:**

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** button 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.

**MIDI Menu**

This menu allows changing MIDI parameters and saving memory to MIDI devices. Pressing the **More** function button will advance to the Lock Menu.

```
Chan  Device  MIDI Params  Save  More
  1      0           Memory
```

**MIDI Channel:**

Holding the **Chan** function button and turning the encoder may set the MIDI send/receive channel number.

**MIDI Device:**

The MIDI device number is the number defined in the MIDI Show Control Protocol. Holding the **Device** function button and turning the encoder may set this number.

**Save Memory:**

The console's 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 button to access the save menu.

```
All      MIDI Save  Exit
Mem      No
```

## User Guide

### Select Memory:

Use the “Mem” function button to select the type of memory to save. For each type of memory displayed, use the **Yes/No** function button to select it. Several types may be selected at a time.

### Start Dump:

Press the **Save** button when the MIDI device is ready to accept the memory dump.

### Reloading Memory:

Memory is automatically reloaded when the controller receives a proper MIDI system exclusive message.

#### NOTE

**Test saving and reloading with your MIDI device before programming the controller with an important show.**

## Real Time Clock

---

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.

```
Real Time Clock   MIDI Send   More
   Off              Norm
```

## MIDI Send

---

The MIDI send configuration can be set to **Norm** or **Show**. **Norm** indicates that standard MIDI commands, such as note number or program changes will be transmitted as the console is operated. **Show** indicates that MIDI show commands will be transmitted.

```
Real Time Clock   MIDI Send   More
   Off              Norm
```

## Locks

---

The last menu sets the record and setup locks. The record lock prevents the RECORD and EDIT buttons from operating. The Setup lock locks the configuration menu system. The key codes are 6157, (4257) and [2357].

```
Rec Lock          Setup Lock
   Off              On
```

#### NOTE

**Once the Setup Lock is set, the key code is required to access the setup (configuration) parameters and change the locks.**

---

# OPERATION

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## 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 LEDs are provided above each of the **Scene A** slide controls. These LEDs show the relative intensities from all controller functions and are not affected by the **Master** control or the **Blackout** button. These LEDs 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, tap the fourth function button under the LCD display labeled Set up on the display. Then press the function button labeled Mode on the display. Continue tapping until the desired mode is selected. The lit LED to the right of **Scene B** also indicates the current mode.

### Set Operating Mode to Submaster Mode.

1. Make sure LCD is at Main Menu by pressing MAIN MENU.
2. Press button under the word Set up on the LCD display.
3. Press button under the word Mode until the word Subs appears.
4. 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 **Scene B**. The **B Crossfader** operates inversely in this mode in order to provide easy split, dipless crossfading from **Scene A** to **Scene B**.

#### NOTE

A separate scale is provided for the **B Crossfader** indicating that 10 (maximum 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 memories 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

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 **snl scn**), the **Scene B** Sliders control these additional channels; MC 7516:

## User Guide

channels 17 - 32, MC 7524: channels 25 - 48, MC 7532: channels 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 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 chase section or by programming into submasters.

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 LCDs main menu.**

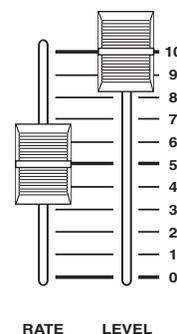
Only one chase can run in the chaser section at one time. When a new chase is selected, the previous one will cancel and fade out at the set fade rate.

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

1. Chase level to maximum.
2. Chase rate to midway.
3. Rotate encoder until fade rate = 0:00.0

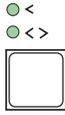
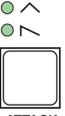


4. Press **CHASE SELECT** button.
5. Press Submaster 1 Bump button.
6. Chase 1 is running (If not, see Recording Chases).



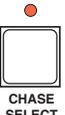
Chases running in the chaser may be modified in that the direction and attack may be changed by pressing the **DIRECTION** and **ATTACK** buttons. Chase rate may be set by using the Chase Rate slide control or by tapping the **TAP SYNC** button at the desired rate.

**Example: Modify Chase number one (Chase #1 must be running as above example).**

1. Press  button to change direction.
2. Press  button to change attack.
3. Move Chase Rate or press  button to change rate.

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 example).**

1. Press  button.
2. Press  button.

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 rate as the chaser section and the Chase Rate slide control and **TAP SYNC** button have the same effect.

## 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.

The LCD displays the stack information as follows:



## User Guide

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

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

The stack always executes steps in numerical order from the first or selected step, starting over when the last step is reached. Using the **Step** function button of the LCDs main menu may directly access any step. Pressing the button will increment the step number while holding the button and turning the encoder will change the number up and down.

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

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.

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 1 been recorded).

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

Stack	Step	Fade	Pass	Setup
*<1	1	0:00.00	1	

2. Press STACK FADE  button (current now 1: 1, next now 1: 2).

Clear	Step	Fade	Pass	Setup
1:1	<1:2	0:00.0	1	

3. Press STACK FADE  button (current now 1: 2, next now 1: 3).

Clear	Step	Fade	Pass	Setup
1:2	<1:3	0:00.0	1	

4. Etc.

**Example: Clear Stack 1 (assuming Stack 1 set as above example).**

1. Press **Clear** Function button (next stack shows \*).

Stack	Step	Fade	Page	Setup
1	2<*	0:00.0	1	

2. Press STACK FADE  button (stack shows \*<\*).

Stack	Step	Fade	Page	Setup
*	<*	0:00.0	1	

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.

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

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

In the **Wide Mode (snl scn)** **Scene B** slide controls will represent the additional channels and will be sent to stage as one complete snapshot with **Scene A**.

**Example: Take Snapshot of scene A twice, then clear it.**

1. Rotate encoder until fade rate = 0: 02. 0 (to show fading),

Stack	Step	Fade	Page	Setup
*	<*	0:02.0	1	

2. Set **Scene A** preset sliders to various levels.

3. Tap SNAPSHOT  button and note channels fading on channel level LEDs.

4. Set **Scene A** preset sliders to different levels.

5. Tap SNAPSHOT  button and note channels fading on channel level LEDs.

6. Tap SNAPSHOT  button and note channels fading out.

## Grand Master

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The Grand Master (GM) slide control provides proportional level control over all controller 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 controller settings except for any resulting from a Bump button. If the **Master** is at full, all stage outputs will be at 100% of the controller 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.

---

# PROGRAMMING

---

## 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 nonvolatile 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 button marked **Page** on the LCD main menu to advance the page, or by pressing and holding this button 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. Press 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 controller in Submaster Mode (SUBS)).**

1. Lower all **Scene A** slide controls and Submasters to minimum.
2. Both **A** and **B Crossfaders** at maximum.
3. Raise **Scene A** slide controls 1 and 6 to maximum.
4. Raise **Scene A** slide controls 7 and 8 to 50%.



5. Tap the  button. The RECORD LED should now be lit.
6. Tap Submaster 1 bump button.
7. Lower all **Scene A** slide controls.
8. 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 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. Pressing the **PREVIEW** button to activate the preview mode does this. 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 other 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.

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*.

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.

A chase may be added to the Submaster memory at this point if desired, by pressing the LCD function button 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 controller 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.

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 channel levels are changed. All other levels in memory will remain the same.

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

### Example: Edit Submaster 1.

1. Press the  button.

```
Tap a Memory button, Chase Select
or Stack Go to Edit
```

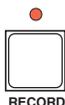
2. Press the Submaster Bump button 1.

```
P: 1 1 2 3 4 5 6 7 8 Chs
S: 1 100 0 100 0 100 0 100 0 *
```

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

4. Then move the slider to a new level.

```
P: 1 1 2 3 4 5 6 7 8 Chs
S: 1 75 0 100 0 100 0 100 0 *
```



5. Press the **RECORD** button and select the Mods function key on the LCD display.

```
Record edits from
Stage Mods
```

6. The change to Submaster 1 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.

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.

If the chase memory is not empty, then a warning message will appear on the display. Select **Yes** to erase the selected chase memory and start recording.

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.

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.

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

### Example: Program a 4-step chase consisting of channels 1 - 4 into chase 2.



1. Press the **RECORD** button. The RECORD LED should now be lit.

```
Tap a Memory button, Chase Select
or Stack Go to Record
```



2. Press **CHASE SELECT** button.

```
Record Chase  Do
      1          Rec
```

3. Select chase number **2** on the LCD and select **Do Rec**.

```
Record Chase  Do
      2          Rec
```

4. If chase is not empty, select **Yes**.

```
Chase is not empty!
                        Clear?  Yes  No
```

```
Dir   Attk  Rec Chase: 2  Rec
->    []    Step:  1  Step
```

5. Move all **Scene A** slide controls to minimum.

6. Raise **Scene A** slider **1** to maximum.

7. Press **Rec Step** function button.

```
Dir   Attk  Rec Chase: 2  Rec
->    []    Step:  2  Step
```

8. Lower **Scene A** slider **1** to minimum and **2** to maximum.

9. Press **Rec Step** function button.

```
Dir   Attk  Rec Chase: 2  Rec
->    []    Step:  3  Step
```

10. Lower **Scene A** slider **2** to minimum and **3** to maximum.

11. Press **Rec Step** function button.

```
Dir   Attk  Rec Chase: 2  Rec
->    []    Step:  4  Step
```

12. Lower **Scene A** slider **3** to minimum and **4** to maximum.

13. Press **Rec Step** function button.

```
Dir   Attk  Rec Chase: 2  Rec
->    []    Step:  3  Step
```

14. Press the **MAIN MENU** button.

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.

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.

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

Select the memory scene for the first step by selecting the desired Submaster Bump button. To temporarily change the page, press the **Page** function button or hold this button 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 button 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 for each step is done by holding the change button down and rotating the encoder. The fade time appears in the LCD display.

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 button. This will change the LCD screen and function keys to allow chase and wait time. Select a chase number by pressing the “Chs” function button, or hold this button 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 button or hold this button down and turn the encoder wheel.

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

Record the step by pressing the LCD **Rec** function button. 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** button 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.

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# MIDI

---

## 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 numbers), 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 = Chase 1 - 32  
Values above 32 ignored.

Control: 1027 = Chase Rate

Value: 150 - 16383, BPM = (1 / (0.0005 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 = 1 - 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 controller to perfectly follow a SMPTE synchronized presentation. SMPTE Time Code is input into the controller 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 controller 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.

## TROUBLESHOOTING

Channel Level LEDs do not respond.	<ul style="list-style-type: none"> <li>• Check to see if 1 x 32 (1 x 48) [1 x 64] mode is selected. Since all channels cannot be viewed, the LEDs are disabled in this mode.</li> </ul>
Chase functions do not work.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Make sure the chase level slider is not at minimum.</li> </ul>
Lights on stage do not operate even though Channel Level LEDs do.	<ul style="list-style-type: none"> <li>• Check that the Master Slide control is not set at minimum and that the BLACKOUT LED is not ON.</li> <li>• Make sure softpatch table is not cleared.</li> </ul>
Channel and/or Submaster slide controls have no effect on channel levels.	<ul style="list-style-type: none"> <li>• Make sure that the X or Y Crossfader is not in its minimum position.</li> </ul>
Stage lights are ON, but will not respond or respond erratically.	<ul style="list-style-type: none"> <li>• Make sure the dimmer packs are programmed correctly.</li> <li>• Check for a bad control cable by replacing it.</li> <li>• The dimmer pack may be defective.</li> </ul>
Unit will not record wide mode channels 17-32 (25-48) [33-64].	<ul style="list-style-type: none"> <li>• Check memory size setting in SETUP menu.</li> </ul>
RECORD button inoperative.	<ul style="list-style-type: none"> <li>• Locked. Check SETUP menu for console locks.</li> </ul>
Corrupt parameters error message on power up.	<ul style="list-style-type: none"> <li>• Check all Setup parameters in SETUP menu before other operations or programming.</li> </ul>

### 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 ON while holding buttons.
4. Release buttons after 10 seconds.

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

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## SPECIFICATIONS

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### Console Specifications

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Control Channels:	16/32 (24/48) [32/64].
Maximum 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 (approx. 10 year retention).
Dimmer Outputs:	Leviton-NSI Micro-plex. DMX512.
MIDI:	In / Out / Thru
Input Power:	120 / 240 Volts AC, 1A.
Dimensions (L x W x H):	23" x 15" x 4" (29" x 15" x 4") [35" x 15" x 4"].
Weight (approx.):	13 lbs. (15 lbs.) [16 lbs.]

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## WARRANTY

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### LIMITED TWO YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for two years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such two year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Leviton Manufacturing Co., Inc., Att: Service Department, 20497 SW Teton Ave., Tualatin, Oregon 97062**. All products returned to Leviton-NSI must have factory authorization for return prior to shipping. The purchaser is responsible for completing and mailing to Leviton, within 15 days of purchase, the warranty registration card enclosed with each product. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to two years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.





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PK-93382-10-00-0A