REDBACK

DIMMER RANGE
OPERATOR MANUAL

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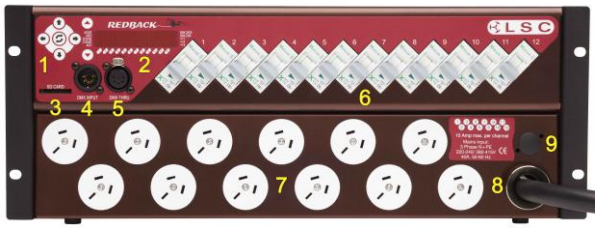
CONTENTS

1 Meet the Redback

The **Redback** is a feature rich, high quality and reliable dimmer in a small compact footprint at a very affordable price. It is available in either 6 or 12 channel configurations and offers many output connector choices. It can be controlled by any DMX512 or RDM controller, or optionally, any standard MIDI controller. It can be operated locally from the front panel to output a preset scene or run one of the built-in chase patterns.
Advanced capabilities include individual channel settings for fade curve, minimum and maximum output levels, plus MIDI and DMX control patching. All configuration options and front panel operations can also be controlled using the RDM (Remote Device Management) protocol.
Redback can be powered from either a three phase or single phase supply.

1.1 Redback Layout

Redback is a rack mounting device that occupies 2RU (89mm) in a standard 19" (484mm) equipment rack.
The versions with front mounted connectors occupy 4RU (178mm).



The front panel of all versions:

1 Control panel
2 LED display
3 SD Flash memory card slot
4 DMX512 Input connector
5 DMX512 Through socket
6 Load circuit breakers

Rear panel of 2RU versions and the front panel of 4RU versions.

7 Load connectors
8 Power supply entry (multiple entry points available on 4RU models)
9 MIDI IN socket (optional).

1.2 Power Supply

6 channel **Redbacks** can be powered from:

- Three phase supply of nominal 100-120 or 220-240VAC at 50 - 60Hz of up to 20 Amps per phase.
- Single phase supply of nominal 100-120 or 220-240VAC at 50 - 60Hz of up to 60 Amps

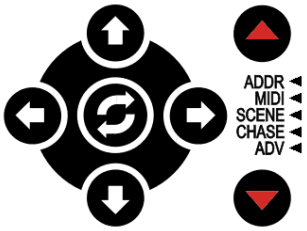
12 channel **Redbacks** can be powered from:

- Three phase supply of nominal 100-120 or 220-240VAC at 50 - 60Hz of up to 40 Amps per phase.
- Single phase supply of nominal 100-120 or 220-240VAC at 50 - 60Hz of up to 60 Amps.

Note: 100-120VAC versions to be specially ordered and supplied direct from the factory.

Safety Note: *Conversion between three phase and single phase operation should only be undertaken by a suitably trained and qualified electrical technician.*

1.3 Control Panel



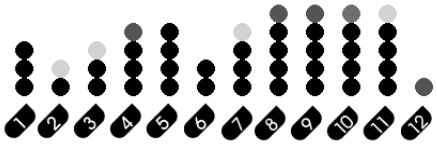
All control and configuration operations on **Redback** are accessed using the five-button control pad and the Menu scroll keys.
The ← Λεφτ and Ριγητ → arrow keys are used to step between the parameters being set in the selected function.
The ↑ Υπ and Δοων ↓ arrow keys are generally used to increase or decrease the values for the selected parameter.
The ↻ Φλιπ key is generally used to switch between text and graphical modes on the LED display.
The red Μενυ Υπ ▲ and Μενυ Δοων ▼ keys scroll between menu functions.
The menu LEDs ◀ indicate the currently active menu function.

1.4 LED Display

The LED panel has both text and graphical display modes.

```
DMX  13
```

Menu information is generally displayed as text.



Dimmer levels are displayed in graphical mode.
(12 channel display shown)

1.5 Status LEDs

1.5.1 DMX DATA

The DATA LED illuminates to indicate the presence of valid DMX512 data on the DMX INPUT connector. If the data signal is lost, the indicator double-flashes to indicate data failure. All dimmers will hold their current levels until data is restored or the **Redback** is powered down or re-set.

1.5.2 DMX ERR

The DMX Error LED indicates errors in the DMX512 data arriving at the DMX INPUT connector.
The problems that cause error indication include:

- a noisy DMX512 signal due to poor or damaged cables or connections, particularly if the shielding is not continuous or one of the signal pair is broken.
- damaged or incomplete data packets from a faulty DMX512 transmitter on a control console or a data splitter.
- unterminated DMX512 line.

1.5.3 ~1 ~2 ~3 (Mains power)

The three power indicator LEDs illuminate to indicate suitable voltage and frequency being supplied to the **Redback**.

Three Phase Supply
When configured for three phase operation, the ~1 ~2 ~3 LEDs indicate the availability of the corresponding phase of mains supply All three supply phases must be present for full operation of all dimmers.
Single Phase Supply
When configured for single phase operation, input supply cabling is bridged and all three power LEDs illuminate if the mains supply is available.

1.6 SD flash memory slot

The card slot accepts standard full-size SD memory cards up to 2GB for loading firmware updates. MiniSD and microSD flash cards can be used when fitted into a standard SD adapter.

Note: *The slot is not compatible with the SDHC (Secure Digital High Capacity) data format used in SD cards over 2GB.*

1.7 Load Circuit Breakers

Each load circuit is protected by a 10amp miniature circuit breaker. For normal operation the circuit breaker lever should be in the up position, displaying a red indicator triangle (as illustrated).

The indicator triangle is green if the circuit breaker has been switched off or has tripped due to a fault.

1.8 DMX512 sockets

Redback is DMX512 (1990), DMX512-A (E1-11) and RDM (E1-20) compliant, with standard XLR 5 pin **Input** and **Thru** sockets.

1.9 Load sockets

The 4RU version of the **Redback** has the load sockets mounted on the front panel.

The 2RU version of the **Redback** has the load sockets mounted on the rear panel.

1.10 Power supply entry

6 channel **Redbacks** are supplied with a cable knock-out entry as shown in the picture below. A metal clamping gland is also supplied to clamp the input power cable to the dimmer. To remove the knock-out, use a flat blade screwdriver, insert in the slot provided and twist out the metal disk. Remove the bottom cover of the dimmer, fit the cable gland, feed the power input cable through and terminate to the screw terminals inside the dimmer.

Both Screw Terminal 6 channel and 12 channel variants also can have their power cable fitted as detailed above. Only the metal cable gland is supplied with the dimmer.

12 channel 2RU **Redbacks** are supplied with the power cable and gland already fitted.

12 channel 4RU **Redbacks** are supplied with a power cable and metal gland, but not fitted as you have up to 6 different locations for power cable entry to the dimmer.

1.11 MIDI input (optional)

A 5 pin DIN MIDI IN (Musical Instrument Digital Interface) input socket allows any MIDI controller to set dimmer levels using note ON/OFF and note velocity values.

1.12 RDM

The Redback allows the viewing of and remote setting of all menu functions via any RDM compatible controller.

Functions that can be viewed and controlled are:

- DMX512 start address
- Riggers Scene
- Chases
- Test Channel
- Minimum and Maximum levels
- Channel Curve selection
- DMX512 Softpatch
- DMX Snapshot
- Scene Control and editing
- Reset

In addition the LED display of the Redback flashes

RDM ID

when asked to identify itself by an RDM controller.

RDM will also allow the identifying (discovery) of the device which can include manufacturers name, model type, number of channels used and any user programmed name for the device.

2 Installation

2.1 Mounting Options

Redback may be installed in different configurations to suit a range of applications.

2.1.1 Rack Mounting

The 2RU versions of **Redback** are designed for installation in standard 19" equipment racks, touring cases, or rack sleeves, where access is available to both the front and rear of the rack cabinet.

The 4RU versions are designed for installation in standard 19" equipment racks, touring cases, or rack sleeves, where access is available only from the front of the rack cabinet.

Each **Redback** should be fixed to the equipment rack by a minimum of four screws.

2.1.2 Wall Mounting

Reversing the side panels on 4RU versions allows the rack ears to be used as wall mounting brackets.

Note: *Only change one side panel at a time as the side panels hold the front panels and chassis together. Each* ***Redback*** *should be fixed to the wall mounting frame by a minimum of four fixing screws or bolts.*

2.1.3 Free Standing

All dimmer variants have four rubber feet installed on the base for floor, bench or shelf mounting.

2.2 Electrical installation

2.2.1 Safety

All electrical work must be carried out by a suitably trained and qualified electrical technician.

2.2.2 Power Supply

The **Redbac**k dimmer must be fed from a suitably rated external protected and limited power source.

In three phase installations the supply wiring and overload protection should be suitable for loads of up to 40 Amps per phase for 12 channel dimmers and 20 Amps per phase for 6 channel dimmers. The supply must be in "wye" or "star" configuration with a neutral connection.

Due to the large harmonic currents produced by all phase-controlled dimmers, it is recommended for three phase installations, the neutral cable be rated to carry currents up to 75 Amps for 12 channel dimmers and 35 Amps for 6 channel dimmers.

In single phase installations the supply wiring and overload protection should be suitable for the maximum rating of the fitted input cable, but must not exceed 60 Amps.

2.2.3 Load circuits

Load circuits should be suitable for loads of up to 10 Amps per dimmer channel.
The minimum channel loading for reliable smooth fading is a resistive load (incandescent lamp) of 250 milliamps. This is the equivalent of a 60 Watt lamp on a 220/240 Volt supply or 30 Watts on a 110/120 Volt supply.

2.3 Connecting DMX512 and RDM

DMX 512 (ANSI E1.11, DMX512-A) is the entertainment lighting industry standard for the transmission of digital control signals between lighting equipment.
DMX is usually “looped” from one piece of equipment to the next. Where a **Redback** dimmer is the last device on a DMX signal chain, the DMX standard requires that a termination device must be plugged in to the DMX **Thru** socket.

See “DMX Explained and Typical Installations” in Section 7 for more information.

If the RDM (ANSI E1.20 Remote Device Management) extensions to DMX 512 are to be used to configure or control the **Redback**, all distribution devices between the controller (eg. Splitters) and the **Redback** must support bi-directional RDM data, eg. LSC’s MDR range of RDM compatible splitters.

See “RDM Explained” in Section 8 for more information.

2.4 Connecting MIDI (optional)

The standard 5-pin DIN MIDI (Musical Instrument Digital Interface) input socket on the output connector panel allows any MIDI controller to set dimmer levels using note velocity values.
As there is no MIDI **Thru** port on a **Redback** dimmer, it must be the last device in a MIDI control chain.

Warning*. No user controls or user serviceable parts are located inside the* ***Redback****. Refer all servicing to suitably qualified personnel.*

3 Fast Track Guide

Getting Redback Up and Running

- **Connect a power supply**

  The **Redback** dimmer must be fed from a suitably rated and protected power source.

  In three phase installations the supply wiring and overload protection should be suitable for loads of up to 40 Amps per phase for 12 channel dimmers and 20 Amps per phase for 6 channel dimmers. The supply must be in "wye" or "star" configuration with a neutral connection rated for currents up to 75 Amps for 12 channel dimmers and 35 Amps for 6 channel dimmers.
  When configured for three phase operation, the ~1 ~2 ~3 LEDs indicate suitable voltage and frequency being supplied to the dimmer. All three supply phases must be present for full operation of all dimmer channels.

  In single phase installations the supply wiring and overload protection should be suitable for the maximum rating of the fitted input cable, but must not exceed 60 Amps for 12 channel dimmers and 35 Amps for 6 channel dimmers.
  When configured for single phase operation, input supply cabling is bridged and all three power LEDs illuminate if the mains supply is available.

- **Reset the system to default setup** (optional)

  Note: Resetting the **Redback** clears all scene memories, sets all parameters (addresses, fade curves, scenes, times, minimum and maximum levels, etc) back to their default values.

  To reset **Redback**, hold down the (white) ↑ Υπ and Δοων ↓ arrow keys during power up.

- **Connect the DMX512 control data**

  DMX512 data is connected to the 5-pin DMX INPUT connector. If the RDM (ANSI E1) extensions to DMX512 are to be used to configure or control the **Redback**, all distribution devices between the controller and the **Redback** must support bi-directional RDM data.
  If the **Redback** dimmer is the last device on a DMX signal chain, the DMX512 standard requires that a termination device must be plugged in to the DMX THRU socket.

- **Set the DMX512 address**

  Use the red Μενυ Υπ ▲ and Μενυ Δοων ▼ keys to scroll to the Address [ADDR] menu function.
  This menu provides two methods for allocating the DMX address of the dimmers.

  Direct Addressing
  Direct DMX mode address allows the address of the first **Redback** dimmer to be set to any slot in the DMX universe where all dimmers can be allocated a valid address (Range 1-507 for 6 channel dimmers and 1-501 for 12 channel dimmers).

  DMX 181

  In this screen:
  The ← Λεφτ and Ριγητ → arrow keys switch between the Direct DMX Address and Bank Address modes
  The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the starting address.

  Bank addressing
  Bank mode allocates fixed blocks of addresses to the dimmers (see table 10). Selecting bank 1 allocates DMX addresses 1-6 or 1-12 to the **Redback.** Selecting bank 2 allocates DMX addresses 7-12 or 13-24, etc.
  (Range 1-85 for 6 channel dimmers or 1-42 for 12 channel dimmers).

  BANK26

- **Connect the loads**

  Redback can smoothly dim loads ranging from 60 Watts to 2,400 Watts at 240 Volts, or 30 Watts to 1,100 Watts at 110 Volts (250 milliamps to 10 Amps).

- **Fade up the dimmers**

- **Read the manual**

  The **Redback** can do just about anything that you will ever want from a compact digital dimmer, but you'll never know how to get the most from it if you don't read the manual.

4 Menu System

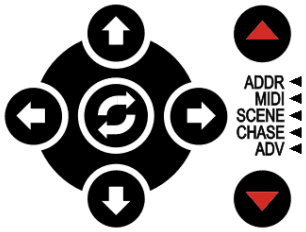
4.1 Menu Structure

Redback has a two level menu system.

1) The Basic menu provides access to those settings needed for general day-to-day use of the **Redback** dimmer.

2) The Advanced menu gives access to configuration and operations options required for more complex operating environments, dimmer configuration and dimmer diagnostics.

4.2 Control Pad



All menu operations on **Redback** are accessed via the five-button control pad and the Menu scroll keys.
The ← Λεφτ and Ριγητ → arrow keys are used to step between the parameters being set in the selected function.
The ↑ Υπ and Δοων ↓ arrow keys are generally used to increase or decrease the values for the selected parameter.
The ↻ Φλιπ key is generally used to switch between text and graphical modes on the LED display.
The red Μενυ Υπ ▲ and Μενυ Δοων ▼ keys scroll between menu functions.

4.3 Menu LEDs

The menu LEDs ◀ indicate the currently active menu function.
A double flashing menu LED indicates that an option is active and merging with basic DMX control.
The Advanced Menu [ADV] LED double-flashes to indicate that Advanced functions are overriding basic dimmer settings, eg Channel 4 set to Non-Dim curve.

4.4 LED Screen

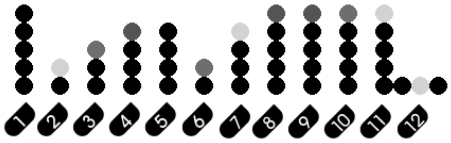
The LED panel has both text and graphical display modes.

4.4.1 Text Mode

```
ALL CH
```

Menu selections and settings are generally displayed as text.

4.4.2 Graphical Mode



(12 channel display shown)

Dimmer levels are displayed in graphical mode. This example shows:

Dimmer	1	2	3	4	5	6	7	8	9	10	11	12
Level	Fl	25	50	75	80	33	66	99	95	90	85	5

The height of the column indicates the level of the dimmer. The brightness of the topmost LED provides a finer level of indication.

Symbol	●	●	●	●
Level	~5%	~10%	~15%	~20%

The two additional LEDs on either side of the level for dimmer 12 indicate that dimmer 12 is the dimmer currently selected for adjustment.

4.5 Data Entry

Data entry in **Redback** is achieved using the arrow keys to step backwards and forwards through the possible values for the current setting.

4.5.1 Wrap around

Data entry for many settings has a wrap-around function. That is, incrementing beyond the maximum value will step back to the minimum value and begin incrementing again (eg. Dimmer 10,11,12, 1, 2).
Decrementing below the minimum value will step back to the maximum value and begin decrementing again (eg. Bank 3, 2, 1, 42, 41).

4.5.2 Single step entry

Values are changed by a single step with each press of the arrow key.

4.5.3 Multi step entry

Holding down the arrow key when setting values steps continuously through the available values until the limit is reached. The key must be released and re-pressed to wrap the value around. The longer a key is held down the faster the setting will step.

4.5.4 Jump to limit value

The limit value of a setting is selected with a "double-tap and hold" action on the arrow key.

4.6 Power Up Display

On power up, the screen displays an LED test sequence that lights up each LED in the front panel, followed by a brief display of the version number of the software running on the dimmer. It then resumes the selected default screen.

4.7 Default Status Screen

The default status screen is displayed:

- after the Power Up sequence.
- following two minutes of menu inactivity.
- when the Μενυ Υπ ▲ key is pressed and held from any menu item.

There are two alternative status screens.

4.7.1 Text Default Status Screen

The text default screen displays the either: The DMX address of the first dimmer when set up in a continuous (1 to 1) sequence e.g.

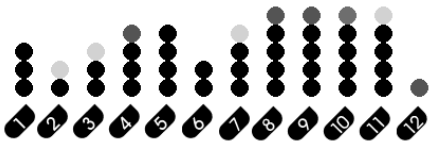
DMX 42

Or

DMX – –

when the dimmers are soft patched to some other (non-linear) sequence.

4.7.2 Graphical Default Status Screen



(12 channel display shown)

The graphical default screen is a display of the current dimmer levels. The levels displayed are the sum of all control functions including, DMX input, all scenes, test levels, MIDI input, chase sequences, dimmer curves, highest and lowest level limits. Outputs are combined on a *highest-takes-precedence* basis. (ie. the levels from all sources are electronically combined so that only the highest level is controlling the dimmer.)

4.7.3 Changing the Default Screen

The ↻ Φλιπ key toggles between the text and graphical default screens. Your current selection becomes the new system default screen.

4.8 Locking the Menu system

The **Redback** menu system may be locked to prevent unauthorised access to the menus.
When the menu system is locked, only the current default screen is displayed. Pushing any key will produce the screen message:

LOCKED

To lock the menu system, simultaneously press both the ← Λεφτ and Ριγητ → arrow keys. This will produce the 4 digit code entry screen:

0.0.0 0

In this screen:
The ← Λεφτ and Ριγητ → arrow keys move the selection cursor dots between digits.
The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the currently selected digit.
The ↻ Φλιπ key records the current digits as the key for the lock and displays the word LOCKED.

4.9 Unlocking the Menu system

To unlock the menu system, simultaneously press both the ← Λεφτ and Ριγητ → arrow keys. This will produce the 4 digit code entry screen:

.0.0 0 0

In this screen:
The ← Λεφτ and Ριγητ → arrow keys move the selection cursor dots between digits.
The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the currently selected digit.

The ↻ Φλιπ key submits the current digits as the key for the lock.
If the submitted key code is correct, the screen displays the word UNLOCKED and activates the menu system.
If the submitted key code is not correct, the screen displays the word LOCKED then returns to the locked default screen.

It is recommended that lock codes be easy to remember (eg. 1337 or 1991) but not obvious (eg.0000 or 9999). Whatever you choose, to avoid embarrassment, write it down *somewhere* for future reference.

If locked and the code forgotten, the dimmer cannot be unlocked without losing all user settings.

4.10 Menu Structure

Basic Menu

Display	*Function*
ADDR	DMX Address setting
MIDI	MIDI Address settings
SCENE	Scene setting and operation
CHASE	Chase setting and operation
ADV	Enter the Advanced Menu System

Advanced Menu

Display	*Function*
TEST	Dimmer testing
CURVE	Fade curve selection
MIN LV	Minimum Levels - dimmer minimum level settings
MAX LV	Maximum Levels - dimmer maximum level settings
SOFTP	Soft Patch - advanced DMX addressing.
SCN RN	Scene Run - triggering scene fades
SCN LV	Scene Levels - scene level setting
SCN TM	Scene Times - scene fade time setting
SNAP	Snapshot - DMX scene capture
ABOUT	Software revision information
RDM	RDM Unique Identifier number
SETUP	Channel Setup - selection of 6 or 12 channel mode
RESET	Reboot system or Reset to System Defaults

5 Basic Menu

5.1 DMX Address Allocation [ADDR]

Sets the DMX512 address for **Redback** dimmers.
Selecting this menu option displays the current DMX address of the first dimmer:

```
DMX  1
```

If dimmer addresses have been allocated from the Soft Patch [SOFTP] option of the Advanced Menus the display reads:

```
PATCHD
```

Allocating an address from this menu overrides the addresses set from the Soft Patch menu.
Levels set by DMX512 control are combined on a highest-takes-precedence basis with levels from the internal scene memories, the internal chaser and the optional MIDI interface.
In Basic operating mode, the dimmers are automatically allocated sequential addresses following the start address. (eg. If the start address is set to 4, then dimmer 1 will be allocated a DMX slot of 4, dimmer 2 will be allocated a slot of 5, dimmer 3 will be allocated a slot of 6, etc).

This menu provides two methods for allocating the DMX address of the dimmers.

5.1.1 Direct DMX address

Direct DMX mode address allows the address of the first **Redback** dimmer to be set to any slot in the 512 slot DMX universe where all dimmers can be allocated a valid address (Range 1-507 for 6 channel dimmers or 1-501 for 12 channel dimmers).

```
DMX  181
```

In this screen:
The ← Λεφτ and Ριγητ → arrow keys switch between the Direct DMX Address and Bank Address modes
The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the starting address.

5.1.2 Bank address

Bank mode allocates fixed blocks of addresses to the dimmers (see table). Selecting bank 1 allocates DMX addresses 1-6 or 1-12 to the **Redback,** selecting bank 2 allocates DMX addresses 7-12 or 13-24, etc. (Range 1-85 or 1-42).

```
BANK42
```

In this screen:
The ← Λεφτ and Ριγητ → arrow keys switch between the Direct DMX Address and Bank Address modes
The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the bank number.

DMX 512 start addresses for **Redback 6** banks

Bank	**1**	**2**	**3**	**4**	**5**	**6**
Start Addr	1	7	13	19	25	31
Bank	**7**	**8**	**9**	**10**	**11**	**12**
Start Addr	37	43	49	55	61	67
Bank	**13**	**14**	**15**	**16**	**17**	**18**
Start Addr	73	79	85	91	97	103
Bank	**19**	**20**	**21**	**22**	**23**	**24**
Start Addr	109	115	121	127	133	139
Bank	**25**	**26**	**27**	**28**	**29**	**30**
Start Addr	145	151	157	163	169	175
Bank	**31**	**32**	**33**	**34**	**35**	**36**
Start Addr	181	187	193	199	205	211
Bank	**37**	**38**	**39**	**40**	**41**	**42**
Start Addr	217	223	229	235	241	247
Bank	**43**	**44**	**45**	**46**	**47**	**48**
Start Addr	253	259	265	271	277	283
Bank	**49**	**50**	**51**	**52**	**53**	**54**
Start Addr	289	295	301	307	313	319
Bank	**55**	**56**	**57**	**58**	**59**	**60**
Start Addr	325	331	337	343	349	355
Bank	**61**	**62**	**63**	**64**	**65**	**66**
Start Addr	361	367	373	379	385	391
Bank	**67**	**68**	**69**	**70**	**71**	**72**
Start Addr	397	403	409	415	421	427
Bank	**73**	**74**	**75**	**76**	**77**	**78**
Start Addr	433	439	445	451	457	463
Bank	**79**	**80**	**81**	**82**	**83**	**84**
Start Addr	469	475	481	487	493	499
Bank	**85**					
Start Addr	505					

DMX 512 start addresses for **Redback 12** banks

Bank	**1**	**2**	**3**	**4**	**5**	**6**
Start Addr	1	13	25	37	49	61
Bank	**7**	**8**	**9**	**10**	**11**	**12**
Start Addr	73	85	97	109	121	133
Bank	**13**	**14**	**15**	**16**	**17**	**18**
Start Addr	145	157	169	181	193	205
Bank	**19**	**20**	**21**	**22**	**23**	**24**
Start Addr	217	229	241	253	265	277
Bank	**25**	**26**	**27**	**28**	**29**	**30**
Start Addr	289	301	313	325	337	349
Bank	**31**	**32**	**33**	**34**	**35**	**36**
Start Addr	361	373	385	397	409	421
Bank	**37**	**38**	**39**	**40**	**41**	**42**

Start Addr	433	445	457	469	481	493

5.2 MIDI Address Allocation [MIDI]

Sets the MIDI addresses for controlling **Redback** dimmers.
Dimmers are controlled by Note-On, Note-Off and Velocity messages from a block of six or twelve adjacent MIDI Notes starting from the Channel and Note set from this menu.
Levels set by MIDI control are combined on a highest-takes-precedence basis with levels from DMX512, the internal scene memories and the internal chaser.
Selecting this menu displays the current MIDI Channel controlling the **Redback** dimmer or the current MIDI Note controlling dimmer 1.
In MIDI operating mode, the dimmers are automatically allocated sequential notes following the start note. (eg. If the start note is set to 42, then dimmer 1 will be allocated to MIDI note 42, dimmer 2 will be allocated to MIDI note 43, dimmer 3 will be allocated to MIDI note 44, etc).

In this screen:
The ← Λεφτ and Ριγητ → arrow keys switch between:

- selecting the MIDI Channel

```
CH  1
```

- selecting the MIDI Note to control dimmer 1.

```
NOT  42
```

The ↑ Υπ and Δοων ↓ arrow keys switch between:

- setting the MIDI Channel number (Range 1-16).
- setting a Note number where all dimmers can be allocated to a valid Note (Range 0-122 for 6 channel dimmers or 0-116 for 12 channel dimmers).

5.3 Scene Setting [SCENE]

Edits and activates a single static scene for situations where a control system is not available. Upon exiting the menu, this scene is automatically saved in memory and will be recalled when the dimmer is powered on.
Levels set in this scene are combined on a highest-takes-precedence basis with levels from the advanced scene memories, DMX512 control, the internal chaser and the optional MIDI interface.
The Scene function is also useful where some dimmers are required to be held at a minimum level independently of other control settings. Applications include dimming musician's lights, a follow spot, the spot on the lectern or important sponsor signage.

The default setting for the scene is off.

In this screen:
The ↻ Φλιπ key switches between text and graphical modes on the LED display.
The ← Λεφτ and Ριγητ → arrow keys step between:

- enabling and disabling scene output

```
OFF
```

- selecting each dimmer for setting

```
C  1  L42
```

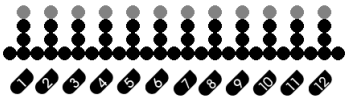
or

(12 channel display shown)

- selecting all dimmers for setting.

```
ALL  CH
```

or



(12 channel display shown)

The ↑ Υπ and Δοων ↓ arrow keys increase or decrease the selected dimmer or dimmers.
In **All Channel** mode, each dimmer increments or decrements by the same amount, regardless of its starting level.

5.3.1 SCENE Menu LED

If the scene is active, the SCENE ◀ menu LED gives a short double-flash when **Redback** is displaying the default status screen.

5.4 Chase Mode [CHASE]

Activates and controls the internal chase effects generator.
Redback has six inbuilt chase effects patterns (c1-c6) that may be varied in replay speed between 10 and 900 beats (steps) per minute.
Levels generated in chase effects are combined on a highest-takes-precedence basis with levels from scene memories, DMX512 control and the optional MIDI interface.
The Chase generator is useful where a repeated pattern of lights is needed without requiring an external control system. Upon exiting the menu, chase settings are automatically saved in memory and will be recalled when the dimmer is powered on.
Applications include displays, signage and parties.

In this screen:
The ← Λεφτ and Ριγητ → arrow keys step between:

- enabling and disabling chase effects.

OFF

- selecting the current chase effect.

c3B440

The ↑ Υπ and Δοων ↓ arrow keys increase or decrease the speed of the effects generator in steps of 10 beats per minute.(Range 10 - 900). This value is not wrap-around.
The ↻ Φλιπ key switches between text and graphical modes on the LED display.

5.4.1 CHASE Menu LED

If the chase is active, the CHASE ◀ menu LED gives a short double-flash when **Redback** is displaying the default status screen.

5.4.2 Chase effects patterns

In chase patterns 1 to 5, the dimmer channels are either on or off. In chase pattern 6, the smooth rolling wave is produced by fading the channels fade up and down at the same rate as the chase steps.

Key to symbols:

Level	Symbol
0%	•
25%	☼
50%	☼
100%	☼

Chase Patterns for 12 channel Redback.

C1 - single channel

Step	Channels											
1	☼	•	•	•	•	•	•	•	•	•	•	•
2	•	☼	•	•	•	•	•	•	•	•	•	•
3	•	•	☼	•	•	•	•	•	•	•	•	•
4	•	•	•	☼	•	•	•	•	•	•	•	•
5	•	•	•	•	☼	•	•	•	•	•	•	•
6	•	•	•	•	•	☼	•	•	•	•	•	•
7	•	•	•	•	•	•	☼	•	•	•	•	•
8	•	•	•	•	•	•	•	☼	•	•	•	•
9	•	•	•	•	•	•	•	•	☼	•	•	•
10	•	•	•	•	•	•	•	•	•	☼	•	•
11	•	•	•	•	•	•	•	•	•	•	☼	•
12	•	•	•	•	•	•	•	•	•	•	•	☼

C2 - add then subtract

Step	Channels											
1	☼	•	•	•	•	•	•	•	•	•	•	•
2	☼	☼	•	•	•	•	•	•	•	•	•	•
3	☼	☼	☼	•	•	•	•	•	•	•	•	•
4	☼	☼	☼	☼	•	•	•	•	•	•	•	•
5	☼	☼	☼	☼	☼	•	•	•	•	•	•	•
6	☼	☼	☼	☼	☼	☼	•	•	•	•	•	•
7	☼	☼	☼	☼	☼	☼	☼	•	•	•	•	•
8	☼	☼	☼	☼	☼	☼	☼	☼	•	•	•	•
9	☼	☼	☼	☼	☼	☼	☼	☼	☼	•	•	•
10	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	•	•
11	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	•
12	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼
13	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	•
14	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	•	•
15	☼	☼	☼	☼	☼	☼	☼	☼	☼	•	•	•
16	☼	☼	☼	☼	☼	☼	☼	☼	•	•	•	•
17	☼	☼	☼	☼	☼	☼	☼	•	•	•	•	•
18	☼	☼	☼	☼	☼	☼	•	•	•	•	•	•
19	☼	☼	☼	☼	☼	•		•	•	•	•	•
20	☼	☼	☼	☼	•	•	•	•	•	•	•	•
21	☼	☼	☼	•	•	•	•	•	•	•	•	•
22	☼	☼	•	•	•	•	•	•	•	•	•	•
23	☼	•	•	•	•	•	•	•	•	•	•	•
24	•	•	•	•	•	•	•	•	•	•	•	•

C3 - single channel shadow

Step	Channels										
1	•	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼
2	☼	•	☼	☼	☼	☼	☼	☼	☼	☼	☼
3	☼	☼	•	☼	☼	☼	☼	☼	☼	☼	☼
4	☼	☼	☼	•	☼	☼	☼	☼	☼	☼	☼
5	☼	☼	☼	☼	•	☼	☼	☼	☼	☼	☼
6	☼	☼	☼	☼	☼	•	☼	☼	☼	☼	☼
7	☼	☼	☼	☼	☼	☼	•	☼	☼	☼	☼
8	☼	☼	☼	☼	☼	☼	☼	•	☼	☼	☼
9	☼	☼	☼	☼	☼	☼	☼	☼	•	☼	☼
10	☼	☼	☼	☼	☼	☼	☼	☼	☼	•	☼
11	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	•
12	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼	☼

C4 - single channel sweep

Step	Channels										
1	☼	•	•	•	•	•	•	•	•	•	•
2	•	☼	•	•	•	•	•	•	•	•	•
3	•	•	☼	•	•	•	•	•	•	•	•
4	•	•	•	☼	•	•	•	•	•	•	•
5	•	•	•	•	☼	•	•	•	•	•	•
6	•	•	•	•	•	☼	•	•	•	•	•
7	•	•	•	•	•	•	☼	•	•	•	•
8	•	•	•	•	•	•	•	☼	•	•	•
9	•	•	•	•	•	•	•	•	☼	•	•
10	•	•	•	•	•	•	•	•	•	☼	•
11	•	•	•	•	•	•	•	•	•	•	☼
12	•	•	•	•	•	•	•	•	•	•	☼
13	•	•	•	•	•	•	•	•	•	•	☼
14	•	•	•	•	•	•	•	•	•	☼	•
15	•	•	•	•	•	•	•	•	☼	•	•
16	•	•	•	•	•	•	•	☼	•	•	•

Chase Patterns for 6 channel Redback.

C1 - single channel

Step	Channels					
1	☼	•	•	•	•	•
2	•	☼	•	•	•	•
3	•	•	☼	•	•	•
4	•	•	•	☼	•	•
5	•	•	•	•	☼	•
6	•	•	•	•	•	☼

C2 - add then subtract

Step	Channels					
1	☼	•	•	•	•	•
2	☼	☼	•	•	•	•
3	☼	☼	☼	•	•	•
4	☼	☼	☼	☼	•	•
5	☼	☼	☼	☼	☼	•
6	☼	☼	☼	☼	☼	☼
7	☼	☼	☼	☼	☼	•
8	☼	☼	☼	☼	•	•
9	☼	☼	☼	•	•	•
10	☼	☼	•	•	•	•
11	☼	•	•	•	•	•
12	•	•	•	•	•	•

C3 - single channel shadow

Step	Channels					
1	•	☼	☼	☼	☼	☼
2	☼	•	☼	☼	☼	☼
3	☼	☼	•	☼	☼	☼
4	☼	☼	☼	•	☼	☼

17	•	•	•	•	•	•	☼	•	•	•	•	•
18	•	•	•	•	•	☼	•	•	•	•	•	•
19	•	•	•	•	☼	•		•	•	•	•	•
20	•	•	•	☼	•	•	•	•	•	•	•	•
21	•	•	☼	•	•	•	•	•	•	•	•	•
22	•	☼	•	•	•	•	•	•	•	•	•	•
23	☼	•	•	•	•	•	•	•	•	•	•	•
24	•	•	•	•	•	•	•	•	•	•	•	•

C5 - duplicated single channel

Step	Channels											
1	☼	•	•	•	•	•	☼	•	•	•	•	•
2	•	☼	•	•	•	•	•	☼	•	•	•	•
3	•	•	☼	•	•	•	•	•	☼	•	•	•
4	•	•	•	☼	•	•	•	•	•	☼	•	•
5	•	•	•	•	☼	•	•	•	•	•	☼	•
6	•	•	•	•	•	☼	•	•	•	•	•	☼

C6 - mexican wave

Step	Channels											
1	☼	☼	☼	•	•	•	•	•	•		☼	☼
2	☼	☼	☼	☼	•	•	•	•	•	•		☼
3	☼	☼	☼	☼	☼	•	•	•	•	•	•	•
4	•	☼	☼	☼	☼	☼	•	•	•	•	•	•
5	•	•	☼	☼	☼	☼	☼	•	•	•	•	•
6	•	•	•	☼	☼	☼	☼	☼	•	•	•	•
7	•	•	•	•	☼	☼	☼	☼	☼	•	•	•
8	•	•	•	•	•	☼	☼	☼	☼	☼	•	•
9	•	•	•	•	•	•	☼	☼	☼	☼	☼	•
10	•	•	•	•	•	•	•	☼	☼	☼	☼	☼
11	☼	•	•	•	•	•	•	•	☼	☼	☼	☼
12	☼	☼	•	•	•	•	•	•	•	☼	☼	☼

5	☼	☼	☼	☼	•	☼
6	☼	☼	☼	☼	☼	•

C4 - single channel sweep

Step	Channels					
1	☼	•	•	•	•	•
2	•	☼	•	•	•	•
3	•	•	☼	•	•	•
4	•	•	•	☼	•	•
5	•	•	•	•	☼	•
6	•	•	•	•	•	☼
7	•	•	•	•	☼	•
8	•	•	•	☼	•	•
9	•	•	☼	•	•	•
10	•	☼	•	•	•	•

C5 - duplicated single channel

Step	Channels					
1	☼	•	•	☼	•	•
2	•	☼	•	•	☼	•
3	•	•	☼	•	•	☼

C6 - mexican wave

Step	Channels					
1	☼	☼	☼	☼	☼	•
2	•	☼	☼	☼	☼	☼
3	☼	•	☼	☼	☼	☼
4	☼	☼	•	☼	☼	☼
5	☼	☼	☼	•	☼	☼
6	☼	☼	☼	☼	•	☼

6 Advanced Menu

The advanced menus provide access to system settings and functions not required for basic operation of the **Redback**.

6.1 Accessing the Advanced Menus [ADV]

To enter the Advanced Menu system, press Μενυ Δοων ▼ key until ADV LED is lit, then hold down the ↻ Φλιπ key for two seconds. The display changes to show the Test menu TEST, when the Advanced Menu system is available.

Note: All settings inside the Advanced Menu are automatically saved to memory upon exiting the advanced menu and will be recalled when the dimmer is powered on unless noted otherwise.

6.2 Testing the Dimmers

TEST

The test menu allows each dimmer to be tested independently of all other functions. The dimmer under test responds only to the level set from test function.
The Ριγητ → arrow key activates test mode and displays the current dimmer under test.

C 1 L42

In this screen:
The ← Λεφτ and Ριγητ → arrow keys select the dimmer under test. The currently set test level is applied to the dimmer under test.
The ↑ Υπ and Δοων ↓ arrow keys increase and decrease the level of the selected dimmer.

Exiting from the test menu disables test mode and releases all channels. Settings in the Test Menu are not saved to memory.

6.3 Fade Curve Selection

CURVE

The Fade Curve menu enables selection of the relationship between the input control signal and the actual dimmer output. Each of the available fade curves produces a different response from the dimmer as the channel is faded up and down.

6.3.1 S Law Curve

SCU

The S law curve is the standard dimming curve found on the majority of electronic dimmers in current use. It is favoured in live applications because its "S" shape gives plenty of gentle adjustment at the bottom and top ends of the channel fader where subtle fades are important, and a rapid rise in the middle of the fader. (This is the default curve for **Redback**.)

6.3.2 Square Law

SQU

The square law curve produces a linear power output as the fader level increases. It comes on rapidly at the bottom end but rises more gently after 25% on the fader, a characteristic that matches the light response of many video camera systems.

6.3.3 120 Volt

120

The 120 Volt curve is intended for powering 120V lamps from a 240V mains supply. It follows the pattern of the standard S law curve, but limits the output to 120 Volts when the control signal is at Full.
Warning:
A Total Reset, sets all dimmers to the default S law curve (SCU). This could result in 240 Volts being fed to 120 Volt lamps.

6.3.4 Switching loads On and Off

Redback has two curves for switching loads directly between ON and OFF. These curves are useful for controlling loads that don't take kindly to being dimmed, such as motors or discharge lamps.

6.3.5 Non Dim

NON

The Non Dim curve is for use when a load needs to be switched during a fade cue.
The load is switched ON when the dimmer level goes above 60% and switched OFF when the dimmer level falls below 40%.

6.3.6 Relay

RLY

The Relay curve is for use when a load needs to be switched at the beginning or end of a fade cue.

The load is switched ON when the dimmer level goes above 4% and switched OFF when the dimmer level falls below 2%.

The Ριγητ → arrow key activates the Curve menu and displays the currently selected dimmer and its assigned fade curve.

```
C1 SCU
```

In this screen:
The ← Λεφτ and Ριγητ → arrow keys select the dimmer for curve assignment (Range 1-6 for 6 channel dimmers or 1-12 for 12 channel dimmers).
The ↑ Υπ and Δοων ↓ arrow keys allocate the fade curve (Range SCU, SQR, NON, RLY, 120).

The [ADV] menu indicator LED double-flashes in the default status screen if any dimmer is set to a curve other than the default S Curve (SCU).

6.4 Setting Minimum Dimmer Levels

```
MIN LV
```

The Minimum Level menu sets the level of the dimmer output when the control signal is set to zero. Setting this value slightly above zero is useful to "Pre-Heat" lamp filaments where a rapid fade up is required.

The Ριγητ → arrow key activates the menu and displays the currently selected dimmer.

```
C 1 L0
```

In this screen:
The ← Λεφτ and Ριγητ → arrow keys select the dimmer for adjustment.
The ↑ Υπ and Δοων ↓ arrow keys increase and decrease the minimum level for the selected dimmer.
The default minimum for all dimmers is Zero.
The [ADV] menu indicator LED double-flashes in the default status screen if any dimmer is set to a minimum above Zero.

6.5 Setting Maximum Dimmer Levels

```
MAX LV
```

The Maximum Level menu sets the highest possible level of dimmer output when its control signal is set to maximum.
Setting this value to slightly less than full mains voltage has little impact on light output from most lamps, but gives a significant increase in the operational life the lamp.
Setting the maximum to zero effectively locks the dimmer out of use. (But make a note so you won't be wondering why the dimmer isn't working next time you need to use it.)
The Ριγητ → arrow key activates the menu and displays the currently selected dimmer.

```
C 1 FL
```

In this screen:
The ← Λεφτ and Ριγητ → arrow keys select the dimmer for adjustment.
The ↑ Υπ and Δοων ↓ arrow keys increase and decrease the maximum level for the selected dimmer.
The default maximum for all dimmers is Full.
The [ADV] menu indicator LED double-flashes in the default status screen if any dimmer is set to a maximum below Full.

6.6 Soft Patch

```
SPATCH
```

The Soft Patch option allows any dimmer to be allocated to any slot in the DMX universe (including the possibility of multiple dimmers sharing the same DMX slot).
The Ριγητ → arrow key activates the menu option and displays the current soft patch mode of the dimmers.
If DMX channel allocation has been set from the Basic [ADDR] sequential address option, the screen will display:

```
1 TO 1
```

If the Softpatch is enabled, the display reads:

```
PATCHD
```

In this screen:
The ↑ Υπ and Δοων ↓ arrow keys switch DMX addressing between the Basic sequential and Advanced soft patch modes.
The ← Λεφτ and Ριγητ → arrow keys step between:

- displaying the current address mode

```
1 TO 1
```

- selecting a dimmer for addressing

```
2 D181
```

In the address screen:
The ↑ Υπ and Δοων ↓ arrow keys increment and decrement the DMX address allocated to the selected dimmer (Range 1-512).

Soft patched address allocations are retained in system memory, irrespective of **Redback's** current address mode.

6.7 Redback's Advanced Scenes

The advanced scene system has six scene memories that can be either set manually or captured from the DMX control signal, and played back with defined fade times.
The [ADV] menu indicator LED double-flashes in the default status screen if any scene is active

6.8 Running a Scene

SCN RN

The Scene Run menu enables the activation and deactivation of the recorded scenes.
When activated, a scene fades up in the set fade time.
When deactivated the scene fades down in the set fade time
The **Ριγητ** → arrow key activates the menu option and displays the currently selected scene.
It is possible to have multiple scenes running at any one time, merging on a HTP basis.

SCN3

In this screen:
The ↻ **Φλιπ** key switches between text and graphical modes on the LED display.
The ← **Λεφτ** and **Ριγητ** → arrow keys step between:

- displaying the selected scene number

SCN4

- displaying the status of the selected scene

OFF

The ↑ **Υπ** and **Δοων** ↓ arrow keys step between:

- selecting the current scene (Range 1-6)
- activating and deactivating the selected scene

ON

The [ADV] menu indicator LED double-flashes in the default status screen if any scene is active.

6.9 Setting Scene Levels

SCN LV

The Scene Levels option enables the levels in the stored scenes to be modified.
The **Ριγητ** → arrow key activates the menu option and displays the current scene memory.

SCN3

In this screen:
The ↻ **Φλιπ** key switches between text and graphical modes on the LED display.

The ← **Λεφτ** and **Ριγητ** → arrow keys step between:

- displaying the current scene number

SCN4

- selecting each dimmer for setting

C 1 L42

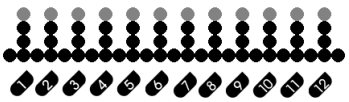
or

(12 channel display shown)

- selecting all dimmers for setting.

ALL CH

or



(12 channel display shown)

The ↑ **Υπ** and **Δοων** ↓ arrow keys step between:

- selecting the current scene for editing (Range 1-6)
- increasing or decreasing the level of the selected dimmer or dimmers.

In **All Channel** mode, each dimmer increments or decrements by the same amount, regardless of its starting level.

6.9.1 Excluded Mode

By setting a dimmer channel into Excluded mode from the Scene Levels menu, the scene's settings will have no effect on the existing level of that dimmer during scene replay.

6.9.2 Entering Excluded mode

When a dimmer level is at zero, the **Δοων** ↓ arrow key sets the dimmer into Excluded mode.
The ↑ **Υπ** arrow key exits from Excluded mode.

C 3 EXC

In the graphical display, an excluded dimmer is indicated by a single dot at the top of its level column.

(12 channel display shown)

6.10 Setting Scene Fade Times

SCN TM

The Scene Time menu sets the fade time for transition to and from the recorded scenes.
The **Ριγητ** ➜ arrow key activates the menu option and displays the current scene memory.

SCN3

In this screen:
The ← **Λεφτ** and **Ριγητ** ➜ arrow keys step between:

- displaying the current scene number

SCN4

- displaying the fade time for the current scene.The ↑ **Υπ** and **Δοων** ↓ arrow keys step between:
- selecting the current scene (Range 1-6)
- increasing or decreasing the fade time for the selected scene (Range 0.0-99 seconds).

T4.2s

The default fade time for all scenes is 1.0 seconds.

6.11 Capturing a DMX Snapshot

SNAP

The Snapshot option allows the dimmer levels set by the current DMX data to be captured into a scene memory. The stored scene will contain only levels from the DMX input, ignoring dimmer levels originating from scene memories, the chase generator or dimmer maximum and minimum settings. If the DMX signal has been disconnected (DMX DATA LED flashing), the snapshot will store the levels from the last DMX signal received.

The **Ριγητ** ➜ arrow key activates the menu option and displays the current scene memory.
In this screen:
The ← **Λεφτ** and **Ριγητ** ➜ arrow keys select the current scene (Range 1-6).

SCN1

The ↑ **Υπ** and **Δοων** ↓ arrow keys both trigger the capture of the DMX snapshot:

-SNAP-

6.12 About Redback

ABOUT

The About menu displays information about the firmware running in the Redback.

The **Ριγητ** ➜ arrow key activates the menu and displays:

Redback

In this screen:
The ← **Λεφτ** and **Ριγητ** ➜ arrow keys display the release number of the current firmware, followed by the date and time of release.

RX.X

The Release number may be used to determine if a new firmware update is available from the Downloads area of the LSC web site at www.lsclighting.com/help-centre/downloads.

The next display shows the Boot Loader version and its release date and time.

BX.XX

6.13 RDM

The RDM Menu displays the UID (serial number) for the dimmer.

The **Ριγητ** ➜ arrow key activates the menu and displays the serial number (UID).

6.14 Setup

SETUP

Setup enables the Redback operating system to toggle between 6 and 12 channel modes. This is particularly useful if changing the CPU card from a 6 channel dimmer to a 12 channel dimmer, or visa-versa, or installing a new CPU card.
Setting a 12 channel Redback to six channel mode will disable dimmers 3, 4, 7, 8, 11 and 12, and may also cause unpredictable behaviour in DMX addressing, Chase patterns and Fade Curves.
Changing channel mode resets all parameters (addresses, curves, scenes, times, minimum and maximum levels, etc) back to their default values

In this screen:

The Ριγητ → arrow key enables changing the channel mode.

```
12Ch
```

The ↻ Φλιπ key initiates the mode change process and checks for confirmation:

```
6Ch ?N
```

The ↑ Υπ and Δοων ↓ arrow keys toggle between Y and N.
If the confirmation is set to Y, pressing the ↻ Φλιπ key changes channel mode then triggers a Total Reset.

```
wait..
```

6.15 Resetting Redback

```
RESET
```

The Reset menu provides two levels of reset.

6.15.1 System Reset (SYSRST)

Shuts down and restarts (reboots) the Redback. All levels and memories are retained and restored after system restart. This is the equivalent of switching the power to Redback off, then on again.

6.15.2 Total Reset (TOTRST)

Shuts down Redback and sets all parameters (addresses, curves, scenes, times, minimum and maximum levels, etc) back to their default values, then restarts. The 6 channel or 12 channel Set-Up is retained during this reset.

The Ριγητ → arrow key activates the Reset menu.

In this screen:
The ← Λεφτ and Ριγητ → arrow keys toggle between System Reset (SYSRST) and Total Reset (TOTRST).
The ↻ Φλιπ key initiates the reset process and checks for confirmation:

```
SURE?N
```

The ↑ Υπ and Δοων ↓ arrow keys toggle between Y and N.
If the confirmation is set to Y, pressing the ↻ Φλιπ key triggers the reset process.

```
wait..
```

Warning:
A Total Reset, sets all dimmers to the default S law curve (SCU). This could potentially result in 240 Volts being fed to 120 Volt lamps.

Note: A total Reset can also be performed by holding down ↑ Υπ and Δοων ↓ buttons whilst turning on power to the dimmer. This method is particularly useful if you have forgotten the LOCK password.

7 DMX512 Explained

DMX512-A is the industry standard for the transmission of digital control signals between lighting equipment. It utilises just a single pair of wires on which is transmitted the level information for the control of up to 512 DMX slots (addresses or channels).

The information for each slot is sent sequentially. The level of slot 1 is transmitted, then the level of slot 2, then 3, etc. up to a maximum of 512 slots. This stream of data containing the levels for all 512 DMX slots is repeated a minimum (generally) of 44 times per second. This provides sufficient updates of channel information for smooth fade transitions.

As the DMX512-A signal contains the level information for all slots, each piece of equipment needs to be able to read the level(s) of the slots(s) that apply only to that piece of equipment. To enable this, the **Redback** dimmer has a "SPatch" (softpatch) menu that allows you to patch (connect) each DMX slot (address) from your lighting controller to a **Redback** dimmer channel number.

When good quality data cables are used, DMX512 cable runs may be up to 1,000 metres in length. When several DMX feeds are required (to feed different locations), DMX512 splitters must be used. These provides multiple isolated DMX512 feeds.

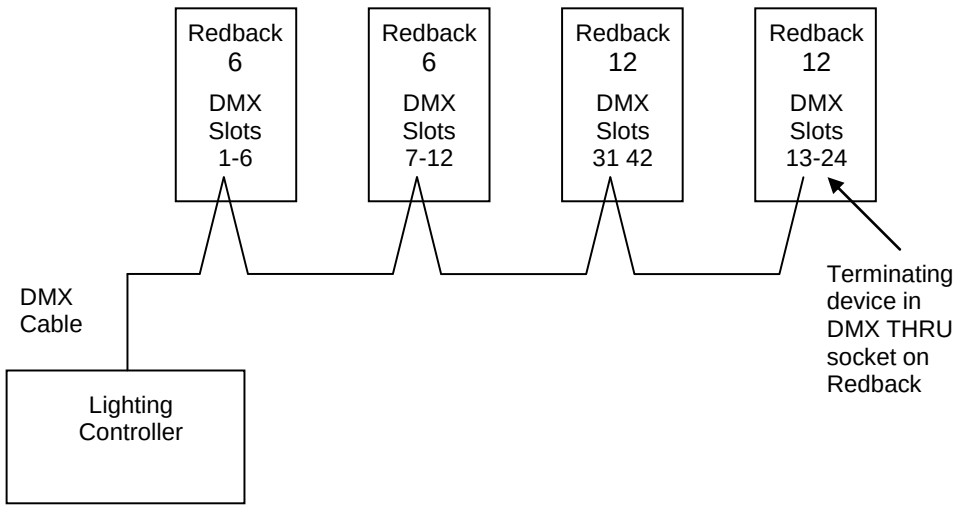
The **Redback** uses a high impedance DMX input circuit allowing you to loop the DMX signal from one **Redback** to the next. The last **Redback** in the chain will require a DMX Termination device plugged in to the **Thru** socket.

Note: Do not use unscreened microphone or low speed data cables for DMX. This can cause problems in the DMX network. Make sure the cable conforms to the EIA485 cable requirements by providing the following specifications:

- Low capacitance
- One or more twisted pairs
- Foil and braid shielded
- Impedance of 85 -150 Ohms, nominally 120 Ohms
- 22AWG gauge for continuous lengths over 300 metres

7.1 Typical DMX Installations

In the following example, the DMX output signal from the lighting control desk is fed to the DMX connector of the first **Redback** dimmer. The DMX cable is then looped to the following **Redback** dimmers. The order of the daisy chaining is not important as each **Redback** dimmer channel can be patched to any DMX slot number. The end of the DMX line is terminated to prevent the signal reflecting back up the line and causing possible errors.



8 RDM Explained

RDM is an acronym for Remote Device Management which is a relatively new protocol that overlays on the existing DMX512 cable network, using the same 3pins of the XLR connector. The protocol has been released under the standard ANSI-E1.20-2006. Equipment connected to the DMX512 network wishing to use the advantages of RDM, must be RDM compatible.

Unlike DMX512, RDM is bi-directional – meaning messages sent out can be responded to and reported back to the originator. This can allow RDM controllers to interrogate control and report on any RDM enabled devices on the network, by:

- changing DMX start addresses
- reporting faults
- changing fixture mode settings
- requesting a list of fade curves available from a dimmer rack
- report on lamp hours usage per fixture
- temperature reporting of dimmers and other connected devices

and so-on.

Once the uptake of RDM by other manufacturers reaches levels where the majority of equipment is RDM compatible, the advantages of RDM will become obvious and many users will wonder how we survived without it.

RDM will allow a lighting console to discover all the devices connected to its outputs and even to know how many DMX slots each item requires. This information could then be used to auto-patch the entire rig. The user settings of all the devices could be saved as part of the show file, so that when the show is re-loaded into the console, the system could ensure that all devices are still connected and working, then check that the Pan invert settings and custom dimmer curves on certain devices have not changed. In the case of a faulty moving light, a new light could be connected and the user settings (eg. DMX address, mode, Tilt invert) automatically uploaded to the new unit.

RDM is backwards compatible with existing DMX512 equipment, allowing non RDM devices to be connected to the same cable as RDM devices. The non-RDM units, if fully comforming to the DMX512 standard, will simply ignore all the RDM data. The only exception to the rule is DMX512 data splitters. Non RDM units will simple block (stop) all RDM data from any devices connected downstream of the DMX512 splitter. Therefore any lighting system using RDM *must use* RDM enabled DMX512 data splitters.

9 Specifications

9.1 Mechanical Specifications

Chassis style		2RU Rack mount with rear outlets	4RU Rack mount or wall mount with front outlets
Dimensions (mm)	**Width**	482mm	482mm
	Height	89mm	178mm
	Depth	288mm	251mm
Boxed Weight (kg)		6 channel = 8kg 12 channel = 14kg	6 channel = 9kg 12 channel = 15kg
Construction		Made from aluminium and corrosion resistant steel, powdercoat finish with rear screened polycarbonate labels.	

9.2 Technical Specifications

Number of Dimmer channels	6 or 12
Channel output rating	10 Amps (at 25°C ambient temp)
Three phase current requirements (per phase)	20 Amps for 6 channel variants 40 Amps for 12 channel variants
Minimum Resistive Load (Incandescent)	250 milliamps (60 Watts at 240 Volts or 27.5 Watts at 110 Volts)
Channel MCB type	1 Pole DIN style Electro-magnetic
Channel MCB breaking capacity	6000 Amps
Dimmer curve selection per channel	Yes – 5 selectable curves per channel
Memory storage	6 programmable scenes, 1 riggers scene and 6 predefined chases
Power switching component	Triac
Inductor rise time	100µs
Control protocol	DMX512 (1990) or DMX512-A (E1-11) with RDM (E1-20)
Channel output mimic LEDs	Yes
DMX Data LEDs	Yes
Operational STATUS indicator LED	Yes
Number of cooling fans	1 in 6 channel variants 2 in 12 channel variants
Fan cooling control	Variable
External software upgradeable	Yes – via SD Card slot
50/60Hz frequency Auto-select	Yes

10 Software (Firmware) Upgrades

LSC Lighting Systems has a corporate policy of continuous improvement to its products. **Redback's** firmware (internal software) is subject to this policy as new features are added and existing features improved.

The software version of your **Redback** is momentarily displayed on the LCD screen at power up and on the ABOUT option screen in the Advanced Menu system. The latest version of **Redback** software can be downloaded from the LSC web site, www.lsclighting.com/help-centre/downloads

10.1 Upgrading Redback's Firmware

Upgrading the firmware resets all parameters (addresses, curves, scenes, times, minimum and maximum levels, etc) back to their default values.

To upgrade the firmware:

- Check the current release number from the ABOUT screen in the Advanced Menu system.
- Check that a newer version is available from the Downloads area at the LSC Lighting Systems web site www.lsclighting.com/help-centre/downloads.
- Download the new firmware file.
- Unpack both ***.prg*** files from the downloaded archive and copy it into the **top level** (root) directory of a 2GB or smaller SD flash memory card. Do not rename the files.
- Insert the SD flash card into the slot on the front panel of the dimmer.
- Power up the **Redback** while holding down both the red Μενυ Υπ ▲ and Μενυ Δοων ▼ keys.
- The display flashes and counts through a file checksum up to CS 100% then the program data up to PG 100%
- **Redback** then reboots and displays the new firmware release version before continuing with normal operation.

11 Compliance Statements

11.1 C Tick Compliance Statement

All LSC products with CE Compliance automatically comply with C-Tick requirements as per Section 182 of the Radiocommunications Act 1992. LSC Company Registration number is N921.

11.2 CE Compliance Statement

The **Redback** Dimmer from LSC Lighting Systems (Aust) Pty. Ltd. has been designed and tested to the European Committee for Electrotechnical Standardization (CENELEC) standard– EN55022 (Information Technology Equipment).

11.3 Product of Australia

The **Redback** dimmer meets the requirement status “Product of Australia” as defined by the Australian Governments Trade Practise Act 1974, Section 65AC and administered by the Australian Made Campaign Limited (AMCL). All LSC manufactured products have virtually all of their design, production and manufacture processes occur in Australia, thus qualifying for the highest status by the AMCL.

11.4 Disclaimer

LSC Lighting Systems (Aust) Pty. Ltd. has a corporate policy of continuous improvement, covering areas such as product design and documentation. In light of this policy, some detail contained in this manual may not match the exact operation of your product.
In any event, LSC Lighting Systems (Aust) Pty. Ltd. can not be held liable for any direct, indirect, special, incidental, or consequential damages or loss whatsoever (including, without limitation, damages for loss of profits, business interruption, or other pecuniary loss) arising out the use or the inability to use this product for its intended purpose as expressed by the manufacturer and in conjunction with this operating manual.
Servicing of this product is recommended to be carried out by LSC Lighting Systems (Aust) Pty. Ltd. or its authorised service agents. No liability will be accepted whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel. In addition servicing by unauthorised personnel may void your warranty.