



# ePRO

## DMX512 Digital Dimmers Operator Manual



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# 1 PRODUCT DESCRIPTION

## 1.1 About this manual

This manual describes the configuration and operation and specifications of the ePRO digital dimmers manufactured by LSC Lighting Systems.

## 1.2 ePRO features

The ePRO portable dimmer offers high quality, high performance digital dimming that can be installed into either 19" racking systems or free standing applications.

The dimmer is powered from a 3 phase power source and provides dimming functionality through an integrated front control panel and DMX512 control input. A wide selection of output connector options is available to deliver power to the load. On site software upgrades can be performed with LSC's CodeLINK software option ensuring the dimmer is operating with the latest optimised software.

Each dimming channel is protected by a fast acting Miniature Circuit Breaker (MCB) or optionally with a Residual Current Breaker with Overload (RCBO). The ePRO dimmer uses LSC's proprietary Current Control Technology© to minimise nuisance tripping of the MCBs when high inrush currents are suddenly applied. The added benefit is that lamp filaments are also protected from this shock, thus extending lamp life. Quality toroidal inductors and filtering circuits minimise the possible interference to other electronic equipment by reducing the harmonic waves produced by phase angled control of the power mains.

Ease of operation is a key element of the ePRO dimmers. The clever use of pushbuttons and an easy to read display allows the user to quickly set the DMX512 address, to drive individual channels at varying levels, to create a 12 channel scene

set a choice of up to six different fade curves for each dimmer channel.

The ePRO dimmer utilises Pulse Transformer Fired Dimmer (PTFD) Technology. In essence this means the technology used inside the ePRO enables it to control virtually any type of connected load. This includes inductive loads such as transformers, pinspots, 12v EVL dichroic lamp systems, strobes, and reactive loads (discharge lamps and fluorescent lamps)

The ePRO dimmers are CE and C-tick approved.

## 1.3 Continuous operation

The ePRO dimmers are built around a custom aluminium extruded heatsink that provides central mounting for all major internal components. The overall design concept provides a very efficient air flow path allowing the dimmers to run at 100% duty cycle on all channels simultaneously. A low noise fan circulates air over the dimming circuitry.

The ePRO dimmer has variable fan speed control, where fan speed increases as the operating temperature of the dimmer rises.

LSC recommends a general clearance of 100mm on either side of the dimmer.

## 1.4 ePRO Models

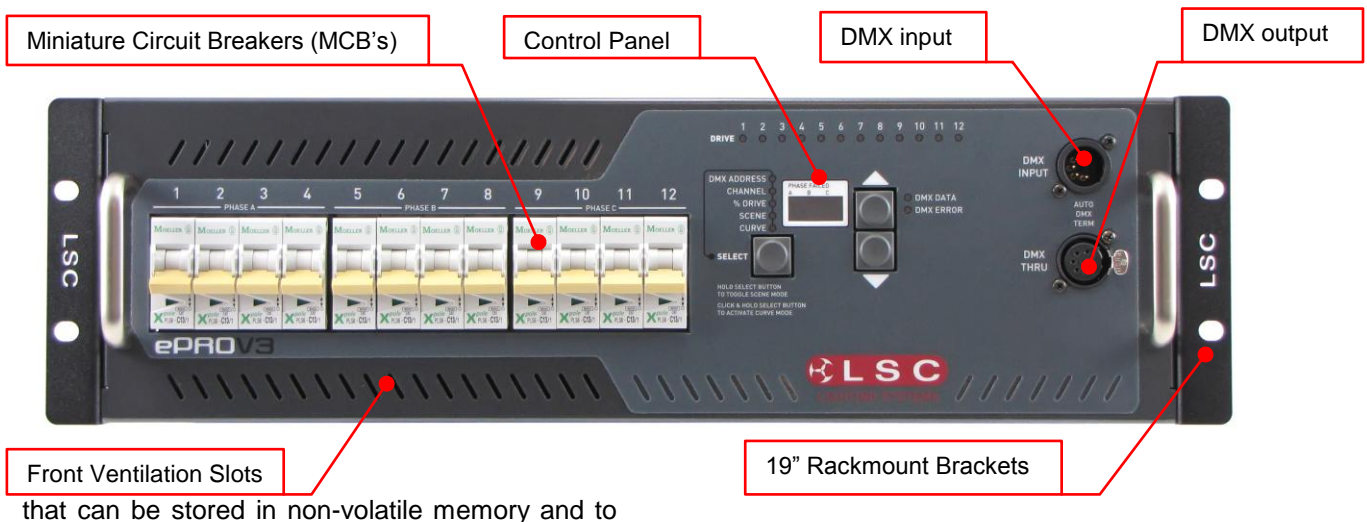
The ePRO dimmer is available in the following options with a variety of load connector types:

**ePRO** - 12 channels with 13 Amp MCBs per channel.

**ePRO/B** - 12 channels with 10 Amp RCBOs per channel.

**ePRO/6** - 6 channels with 25 Amp MCBs per channel.

**ePRO/B/6** - 6 channels with 25 Amp RCBOs per channel.



that can be stored in non-volatile memory and to

## 2 GETTING CONNECTED

### 2.1 Input Supply

ePRO dimmers are designed to be connected to a 3 phase supply and are supplied with a 1.2m long 5 wire (6mm<sup>2</sup>) black rubber insulated power cable terminated inside the dimmer.

Australian models are fitted with a 5 pin three phase plug. The ePRO power plug is rated at 40 Amps per phase.

Export models have the end of the cable unterminated, numbered and fitted with ferrules, ready for termination into a suitable three phase plug. Permanent installation models have a special screw termination rear panel that provides five 16mm<sup>2</sup> pressure pad screw terminals to connect incoming three phase supply.

Connection is Three Phase Star; however other versions such as single phase(s), two phase and Three Phase Delta wiring are available upon request from the factory. Contact LSC Lighting Systems or your nearest Distributor for further information.

LSC recommends an overrated Neutral (1.5 times phase current) on the incoming supply for optimal performance and minimal interruption. The incoming supply should also be fused or fitted with a suitably rated circuit breaker.

### 2.2 DMX Control Input

The dimmers are designed primarily to accept control signals conforming to the DMX512A protocol. The DMX input connector is located on the front control panel. A Thru connector located next to the Input allows the connection of the dimmer to other DMX512 devices downstream. The Thru connection is passive and allows for the pass through of the DMX512 signal, even if there is no power to the dimmer. The ePRO dimmer has an auto-terminating DMX circuit that will terminate the network when no thru connection is present.

LED's on the front control panel indicate the condition of the incoming DMX data. Valid data is indicated with a Green "DMX data" LED. Bad data is indicated with a Red "DMX error" LED.

### 2.3 Load Connection

The ePRO dimmers are available with a wide selection of output load connectors to suit the many applications and countries of installation. Wiring details for the Multipole connector options are detailed in [load socket wiring section](#).

For Australian versions, the 12 channel ePRO is supplied with twelve 15 Amp Australian Sockets and the 6 channel 25A ePRO is supplied with 6 sets of 25 Amp and 15 Amp Australian Sockets connected in parallel.

European versions of ePRO are available with the following socket types: Shuko, 16 pole Harting, 19 pole Socapex and a screw terminal version for permanent installations.

Care should be taken when driving inductive loads as not all of these types of loads can be dimmed. If you are in doubt to the dimmers suitability for the intended application, please consult LSC Lighting Systems or your nearest Distributor for further information.

Under all circumstances during the operation of the dimmer, it is highly advisable not to connect or disconnect the load while live, to prevent potential damage to the dimmer, the load connectors or to the load itself.

### 2.4 Overload Protection

Each dimmer channel is fitted with fast acting thermal magnetic Miniature Circuit Breakers (MCB's) or optionally with Residual Current Breakers with Overload (RCBO's). Under normal operating conditions the MCB/RCBO pass the rated current and will only trip when there is an overload through the dimmer circuit. Likewise, if there is a short circuit on the load or faulty wiring on the load side, the MCB/RCBO will trip to protect the internal components of the dimmer.

When RCBO's are fitted, they provide the added protection against earth leakage fault currents.

Dimmer channels can be manually disabled by switching off the MCB/RCBO for that particular channel. This is particularly useful for those occasions where a genuine fault has occurred.

### 2.5 Dimmer Installation

The ePRO dimmers have been designed to be either free standing or 19" Rack mountable. In free standing applications, all dimmers have four rubber feet attached to the bottom of the chassis.

If the dimmer is used for touring applications in a Roobar frame, LSC can provide optional Roobar mounting brackets to secure the back of the dimmer.



## 3 DIMMER OPERATION

### 3.1 Control Panel

The control panel on the ePRO dimmer is designed to be concise and easy to operate. It allows quick access to all functions and provides indicators that show the exact status of the dimmer.

The control panel is shown below. The following is a brief explanation of the buttons and displays.

**Channel Drive LEDs:** These LED's indicate the channel output status and will glow proportionately to the level of output being generated. In SCENE mode, these LEDs are used to build the desired output levels for the scene to be stored. When the scene is recalled these LEDs will correspond to the output levels stored in memory.

**Mode Select Button:** This button is used to alter the dimmer's status by allowing the operator to set the DMX512 address, drive individual channel at varying levels, create a scene to be stored in memory and individually set different dimmer curves for each channel (ePRO only).

**Mode Status Indicators:** These LEDs indicate which mode the dimmer is operating in.

**Scroll Buttons:** These up and down buttons allow the operator to adjust the DMX512 address, channel number and channel output level, in either a up (increment) or down (decrement) direction.

**Status Display:** The 3 digit display can indicate the current DMX512 address, channel number and the channel output level. The output of the

display is dependent on which mode the dimmer is currently in. Under other conditions the display will also scroll prompt and error messages.

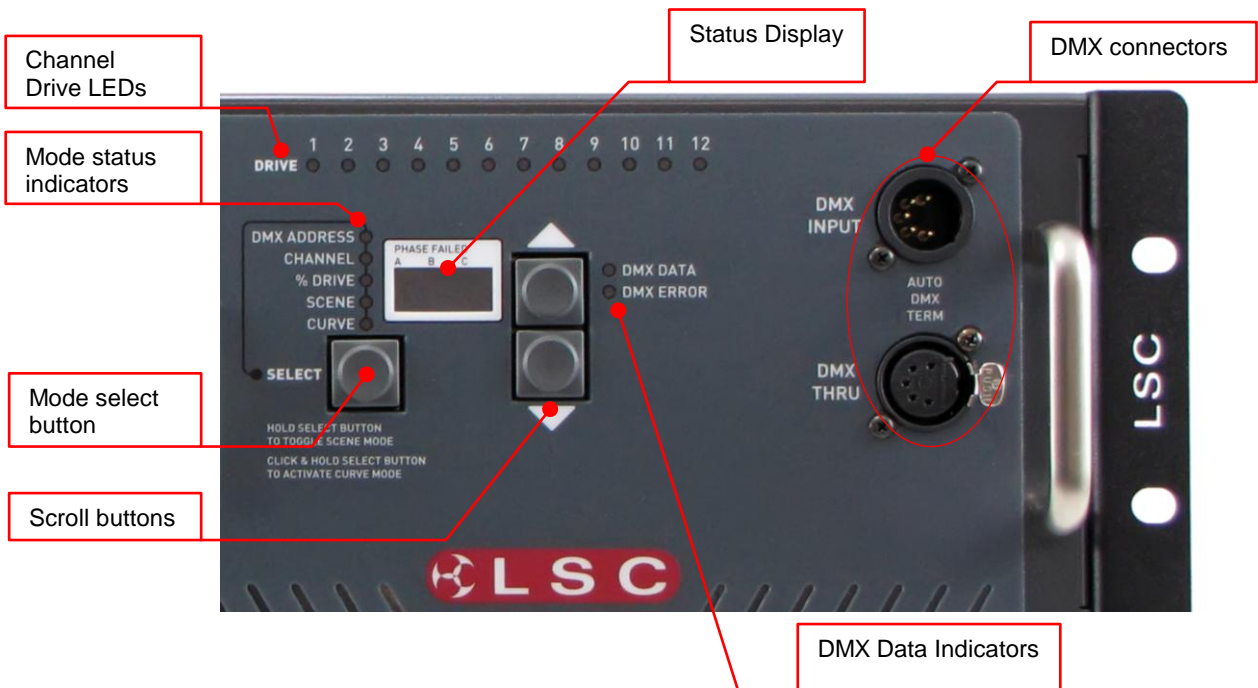
**DMX Data Indicators:** These two LEDs indicate good or bad data being received by the dimmer.

### 3.2 Setting the DMX512 Address

The dimmer is designed to be controlled by an external DMX512 transmitting device. The DMX512 protocol allows for the high speed transmission of 512 channels of digital data and allows for up to 32 devices to be connected to each DMX512 stream. To enable each device to receive its own relevant information off this DMX512 stream, a DMX512 Start Address is allocated to each dimmer.

When the dimmer is powered up for the first time, it will automatically be in the DMX512 Address mode and display channel 1 as its starting address. The user can then set the desired start address by pressing the increment (∧) or decrement (∨) Scroll Buttons. If you decrement from channel 1, the next setting will be 512. To scroll quickly to your desired start address, press and hold the increment or decrement button. The display will then speed up and scrolls through the channel numbers.

To increase the start address in banks (groups of 12 for 12 channel dimmers and groups of 6 for 6 channel dimmers), press the increment button quickly once and then press and hold. If the dimmer start address is currently "001", then to select the next bank (start address number 13/7), press the increment button quickly once and then



press again and hold. The display will then indicate “b-2” (Bank number 2) and then it will display channel “13”. Repeat this step to move to the next bank. To move the start address backwards in groups of 12, repeat the instructions above using the decrement button.

Once the DMX512 Address has been set, this will be stored in the dimmer’s memory. (Note: The DMX512 address will only be committed to memory approximately 5 seconds after the last address change.) If the dimmer is powered down and then powered back up, the dimmer will resume at its last known DMX512 setting.

The Data Indicators show the exact status of the DMX512 signal as it is seen by the dimmer. When the DMX512 connector is plugged into the dimmer and signal is being received, the green data LED will glow to indicate good data being received by the dimmer. When valid DMX data is temporarily lost, the data LED will flash. If bad data is being received, the red LED will glow. In some instances, the green and red LEDs will intermittently come on and off. This indicates that the data being received is “dirty”, in that it is sometimes valid and then becomes invalid.

If a DMX512 input is connected and no LEDs are on, this can indicate two things. The first is that the transmitting device has ceased transmitting and the second could mean that the signal is no longer reaching the dimmer due to a fault up line. In both cases, the dimmers will sense the loss of signal and then hold the last known DMX512 state that it received, until the DMX512 data stream is restored or until the dimmer is powered down.

### **3.3 Test Function**

#### **3.3.1 Driving Channels**

A very useful feature found on most LSC dimmers is the ability to individually or group select channels and drive the outputs from 0 to 100%, without a control device being connected. This is particularly useful when doing onstage focussing, pre-heating of lamps or general dimmer testing.

To activate, press the Mode Select Button until the “Channel” LED illuminates. Press the Scroll Buttons until the desired channel is reached. The corresponding channel number will be displayed in the Status Display. At this stage all channels can be activated by pressing the increment Scroll Button once quickly and then pressing and holding until “ALL” is displayed. The “ALL” mode will stay active until either the increment or decrement Scroll Button is pressed. Press the Mode Select Button to move the function to “% Drive”. Again use the Scroll Buttons to adjust the channel(s) output level. The output is displayed as a percentage of the total output, where “60” is 60% of the output. To adjust another channel, repeat this process by pressing the Mode Select Button

to “Channel” and selecting the next channel. If loads are not to be driven during this stage, they can be isolated by switching the channel MCB off.

The Scroll Buttons can be used to scroll quickly through the “Channel” and “% Drive” levels by either of two methods:

Pressing and holding down the increment or decrement button will move the channel number or output level by a rate that begins slowly and then speeds up.

Pressing the increment or decrement button once quickly and then pressing and holding will snap the output level to either its maximum or minimum setting.

#### **3.3.2 Chase Test Mode**

Another useful test feature is the ability to set the dimmer to sequentially fade through all its channels. In essence, it appears as a single channel chase that fades each channel up and then down. To activate this, select “Channel” on the Mode Selection Button and then press both Scroll Buttons for less than two seconds and release. The Status Display will show the last known channel number entry and will then automatically scroll through the channels. The “Channel” LED will pulse to indicate that the dimmer is in this chase test mode. The output level will default to zero, however pressing the Mode Selection Button will activate the “% Drive” mode. Use the Scroll Buttons to adjust and set the output level. Press either one of the Scroll Buttons to stop the chase and subsequent presses will increment or decrement the channels. To resume the chase, press both Scroll Buttons quickly.

#### **3.3.3 Pre-Heat**

Prior to a show’s performance, it is highly recommended to pre-heat the filaments in the fixtures to prevent sudden thermal shock to the lamp, thus reducing the possibility of damage or shortened lamp life. To activate the pre-heat function select “ALL” on “Channel” mode and then drive the outputs to around 8 to 10%. This level should allow sufficient current through the filament to glow slightly, but not produce any noticeable light output on the stage. To set a permanent pre-heat, refer to [Scene Storage section](#) to create a scene that will activate when the dimmer is powered up.

Two things to consider while in the Test Function mode. If a DMX512 controller is connected to the dimmer and begins to transmit, the incoming signal will work on a HTP (Highest Takes Precedence) basis with anything that is set on the dimmer’s control panel. That is, if the dimmer is currently set for pre-heat at 10% and the incoming signal has channel data greater than 10%, then the dimmer will output the higher value. Likewise, if the incoming signal drops to 0%, then the output will be at 10%, the pre-heat level. Secondly, if power to the dimmer drops out and is then

restored, the dimmer will automatically start at the DMX512 Address mode. All previous settings will be lost.

### 3.4 Scene Storage

Standard on ePRO dimmers is a scene storage facility. This function provides the capability to create a single 12 channel scene using the front panel controls and then store this into the dimmer’s memory for recall at any point while the dimmer is switched on.

To activate the Scene function, press and hold the Mode Select Button until the “Scene” LED illuminates. The LED will now begin to flash, indicating the Scene function is activated. The “Channel” LED is also activated (on) at this time indicating the dimmer is now ready to start creating the scene. Using the Mode Select Button allows the operator to toggle between the “Channel” and “% Drive” modes, whilst the Scroll Buttons allow the selection of the channel number and output level respectively. Once a channel level is set, repeat the above steps to move to the next channel, thus creating the desired scene (group of channels).

The scene is automatically stored in the dimmer’s non-volatile memory, meaning that any changes to the scene will over write the existing stored memory. Similarly any new scenes created will automatically write over the previous stored scene. (Note: The scene is committed to memory approximately 5 seconds after the last change.)

If power is switched off or disconnected while the dimmer is in Scene mode, when power is restored, the dimmer will resume in its last known state – “Scene”. Any stored scenes are also retained in memory when power is switched off and can be accessed when power is restored.

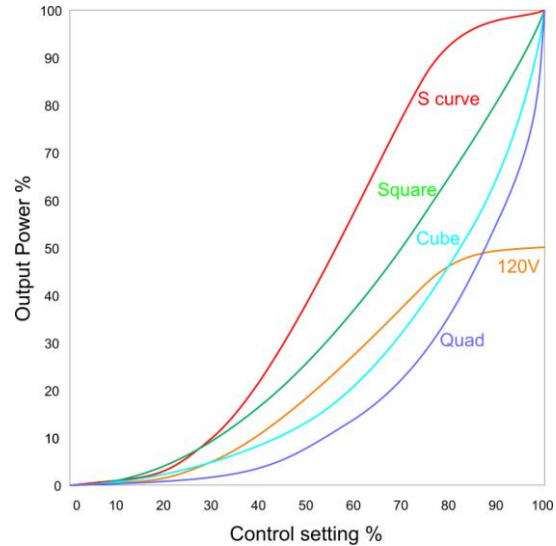
To exit Scene mode, press and hold the Mode Select Button until the “Scene” LED goes out.

### 3.5 Curve Selection

This function allows for an individual fade curve selection on any or all dimmer channels. Six different curves are available and are displayed as follows on the Status Display.

SLAW (default)	displayed as “C1”
SQUARE LAW	displayed as “C2”
CUBE LAW	displayed as “C3”
QUAD LAW	displayed as “C4”
120V CURVE	displayed as “120”
NON-DIM SWITCHING	displayed as “non”

The S, SQUARE, CUBE and QUAD Laws are variations on the dimmers fade response to suit performance characteristics of various types of lamps.



The 120V curve is primarily for use with 120 Volt Par 64 lanterns and equates to a standard “S Law” curve for 120 Volt lamps. If this curve is selected take particular note that only 120 Volt lamps can be connected, up to a maximum of 10 Amps per dimmer channel. LSC Lighting Systems (Aust) Pty. Ltd. takes no responsibility for any possible damage to lamps operated in this mode.

The NON-DIM curve provides the facility for channels to operate as electrical switches. This is ideal for motor control, smoke machines and other special effects. When activated the dimmer channel will switch on (100% output) when the fader level reaches 60% and switches off (0% output) when the controlling fader level drops below 40%.

To activate the Curve function, double click and hold the Mode Selection Button until the “Curve” LED illuminates and begins to pulse off and on. The word “Cur” will be visible in the Status display, indicating the Curve function is activated. Press the Mode Selection Button again. The “Curve” LED will continue to pulse and the “Channel” LED will be illuminated. Using the Scroll Buttons, increment or decrement to move to the channel required. Press the Mode Selection Button again. The “Channel” LED will go out, the “Curve” LED will stay on full (not pulsing) and the display will show “C1” – the S Law curve, or the last setting previously stored.

The S Law is the factory default setting for all dimmers.

Use the Scroll Buttons to select the desired curve. Once chosen, press the Mode Selection Button to select the next channel. Repeat all steps above until the set up is complete. To store this setup, press and hold the Mode Selection Button and the dimmer will exit the Curve function and store the curve set up into memory. The “Curve” LED will remain on, indicating that stored curve set ups are present in the dimmer. In the event of power



down and power then being restored, the dimmer will remember its stored curve set up. (Note: The Curve Setup will only be committed to memory approximately 5 seconds after the last curve change.)

### 3.6 Phase Failure

In the event of a supply phase failure or disconnection, the ePRO dimmer will indicate to the operator which phase has dropped out or moved out of specification. The latter means that under certain circumstances, the supply voltage and/or frequency may move outside the acceptable operating specification and will appear as a fault to the dimmer.

Three small red LEDs are located in the top of the Status Display and labelled “A”, “B” and “C” for phases 1, 2 and 3 respectively. A LED will flash for the respective phase number when it has failed or been disconnected. If this fault condition occurs, it is highly recommended to shut down the dimmer and correct the fault as soon as possible.

The dimmer’s control electronics is powered by all three phases, so in the event of any two phases failing, the electronics will continue to operate.

### 3.7 User Interface Lock

The front panel User Interface settings may be locked to protect against accidental pressing of the scroll or selection push buttons or interference from unauthorised personnel.

Note: If an error occurs while the User Interface Lock is active (on), the error messages will scroll across the Status display, but the buttons will still be inactive. You will need to unlock the User Interface to respond to the error.

#### 3.7.1 Locking the User Interface panel

To lock the User Interface panel, the dimmer must be in the “Drive” state of the following three modes. Failure to be in this mode will result in the user not being able to lock the User Interface panel. The three modes are:

1. Channel Drive mode.
2. Scene Drive mode.
3. Channel Chase Drive mode.

Press and hold both Scroll Buttons for five seconds. You will enter the Reset function. The following message will then scroll across the Status Display – “sys reset inc – yes dec – no”. INC means the increment (∧) Scroll Button and DEC means the decrement (∨) Scroll Button. Press the decrement button to move to the next menu. This will bring up a new message on the Status Display – “total reset inc – yes dec – no”. Press the decrement button to move to the next

menu. The next message on the Status Display will be for the User Interface lock – “UI loc inc – yes dec – no”. Press the increment button to lock the User Interface panel.

The Status Display will now scroll the following message – “UI loc active”. If you select “no”, then the dimmer will return to the condition it was in when you started.

#### 3.7.2 Unlocking the User Interface panel

To unlock the User Interface panel, press and hold all three push buttons simultaneously for 5 seconds. This will return the dimmer to the operating state that was active prior to locking the User Interface panel.

### 3.8 Resetting the Dimmer

The ePRO dimmers can perform two types of reset.

#### 3.8.1 System Reset

Saves all stored information, including the DMX512 Start Address into its memory and then does a power down and re-boot of the electronic circuitry. This is useful to reset the dimmer without disconnecting power and maintain all stored memories.

To do a System Reset, press and hold both Scroll Buttons for five seconds. This can be activated from any mode the dimmer is in. The following message will then scroll across the Status Display – “sys reset inc – yes dec – no”. INC means the increment (∧) Scroll Button and DEC means the decrement (∨) Scroll Button. Press the increment button to do the System Reset.

#### 3.8.2 Total Reset

clears all stored memory and then does a power down and re-boot of the electronic circuitry. This reset returns the dimmer back to its original default position when it left the factory. The DMX512 Start Address defaults back to “1”, the Scene Storage is blank and the curve setting for each channel is defaulted to the “S Curve”.

For a Total Reset, repeat all the steps to do a System Reset, but press the decrement button to say “No” to the System Reset. This will bring up a new message on the Status Display – “total reset inc – yes dec – no”. Press the increment button to do the Total Reset.

At this point if you do not wish to proceed with the Total Reset, press the decrement button to exit.

**4 SOFTWARE UPGRADES**

LSC Lighting Systems has a corporate policy of continuous improvement to its products. The ePRO software is subject to this policy as new features are added and existing features improved.

**4.1 Software Upgrades**

Software upgrades are performed using CodeLINK software. CodeLINK is a Windows based software program that allows the uploading of software releases to the dimmer from a Personal Computer or laptop. CodeLINK and the latest Software releases are available from the LSC Website [www.lslighting.com](http://www.lslighting.com).

CodeLINK operates with a serial cable that connects between a computer serial port and the DMX512 input connector on the ePRO dimmer.

CodeLINK Cable connections

Signal	DMX512 Male 5 pin XLR	PC Comms port DB9 Female
GND	1	5
Tx	4	3
Rx	5	2

**4.2 Installing and Running CodeLINK**

Close any open applications on your computer for the duration of the upgrade process.

Run the CodeLINK.exe programme. Follow the prompts on the screen, accepting the suggested default settings. Once installed click on the CodeLINK programme icon to begin. Detailed operating instructions for CodeLINK software are contained in the help menu.

Connect the CodeLINK cable between the Serial Comms port on your computer and the DMX512 input connector on the dimmer.

Turn OFF power to the dimmer.

When CodeLINK asks you to turn on the dimmer, switch ON power to the dimmer.

The upgrade process will now automatically begin. The Mode Status Indicators will now flash sequentially and the Status Display will now show an incrementing count. When the upgrade process is complete the dimmer will restart. The start up message will display the latest software version installed.

Do not turn off the dimmer until the start up message has been displayed.

Disconnect the CodeLINK cable from the dimmer. The dimmer is now ready for normal operation.

## 5 DMX EXPLAINED

DMX512A 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).

When good quality data cables are used, DMX512 cable runs may be up to 1,000 metres in length. When several DMX cables are required to service different locations, DMX512 splitters can be used. Each splitter provides multiple isolated DMX512 outputs.

The ePRO dimmer provides a “DMX Thru” output allowing you to loop the DMX signal from one ePRO onto the next. ePRO dimmers have Auto DMX termination which will automatically terminate the last dimmer at the end of the DMX cable.

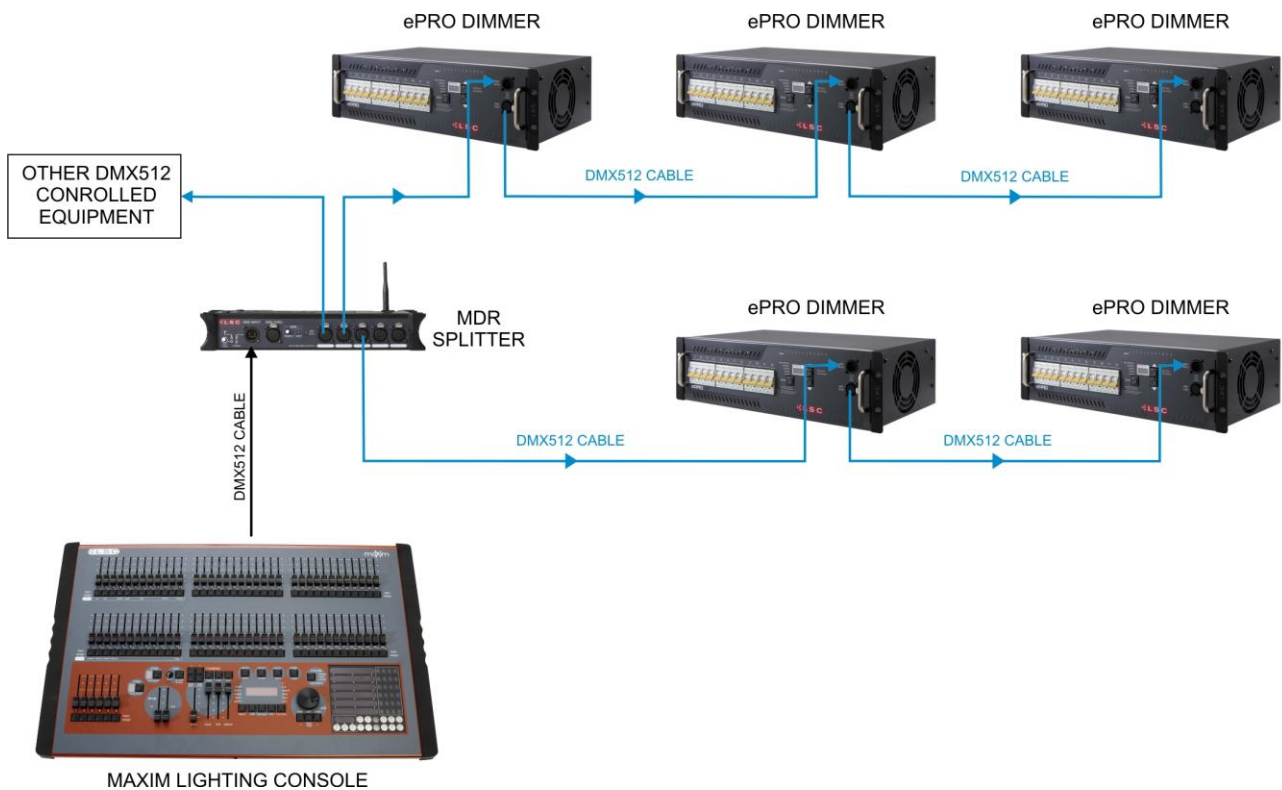
### 5.1 Cable selection

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.

### 5.2 Typical DMX Installation

In the diagram below the DMX signal from the controlling console is connected to a MDR splitter which provides multiple isolated DMX outputs. The output cables can then be run to various locations where dimmers and other equipment are installed. In the event of a fault on one of the cables, the other outputs from the MDR splitter will not be affected.



## 6 MAINTENANCE

The ePRO dimmer has been designed to provide years of trouble free service when maintained and operated within the specifications detailed in this operator manual.

### **6.1 Routine maintenance**

The ePRO dimmer requires minimal maintenance to operate at optimum performance.

Periodic inspection of the following items will ensure that the dimmer is performing at its best.

Inspect the chassis for signs of mechanical damage from impact or abuse.

Inspect the power connector and cable for any sign of damage or wear.

Internal cleaning of the dimmer as detailed below.

### **6.2 Internal cleaning**

LSC recommends cleaning of the internal fan every 12 months (more frequently for touring applications) to ensure that maximum airflow is maintained through the dimmer at all times.

Internal cleaning procedure is as follows:

1. Disconnect the dimmer from the input supply.
2. Remove the cover panel from the dimmer.
3. Use compressed air to blow out any accumulated dust from the fan and heatsink.
4. Replace the dimmer cover and reconnect power.

### **6.3 External cleaning**

LSC recommends cleaning of the front and external panels of the dimmer with a damp cloth that has been rinsed in warm soapy water.

Abrasive cleaners or solvents should be avoided as they can potentially scratch the front panel lexan material and affect painted surfaces.

## 7 SPECIFICATIONS

### 7.1 Dimmer Specifications

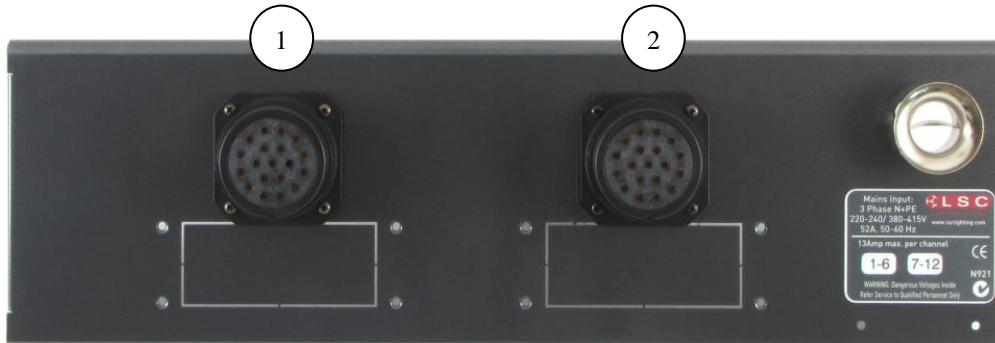
	ePRO	ePRO/B	ePRO/6	ePRO/6/B
<b>Number of Dimmer Channels</b>	12		6	
<b>Rating per Dimmer Channel</b>	13 Amps	10Amps	25 Amps	25Amps
<b>Circuit Breaker Type</b>	MCB	RCBO	MCB	RCBO
<b>Circuit Breaker breaking capacity</b>	6000 Amps			
<b>Current Control Technology©</b>	Yes			
<b>Dimmer Curve selection per Channel</b>	Yes			
<b>Scene Storage</b>	Yes			
<b>Power Switching Component</b>	Triac			
<b>Power-up in last known state</b>	Yes			
<b>Channel Output Level mimic LEDs</b>	Yes			
<b>Data OK and Error LEDs</b>	Yes			
<b>Inductor Rise Time (peak to peak)</b>	250µs			
<b>Number of cooling Fans</b>	1			
<b>Fan Cooling System Control</b>	Variable			
<b>External software upgrading facility</b>	Yes			
<b>DMX512 input and link-thru connectors</b>	Yes			
<b>Operating Voltage</b>	Nominal 220V-240V (Optional 115V)			
<b>Operating Frequency</b>	50/60 Hz Auto selection			
<b>Operating Temperature</b>	0°C to 40°C Ambient (non condensing)			
<b>Meets CE and C Tick requirements</b>	Yes			
<b>Construction</b>	3RU 19 inch rack mount			
<b>Height</b>	133mm			
<b>Width</b>	480mm			
<b>Depth (excludes load sockets)</b>	270mm			
<b>Weight unpacked / packed</b>	18kg / 20kg		18kg / 20kg	



## 7.2 Load Socket Wiring

The following pages detail the load socket wiring options available on the ePRO dimmers.

### Socapex 19 Pin Multipole Connectors



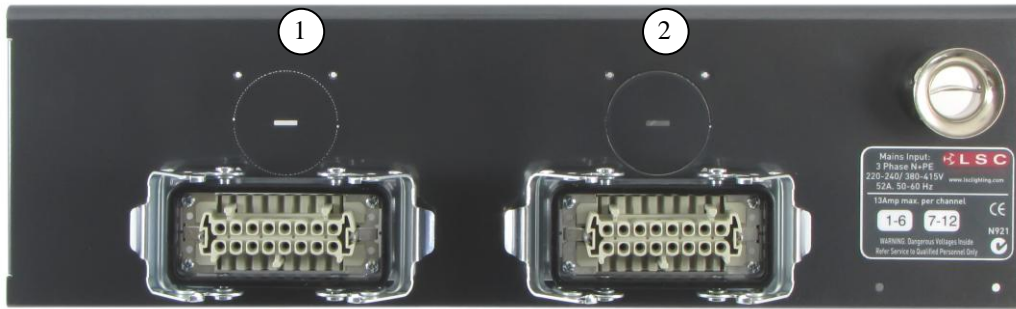
Connector #1	Function	Connector #2	Function
Pin 1	Chan 1 Active	Pin 1	Chan 7 Active
Pin 2	Chan 1 Neutral	Pin 2	Chan 7 Neutral
Pin 3	Chan 2 Active	Pin 3	Chan 8 Active
Pin 4	Chan 2 Neutral	Pin 4	Chan 8 Neutral
Pin 5	Chan 3 Active	Pin 5	Chan 9 Active
Pin 6	Chan 3 Neutral	Pin 6	Chan 9 Neutral
Pin 7	Chan 4 Active	Pin 7	Chan 10 Active
Pin 8	Chan 4 Neutral	Pin 8	Chan 10 Neutral
Pin 9	Chan 5 Active	Pin 9	Chan 11 Active
Pin 10	Chan 5 Neutral	Pin 10	Chan 11 Neutral
Pin 11	Chan 6 Active	Pin 11	Chan 12 Active
Pin 12	Chan 6 Neutral	Pin 12	Chan 12 Neutral
Pin 13	Earth	Pin 13	Earth
Pin 14	Earth	Pin 14	Earth
Pin 15	Earth	Pin 15	Earth
Pin 16	Earth	Pin 16	Earth
Pin 17	Earth	Pin 17	Earth
Pin 18	Earth	Pin 18	Earth
Pin 19	Earth	Pin 19	Earth

**Note:** For six channel variants only one Socapex connector is used.

### Australian 3 pin Connectors



Wieland and Harting 16 Pin Multipole Connectors



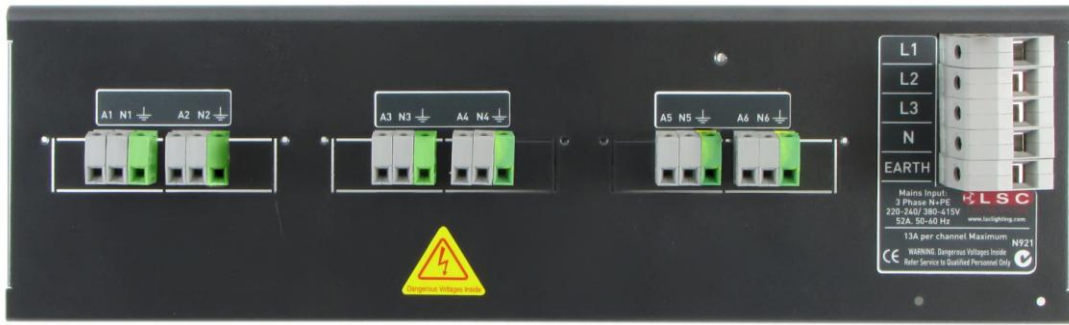
Connector #1	Function	Connector #2	Function
Pin 1	Chan 1 Active	Pin 1	Chan 7 Active
Pin 2	Chan 2 Active	Pin 2	Chan 8 Active
Pin 3	Chan 3 Active	Pin 3	Chan 9 Active
Pin 4	Chan 4 Active	Pin 4	Chan 10 Active
Pin 5	Chan 5 Active	Pin 5	Chan 11 Active
Pin 6	Chan 6 Active	Pin 6	Chan 12 Active
Pin 7	Not used	Pin 7	Not used
Pin 8	Not used	Pin 8	Not used
Pin 9	Chan 1 Neutral	Pin 9	Chan 7 Neutral
Pin 10	Chan 2 Neutral	Pin 10	Chan 8 Neutral
Pin 11	Chan 3 Neutral	Pin 11	Chan 9 Neutral
Pin 12	Chan 4 Neutral	Pin 12	Chan 10 Neutral
Pin 13	Chan 5 Neutral	Pin 13	Chan 11 Neutral
Pin 14	Chan 6 Neutral	Pin 14	Chan 12 Neutral
Pin 15	Not used	Pin 15	Not used
Pin 16	Not used	Pin 16	Not used

**Note:** Earth connection is via the clips on the side of the socket insert.

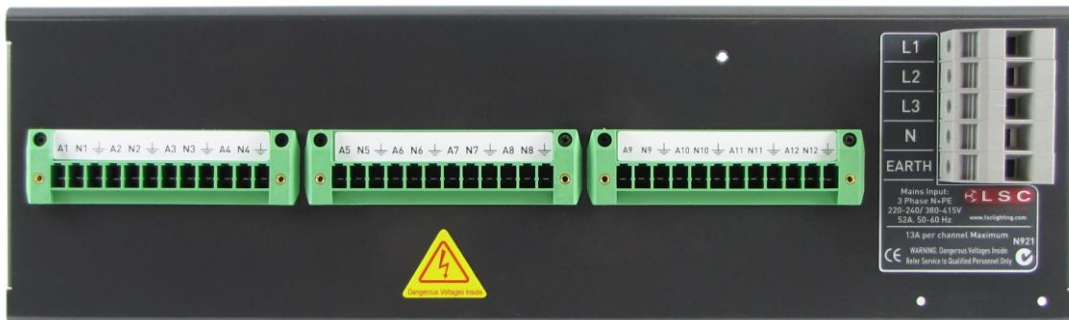
Shuko 2 pin Connectors



6 Channel with screw terminals



12 Channel with screw terminals



## 8 COMPLIANCE STATEMENTS

### 8.1 C Tick Compliance

The ePRO Dimmer from LSC Lighting Systems (Aust) Pty. Ltd. has been designed and conforms to the following standards:

EN55015 (Limits and methods of measurement of radio disturbance of electrical lighting and similar equipment).

IEC60439 (Low-voltage switchgear and control gear assemblies)

IEC60950 (Specification for safety of information technology equipment including electrical business equipment).

### 8.2 CE Compliance

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



### 8.3 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.

### 8.4 Product of Australia

All LSC Lighting Systems products are proudly designed, manufactured and distributed from Australia and meet the highest certification of "Product of Australia" in the Australian Made Campaign.

