LP612 and LP624 User's Manual

LP612 Software Version 2.4
LP624 Software Version 3.4

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LP612 and LP624 User's Manual

Leprecon, LLC

LP612 and LP624 User's Manual

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EZ Programming the LP600 Series: QUICK START GUIDE

The experienced user can begin using the advanced features of the LP612 or LP624 at once with this Quick Start Guide.

PROGRAMMING PRESET MEMORIES

1   Press the **preset** menu to light the **page** LED.

2   Select desired page (1-4) using display **?** or **?** (up or down arrow keys).

3   Press **record** button.

4   Set desired look by arranging **X** scene channel faders.

5   Store by pressing bump button beneath desired preset fader on **Y** scene; continue setting and recording.

6   Press **run** to play scenes back.

PROGRAMMING A CHASE

1   Press **chase** button to light **pattern** LED.

2   Select desired pattern (5-11) on display using the up arrow key (**?**).

3   Press **Chase** menu button again to light **Step** LED.

4   Press **Record** button.

5   Set desired look on **X** scene faders.

6   Press the up arrow key (**?**) key to record & advance to next step, continue to set and record chases.

7   Press **Run** key to end programming.

RECORDING STACK PRESETS

1   Press the **stack** menu button to display **now** scene.

2   Use the **?** key (down arrow) to set **now** to ? ? (**CL** may momentarily appear).

3   Press the **stack** menu key again to light the next LED.

4   Use the display **?** and **?** keys (up and down arrows) to select a cue number of 1 through 50.

5   Set levels on stage using manual channels or presets.

6   Press the **record** key once. The **record** LED will begin to blink.

7   Press **record** again to memorize the cue. The next cue number will advance.

8   In record mode, continue setting desired levels on stage and recording cues (stacking).

9   Press **run** to end recording and activate cue **stack**.

10   While in **next** mode use display **?** and **?** (up and down arrow) keys to call up first cue for playback.

11   Use **stack** fader to manually crossfade between cues or use **go** button to time fade to next cue.

1 Overview

The LP612 and LP624 were designed with the goal of creating low-cost, high quality control consoles. The LP600 series boards share many features with the larger Leprecon LP1500 consoles, but bring these features within reach of users with a smaller budget. Below are some of these features:

MANUAL SCENES

- Two scene manual presets.
- Switchable Add or Solo momentary buttons (bump buttons) for each channel.
- Dipless crossfade between manual scenes.
- Each channel has a large, easily visible LED indicator.

PRESET MEMORIES

- Real-time preset faders with switchable Add or Solo bumps.
- Presets may be "piled on" in any combination.
- Presets are assigned to one of four memory pages.
- Preview mode allows cues to be checked without bringing up the scene on stage.
- An existing cue may easily be edited using the manual scene faders without re-recording the entire cue.

CUE STACK

- 50 programmable cues with crossfader and go button control.
- Fade times can be assigned to each scene.
- A two-character display is used to indicate current and next cues, and programmed fade time.

CHASER

- Four fixed and seven programmable patterns of up to twenty-four steps each are provided.
- Programmable patterns are recorded, previewed and edited as easily as the preset cues.
- The rate of each pattern may be saved with the Chase, eliminating the need to adjust the rate pot when the Chase is recalled.
- The Chase may be advanced a step at a time manually, or halted momentarily.

OUTPUT

- Standard output is industry standard Microplex using a three pin XLR connector.
- The optional DMX 512 output uses the standard 5 pin XLR as specified by USITT.
- The analog option uses Cinch-Jones connectors common on other Leprecon equipment.
- All output protocols can be used simultaneously.

MODEL DESIGNATIONS

The LP600 series consists of two consoles: the LP612 and the LP624. As the controls of both consoles are very similar, the designation LP600 is used to describe common features. The primary difference between the two consoles is that the LP612 is a 12-channel board and the LP624 is a 24-channel board. The sections of this manual specific to either board are marked as LP612 Only or LP624 Only .

2 Setup

The LP600 connects easily to most types of dimming systems. Microplex, as well as the optional analog and DMX 512 outputs, is provided for dimmer control. The flexibility to interface with various systems makes the LP600 a natural choice for building a new system or upgrading an existing system.

POWER REQUIREMENTS

The LP600 console can be powered in two ways.

1 With Microplex dimmers, the microphone cable between the dimmer and controller supplies board power. No external supply connection is required.

2 With DMX and analog options, an external supply must be used to power the board. This transformer is supplied as part of the option package. This transformer is rated for 12VAC at 800 milliamps.

If the board is to be used with European power systems, or other 230 volt applications, contact your Leprecon dealer for the correct 230 volt power supply.

MICROPLEX OUTPUT

The three pin XLR connectors at the back of the LP600 are used to connect the board to standard Microplex dimmers. This connection will work with Leprecon 360 Microplex dimmers, and has been tested with other products for compatibility.

Microplex is suitable for use in smaller systems, up to 48 channels. Ordinary microphone cable may be used to connect the LP600 to Microplex dimmers.

DMX OUTPUT

The DMX 512 digital output on the rear panel offers a fast and reliable way of sending control information to the stage. Simply connect a 5-wire DMX control cable from the console output to the DMX input on the dimmer. As the standard mandates, the LP600 has a 5 pin XLR female connector. Additional dimmers can be "daisy-chained" from the first dimmer by running additional cables between the dimmers.

DMX 512 uses a high-speed digital signal, and the correct cable type is essential for reliable operation. Microphone cable is not DMX cable. Use of microphone cable for DMX 512 is not recommended.

The LP600 has been tested and complies fully with the USITT DMX 512/1990 standard, and should pose no compatibility problems with any DMX 512 dimmers from Leprecon or from other manufacturers. Should any suspected incompatibilities be encountered, please contact your Leprecon dealer with the specific dimmer model and manufacturer.

ANALOG OUTPUT

Even with the advent of digital control standards, many portable lighting systems use analog control lines between the console and the dimmer racks. The LP600 provides 0-10 volt analog outputs, using Cinch-Jones connectors. The pin connection of these connectors is identical to that used on many other Leprecon products.

CONNECTOR PIN ASSIGNMENTS: LP612 ONLY

The analog version of the LP612 uses two panel mount male Cinch-Jones 8 pin connectors for control output. The pin connections are as follows:

1   **2**
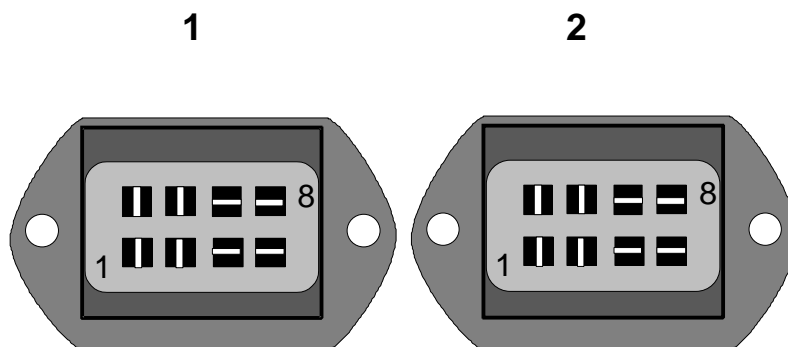
CONNECTOR 1	
PIN	FUNCTION
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	No connect
8	Common

CONNECTOR 2	
PIN	FUNCTION
1	Channel 7
2	Channel 8
3	Channel 9
4	Channel 10
5	Channel 11
6	Channel 12
7	No connect
8	Common

CONNECTOR PIN ASSIGNMENTS : LP624 ONLY

The analog version of the LP624 uses one panel mount male Cinch-Jones 27 pin connector for control output. The pin connections are as follows:
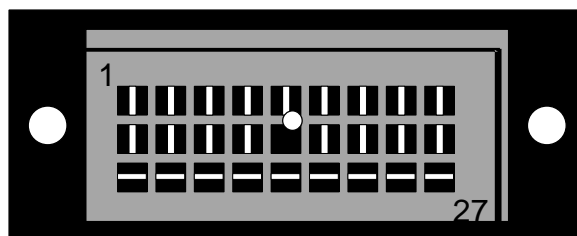
27-PIN CONNECTOR	
PIN	FUNCTION
1-24	Channels 1-24
25	No Connection
26, 27	Common

3 Control Layout

The diagram below illustrates some of the controls that will be referenced in this manual. Although the LP612 is shown, the controls of the LP624 are similar.

LP-612 Memory Console Controls
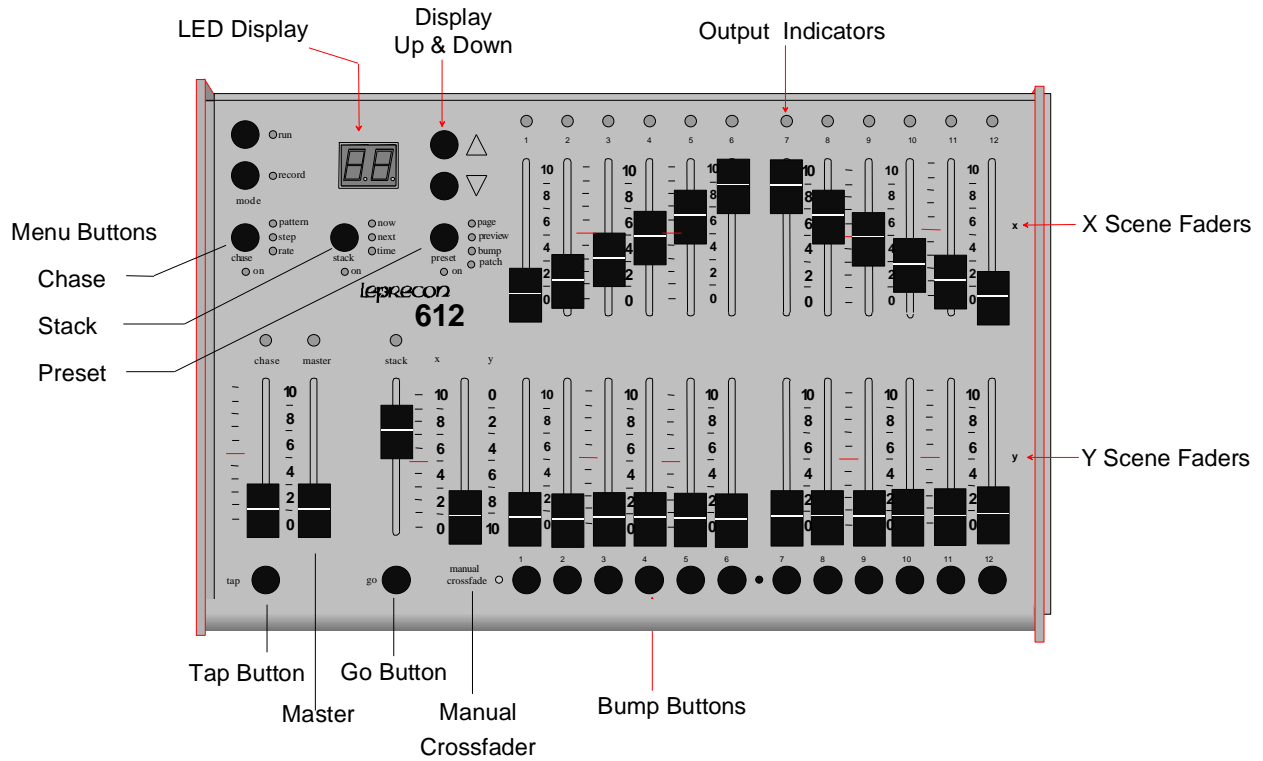
4   Startup

The console will perform a brief test when power is applied. If the board fails power-on testing, the display will show:

Any error message indicates problems that must be repaired. Some errors may leave the LP600 functional in manual mode only.

5   Manual Mode

The LP600, in addition to being a powerful memory console, can also be used as a simple two-scene preset board. This allows an untrained operator to immediately start using the board, and learn its more advanced features as time permits.

To set the LP600 to manual mode, press the **preset** menu button. The **page** LED will light. Press the down arrow until the display shows:
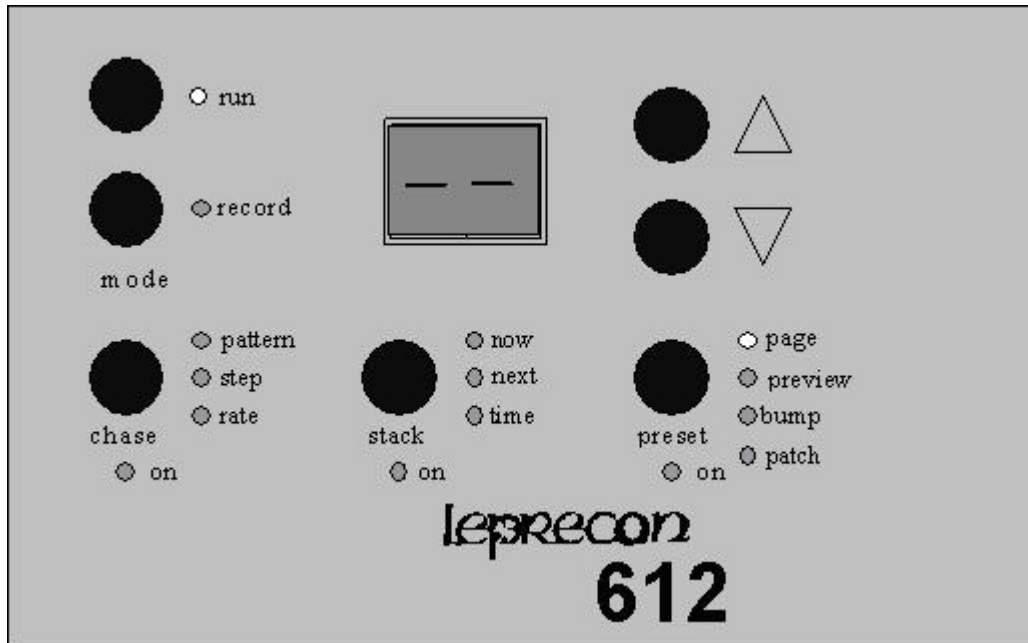
This indicates that the preset memories are off. The **preset on** LED will be turned off.

X AND Y PRESET SCENES

The most basic control of the LP600 console is provided by the rows of faders for the two manual scenes, labeled **X** and **Y**. Each **X** and **Y** pair of faders controls a single console channel, which may be connected to one or more dimmer channels. The green output LED above each channel indicates the channel's relative intensity.

CROSSFADER

The Manual Crossfader, just to the left of the **Y** scene faders, is used to fade from the top manual (**X**) scene to the lower manual (**Y**) scene. With the fader at the top position, the board output will be set by the levels on the **X** scene faders. If the crossfader is moved to the bottom position, the levels on stage will be set by the position of the **Y** scene faders.

Typically a scene might be set up with the **X** channel faders in advance. When that cue is called, the manual crossfader is moved upward to the **X** position. This leaves the **Y** scene available to be set up for

the next cue. At the appropriate time, the Crossfader is pulled down to the **Y** position, and the now inactive **X** scene available to be set for the next cue.

MASTER

The Master fader is used to set an overall output level for most board controls. The Master can be used to fade out all scenes of the console for a blackout. The only controls that operate with the Master down are the bump buttons and Chaser. No output from the Cue Stack, Preset scenes or Manual scenes are possible with the master level down.

BUMP BUTTONS

The momentary switches, commonly known as bump buttons are located below the lower scene faders. They have different functions depending on the current mode of operation.

The normal **run** mode function of these switches is to momentarily flash a channel or scene on stage without using the fader. The channel or scene drops back out when the button is released.

When cues are being programmed and edited, these buttons are used to select memories for modification. Therefore, when the **record** or edit modes are active, the bump buttons **do not** act as bump buttons.

To display and change the bump button modes, press the **preset** menu key until the **bump** LED is lighted. The display will show one of five possible modes:

1   Bumps Off

This display indicates the bumps are disabled. No possibility exists of flashing a channel or scene by accidentally pressing a button while running a show.
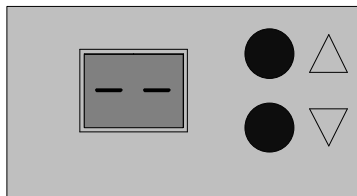
2   Channel Add

Channel Add is the simplest mode of bump operation. Pressing a bump button will bring the channel up on stage for as long as the button is pressed without affecting any other channels.
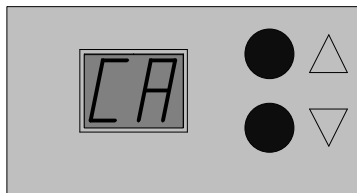
3   Channel Solo

When Solo mode is selected, pressing a bump button will black out any other channels that are up, and bring the selected channel to 100% output. Any output from the Chaser, however, will not be affected by depressing a bump button in Channel Solo mode.
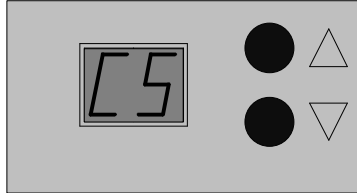
The last two bump modes are available only when preset memories are active.

4   Preset Add

When preset memories are active, the lower scene faders are being used as Preset Masters. In this case, the **Y** scene faders no longer control single channels, but entire memory scenes. The bump buttons can be used to flash the memorized scene. The Channel Add and Channel Solo settings can still be used to bring up a single channel, even though the fader controls an entire scene.
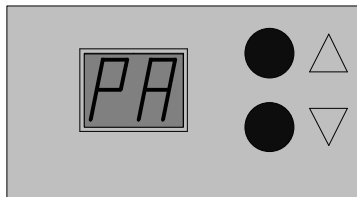
For more information, see section **Using Memory Presets** on page 27.

5   Preset Solo

The Preset Solo mode flashes a memorized preset scene on stage, while blacking out any other channels or scenes. The effect is the same as bringing down the master fader momentarily while pressing a bump button. The Chase and any other bumps are the only area of the board not affected by a Solo bump.
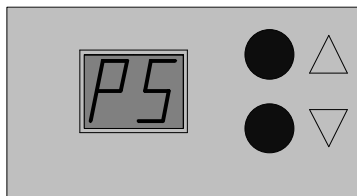
- **RUNNING IN MANUAL MODE**

    1 Set all **X** and **Y** channel faders and the **master** fader to zero.

    2 Set the **manual crossfade** slider fully downward, to the **Y** scene position.

    3 Bring the **master** fader up to full. No stage lights will be on.

    4 Set up the first scene on the **X** channel faders.

    5 Push the **manual crossfade** slider up to the **X** position, and the **X** scene will light the stage.

    6 Set up the next scene on the inactive **Y** channel faders.

    7 Crossfade to the **Y** scene by moving the **manual crossfade** slider to the **Y** position.

    8 Continue to set up subsequent scenes in this manner; alternating between the **X** and the **Y** groups.

PATCHING DIMMERS

The LP600 series allows for a default 1:1 patch to be used, or a custom dimmer patch can be built.

The custom patch allows the assignment of any dimmer circuit to a specific board channel. Up to 96 DMX dimmer channels, 48 Microplex and 24 analog channels can be patched. More than one dimmer circuit may be assigned to a single board channel; in other words, the channel 8 fader on the console might bring up dimmer circuits 8, 16, and 32. However, a single dimmer circuit can be patched to only one board channel.

To set the patch, press the button labeled **preset** below the numeric display until the yellow LED labeled **patch** is lighted:
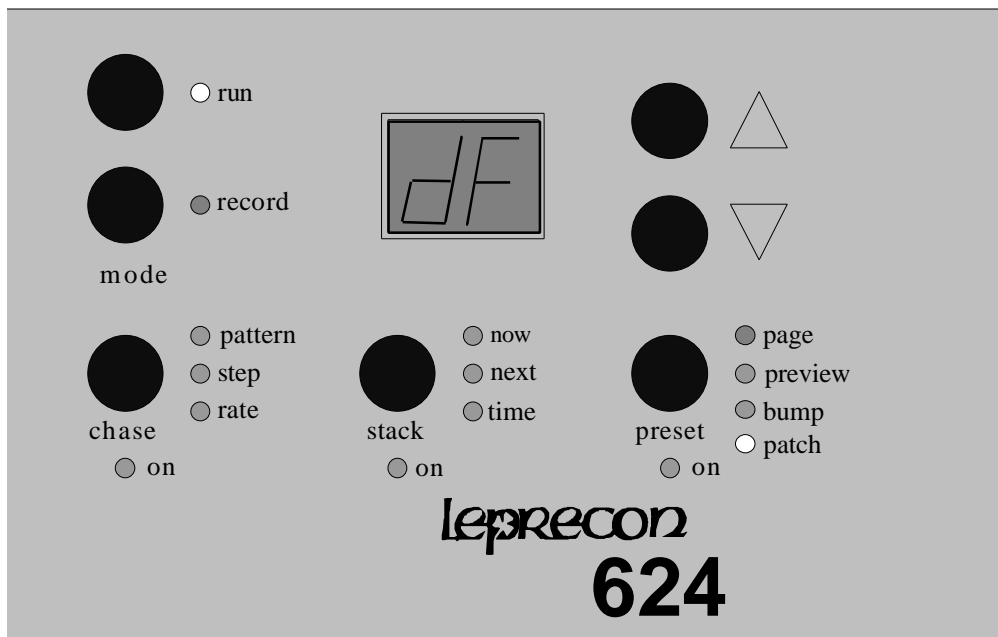
The **dF** display indicates the default, or straight 1:1 patch is in effect. To switch the board to the custom patch, press the up arrow next to the display.

The 2-digit display now shows the active dimmer number. The active dimmer can be changed with the up and down arrows.

The channel assigned to the active dimmer channel is indicated by the output LED indicator located above each board channel. To assign the active dimmer channel to another board channel, press the bump button of the new channel. The LED for the previously assigned board channel will go out, and the LED for the new board channel will be lighted.

To clear a dimmer assignment, press the bump button of the lighted channel. The bump button will toggle the channel to an "off" state.

- **TO ERASE THE CUSTOM PATCH**

  1 Press the **preset** menu button in the upper left corner of the board. Repeat key press until the **patch** LED is lighted.

  2 Press the down arrow until the label **CL**, indicating CLEAR, appears on the display. The red **record** LED will begin to blink.

  3 While the LED is blinking, press the **record** key.

  4 While the display is blinking, press **record** again to clear all presets.

  5 The board will verify the operation by displaying **dE** (Default Erase) for a few seconds. The custom patch will now be initialized to a 1:1 patch for 12 or 24 dimmers (LP612 or LP624).

6   Using Memory Presets

The LP600 is much more than a two-scene preset board. The lower scene of faders can be converted to individual memory preset masters. This is indicated by the **preset** LED being lighted. These presets operate in a "pile-on" mode, allowing more than one preset to be up at any one time.

CLEARING MEMORY

Preset scenes, stack cues, and chases recorded into the LP600 are stored in non-volatile memory. This memory system uses no battery, eliminating the need for checking and replacing backup batteries.

When starting to program a new show, it is easier to start with an empty board. The Erase function in the LP600 can be used to delete all scenes, cues, and chases, leaving the scenes empty and ready to program.

- **TO ERASE PRESET SCENES IN THE LP600**

    1   Press the Preset menu button in the upper left corner of the board. Repeat key press until the **page** LED is lighted.

    2   Press the down arrow until the label **CL**, indicating CLEAR, appears on the display. The red record LED will begin to blink.

    3   While the LED is blinking, press the **record** key.

    4   While the display is blinking, press **record** again to clear all presets.

    5   The LP600 will verify the operation by displaying **PE** (Preset Erase) for a few seconds.

- **TO ERASE STACK CUES IN THE LP600**

    1   Press the **stack** menu button in the upper left corner of the board. Repeat key press until the **now** LED is lighted.

    2   Press the down arrow until the label **CL**, indicating CLEAR, appears on the display. The red **record** LED will begin to blink.

    3   While the LED is blinking, press the **record** key.

    4   While the display is blinking, press **record** again to clear all presets.

    5   The LP600 will verify the operation by displaying **SE** (Stack Erase) for a few seconds.

- **TO ERASE CHASES IN THE LP600**

    1   Press the **chase** menu button in the upper left corner of the board. Repeat key press until the **pattern** LED is lighted.

    2   Press the down arrow until the label **CL**, indicating CLEAR, appears on the display. The red **record** LED will begin to blink.

    3   While the LED is blinking, press the **record** key.

    4   While the display is blinking, press **record** again to clear all presets.

    5   The LP600 will verify the operation by displaying **CE** (Chase Erase) for a few seconds.

PRESET MENU

The Preset functions are controlled by pressing the **preset** menu key on the front panel. When in the Preset mode, this button switches between four items:

MENU ITEM	FUNCTION
page	Page number of memory
preview	Preview and Edit
bump	Bump Button control
patch	Dimmer assignment
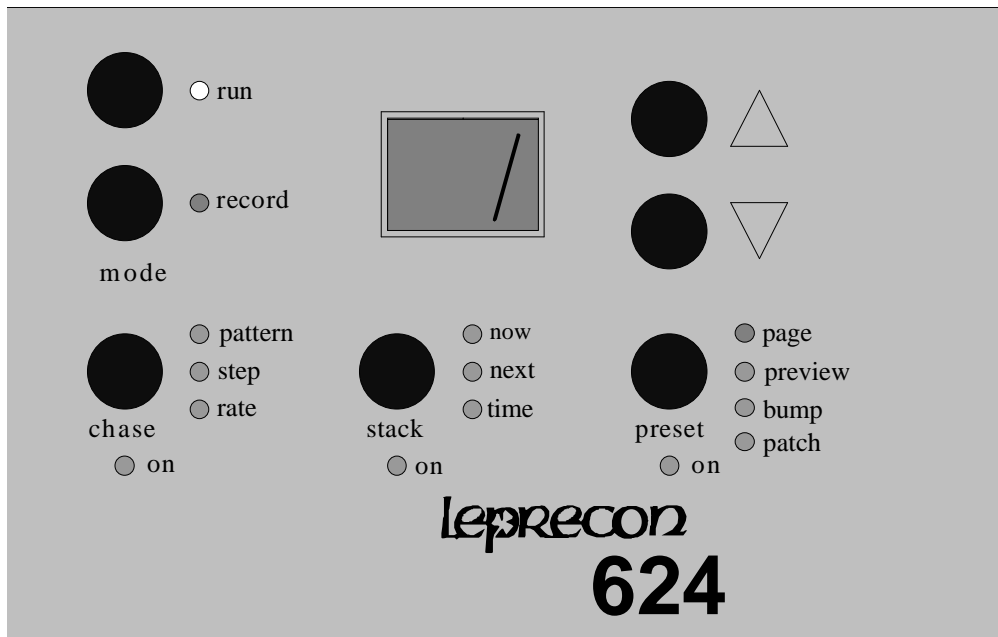
When the **page** LED is lighted, the display up and down keys cycle through the pages:

DISPLAY	MODE	PRESET LED
? ?	manual mode	off
1	page 1	on
2	page 2	on
3	page 3	on
4	page 4	on

In manual mode (display ? ?) the LP600 operates as a two-scene console. If the page number is set to 1 or higher, the Y scene faders act as memory presets. Each page represents an entire set of presets. The LP612 can store 48 preset memories organized as four pages of 12 memories. The LP624 can store 96 preset memories organized as four pages of 24 memories.

PAGE FREEZE

When the page number is changed, the presets are assigned a new set of memories. To prevent sudden changes on stage, any fader which is up (above 1 on the scale) maintains its current "look" or memory scene when the memory page number is changed. The fader will hold its scene until it is brought down to zero. At that time, it is then assigned a scene on the new page.

This page freeze method is also used when switching between manual mode and the memory presets mode. If a **Y** scene fader is up when the page number is switched from manual (? ?) to page 1, the fader remains a channel in the **Y** scene until it is brought down. Once the fader is down, the fader is then assigned a memory preset scene in page 1. If a fader is assigned a memory preset scene and the fader is up, it keeps the preset scene up even when the page number is changed to manual mode (? ?). Only when the fader is brought down to zero does it revert to a channel in the **Y** scene.

RECORDING PRESETS INTO MEMORY

Recording presets on the LP600 is quick and simple. Presets are always recorded from the console's current output. In other words, the levels of all lights, whether they are controlled from the **X** scene, another preset, the Cue Stack or any combination of these, can be recorded as the new preset. In general, what you see on stage is what you will get as a memory. Thus, when the **master** fader is at maximum, raising a particular preset fader to maximum will reproduce the exact output of the console at the moment that preset was recorded.

- **TO RECORD SCENES INTO MEMORY PRESETS:**

    1   Press the **preset** menu key to light the **page** LED.

    2   Use the display up and down keys to select a page number of 1 through 4.

    3   Place the console in Record mode by pressing the **record** button.

    4   Set the stage look using the **X** scene channel faders.

    5   Press the bump button beneath the desired preset fader.

    6   When finished recording, press the **run** key.

When the record key is pressed, the LEDs located next to the bump buttons will begin to flash along with the record LED. This is to indicate that the buttons are ready to select a preset to be recorded.

When a bump button is pressed, the scene is recorded. The **preview** LED is lit momentarily (along with the **page** LED), and the display verifies the number of the preset that was just recorded.

Illegal or impossible record commands will result in an error indication on the display:
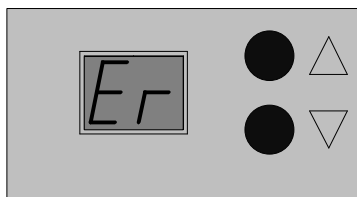
If the record button is pressed when presets are disabled (page ? ?), the error message will be momentarily displayed. If the selected preset was in Page-Freeze mode, then the display shows a flashing error for a couple of seconds, and the preset is not recorded. The display then reverts to the page number.

While in the Record mode, scenes may be entered in any order into the LP600. Once recording is finished, press the **run** mode button to return to Run mode.

PRESET PLAYBACK

Once scenes have been recorded into the Preset Memory faders on the LP600, they are immediately available for use. It is not necessary to leave the record mode to check or playback the memory.

With the master fully up, bringing up the fader for a memory scene will output the scene to the stage. Any number of faders can be up at one time. The scenes "pile on" with higher scenes taking precedence.

PREVIEWING PRESETS

From the preset page display, pressing the **preset** menu button again will set the console to the Preview mode. This will be indicated by the **preview** LED. The preview mode is available only if the **preset** LED is lighted, which indicates a page number of 1 through 4 is selected.
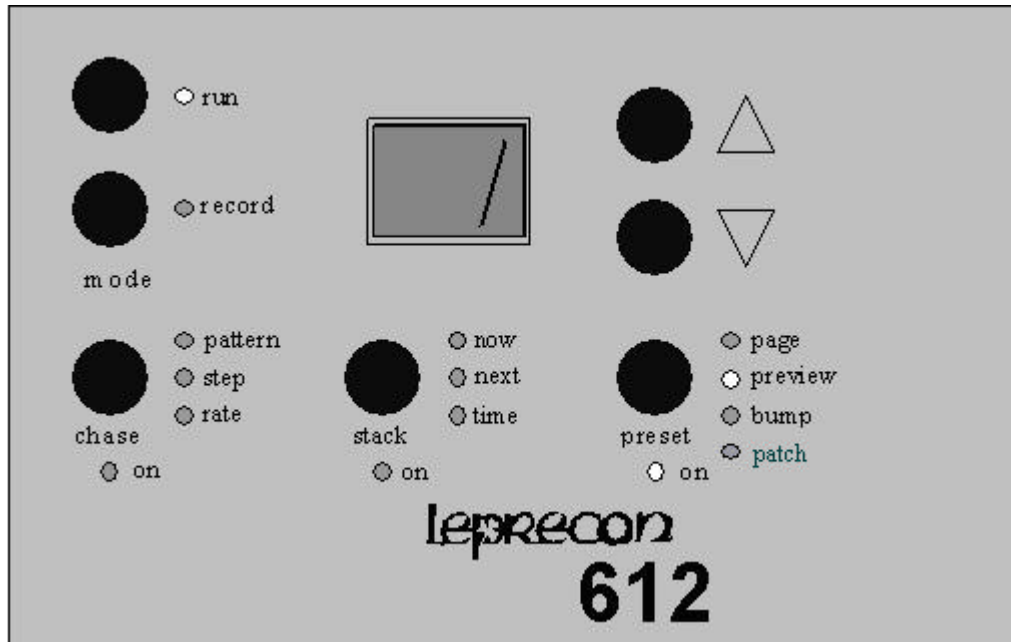
In Preview mode, the green output level LEDs no longer represent the on-stage levels. The LEDs now show the channel levels as stored in the selected preset scene. The LEDs next to the bump buttons are steadily lit, indicating the bump buttons function as preset selects.

The first time this mode is entered after startup, the preset number 1 is selected. This number can be changed by pressing the up or down arrow keys or by pressing the bump button below the preset to be previewed.

EDITING PRESETS

Single channel level changes can be quickly made to a selected preset. The **X** scene faders are used to adjust levels within the preset.

- **TO EDIT PRESETS**

  1   Press the **preset** menu key to light the **page** LED.

  2   Use the display up and down keys to select a page number of 1 through 4.

  3   Press the **preset** key again to change to preview mode.

  4   Press the bump button of the scene to be edited.

  5   Press the **record** key to start the edit.

  6   Use the **X** scene faders to "grab" and adjust channel levels.

  7   Conclude the edit with the **run** key, or by selecting another preset.

During an edit, the Select LEDs next to the bump buttons, as well as the **record** LED will be lighted. This indicates that the buttons are available to select presets to be edited.

To edit a channel, first move the channel fader to the approximate level indicated on the LED. This will "grab" the channel and the LED will begin to follow the fader position. Any number of channels in the preset may be adjusted in this fashion.

When all channels have been adjusted, press the **run** key to save the modified preset. To edit several scenes in a row, press another bump button for the next preset to be edited instead of pressing **run**. This will save the results of the first edit, and start the edit of the next preset.

7   Cue Stack

The Cue Stack feature of the LP600 offers many of the features that are useful in a small theatre board. Up to 50 cues can be programmed and played back in sequence with perfectly timed fades. Recording, editing and running the Cue Stack is quick and easy.

To use the Crossfade Stack, first press the **stack** menu button below the display.

When in the Stack mode, this button switches among the 3 parameters or items:

ITEM	DESCRIPTION
now	The Now (current) scene
next	The Next scene
time	Fade time from Now to Next

When the **stack** key is pressed for the first time, the now LED will light. The display will show as pictured:
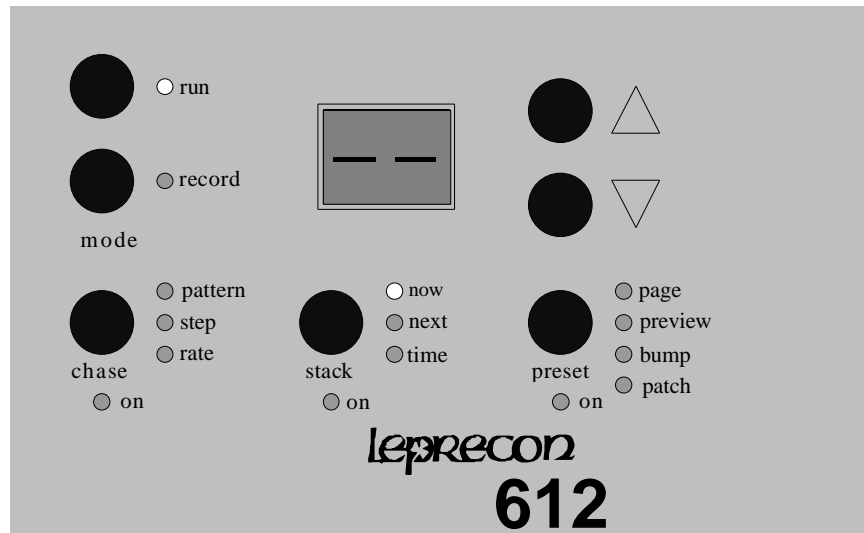
This indicates that the current stack cue is blank, and no output is present from the stack. The scene number which is below 1, "?   ? ", is the blackout scene. This blank scene can be set for the Next scene, and a fade to black will result.

In the case where both the **now** scene and the **next** scene are set to off (?   ?), the stack output is off and the **stack** LED is off. The **stack** crossfader and the **go** button are now ignored.

Pressing the stack menu button a second time will light the **next** LED, and the display will indicate the cue ready to fade. Pressing the up and down arrow keys allows any of the 50 scenes to be set in the next display:

The crossfade from **now** to **next** can be started by pressing the **go** button, or controlled manually by moving the stack fader from one end of its travel to the other.
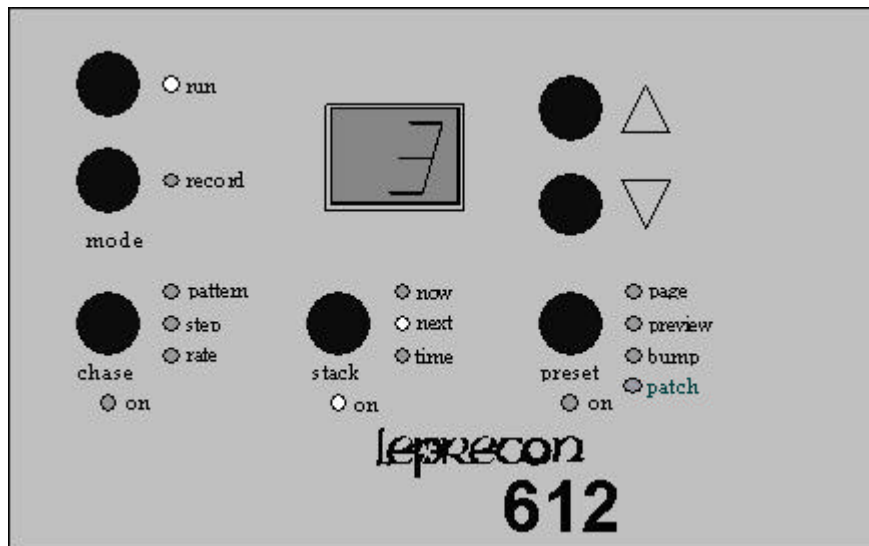
RECORDING STACK SCENES

Recording into the Stack places a stage look in the cue selected as next. In the example above, this would be Cue #3. To select another cue, use the up and down arrow keys.

Set up the stage look by using the **X** channel faders or any available presets. Press the **record** button. The red LED next to the button will begin to blink.

Cues can be entered in sequence simply by setting scenes and pressing the **record** button to record each cue. At any time, any cue number from 1 to 50 can be set and recorded. The sequence will advance from that point. For example, **next** could be set to **10**. This would be done by pressing the up arrow key until the number **10** appears on the display. The next time **record** is pressed, Cue #10 will be recorded. The Cue number will automatically advance, and the next cue would be 11.

When finished recording, return to Run mode by pressing the **run** button. The Record and Select LEDs will stop flashing and the bump buttons will return to normal operation.

- **TO RECORD STACK PRESETS**

  1   Press the **stack** menu button to display the **now** scene. Use the down arrow key to set **now** to

   ? ? .

  2   Press the **stack** menu key again to light the **next** LED.

  3   Use the display up and down keys to select a cue number of 1 through 50.

  4   Set levels on stage using manual channels or Presets.

  5   Press the **record** key once. The **record** LED will begin to blink.

  6   Press **record** again to memorize the cue. The **next** cue number will advance.

  7   Continue setting and recording cues.

  8   Press **run** to end recording.

ASSIGNING FADE TIMES

All cues in the Stack can be assigned a fade time. The time setting reflects the total time to finish a complete crossfade from **now** to **next**. The fade time is associated with the **next** cue. Timed fades are started by pressing the **go** button.

To enter fade times, press the **stack** menu button below the display until the **next** LED is lighted. Use the up and down arrow keys to select the correct scene number. Press the **stack** key again to light the **time** LED. Use the up and down arrow keys to set the fade time. Note that times are displayed in tenths of seconds from 0.0 to 9.9 seconds The display then shows increments of 1 second from 10 to 59 seconds.
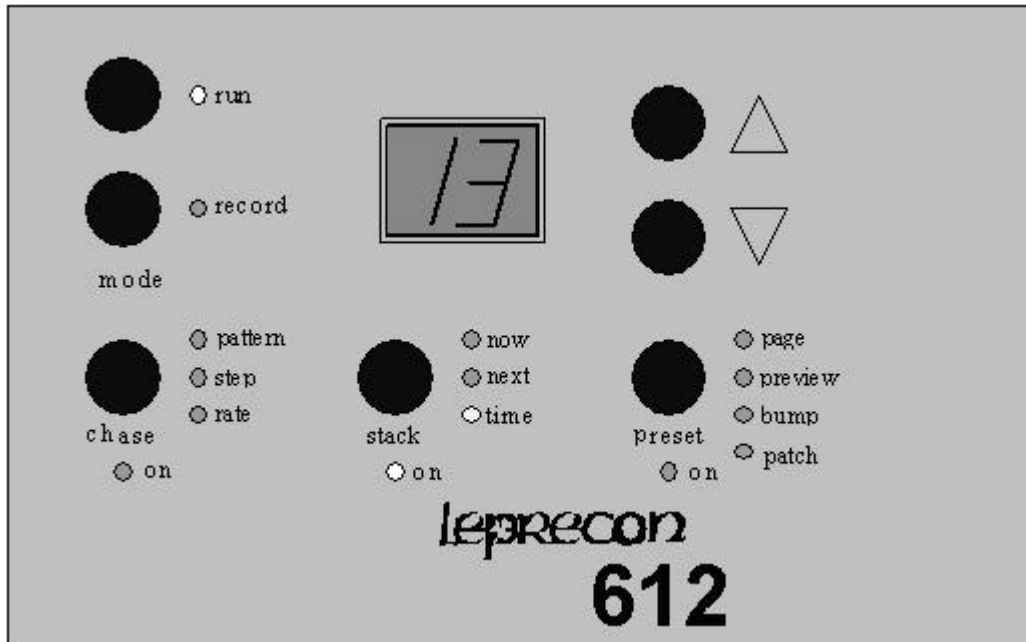
DEFAULT FADE TIME

To simplify entering fade times, a default time may be entered for all cues. This can only be done when the Stack is cleared and all cues are erased. To select a default time for all stack cues, press the **stack** key until the **next** LED is lighted. Use the down arrow key to set the display to the blank scene (? ?).
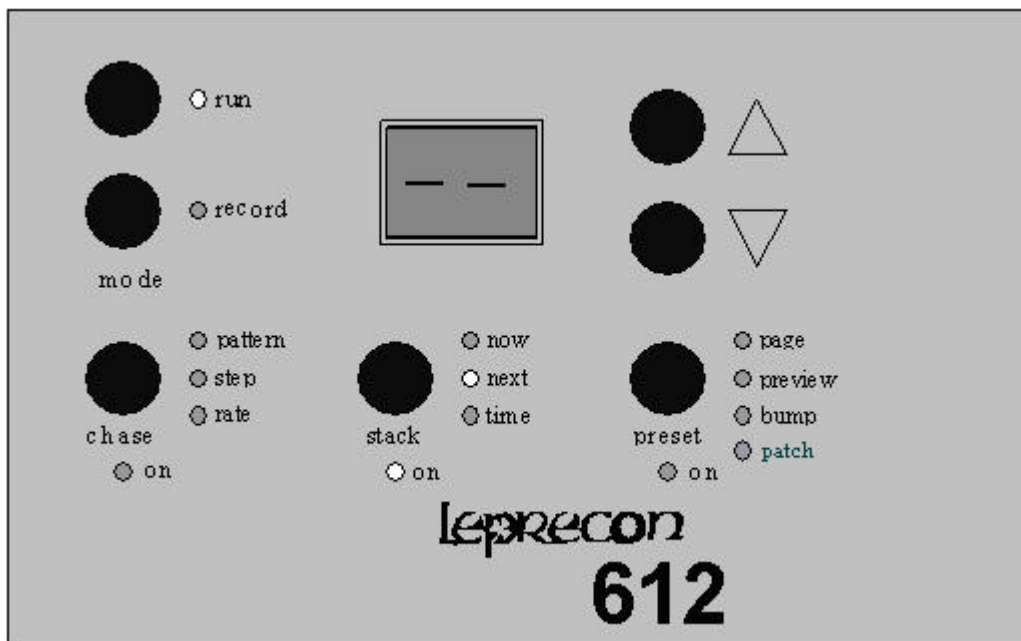
When **next** has been set to the blank scene (pictured above), press the **stack** menu button again to light the **time** LED. Enter the time desired as the default time for all scenes.

Now proceed to erase all stack scenes as described on page 11. The time that was entered for the blank scene will be inserted as the fade time for all stack scenes.

STACK PLAYBACK

The cues recorded in the Cue Stack can be used in several ways. The first is as a simple manual crossfade stack. As the crossfader is moved from one end to the other, a dipless crossfade is performed between the cues listed as **now** and **next**. This gives the board operator control of the transition.

An automatic timed fade is started by pressing the **go** button. At the instant the button is pressed, the fade begins. The **next** cue display can be re-set at any time to take cues out of sequence. The playback order will continue on sequentially from that point.

The green LED above the crossfader indicates the progress of the fade. The LED pops to full to indicate the beginning of the fade, and dims out as the fade continues.

When the scene number is changed from 1 with the down arrow key, the scene number displayed goes to ? ? , and the stack output is then turned off. This is how the stack can be quickly removed from the on-stage look.

EDITING CUES

Once a Stack cue has been recorded, the level of a single channel in memory can be altered without re-recording the entire cue. In the Edit mode, the faders of the top scene are used to adjust the channel levels. The scene shown in the **now** position on the display is the scene that will be edited. This allows scenes to be modified as they are seen on stage.

- **TO EDIT STACK CUES**

    1 Crossfade to the cue to be edited.

2 Press the **stack** menu key to light the **now** LED.

3 Press the **record** key to start the edit.

4 Use the **X** scene faders to "grab" and adjust channel levels.

5 Conclude the edit by pressing the **run** key.

To enable editing the scenes in the Stack, the console must be placed into the Record mode and the Stack menu button must be pressed to select the Now scene mode. The scene number set in **now** is the number of the scene being edited.

In edit mode, the output level LEDs are used to show the contents of the selected memory. The **X** scene faders directly below the LEDs are used to adjust channel levels. The faders take control of a channel when the fader position matches the level recorded into memory. The brightness of the level LED and the value in the display will begin to change when the fader takes control of the channel. For example, to edit a channel that was recorded at 100%, it would be necessary to bring the top scene fader for that channel up to full to capture the channel, moving the fader down from that point would reduce the level of the channel.

Any number of channels can be adjusted in one edit, using the **X** scene faders.

To edit a sequence of stack scenes as they are being played back, simply leave the console in the now mode. When a scene is encountered that needs editing, press the **record** button. This places the scene in the Edit mode and changes can then be made. The console may be left in Edit mode while a series of scenes are played and edited. This is handy for rehearsal-type changes.

8 Chase

The Chase functions are activated by pressing the **chase** menu key on the front panel. The board will enter the Chase mode.

When in the Chase Menu mode, this button switches among the 3 parameters or items:

ITEM	DESCRIPTION
pattern	The Chase pattern to be viewed
step	The current step number
rate	The current Chase rate

The Chaser level is controlled by the **chase** level fader. When the fader is down, the Chaser is off. When the fader is brought up, the Chaser is started on the first step of the selected pattern.

PATTERN

The first item in the Chase menu is the Chase Pattern mode. This is indicated by the **pattern** LED being lighted. The 2-digit display indicates the pattern number. This number can be changed using the up and down arrow keys. Patterns 1 through 4 are pre-programmed Chases that cannot be altered. Patterns 5 through 11 are custom patterns that must be recorded before use.

When the pattern number is changed to below 1, the display shows ? ? , and the Chaser is off and disarmed.

When the pattern number is set to 1 or higher, the Chaser is on. When the Chase fader is brought up, the Chaser starts running and the Chase appears on stage at the level of the fader. Each pattern has up to 24 steps associated with it.

STEP

Pressing the **chase** menu key a second time will light the **step** LED and the display will show the current step number of the selected Chase pattern. While the Chase is running, the number moves at the rate recorded for the Chase. When the Chase is stopped, the number displayed is the last step viewed before it was stopped.

RATE

The **rate** mode displays the Chase rate in percent of full speed. The up and down arrow keys can be pressed to increase or decrease the speed of the Chase. There are 100 accessible rates using these buttons.

The Chase rate can also be set using the Chase **tap** button. When a Chase is running, tapping the button rhythmically synchronizes the Chase rate with the rate of the tapping.

Chase **rate** is saved with the Chase. When the Chase is recalled, the rate will automatically be set.

PRE-PROGRAMMED CHASES

The standard Chases can be run immediately without recording steps, but cannot be altered. These Chases are selected by setting the Chase pattern display to positions 1 through 4. The four standard Chases have the following effects:

1 Straight

A single channel on, advancing sequentially from 1-2, 2-3, and so on until step 6 loops back to channel 1.

2 Reverse

Same as Chase 1 except begins with channel 6, and proceeds to light lower channel numbers until 1 is reached. The next step loops back to channel 6.

3 Zig-Zag

A ten-step Chase that starts with only channel 1 up, and advances sequentially until channel 6 is lighted. Step 7 starts the Chase back down from channel 6 to 5, and it proceeds back down to channel 1, when the pattern repeats.

4 Straight 12 channel

Same as Chase 1 except advancing sequentially from 1 to 12, when the loop repeats.

RECORDING NEW CHASES

The Chaser section of the LP600 allows for seven custom Chases to be programmed by the user. Each of these patterns can consist of up to twenty-four steps, each consisting of any combination of channels. These programmable Chases are available on patterns 5 through 11.

- **TO RECORD A CUSTOM CHASE:**

  1 Set the **pattern** display to one of the patterns 5 to 11.
  2 Move the **chase** fader to zero. The Chase cannot be running while steps are recorded.
  3 Press the **chase** menu button a second time to enter **step** mode.
  4 Press the **record** button.
  5 Set the channels of the Chase step using the bump buttons or **X** scene faders.
  6 Press the up arrow key to advance to the next step.
  7 When finished, press the **run** key to end programming.

LEVEL CHASES

The LP600 series has provision for programming channel levels as Chase steps. This allows any value between 0 and 100% to be programmed as a channel level.

The programming of levels is identical to the procedure outlined above for Chase recording. If the bump buttons are used to set channel levels, the only values used will be off and on. If the **X** scene faders are used, the level set with the fader is memorized into the Chase step.

PATTERN EDIT

When a custom Chase is entered in the LP600, a fixed length for that Chase is established. Pattern edit allows the Chase steps to be altered without changing the length of the Chase. Pattern edit only can be used for a Chase that has been already programmed as described above.

During a pattern edit, the **tap** button steps the Chaser to the next step without changing the Chase length. The tap button can be used to step through all the steps of the Chase pattern to verify it is correct.

First, select the pattern to be changed. Press the **chase** menu key to light the **pattern** LED. Use the up and down arrow keys to select the **pattern**. Press the **chase** menu key again to light the **step** LED. The display will show the current step of the selected pattern.

Press the **record** key to start the edit. In this mode, the Chaser is stopped regardless of the recorded rate. The output LEDs will show the programmed channels of the indicated step. Use the **tap** key to advance the Chase step by step. When a step is to be edited, use the bump buttons or **X** scene faders to turn channels on or off.

STEP EDIT

When the Chase pattern is 5 or higher and the Record mode is on, step editing allows changing the number of steps in the selected pattern.

First select the pattern to be changed. Press the **chase** menu button to light the **pattern** LED then press the **record** button. The pattern number must be set to 5 or higher.

Press the **chase** menu key a second time to show the current step number. The step number can be changed using the up and down arrow keys. As steps are added using the up key, the channels programmed into each step may be set using the bump buttons and faders.

The step number showing when the run button is pressed becomes the new length of the Chase.

9 Troubleshooting

POWER ON TEST FAILS

If **EE** appears in the LED display when the LP600 is powered up, there is a problem that requires repair. See page 27 for repair and warranty information.

ERROR IN LED DISPLAY

Er in the LED Display indicates that an impossible or illegal command has been entered.

LIGHTS NOT COMING UP OR NOT FULL INTENSITY

Check the position of the master fader to ensure it is not down. Move the master fader all the way up for maximum intensity.

Check the manual crossfade slider to ensure it is up if you are adjusting the X scene (upper) faders to control the current scene, or down if you are adjusting the Y scene (lower) faders to control the current scene.

If neither of the above solves the problem, continue to the next troubleshooting item.

LIGHTS NOT RESPONDING TO FADERS AS EXPECTED

If the lights are not responding according to the way you have cabled them to the dimmers, there may be a custom dimmer patch in effect.

1   Press the **preset** menu button until the **patch** LED indicator light is on.
2   If the LED display is not **dF** (default patch), then press the down arrow until **dF** is displayed. This makes the custom patch inactive.

If this does not solve the problem, note whether the cue stack is active. The **stack on** LED indicator light will be lit. The following steps will make the cue stack inactive:

1   Press the **stack** menu button until the **now** LED indicator light is on.
2   Press the down arrow key repeatedly until **- -** appears in the two-digit LED display.
3   Press the **stack** button until the **next** LED indicator light is on.
4   Press the down arrow key repeatedly until **- -** appears in the two-digit LED display.

If this does not solve the problem, continue to the next troubleshooting item.

LIGHTS REMAIN ON OR ACTIVE WHEN MASTER OR MANUAL FADERS ARE DOWN

The chase might be active. The chase can be made inactive as follows:

1   Press the **chase** menu button until the **pattern** LED indicator light is on.
2   Press the down arrow key repeatedly until **- -** appears in the two-digit LED display.

LIGHT(S) TURN ON WHEN BUTTONS BELOW FADERS ARE TOUCHED ACCIDENTALLY

The bump buttons can be made inactive as follows if they are not needed:

    1   Press the **preset** button until the **bump** LED indicator light is on.

    2   Press the up or down arrow key repeatedly until **- -** appears in the two-digit LED display.

BUMP BUTTONS DO NOT TURN ON EXPECTED LIGHTS

There are four different bump button modes. Depending on the mode, the bump buttons will turn on lights for the associated channel, or for the associated preset memory. Verify the bump button mode and change it if needed:

    1   Press the **preset** button until the **bump** LED indicator light is on.

    2   Use the up or down arrow key to change to the desired mode. The mode will be displayed in the two-digit LED display. See page 8 for a complete explanation of bump button modes.

BUMP BUTTONS TURN OFF SOME STAGE LIGHTS

This can happen if the bump buttons are in CS (Channel Solo) or PS (Preset Solo) mode. These modes turn off all stage lights except those associated with the channel or preset memory of the bump button. Verify the bump button mode and change it if needed:

    1   Press the **preset** button until the **bump** LED indicator light is on.

    2   Use the up or down arrow key to change to the desired mode. The mode will be displayed in the two-digit LED display. See page 8 for a complete explanation of bump button modes.

10 Repair and Warranty Information

Leprecon, LLC will repair any defects in materials or workmanship on the LP600 for a period of two years from the date of sale. The equipment must be returned postpaid to the factory, and Leprecon, LLC will pay return shipping charges. Leprecon, LLC is not responsible for incidental damages, or for damage as a result of misuse or abuse. It is the responsibility of the owner to determine the suitability of the console for any specific application.

Our service department must authorize any return to the factory. Do not return any equipment without first calling for an authorization number. The Leprecon, LLC Service Department may be reached at (810) 231-9373 during business hours, or a message may be left after hours. Our fax number is (810) 231-1631.

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10087 Industrial Drive
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GLOSSARY

- -   The LED display on the LP600 indicating empty or inactive.

analog   A continuously variable signal that can have any value over a given range. Many electronic devices use digital logic, handling information in separate bits (either ON or OFF) rather than continuously variable analog signals. Most computer lighting boards give a digital multiplexed output.

blackout   Complete absence of stage lighting.

board   The main control for the stage lighting. Lighting boards are bundles of electronics that are used to tell the dimmers the level of intensity for each channel, and therefore the brightness of the corresponding lights. You can connect more than one light to a channel. The boards typically have lots of sliding controls, called faders, each of which controls something.

                   The lighting operator for a show is said to be "on the board", and is sometimes known as the "board op". The LP612 and LP624 are boards.

bump buttons   Push buttons on a lighting board that flash on selected channels or preset memories while pressed. Manual bump buttons are useful in concerts for quickly turning on or off certain lights. Bump buttons are located at the base of each channel slider on the LP612 and LP624. The channel or preset memory will remain on as long as you hold down the bump button. Once you release the button, the light(s) on that channel/preset will instantly go off. The bump button can be operated to the beat of a song to make the lights dance along with a singer or instruments.

CA   Channel Add is a mode of operation for bump buttons. In CA mode, depressing a bump button adds the light(s) on the corresponding channel to the current stage lighting while the button is depressed.

channel   A complete control path for signals in lighting or sound equipment. The LP612 has 12 channels available for controlling light. The LP624 has 24 channels.

chase   A repeated sequence of changing lighting states. A chase creates the illusion of movement in neon tubes or incandescent bulbs created by turning the light sources on and off in sequence. Chasing is more closely related to animated signs than to flashing.

chaser   An electrical component that can be programmed to provide the on and off sequence for a chase.

CL   The LED display on the LP600 indicating the memory can be cleared by depressing the record button twice.

crossfade   To bring another lighting state up to gradually and completely replace the current lighting state.

crossfader   A control on a lighting board that accomplishes crossfading. The manual crossfade slider on the LP600 is located directly to the left of the Y scene (lower set) faders. It crossfades between the X and Y scene settings.

CS   Channel Solo is a mode of operation for bump buttons. In CS mode, depressing a bump button turns on the light(s) on the corresponding channel and turns off all other stage lighting while the button is depressed.

cue   The command given to technical departments to carry out a particular operation.

                           On the LP600 series, "cue" can refer to the number in the LED display associated with a particular scene programmed into the stack, or the programmed scene itself.

cue stack   A series of scenes programmed into the memory of the LP600 by the user, each associated with a number from 1 to 50.

dE   The LED display on the LP600 indicating Default Erase; the custom dimmer patch has been successfully erased and reinitialized to the default patch of 1:1 (one dimmer to one channel) for all 12 or 24 dimmers.

dF   The LED display on the LP 600 indicating the default patch is in effect.

dimmer   Electrical or electronic device that controls the amount of electricity passed to a lantern, and therefore the intensity of the light. The LP600 controls dimmers; dimmers control lights.

dipless crossfade   A crossfade in which the intensity of a light does not "dip" or lessen if it is programmed to be equal or greater in the scene being faded to.

DMX512   The DMX512 was developed in 1986 by commission of the USITT (United States Institute of Theatrical Technologies) to make the communication system between the console and the dimmer standard and efficient. The DMX512 is a protocol of data transmission that takes advantage of the international standard EIA RS485; this definition covers not only the type of data transmitted, but especially the hardware; e.g. the circuits used for the transmission and the reception, electric characteristics, etc.

down arrow key   The button to the left of the down arrow (?) on the LP 600 console. Depressing the button once causes the value in the LED display to decrement once.

edit mode   Operating mode of the LP600 console when the level of one or more channels in one of the cues in the cue stack is being changed. Edit mode allows the user to change levels in a cue without re-recording the entire cue.

EE   The LED display on the LP600 indicating that the power-on test has failed. The unit needs to be repaired.

Er   The LED display indicating that an impossible or illegal command has been used in attempting to program the console memory; e.g. if the record button is pressed while presets are disabled, the Er message will display briefly.

fade   A fade is an increase, decrease or change in lighting level.

fade time   The amount of time during which one scene fades to another scene; the amount of time for dimmer levels to rise or fall from one position to the next.

fader   A vertical slider that is used to remotely set the level of a lighting channel.

LED display   A flat-screen device in which an array of light-emitting diodes can be selectively activated to display numerical and alphabetical information, used esp. in pocket calculators, digital timepieces, measuring instruments, and in some microcomputers. The two-digit LED display on the LP600 is located on the upper left of the console. There are also a number of LED indicator lights on the

board as well, each associated with a particular function.

level chase	A chase in which a channel level (0-100% intensity of light on a particular channel) can be recorded as a step in the chase.
manual mode	Mode of operation of the LP600 in which the lighting for a scene is set manually with the X and Y scene faders instead of recorded in memory presets or the cue stack.
master	An overall control on a lighting or sound control board. The master fader (slider) on the LP600 is used to set an overall output level for most board controls. The master can be used to fade out all scenes of the console for a blackout. The only controls that operate with the master down are the bump buttons and chaser. No output from the cue stack, preset scenes or manual scenes are possible with the master level down.
microplex	The microplex protocol was developed in the 1980s as a method of getting multiplexed control signals from consoles to dimmer packs at a relatively low cost. Signals can be transmitted using microphone cables, and small consoles can be powered over the data link.
momentary buttons	Alternate term for "bump buttons," which are push buttons on a lighting board that flash on selected channels or preset memories while pressed. Manual bump buttons are useful in concerts for quickly turning on or off certain lights. Bump buttons are located at the base of each channel slider on the LP612 and LP624. The channel or preset memory will remain on as long as you hold down the bump button. Once you release the button, the light(s) on that channel/preset will instantly go off. The bump button can be operated to the beat of a song to make the lights dance along with a singer or instruments
next	An LED indicator light on the LP600 console. When the next LED is lit, the cue number displayed in the two-digit LED display is the scene that will be faded to next when the go button is depressed or the manual crossfader is moved.
now	An LED indicator light on the LP600 console. When the now LED is lit, the cue number displayed in the two-digit LED display is the scene that is lighting the stage now.
output	Electrical signal flowing from the LP600 console to the dimmers.
PA	Preset Add is a mode of operation for bump buttons. In PA mode, depressing a bump button adds the scene in the corresponding preset memory to the current stage lighting while the button is depressed. PA mode is only available when preset memories are active (i.e. page is not **- -**).
page	An entire set of preset memories. The LP600 console accommodates 4 sets, or pages, of preset memories. On the LP612, each page can store up to 12 preset memories; one for each channel. On the LP624, each page can store up to 24 preset memories, one for each channel.
patch	The system for connecting lights to dimmers, or the act of plugging a light into a dimmer. The LP600 series allows for a "soft patch," or the electronic re-assignment of any channel on the board to any dimmer or set of dimmers. The default patch is channel 1 to dimmer 1, channel 2 to dimmer 2, etc. A custom patch can be created using the patch function, so that channel 1 is assigned to dimmer 4, channel 2 to dimmer 7, for example.

pattern	The sequence of steps in a chase.
PE	The LED display on the LP600 indicating Preset Erase; the preset scenes have been successfully erased.
pile on	To add to the existing stage lighting.
preset	A control on a lighting board that allows the setting up of a lighting state before it is needed.
preset mode	A mode of operation on the LP600 during which preset memories can be recorded and accessed. The preset LED indicators light is on when the console is in preset mode.
preview mode	A mode of operation on the LP600 for previewing the channel levels in a preset scene. In preview mode, the green output level LEDs no longer represent the on-stage levels. The LEDs show the channel levels as stored in the selected preset scene.
PS	Preset Solo is a mode of operation for bump buttons. In PS mode, depressing a bump button turns on the light(s) in the corresponding present memory and turns off all other stage lighting while the button is depressed.
rate	The speed at which a chase steps through its sequence.
record mode	A mode of operation on the LP600 for recording information in memory. The record LED indicators light is on when the console is in record mode.
run mode	A mode of operation on the LP600 in which no recording is being done but recorded memory can be accessed to bring a preset scene up on the stage.
scene	A pre-programmed lighting state that can be faded in and out.
select LEDs	The LED indicator lights next to the bump buttons. When lit, the console is in record or edit mode and the buttons are functioning not as bump buttons but as a means of selecting various channels in the action of recording a memory.
slider	A control on a lighting board that can be moved up or down to adjust the brightness of lights, also called a fader.
stack	A series of scenes programmed into the memory of the LP600 by the user, each associated with a number from 1 to 50.
step	One of the pre-recorded scenes in a chase.
tap	To indicate the rate at which a chase should progress through its pattern by tapping on a button at that rate.
tap button	The button on the LP600 used for setting the chase rate by tapping.
time	The length of time for one scene in the cue stack to fade into the next.
toggle	To switch back and forth between two mutually exclusive options, such as on and off.
up arrow key	The button to the left of the up arrow (?) on the LP 600 console. Depressing the button once causes the value in the LED display to increment once.

X   The upper set of faders on the LP600, controlling the X scene in manual mode.

Y   The lower set of faders on the LP600, controlling the Y scene in manual mode and the presets in preset mode.