

# TEKO

## DMX512 Digital Dimmer Operator Manual



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This manual applies to software version 3.0 or later.

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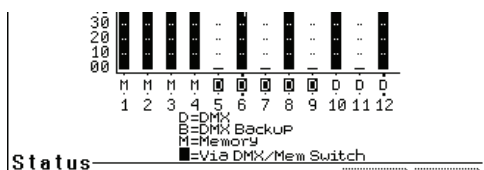


# 1 Quick Reference

The **control source** for each **TEKO** dimmer channel can be *individually configured* to be controlled by either:

1. **DMX** from a DMX lighting controller. If DMX is lost, a “Backup Memory” can be automatically recalled.
2. **Memories** stored in the **TEKO** and recalled by ePlates (wall plate controllers).
3. **DMX/MEM Switch**. All channels that are configured to “switch” can be switched between *DMX* or *Memory* control from either a suitably programmed ePlate button or from the **TEKO** touch screen. If “**Auto Switch**” is ON, channels set to “switch” will be *automatically* switched to *DMX* whenever a valid DMX signal is connected.
4. **Touch Screen**. Dimmer channels can also be manually controlled from the **TEKO** front panel touch screen for testing purposes.

The row of characters below the level bar graph on the main **TEKO** screen shows the current **control source** for each dimmer channel as described by the legend on the screen.



In this example, channels 1 to 4 are all controlled by Memories, channels 5 to 12 are all controlled by DMX but 5 to 9 are via the DMX/Mem Switch and can therefore be switched to Memory.

## 1.1 DMX CONTROL

When a dimmer channel is set to “**DMX Control**” it is **always** controlled by the DMX signal from a lighting console or other DMX device and it responds to the DMX slot number to which it has been patched in the **TEKO** patch menu.

To set a dimmer channel to “DMX control”, on the LCD touch screen press;

[Menu] [Dimmer Channels] [Setup].

The screen shows the “Control Source” for each dimmer channel.

To change the “Control Source” of a dimmer channel(s), **highlight** the required dimmer channel(s) by touching them, then press; [Control Source].

The three choices for dimmer channel control source are;



Press [DMX Control].

Press; [Save Setup] [Done] [Done].

### 1.1.1 DMX Patching

To **Patch** a **TEKO** dimmer channel to a DMX slot press;

[Menu] [DMX Input] [Patch]

The “**1 to 1 patch**” provides a rapid method of patching all of the dimmers in one **TEKO** frame to sequential DMX slots, starting from a DMX slot that you select.

Press [1:1 Patch] then type in the DMX start slot number (0 to 512) for dimmer channel 1 in this **TEKO** frame, then press;

[Patch Series] [Save Patch] [Done] [Done].

The “**User Patch**” allows you to *individually* patch each **TEKO** dimmer channel to a DMX slot of your choice. Press [User Patch]. To select a channel, press that **channel number** then press [Patch].

Type in the DMX slot number (0 to 512) for the selected channel then press [Patch @ Slot].

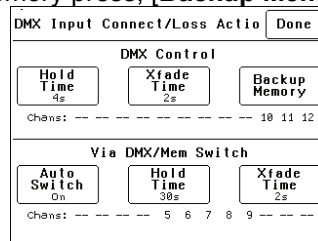
When all patches have been made, press; [Done] [Save Patch] [Done] [Done].

### 1.1.2 DMX Backup Memory

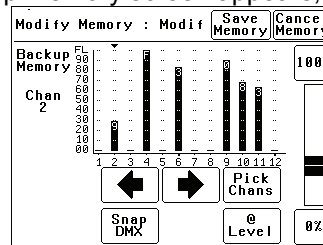
To create or edit the DMX “Backup Memory”, press; [Menu] [DMX Input] [Connect Loss Action].

Set the [Hold Time] to any time other than “Infinite” then press [Set].

To *replace the current TEKO output* with the Backup Memory press; [Backup Memory].



The Backup memory screen appears;



You can either create your own memory using the controls on the screen or press [Snap DMX] to take a copy of the current DMX input signal.

When a channel(s) is selected (indicated by a small triangle (▼) above the channel) it can be faded up or down by sliding your finger over the virtual fader or instantly set to off or full using the [0%] or [100%] buttons.

When the channel levels are correct, press; [Save Memory].

Normal output is restored.

## 1.2 MEMORY CONTROL

When a dimmer channel is set to “**Memory**”, it is always controlled by the **TEKO** memories created via the LCD touch screen or by taking “snapshots” of a DMX input signal or a combination of both. The memories are saved in the **TEKO** and are recalled using the buttons or faders on ePlates.

To set a dimmer channel to “Memory”, press; **[Menu] [Dimmer Channels] [Setup]**.

The screen shows the “Control Source” for each dimmer channel.

To change the “Control Source” of a dimmer channel(s), **highlight** the required dimmer channel(s) by touching them, then press; **[Control Source]**. The three choices for dimmer channel control source are;



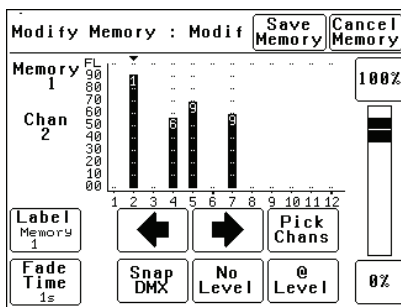
Press **[Memory Control] [Save Setup] [Done] [Done]**.

### 1.2.1 Create or Edit memories

To Create or edit a memory press; **[Menu] [Memories] [Record Memory] or [Edit Memory]**. Select a memory number then press **[Pick]**.

You can either create your own memory using the controls on the screen or press **[Snap DMX]** to take a copy of the current DMX input signal.

When a channel(s) is selected (indicated by a small triangle (▼) above the channel) it can be faded up or down by sliding your finger over the virtual fader or instantly set to off or full using the **[0%]** or **[100%]** buttons.



When the channel levels of the memory are correct, press; **[Save Memory] [Done]**.

To recall a memory, use an ePlate button or fader that has been programmed to control that memory.

### 1.3 SWITCH CONTROL

All channels set to “DMX/MEM SWITCH” can be switched between **Memory** or **DMX** control. The “switch” can be operated from either the **LCD touch screen** or from a suitably programmed **ePlate**.

To set a dimmer channel to “SWITCH” control, press; **[Menu] [Dimmer Channels] [Setup]**.

The screen shows the “Control Source” for each dimmer channel.

To change the “Control Source” of a dimmer channel(s), **highlight** the required dimmer channel(s) by touching them, then press; **[Control Source]**.

The three choices for dimmer channel control source are;



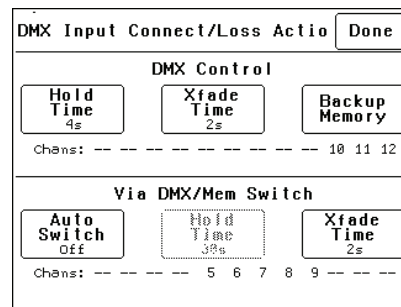
Press **[DMX/MEM Switch]**.

Press; **[Save Setup] [Done] [Done]**.

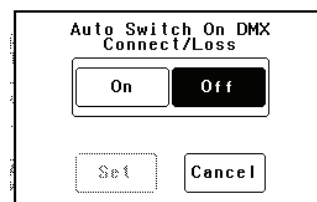
To operate the switch use either a suitably programmed ePlate button or from the LCD touch screen press: **[Menu], [Net Setup] [DMX/MEM Switch]**. Select either; **[DMX]** or **[Memory]** then press **[Set]**.

#### 1.3.1 AUTO Switch

To configure the “Switch” (above) to **automatically** switch to DMX whenever a valid DMX signal is connected to the **TEKO** press; **[Menu] [DMX Input] [Connect Loss Action]**.



Press; **[Auto Switch]**



Press; **[On] [Set] [Done] [Done] [Done]**.

### 1.4 TOUCH SCREEN CONTROL

**TEKO** dimmer channels can also be controlled from the **LCD touch screen** control panel. This method of control is primarily used for testing dimmer circuits.

To test a dimmer channel(s) press;

**[Menu] [Dimmer Channels] [Chan Test]**. Select a channel(s) then fade the channel(s) up or down with the virtual fader on the LCD screen or instantly set them to off or full using the **[0%]** or **[100%]** buttons

Channel test only allows one level to be set for all selected channels. To set individual channels levels use the “**DMX Backup Memory**” above.

## 2 Product Description

### 2.1 ABOUT THIS MANUAL

This manual describes the configuration, operation and specifications of the **TEKO** range of digital dimmers and associated “ePlate” wall controllers manufactured by LSC Lighting Systems.

### 2.2 TEKO FEATURES

**TEKO** introduces a new level of power and sophistication for portable dimmers. With features including 3KW per channel @230V, a full 512 channel softpatch, 80 internal memories, 8 dimmer curves and remote status monitoring.

All this dimmer functionality is controlled using an LCD touch screen interface, with clear text labelling of all functions and a context sensitive help display.

The **TEKO** dimmer uses LSC’s Pulse Transformer Fired Dimmer (PTFD™) output circuitry which means that virtually any load can be controlled perfectly. Pinspots, ELV lamps, transformers, strobes and even a 5w pilot lamp can all be connected without the need for dummy loads. PTFD™ ensures perfect flicker free dimming even when running on bad power, including generators.

High quality toroidal inductors limit the rise time to 250 micro seconds to minimise electrical interference.

The inclusion of LSCnet (LSC’s proprietary networking protocol using TCP/IP) allows AV companies to use the **TEKO** as a stand alone dimmer for small shows. Simply connect any DMX console, set up a look and use the DMX snapshot function to record up to 80 memories. Then remove the lighting console and replace it

with elegant push button and/or fader remote panels for simple operation.

When something goes wrong at a show you want to know where to look. The **TEKO** has a large 10mm Bi-Colour LED on the front panel for status indication. Solid GREEN means all is well. Flashing RED gets your attention to tell you that something is wrong, and is easily seen from the other side of the stage if required.

#### 2.2.1 LCD Touch Screen.

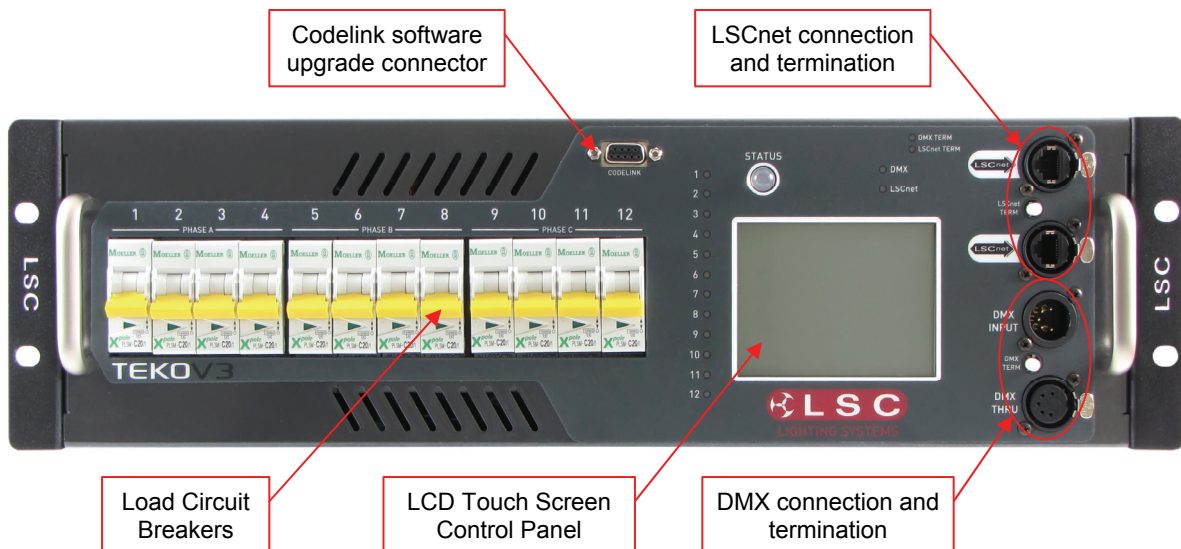
Dimmer configuration, patching and local control is achieved using a backlit graphical LCD with a touch screen control panel. A lock code can be used to prevent unauthorised tampering. When using the touch screen interface, do not use sharp pointed objects that might damage the touch screen surface.

#### 2.2.2 Continuous Operation.

The **TEKO** dimmer is designed for 100% duty cycle operation across all channels simultaneously.

Under these conditions the dimmer’s ventilation is critical and good clearance around the dimmer is essential to prevent obstruction to the airflow in and out of the dimmer chassis. To allow the **TEKO** dimmer to operate at peak performance it requires maximum air flow around the dimmer. LSC recommends a general clearance of 100mm on either side of the dimmer.

The **TEKO** features variable speed fan cooling to minimise noise where the fan only operates as required.



### 2.3 TEKO MODELS

The **TEKO** dimmer is available in the following models offering a choice of dimmer channel quantities and power output ratings.

- **TEKO**  
12 channels @ 13 Amps per channel.
- **TEKO/20**  
12 channels @ 20 Amps per channel.
- **TEKO/6**  
6 channels @ 25 Amps per channel.
- **TEKO/363**  
3 channels @ 63 Amps per channel.
- **TEKO/B**  
12 channels @ 10Amps with RCBO.
- **TEKO/B20**  
12 channels @ 20A with RCBO.
- **TEKO/B/6**  
6 channels @ 25 A with RCBO.

All models can be controlled via DMX 512 from a lighting console locally, an ePlate wall controllers connected via LSCnet or from the touch screen control panel.

### 2.4 EPLATES

**ePlates**™ are remote wall station controllers for the **TEKO** that allow users to recall internal memories from the **TEKO** for replay at a pre-programmed level and with a selected fade time.

**ePlates** are available in the following configurations;



4 Faders  
2 Faders  
1 Fader

8 Buttons  
4 Buttons  
2 Buttons

**ePlates** are connected to the **TEKO** Dimmers via LSCnet which uses industry standard Cat5 cables and connectors. The ePlate buttons and faders can be programmed to recall lighting memories stored in the dimmers or to operate various **TEKO** functions.

For example, one button might recall a **TEKO** memory. Another button might switch certain dimmer channels between DMX control and Memory (ePlate) control.

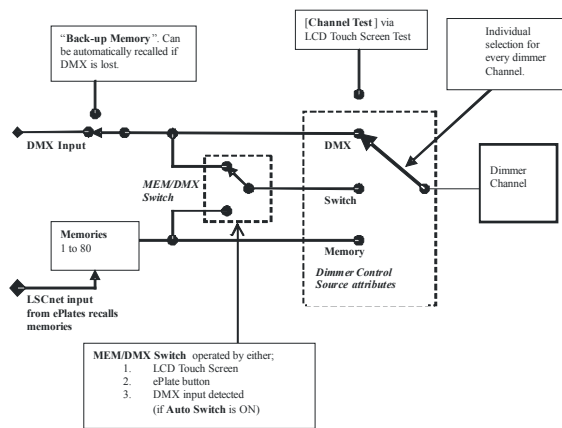
### 2.5 TEKO CONTROL PHILOSOPHY

The **control source** attribute for each **TEKO** dimmer channel can be *individually configured* to control the channel from either:

1. **DMX**. When configured for “DMX” a dimmer channel is controlled from a DMX lighting controller. If DMX fails, the DMX levels can be held indefinitely or the channels can fade to a “Backup Memory” previously stored in the **TEKO**.
2. **Memory**. When configured for “memory” a dimmer channel is controlled from ePlates (wall plates) that are used to recall memories stored in the **TEKO** dimmer.
3. **DMX/MEM Switch**. When configured to “Switch”, a dimmer channel can be switched between *Memory* or *DMX*.

Operation of the **Switch** is controlled from either a suitably programmed ePlate button or from the **TEKO** touch screen or if **Auto Switch** is set to **ON** it will be *automatically* switched to *DMX* whenever a valid DMX signal is connected to the **TEKO**.

**Channel Testing**. Dimmer channels can be manually controlled from the **TEKO** front panel touch screen for testing purposes.



**TEKO** dimmer channel control options.

## **2.6 “HOUSTON” MONITORING SOFTWARE**

Houston is an optional Windows PC application that allows the remote monitoring of all LSCnet enabled products. This includes the **TEKO** dimmers and ePlate wall controllers.

Any operational faults such as input phase failure, loss of DMX, over temperature are all sent over the LSCnet from all of the devices to one or more PCs running the Houston software. The user is immediately notified of a fault when the normally GREEN status indicator starts flashing RED. A quick glance at the screen then gives all the detailed information about the device affected and the nature of the fault.

This information is invaluable for the fast diagnosis of any problems in all situations. Large stadium concerts or set-ups with dimmers in different locations such as distant plant rooms can now see what is happening from a central location.

Installers can see the status of a remote venue such as a school, church or theme park from their office via a Wi-Fi link or an internet connection.

Houston also keeps a permanent log of all system events for later viewing. These are stored with the time and date of the fault, allowing further diagnosis of a problem, even if it is not reported until weeks later.

## 3 Getting Connected

### 3.1 INPUT SUPPLY

**TEKO** dimmers are designed to be connected to a 3 phase supply and are supplied with either a 1.2m/5 wire/6mm<sup>2</sup> or 1.2m/5 wire/10mm<sup>2</sup> black rubber insulated power cable terminated inside the dimmer.

Most Australian models are fitted with a 5 pin three phase plug. The **TEKO** 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.

### 3.2 DMX CONTROL INPUT

**TEKO** 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 last dimmer on the DMX cable must have the DMX termination on.

### 3.3 LSCNET INPUT

**TEKO** dimmers have an LSCnet interface that is used to connect optional remote ePlate wall panels and monitor the dimmer status using Houston monitoring software. The LSCnet interface has an input and thru connector similar to the DMX connections. The last dimmer on the LSCnet cable must have the LSCnet termination on.

### 3.4 LOAD CONNECTION

The **TEKO** 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 **TEKO** is supplied with twelve Australian Sockets and the 6 channel is supplied with 6 sets of 25 Amp and 15 Amp Australian Sockets connected in parallel.

European versions of **TEKO** are available with the following socket types: Shuko, 16 pole Harting, 19 pole Socapex, 63A CEEform (3 channel model) 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.

### 3.5 OVERLOAD PROTECTION

Each dimmer is fitted with fast acting thermal magnetic Miniature Circuit Breakers (MCB's), one for every output channel. Some **TEKO** models are optionally available with RCBO protection. Under normal operating conditions the MCB's 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 will trip to protect the internal components of the dimmer.

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

### 3.6 DIMMER INSTALLATION

The **TEKO** 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.



## 4 Dimmer Configuration

The **TEKO** dimmer needs to be configured to suit its particular application. This involves the following operations which are achieved via the touch screen menus. The menu system is fully described in [menu system](#) section.

### 4.1 DIMMER CONTROL SOURCE

Each dimmer channel needs to be configured for the “**Control Source**” that will drive it. This could be either **DMX**, **Memory** or **SWITCH** (switchable between Memory or DMX).  
See section [Control Source](#).

The **SWITCH** (above) can be *manually* operated either locally from the LCD touch screen or remotely from an ePlate.  
See section [DMX/MEM Switch Operation](#) and section [Switch Group](#).

The **SWITCH** can be *automatically* operated by the presence or absence of DMX.  
See section [DMX/MEM Switch Connect Loss Action](#).

**Note: If “Control Source” is not available on the menu then either “Net Playback” has been disabled from the “Options” menu. When “Net Playback” is disabled, it forces all dimmer channels to DMX control.**

### 4.2 PATCHING

Dimmer channels set to **DMX** or **Switch** Mode, may need to be patched to the DMX slot number that is to control them.

Refer to the [Patching section](#).

#### Recording Memories

Dimmer channels set to **Memory** Mode, are controlled by the memories (up to 80 memories) saved in each **TEKO**. These memories are created and saved in the **TEKO** using the LCD touch screen or by taking a snapshot of the DMX input. The ePlates (wall plates) must also be programmed to recall the required memories.

See section [Memory Control](#).

### 4.3 OPTIONAL SETTINGS

In addition to these settings you can also set the following *optional* parameters;

- Selecting the dimmer action of DMX controlled channels when the DMX signal is connected or lost including the saving of a **Backup Memory**.  
See section [Connect Loss Action](#)

- Selecting minimum and maximum levels for each dimmer.  
See section [Min and Max Levels](#)
- Selecting a fade curve for each dimmer.  
See section [Fade Curves](#)
- Setting each dimmer to either Dim (dimmer) or Switch (between OFF or fully ON).  
See section [Fade Curves](#)
- Setting a “lock code” to prevent unauthorised access to the **TEKO** menu.  
See section [TEKO Lock / Unlock](#)
- Naming the Dimmer. Useful in large installations to identify each **TEKO**.  
See section [Name](#)
- Setting the date and time (for the **TEKO** status log).  
See section [Time and Date](#)
- If the **TEKO** is **ONLY** to be controlled by **DMX** then the Memory control by ePlates via LSC net can be disabled. This simplifies the menu system and forces all dimmer channels to DMX control. See section [Net Playback](#)
- The DMX alarm delay time can be set or the alarm can be disabled. Disabling the alarm is useful when the **TEKO** is never to be controlled by DMX. See section [DMX Alarm](#).

### 4.4 TESTING

The operation of each dimmer circuit can be tested from the LCD touch screen.

Refer to the [Channel Test section](#).

## 5 Menu System

### 5.1 CONTROL PANEL OVERVIEW

The Control Panel of the **TEKO** dimmer contains indicators for status and channel levels together with the LCD touch screen user interface.

Operation of the touch screen and status of the indicators are discussed in detail in this section.

#### 5.1.1 Indicators

The indicators located around the touch screen are multi coloured and light or flash to indicate their current condition as described below;

#### TEKO STATUS

- **Green** = Normal operation.
- **Red (flashing)** = Alarm. See status message on LCD screen.
- **Red (steady)** = Alarm is acknowledged but the problem still exists.

#### DMX

- **Green** = Valid DMX control signal connected.
- **Green (flashing)** = Loss of DMX control signal.
- **Red (flashing)** = Error on DMX control signal.

#### LSCnet

- **Green** = Valid LSCnet control signal connected (from ePlates).
- **Green (flashing)** = Data traffic detected on LSCnet.

#### CHANNEL LEVEL Indicators

- **Green** = The channel is ON via **DMX** control.
- **Red** = The channel is ON via **memory** (ePlate) or channel test control.

The brightness of the channel indicator is proportional to the channel level.

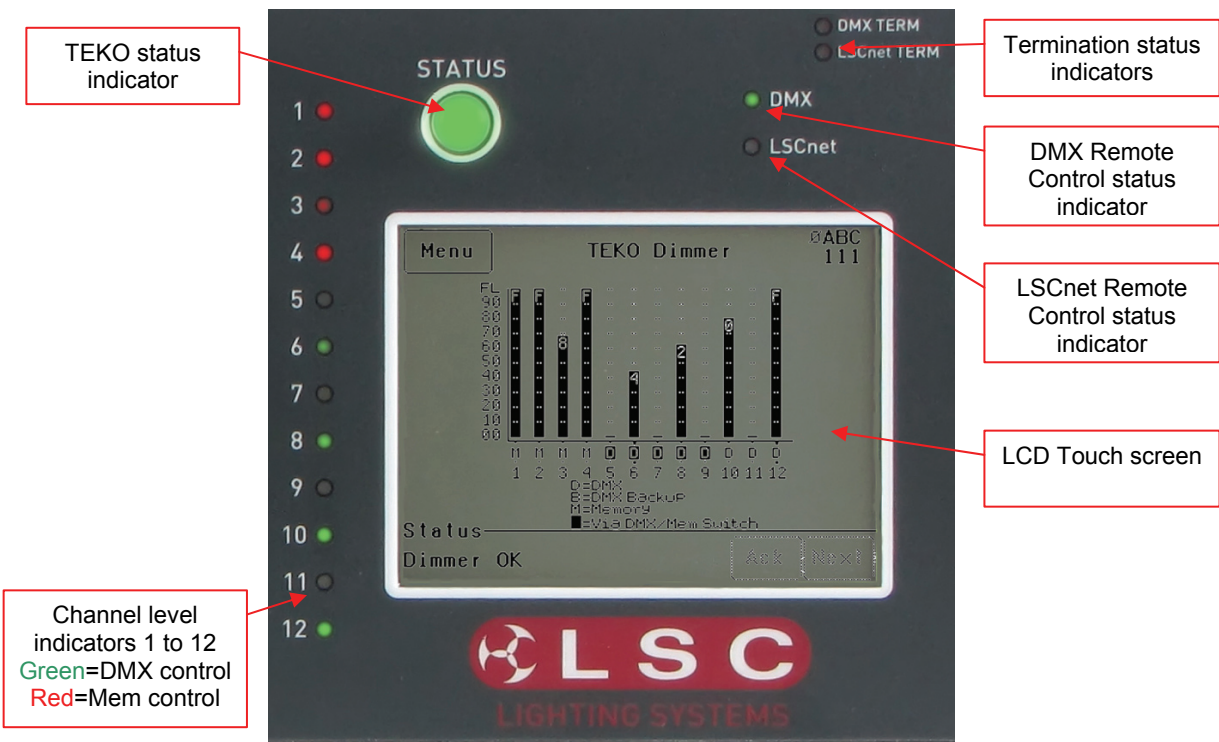
See the, [Alarms section](#) for further details on alarms.

#### 5.1.2 Touch Screen

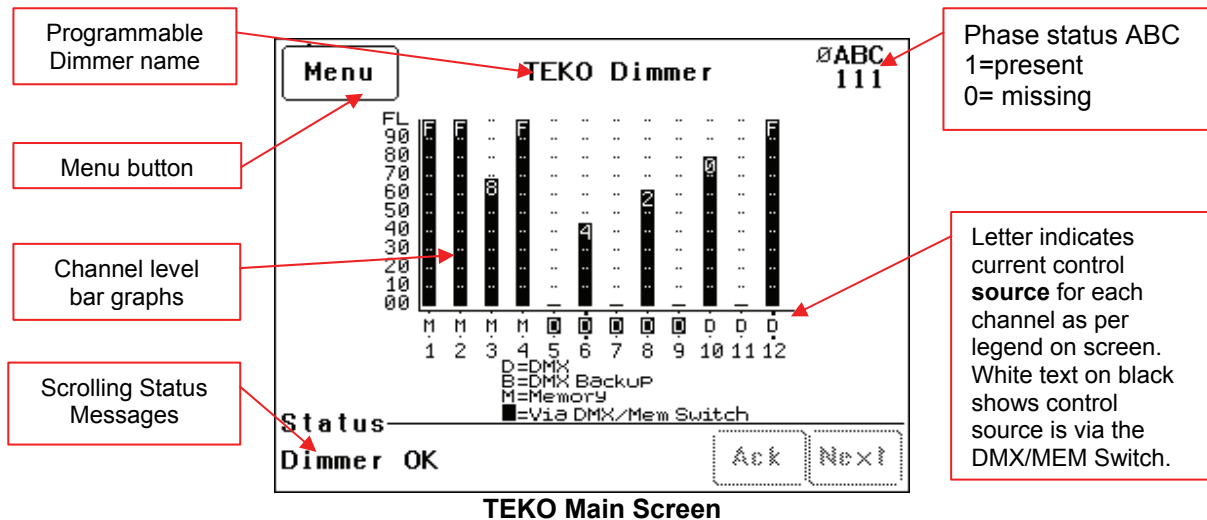
The touch screen may be operated by touching the virtual buttons with your finger. The home page of the touch screen shows the current level of each dimmer channel in a bar graph display.

If the **TEKO** has been “locked”, the **[Menu]** button is replaced by the **[Unlock]** button. Touching the **[Unlock]** button and entering your code number unlocks the **TEKO** and reveals the **[Menu]** button.

Pressing **[Menu]** allows you to access a range of functions, setups and tests via sub-menus. Each sub-menu screen has help information in the top left corner. The menus are fully described in Section 3 “Testing and Setting up the **TEKO** Dimmer”.



**TEKO Control Panel**



At the top of the screen is the **name** of this **TEKO** dimmer. The default name is “**TEKO** Dimmer” but you can enter a name of your choice from the options menu. Names are useful in identifying each **TEKO** dimmer in installations containing more than one **TEKO** and can also be used by the “Houston” monitoring software.

The middle of the screen is a bar-graph display of the channel levels with channels numbers 1 to 12 shown across the bottom.

The levels from 00 to FL (Full) are shown on the left scale in increments of ten, whilst the units of each channel are shown on the individual channel bars. In the example above, channel 3 has a level of 68.

Channels can be individually configured to be controlled from either “DMX”, “Memory” (ePlates)”, or the “MEM/DMX Switch”. The letters below the bargraphs show the control source for each channel. The legend below the channel numbers explains the meaning of the letters. In the example above;

Channels 1 to 4 are controlled by **M**, (Memories recalled by ePlates). Channels 10 to 12 are controlled by **D**, (DMX).

Channels 5 to 9 **D** are also controlled by DMX but control is via the MEM/DMX switch. Therefore the switch is obviously in the DMX position. If the switch was changed over to Memory, then channels 5 to 9 would come under Memory control.

If the switch has been set to “Auto Switch” to DMX (if a DMX signal is present), then if the DMX signal is lost, channels 5 to 9 would automatically switch to Memory control.

See section 2.5 “Control Philosophy” for more details.

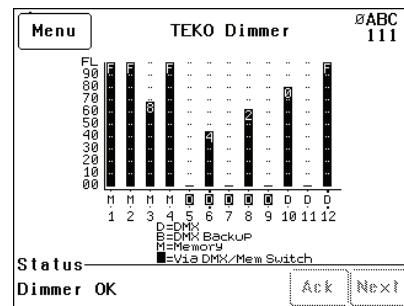
The right hand side of the screen indicates the presence of the 3 phases (∅ A B C) of input power to the **TEKO**.

“1” indicates the presence of that phase.  
“∅” indicates a loss of that phase.

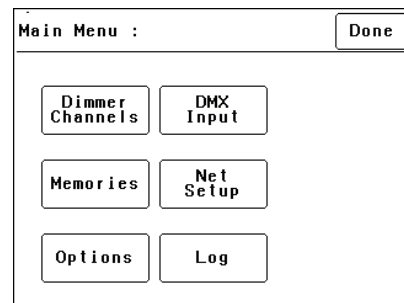
The bottom of the screen displays scrolling messages about the status of the **TEKO** dimmer. These are described in the [Alarms section](#).

### 5.2 TOUCH SCREEN MENUS

When the **TEKO** is switched ON, after briefly showing the opening screen, the main screen appears;



Pressing [**Menu**] reveals the “Main Menu”.



The six buttons on the “Main Menu” provide access to the Sub-Menus and functions which are described in detail on the following pages. Each sub menu has a description of its function at the top of its screen.

### 5.2.1 TEKO Menu Structure

Each main menu button accesses the following sub menu functions;

Main menu > Dimmer Channels		
Set-up	Chan Test	Breaker Status
Control Source. (DMX, Memory or Switch)	Manual channel(s) level test	Circuit breaker status
Min Level	Channel test sequencer	
Max Level		
Cut-off Level		
Fade Curve		
Net Group Master.		

Main menu > DMX Input	
Patch	View Levels
1:1 Patch	Raw levels
User Patch	Percentage
Clear Patch	
Connect Loss Action	DMX Alarm
DMX Control	Alarm Enable/Disable
Hold Time	Alarm Delay Time
Xfade Time	
Backup Memory	
Via DMX/MEM Switch	
Auto Switch On/Off	
Hold Time	
Xfade Time	

Main menu > Memories			
Record Memory	Edit Memory	Copy Memory	Delete Memory

Main menu > Net Setup	
MEM/DMX Switch	Switch Group
Manually operate the "MEM/DMX Switch".	Set Switch Group Number or None for ePlate control of MEM/DMX Switch.

Main menu > Options		
Module Status	Beeper	About
Input Phases A B C	On or Off	Software Version
Temperature		Model type
Fan Speed		Voltage
Lock Dimmer	Change Lock Code	Dimmer Name
4 digit code to lock	Default = 0000	Enter a name
Date and Time	Net Playback	Reset
Set Time	Enable or Disable Memory playback from ePlates	System Reset
Set Date		Total Reset

Main menu > Log
Displays Log
<b>Clear Log</b>

Select a menu by touching the appropriate button on the touch screen. To step back through the menus, press the button in the top right of the screen.

The choices will be either;

[Done] (Exits to previous menu)

or, if changes have been made;

[Save] (Exits to previous menu and saves changes)

or

[Cancel] (Exits to previous menu and restores previous settings).

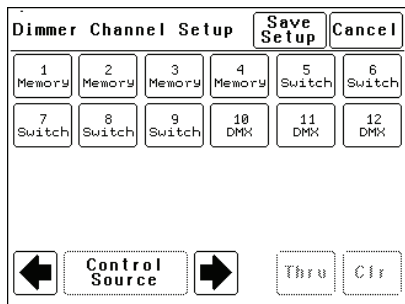
### 5.3 DIMMER CHANNELS MENU

Selecting [Menu] [Dimmer Channels] provides menus for;

- Setup (of channel attributes)
- Channel Testing

#### 5.3.1 Set-Up

Selecting [Menu] [Dimmer Channels] [Setup] reveals the following screen;



The ◀ and ▶ buttons at the bottom left of the screen step through the attributes that can be set for each individual dimmer channel.

The available attributes are;

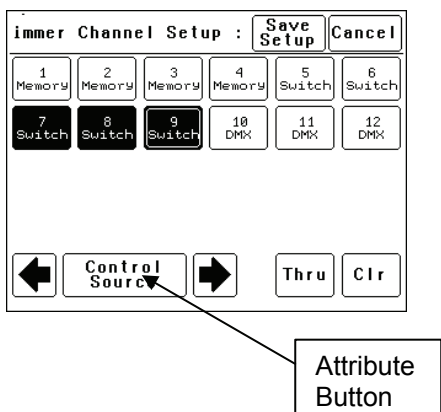
- Control Source
- Min Level
- Max Level
- Fade Curve
- Net Master Group

As each attribute is selected, the screen shows the setting of that attribute for every channel.

In the example above of a 12 channel **TEKO**, the “Control Source” attribute for every channel is shown.

- Channels 10 to 12 are controlled by **DMX**.
- Channels 1 to 4 are controlled by **TEKO memories** (recalled from ePlates).
- Channels 5 to 9 can have their control “switched” between either DMX or Memory.

To change the selected attribute of a channel(s), select the channel(s) by touching them. Selected channels have white text on a black background.



In this example, channels 7, 8 and 9 are selected.

To de-select a channel, touch that channel again.

To de-select **all** channels press [Clr].

To select a range of channels, press a channel, then [Thru] then another channel.

When any channels are selected, the attribute button becomes active. Pressing the attribute button allows you to change the attribute of the selected channel(s) as described below.

The default settings for channel attributes are;

ATTRIBUTE	DEFAULT SETTING
Control Source	Switch
Min Level	0%
Max Level	100%
Cut-off Level	0%
Fade Curve	S Law
Net Master Group	None

Descriptions of each attribute and how to set them are described below.

When the all attributes are correct for all channels press [Save Setup], or to cancel the changes that you have made and return to the previous settings press [Cancel].

#### 5.3.1.1 CONTROL SOURCE

The “Control Source” attribute selects the signal that will control the level of a dimmer channel.

Press; [Menu] [Dimmer Channels] [Setup]. The screen shows the control source for every channel. To change the control source, select a channel(s) (by touching them) then press [Control Source]. You can select the following sources;



**1. DMX Control.** When configured for “DMX Control” a dimmer channel is only controlled from the DMX signal from a lighting controller.

**Note: If a dimmer channel is controlled by DMX, it might need to be patched. See Error! Reference source not found. “Patching” for details.**

**2. Memory Control.** When configured for “Memory Control” a dimmer channel is controlled from ePlates (wall plates) that are used to recall memories stored in the **TEKO** dimmer. These memories can be created and edited via the LCD touch screen.

**3. DMX/MEM Switch.** When configured to “Switch”, a dimmer channel can be manually or automatically switched between *DMX* or *Memory* control.

**Manual** operation of the “DMX/MEM Switch” is controlled either “remotely” from a suitably programmed button on an ePlate or “locally” from the **TEKO** touch screen. Refer to [DMX/MEM Switch Operation](#) for details on how to manually operate the “DMX/MEM Switch” from the touch screen.

**Automatic** operation of the “Switch” is controlled by the presence or absence of a valid DMX signal from a DMX lighting controller. When DMX is present it will be automatically connected to any channels that are set to “Switch”.

See 5.4.6.2 “DMX/MEM Switch Connect Loss Action” for details on how to set the “DMX/MEM Switch” to “Auto Switch” to DMX. When finished press **[Save Setup]** **[Done]** **[Done]**.

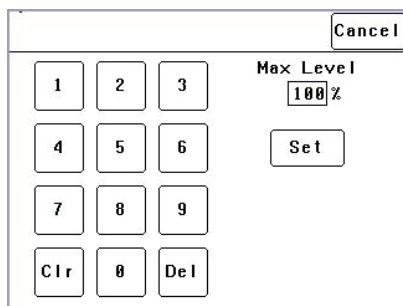
### 5.3.1.2 MIN AND MAX LEVEL

The “Min Level” attribute 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.

“Max Level” sets the level of the dimmer output when its control signal is set to full.

Press; **[Menu]** **[Dimmer Channels]** **[Setup]** then use the **←** and **→** buttons to select “Min Level” or “Max Level”.

When you select a channel(s) (by touching it) then press **[Min Level]** or **[Max Level]**, you can use the keypad that appears to enter the required percentage level for the selected channels, then press **[Set]**.



When finished press **[Save Setup]** **[Done]** **[Done]**.

### 5.3.1.3 CUTOFF LEVEL

The “Cutoff level” attribute is used only with Fluoro curve selected channels and sets the lower cutoff level of the dimmer output. This value can be scaled to suit the turn on/off point of the connected fluorescent load/s.

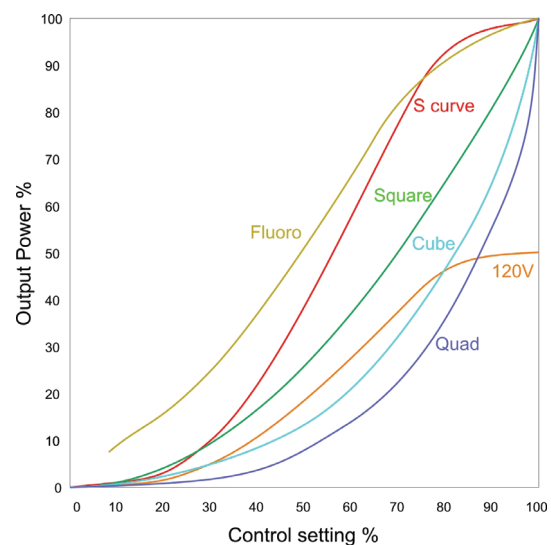
Press; **[Menu]** **[Dimmer Channels]** **[Setup]** then use the **←** and **→** buttons to select “Cut-off Level”. Select the required Fluoro channels and then press the “Cut-off Level” button. Note only

channels with fluoro curves applied are selectable. Use the keypad to program the cut-off level, then press **[Set]**.

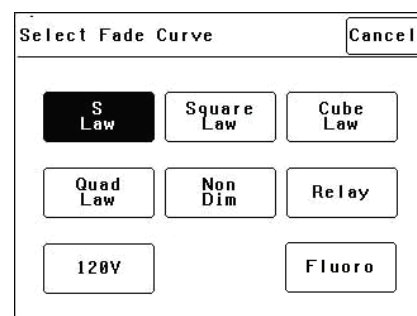
### 5.3.1.4 FADE CURVES

Fade Curve is the curve or “transfer characteristic” between input control signal and dimmer output. The following curves are available;

- S Law
- Square Law
- Cube Law
- Quad Law
- Non Dim
- Relay
- 120V
- Fluoro



Press; **[Menu]** **[Dimmer Channels]** **[Setup]** then use the **←** and **→** buttons to select “Fade Curve”. When you select a channel(s) (by touching it) then press **[Fade Curve]**, you can select the required curve for the selected channel(s).



“S Law” is the default law and provides a normal dimmer response.

“Square”, “Cube” and “Quad” laws can be selected to better match the transfer characteristic of existing dimmer installations or to provide the response that you require. Try the

different curves to find the best curve for your needs.

“**Non Dim**” is used for devices that do not fade, but need to be switched OFF or ON such as motors or discharge lamps.

When set to “Non Dim”, when the control signal is raised above 60%, the dimmer will switch from OFF to full ON and when the level drops below 40%, the dimmer will switch OFF.

“**Relay**” is used for devices that need to be switched OFF or ON. It is similar to “Non Dim” but uses different thresholds for switching.

When set to “Relay”, if the level is raised above 4%, the dimmer will switch to full ON and when the level drops below 2%, the dimmer will switch OFF.

Relay mode is particularly useful when long fade times are used as the “Relay” channel will switch on at the *start* of the up fade and switch off at the *end* of the down fade.

“**120V**” limits the maximum output voltage of the selected channels to 120 Volts. Use this setting for 120Volts lamps.

“**Fluoro**” is used for exclusively for fluorescent lighting where the lower turn on/off point of the curve can be adjusted using the cutoff level attribute.

When finished press [**Save Setup**] [**Done**] [**Done**].

### 5.3.1.5 NET MASTER GROUP

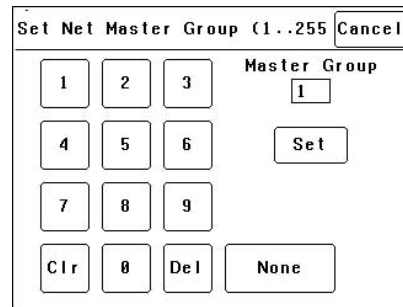
ePlate fader panels can be programmed so that a fader acts as level “Group Master” over specified dimmer channels that are under memory control. Any dimmer channels that are assigned to a “Group Master” will still be controlled by the playback of memories, but the ePlate Group Master will have master level control.

For example, if a channel is played back from a memory with a level of 50% and its Group Master is set to 50% then the channels level will be 25%.

[**Net Master Group**] allows you to assign each dimmer channel to a group number so that the channels overall level is controlled by an ePlate “Group Master fader” with the same group number.

Press; [**Menu**] [**Dimmer Channels**] [**Setup**] then use the ◀ and ▶ buttons to select “Net master Group”. When you select a channel(s) (by touching it) then press [**Net Group Master**], you can select the group number of the ePlate group fader that is to be a group master over that channel(s) or for no group master press [**None**].

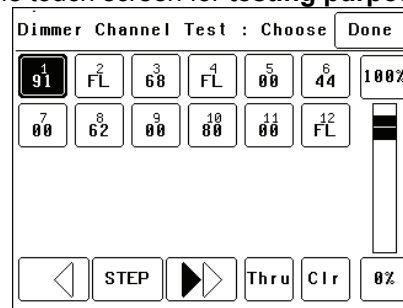
When you have made your selection press; [**Set**].



When finished press [**Save Setup**] [**Done**] [**Done**].

### 5.3.2 Channel Test

Pressing [**Menu**] [**Dimmer Channels**] [**Chan Test**] provides **local control** of dimmer levels from the touch screen for **testing purposes**.



The screen shows the current level of each dimmer channel. This level might be coming from the DMX control input or a memory recalled from an ePlate.

To test a dimmer channel(s), press the dimmers channel number(s). Selected channels have white text on a black background. In the example above, channel 1 is selected. You can add further channels to your selection by pressing their channel numbers.

To deselect a channel, press it again.

To select a range of channels, press a channel, then [**Thru**] then another channel.

To clear **all** selections, press [**Clr**].

When a channel(s) is selected it is disconnected from either the DMX or Memory control signal and connected to the virtual fader on the right of the touch screen. It can be faded up or down by sliding your finger on the virtual fader.

To instantly set the fader to 0% press the button at the bottom of the fader.

To instantly set the fader to 100% press the button at the top of the fader.

When a channel is deselected, it is disconnected from the virtual fader and returns to its previous DMX or memory control.

### 5.3.3 Test Sequencer

The Channel Test screen provides a simple sequencer that will automatically step through the channels. As each channel(s) is selected it is disconnected from either the DMX or Memory control signal and connected to the virtual fader on the right of the touch screen

- Select a channel (or several channels).
- Set a level on the virtual fader.
- To start the sequencer, press [▶] (forward).
- To stop the sequencer press [■] (stop).
- To manually step the stopped sequence to the next channel press [■] (stop).
- To play the sequence in the opposite direction press [◀] (reverse).

When finished testing channels press; [Done] [Done] [Done].

All dimmers return to normal control.

**Hint:** When testing lamps locally from the **TEKO** control panel, the test sequencer is especially useful if the lamps are in a different location to the **TEKO** dimmer. You can start the sequencer then go and check that each lamp is working as the **TEKO** automatically sequences through the dimmer channels.

### 5.4 DMX INPUT MENU

Selecting [Menu] [DMX Input] provides menus for;

- Patching.
- Viewing DMX Levels.
- Dimmer reaction to connection and loss of DMX signal.
- DMX alarm settings.

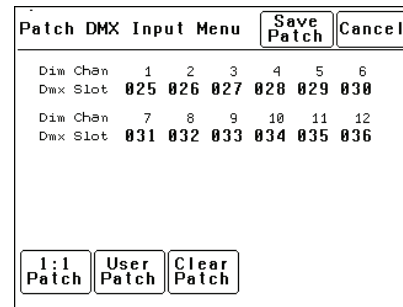
#### 5.4.1 Patching

The patch allows you to patch (connect) DMX slots (addresses) from your DMX lighting controller to **TEKO** dimmer channel numbers. Each **TEKO** dimmer numbers its dimmer channels from channel 1 through to channel 6 or 12, depending upon the quantity of dimmer channels in the model of **TEKO**.

Patches are required when;

- A particular *DMX slot number* from the lighting controller is to control a **TEKO** dimmer with a different *dimmer channel number*.
- A single DMX slot number is to control multiple **TEKO** dimmer channel numbers.

To patch **TEKO** dimmers to DMX slots or to examine the current patches, press; [Menu] [DMX Input] [Patch].

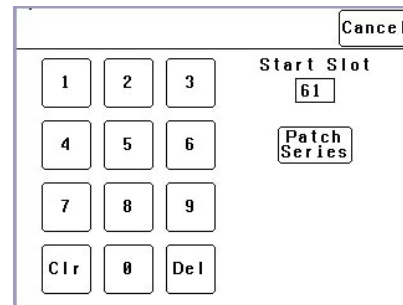


In this example, “Dim Chans” 1 to 12 are patched to “DMX Slots” 025 to 036 respectively.

#### 5.4.2 1 to 1 Patch

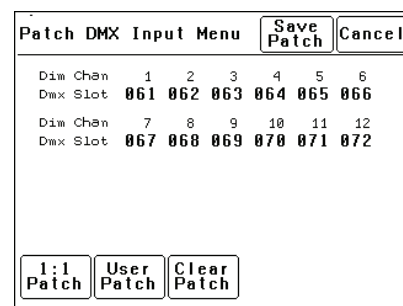
Patches are *often* performed in contiguous blocks of addresses. The 1 to 1 patch provides a rapid method of patching all of the dimmers in one **TEKO** rack to sequential DMX slots, starting from a DMX slot that you can select.

Press [Menu] [DMX Input] [Patch] [1:1 Patch].



Type in the DMX start slot number (0 to 512) for dimmer channel 1 in this **TEKO** rack then press [Patch Series].

In this example, the starting DMX slot number is 61. Each **TEKO** dimmer is automatically patched to the next higher DMX slot number.



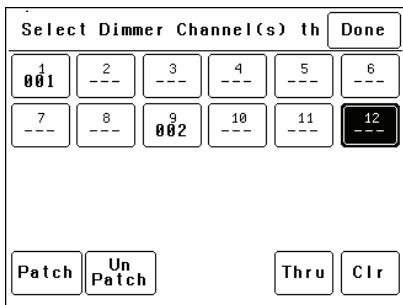
To save the patch, press [Save Patch] or, to cancel the changes that you have made and return to the previous patch, press [Cancel].

#### 5.4.3 User Patch

The User Patch allows you to *individually* patch each **TEKO** dimmer channel to a DMX slot of your choice.

Press [Menu] [DMX Input] [Patch] [User Patch].

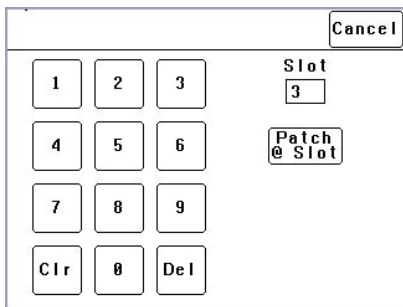




To select a channel, press that channel number.  
You can add further channels to your selection by pressing their channel numbers.  
To deselect a channel, press it again.  
To select a range of channels, press a channel, then **[Thru]** then another channel.  
To clear **all** selections, press **[Clr]**.

In the example above, dimmer 1 is patched to DMX slot 1 and dimmer 9 is patched to DMX slot 2. Dimmer 12 is currently selected (white text on black background) ready to be patched.

To make a patch, select the dimmer channel(s) as described above then press **[Patch]**.



Type in the DMX slot number then press; **[Patch @ Slot]**.  
All of the selected dimmer channels are patched to the selected DMX slot number.  
Select other dimmers and patch them as required.  
To Un-patch a dimmer(s) select the dimmer(s) then press **[UnPatch]**.

When all patches have been made, press **[Done]**.

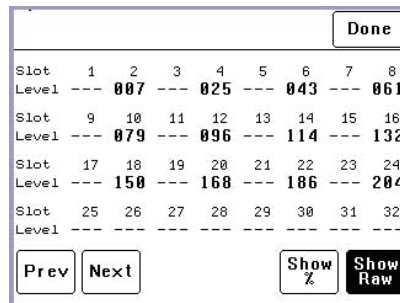
To save the patch, press **[Save Patch]** or to cancel the changes that you have made and return to the previous patch, press **[Cancel]**.

#### 5.4.4 Clear Patch

To remove **all** patches in a single operation, press **[Menu] [DMX Input] [Patch] [Clear Patch] [Yes]**.

#### 5.4.5 View Levels

The “View Levels” menu allows you to see the levels of the DMX control signals that are connected to the **TEKO** dimmer.  
Press **[Menu] [DMX Input] [View Levels]**.



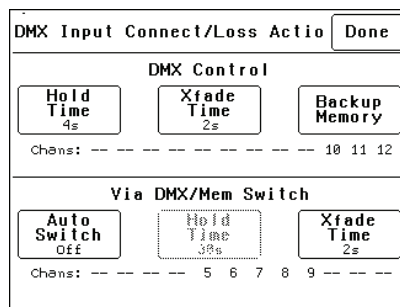
The screen shows 32 (of the 512) DMX slots and the level for each slot. Press **[Next]** or **[Prev]** to change to the next or previous page of 32 DMX slots. The DMX values can be displayed as a “%” (percentage), (0-100%) or as “raw data” levels (0-255) by selecting the relevant button at the bottom of the screen.  
When finished, press **[Done]**.

#### 5.4.6 Connect Loss Action

This menu allows you to set the actions that the **TEKO** will take when a DMX signal is connected (or restored after a loss). There are separate settings for

- Dimmer channels whose “Control Source” is **DMX**.
- Dimmer channels whose “Control Source” is the output of the **DMX/MEM Switch**. See [Control Source](#) earlier in this section for details.

Press;  
**[Menu] [DMX Input] [Connect Loss Action]**.



The screen is divided into two sections;

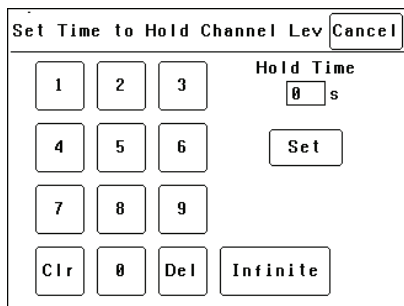
- The top section sets the action for dimmer channels under “**DMX Control**”. These settings are described below. The screen also shows the channels that are under “DMX Control”. In the example above it is channels 10 to 12.
- The bottom section sets the action for dimmer channels controlled “**via DMX/MEM Switch**”. These settings are described on the next page. The screen also shows which

channels are under “DMXMEM Switch” control. In the example above it is channels 5 to 9.

### 5.4.6.1 “DMX CONTROL” CONNECT LOSS ACTION AND BACKUP MEMORY

In the event that the DMX input signal is lost, the DMX controlled channels in the **TEKO** can be configured to respond in different ways. The **TEKO** can either **HOLD** the last valid DMX levels indefinitely or, after a programmable (hold) time, it can crossfade (Xfade) to a “**Backup Memory**” previously stored in the **TEKO**. When DMX is restored, the **TEKO** will immediately crossfade (in the Xfade time) back to the DMX signal.

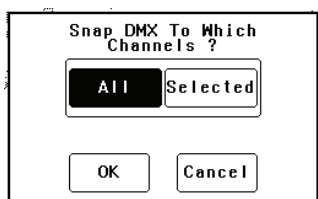
Pressing [**Hold Time**] brings up a keypad screen where you can enter a DMX hold time from 0 to 300 seconds (5 minutes) or you can select an [**Infinite**] DMX hold time. After making your selection press [**Set**].



If a “Hold Time” other than “Infinite” has been set, pressing [**Xfade Time**] allows you to enter a time from 0 to 300 seconds (5 minutes) in which the DMX channels will crossfade to the “Backup Memory” (and back to DMX when it is restored).

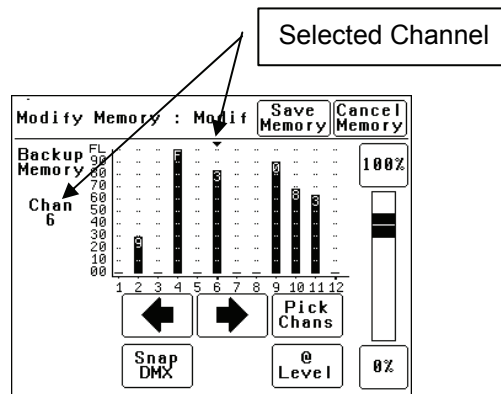
Pressing; [**Backup Memory**] instantly replaces the current output of **all** dimmer channels with the contents of the Backup Memory. This is irrespective of the “Control Source” settings for the dimmer channels. The “Backup Memory” screen allows you to either create your own memory using the controls on the screen or take a “snap” (copy) of the current DMX input signal by pressing [**Snap DMX**].

If you press [**Snap DMX**] you must then choose to take a snapshot of either “All” DMX channels or only “Selected” channels. See below for details on how to select channels.



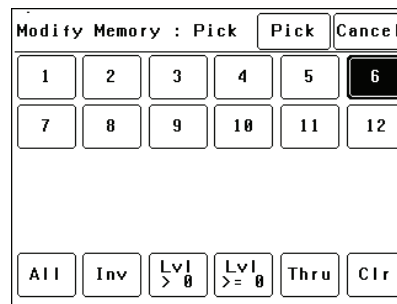
After taking a snap you can still use the controls on the screen to edit the “snapped” channel levels as described below.

To set the level of a channel(s) it must be selected. The selected channel(s) are indicated by a small triangle (▼) at the top of the screen above the channel bargraph and are also listed on the left of the screen. In the example below, channel 6 is selected.



There are two ways to select channels:

- Press [**◀**] or [**▶**] to step the small triangle (▼) through the channels.
- Press [**Pick Chans**] to reveal the channel pick screen.



To select a channel, press that channel number. Selected channels have white text on a black background.

You can add further channels to your selection by pressing their channel numbers.

To deselect a channel, press it again.

To select a range of channels, press a channel, then [**Thru**] then another channel.

To invert your selection(s) press [**Inv**]

To select all channels whose level is greater than zero press [**Lvl>0**].

To clear **all** selections, press [**Clr**].

When the required selections have been made press [**Pick**] and the screen returns to the “Modify Memory” screen.

When a channel(s) is selected it can be faded up or down by sliding your finger on the virtual fader.

To instantly set the fader to 0% press the [**0%**] button below the fader.

To instantly set the fader to 100% press the [100%] button above the fader.

To quickly set the selected channel(s) to a specific level press [@ Level]. Enter the level on the keypad that appears then press [Set].

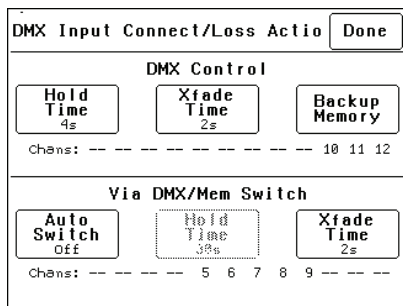
When the channel levels of the “Backup Memory” are correct, press [Save Memory], or to cancel the changes that you have made and return to the previous Backup memory, press [Cancel Memory].

When finished press; [Done] [Done] [Done].

#### 5.4.6.2 DMX/MEM SWITCH CONNECT LOSS ACTION

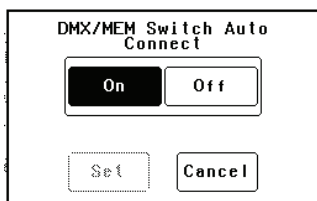
In the event that the DMX input signal is lost, the “DMX/MEM Switch” can be configured to respond in different ways.

Press; [Menu] [DMX Input] [Connect Loss Action].



**Note: If [Auto Switch] is greyed out (not available), then playback via LSCnet has been disabled from the options menu. This option can be selected when the TEKO is ONLY to be controlled by DMX. See “Options Menu” for details.**

Pressing [Auto Switch] allows you to turn “Auto Switch” On or Off.



Make your choice then press [Set].  
If Auto switch is **On**, then if a valid DMX signal is connected to the **TEKO**, the DMX/MEM Switch will operate and all dimmer channels whose control source is set to “switch” will cross fade to DMX control in the time set by the [Xfade Time] button. This crossfade can be from 0 to 300 seconds (5 minutes).

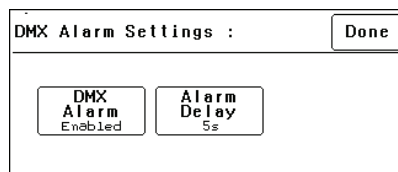
**Note:** The DMX/MEM Switch can also be manually operated from either a suitably programmed ePlate button or from the LCD LSC Lighting Systems (Aust) Pty. Ltd

touch screen by pressing [Menu] [Net Setup] [DMX/MEM Switch].

Pressing [Hold Time] allows you to set the time that the DMX/MEM Switch will remain in the DMX position if the DMX signal is lost (if it has been automatically operated by the presence of a DMX signal). The Hold Time can be set from 0 to 999 seconds (over 15 minutes) or to Infinite. If a “Hold Time” other than “Infinite” has been set, the channels will crossfade to their current “Memory” settings after the Hold Time expires.

#### 5.4.7 DMX Alarm

Selecting [Menu] [DMX Input] [DMX Alarm] reveals the following screen.



Pressing [DMX Alarm] allows you to “Disable” or “Enable” the DMX alarm that occurs whenever there is no valid DMX signal present. The “DMX Alarm” is usually disabled when the **TEKO** is only to be controlled by ePlates.

Pressing [Alarm Delay] brings up a keypad screen where you can enter the delay time between when the **TEKO** is turned ON and when the “No DMX alarm” occurs. The time can be set from 0 to 300 seconds or “infinite”.  
Setting the “Alarm Delay” time to be slightly longer than the “boot up” time of your DMX lighting controller will prevent unwanted alarms when both the **TEKO** and Lighting Controller are switched on at the same time.

#### 5.5 MEMORIES MENU

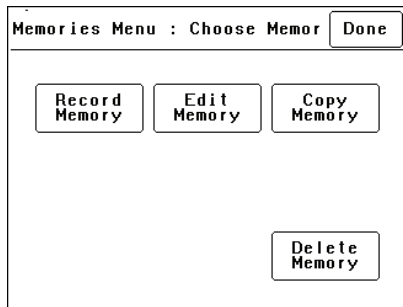
Selecting [Menu] [Memories] provides menus for;

- Recording Memories
- Editing Memories
- Copying Memories
- Deleting memories

A **TEKO** dimmer can hold up to 80 memories. Each memory only contains the intensity levels for the dimmer channels that you select when you record (or edit) that memory. If a channel is not selected in a memory then recalling that memory will never affect that channel. Selected channels in a memory can have any level from 0% to 100%.  
Memories are recalled from ePlate wall stations.

#### 5.5.1 Recording Memories

Press: [Menu], [Memories].



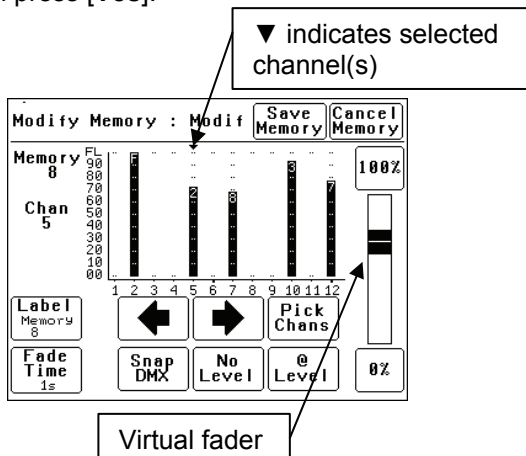
To record a memory press:  
[Record Memory].



The current output of the **TEKO** (if any) is blacked out.

The memories are organised in 4 banks of 20 memories. The buttons on the right select the banks. Select the bank and memory number to be recorded. When a memory is selected its contents are shown on the output of the **TEKO** and also on the channel indicators. This allows you to preview the contents of memories on the output and either pick an empty or existing memory.

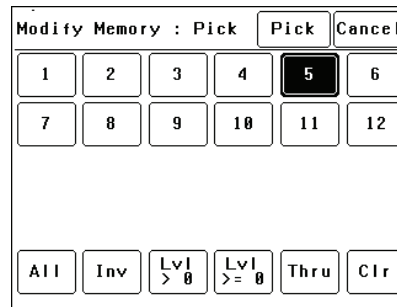
To confirm your selection press [Pick].  
If the memory exists, it will be deleted. To confirm press [Yes].



To vary the level of a channel it must be selected. The selected channel is shown below the memory number and also indicated by small triangle (▼) above the selected channel(s). In this example channel 5 is selected.

There are two methods to select channels:

- Press [←] or [→] to step (▼) through the channels.
- Press [Pick Chans] to reveal the channel pick screen.



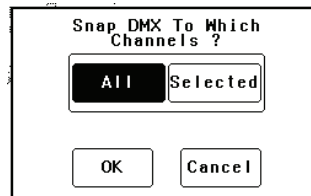
- To **select a channel**, press that channel number. Selected channels have white text on a black background.
- You can **add further channels** to your selection by pressing their channel numbers.
- To **deselect** a channel, press it again.
- To select a **range** of channels, press a channel, then [Thru] then another channel.
- To **invert** your selection(s) press [Inv]
- To select all channels with a level greater than zero press [Lvl > 0].
- To select all included channels (including those with level of zero) press [Lvl >= 0]. See “How Memories Work” for details on included channels with a level of zero.
- To clear **all** selections, press [Clr].

When the required selections have been made press [Pick] and the screen returns to the “Modify Memory” screen.

To set the level of the selected channel(s) either:

- Slide the virtual fader
- Press the [0%] or [100%] buttons.
- Press [@ Level] and enter a value.

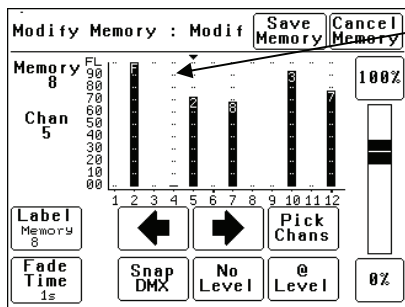
Channel levels can also be set using the DMX input from a lighting controller. Press [Snap DMX] to take a snapshot of the DMX input signal.



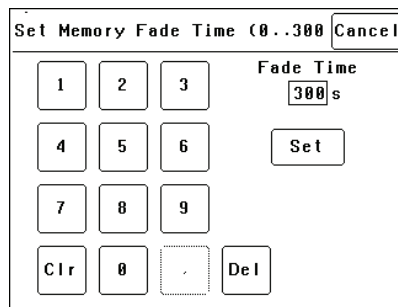
If you do not want to capture the level of all channels you can use the “selected” option to only include the levels of the channels that you have selected. See “Included Channels” below.

### 5.5.2 Included Channels

If a channel is **not included** in a memory then the channel is **not affected** when that memory is faded up or down.



Grid Marks show included channels



A memory only contains the channels that you select. Selected channels can have any level including zero.

When a memory is recalled, only channels that are in the memory are affected. If a channel is not in a memory, its current level (if any) will not be affected when that memory is recalled.

**Note: This is a very important concept. Refer to [How Memories and Zones Work](#).**

You can see which channels are included in a memory by the grid marks above the channels.

In the example above, channels 2, 4, 5, 7, 10 and 12 are included. Note that channel 4 is included but has a level of 0%.

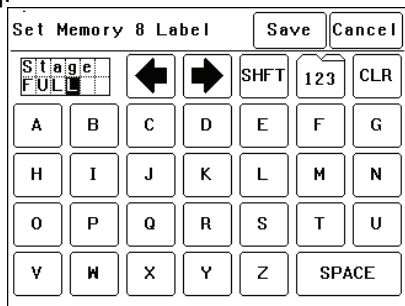
Channels 1, 3, 6, 8, 9 and 11 are not included in this memory.

If you have included a channel (by giving it a level) and then decide to remove it from the memory then you must select the channel and press **[No Level]**.

### 5.5.2.1 MEMORY LABELS

The default label for each memory is its number. For example, "Memory 8".

You can enter your own label by pressing **[Label]**.



Pressing **[CLR]** clears the current label. Press **[←]** or **[→]** to move the flashing cursor then select the letters or press **[123]** to select numbers. Press **[Shift]** for uppercase letters or symbols instead of numbers.

When finished press **[Save]**.

### 5.5.2.2 FADE TIME

The default Fade time for each memory is 1 second.

You can set your own fade time by pressing **[Fade Time]**.

A memory may have a fade time in the range 0 to 300 seconds (5 minutes). A time of less than 10 seconds may in the range 0.0 to 9.9 seconds. From 10s the time is in increments of 1second. When the fade time is correct press **[Set]**.

**Note: An ePlate button can be programmed to replay a memory using the time saved in the memory or the button can have its own specific fade time. In this case the memories fade time will be ignored.**

To save the memory press;

**[Save Memory] [Exit]**.

The original dimmer output is restored.

### 5.5.3 Edit Memory

To edit a memory press:

Press: **[Menu], [Memories] [Edit Memory]**.

The current output of the **TEKO** (if any) is blacked out.

Select the memory to be edited. As each memory is selected its contents are shown on the output of the **TEKO** and also on the channel indicators. This allows you to preview the contents of each memory on the output.

To confirm you selection press **[Pick]**.

Editing a memory is the same as recording a memory.

Refer to [Recording Memories](#) for details.

### 5.5.4 Copy Memory

To copy a memory press:

Press: **[Menu], [Memories] [Copy Memory]**.

The current output of the **TEKO** dimmer (if any) is blacked out.

Select a "source" memory to be copied. As each memory is selected its contents are shown on the output of the **TEKO** and also on the channel indicators. This allows you to preview the contents of each memory on the output and make the correct choice.

When the correct source memory is selected press **[Pick]**.

Select a "destination" memory number then press **[Pick]**.

You can copy more memories or if finished press **[Exit], [Done] [Done]**.

### 5.5.5 Delete Memory

To delete a memory press:

Press: **[Menu], [Memories] [Delete Memory]**.

The current output of the **TEKO** dimmer (if any) is blacked out.

Select a memory to be deleted. As each memory is selected its contents are shown on the output of the **TEKO** and also on the channel indicators. This allows you to preview the contents of each memory on the output and make the correct choice.

When the correct memory to be deleted is selected, press **[Pick]**. To confirm, press **[Yes]**.

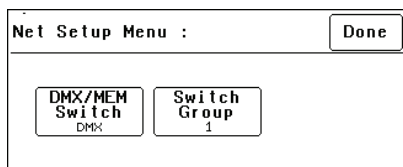
You can delete more memories or if finished press **[Exit]**, **[Done]** **[Done]**.

### 5.6 NET SETUP MENU

The “Net Setup” menu is used to control the manual operation of the DMX/MEM Switch.

Press; **[Menu]**, **[Net Setup]**.

**Note: If [Net Setup] is greyed out (not available), then playback via LSCnet has been disabled from the options menu. This option can be selected when the TEKO is only to be controlled by DMX. See “Options menu” for details.**



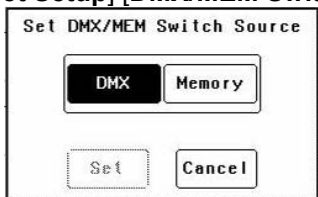
#### 5.6.1 DMX/MEM Switch Operation

All channels that have their “Control Source” attribute set to “Switch”, can be switched between either “DMX” control or “Memory” (ePlate) control.

The DMX/MEM Switch can be operated from a suitably programmed button on an ePlate or directly from the LCD touch screen on the **TEKO**.

To manually operate the “DMX/MEM Switch” from the touch screen, press;

**[Menu]**, **[Net Setup]** **[DMX/MEM Switch]**.



Select either **[DMX]** or **[Memory]** then press **[Set]**.

#### 5.6.2 Switch Group

An ePlate button that has been programmed to operate the DMX/MEM Switch can also be programmed with a “Switch Group Number”.

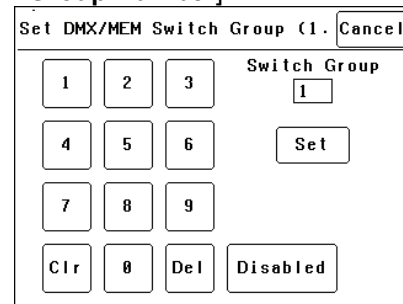
You can set the DMX/MEM Switch in each **TEKO** to only be operated by a particular “Switch Group Number”.

Therefore, in setups with more than one **TEKO**, individual ePlate buttons can be programmed to

only operate the DMX/MEM Switch in **TEKO** dimmers with the matching “Switch Group Number”.

To set the “Switch Group Number”, from the “Net Setup” menu (above) press;

**[Switch Group Number]**.



Enter the required Switch Group Number in the range from 001 to 255 (to match the required ePlate button) or for no Switch Group press **[Disabled]**, then press **[Set]** **[Done]** **[Done]**.

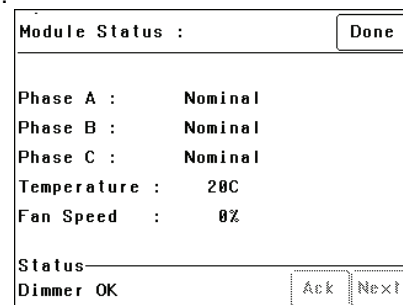
### 5.7 OPTIONS MENU

Selecting **[Menu]** **[Options]** provides menus for;

- Module Status
- Beeper
- About
- Lock Dimmer
- Change Lock Code
- Dimmer Name
- Date and Time
- Net Playback: Enable/Disable
- Reset

#### 5.7.1 Module Status

Pressing **[Menu]** **[Options]** **[Module Status]** reveals information about the input power phases, temperature and fan speed of the **TEKO**.



#### 5.7.2 Beeper

The **TEKO** can be set to “Beep” in acknowledgment to every key press on the touch screen.

To switch off the beeper, press; **[Menu]** **[Options]** **[Beeper is On]**.

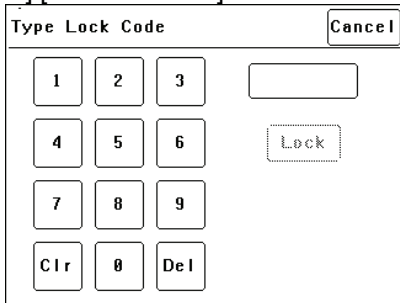
To switch on the beeper, press; **[Menu]** **[TEKO]** **[Beeper is Off]**.

#### 5.7.3 About

Pressing **[Menu]** **[Options]** **[About]** reveals information about the software version, model and voltage of the **TEKO**.

### 5.7.4 Lock / Unlock

To **lock** the touch screen of the **TEKO** and prevent unauthorised access press **[Menu]** **[Options]** **[Lock Dimmer]**.



Using the keypad, type in the current 4 digit lock code then press **[Lock]**. The **TEKO** is shipped from the **factory** with the **lock code** set to **0000**. The menu returns to the home screen and the **[Unlock]** button appears instead of the **[Menu]** button. To **unlock** the touch screen of the **TEKO** press **[Unlock]** then type in the current 4 digit code then press **[Unlock]**.

### 5.7.5 Change Lock Code

To change the lock code, press **[Menu]** **[Options]** **[Change Lock Code]**.

Type in the current 4 digit lock code then press **[Enter]**. (The **TEKO** is shipped from the **factory** with the **lock code** set to **0000**).

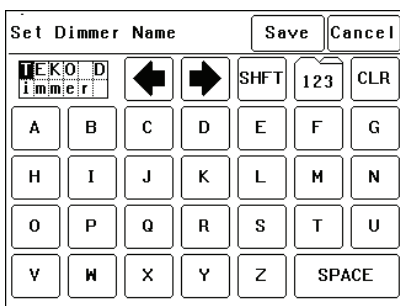
Type in your new lock code then press **[Enter]**.

To confirm, re type the new lock code then press **[Set Code]**.

### 5.7.6 Name

The name of each **TEKO** dimmer is shown on the home screen of the LCD touch screen. The default name is “**TEKO Dimmer**” but you can give the dimmer a name of your choice. Naming each dimmer is useful in installations of more than one **TEKO**. To change the name of a dimmer press;

**[Menu]** **[Options]** **[Dimmer Name]**.



To start a new name press **[CLR]**. Use the **←** or **→** buttons to move the flashing cursor Type in your name. For numbers press **[123]**. When finished press **[Save]** **[Done]** **[Done]**.

### 5.7.7 Time and Date

The **TEKO** keeps a log of its status that is time and date stamped. To set the time and date used by the log press;

**[Menu]** **[Options]** **[Date & Time]**.

The screen shows the current time and date settings. To change the Time, press **[Time]**. Use the keypad that appears to enter the time in 24 hour format then press **[Set]**.

To change the Date, press **[Date]**. Use the keypad that appears to enter the date then press **[Set]**. When finished press **[Done]**.

### 5.7.8 Net Playback

If the **TEKO** is only to be controlled by DMX then it is possible to disable (dim out) all memory menus and other network functions and hence simplify the menu operations. In addition, when “Net Playback” is disabled, all dimmer channels are controlled by DMX, irrespective of their previous “Control Source” settings. Press **[Menu]** **[Options]** **[Net Playback]**. Choose either **[Enable]** or **[Disable]** then press **[Set]**.

### 5.7.9 Reset

The **TEKO** provides two different types of reset function. SYSTEM reset and TOTAL reset.

#### 5.7.9.1 SYSTEM RESET

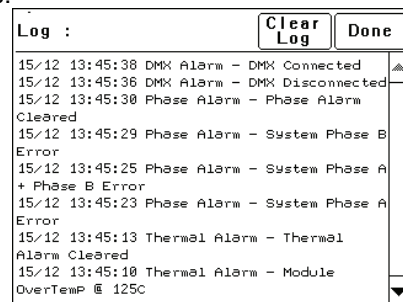
In the unlikely event that the **TEKO** fails to respond, the operating system may be reset so that the software may initialise and recommence normal operation. Performing a system reset will **not** affect any of the settings or memory. To perform a SYSTEM RESET press; **[Menu]** **[Options]** **[Reset]** **[System Reset]** **[Yes]**.

#### 5.7.9.2 TOTAL RESET

Total Reset will **ERASE** all the settings and memory from the **TEKO** and reset the operating system. To perform a TOTAL RESET press; **[Menu]** **[Options]** **[Reset]** **[Total Reset]** **[Yes]**. The **TEKO** asks you to confirm by pressing **[Yes]** again.

### 5.8 LOG MENU

Selecting **[Menu]** **[Log]** shows the status log showing time and date stamped operations and alarms.



The log can be used to analyse any problems you may have encountered such as loss of control signals, over temperature alarms or loss of input power phases etc.

## 6 Memory (ePlate) Control

**Note: If Net Playback functions are disabled, the Memories and Net Setup buttons in the TEKO Menu are dimmed, and ePlates will not function. Refer to [Net Playback](#) for details.**

### 6.1 EPLATE FUNCTIONS

There are two types of controls on an ePlate:



**Buttons**



**Faders**

ePlates are available with 2, 4 or 8 buttons or 1, 2 or 4 faders.

#### 6.1.1 Buttons

Each button has an associated indicator. The button and indicator can be independently configured.

A button can perform any of the following actions:

- Activate a memory with a specific fade time and level.

For example;

Button 1 might set memory 5, to 100% level with a fade time of 10 seconds.

Button 2 might set memory 5, to 50% level with a fade time of 5 seconds.

Button 3 might set memory 5, to 0% level with a fade time of 15 seconds.

- Control multiple memories from a single button.
- Switch dimmer channels between DMX and Memory (ePlate) control (if the channel's "control source" has been set to "switch").
- Lock / unlock the operation of other ePlates.
- A single button might perform multiple commands.

For example;

A button could be configured for "Emergency Evacuation". When pressed, it would change the **TEKO** to Memory Mode, then turn all the lights on at 100% and then lock all other ePlate wall stations so that the lights cannot be turned off.

The indicators beside each button are independently programmed and can indicate any of the following:

- Memory # activated. Brightness of indicator shows level of memory.

- ePlate active or locked.
- DMX or Memory control selected.

#### 6.1.2 Faders

A fader can be configured to:

- Control the level of a memory (or channel).
- Act as a Grand Master over all channels.
- Act as Group Sub Master over the memory levels of channels in that group number.
- Set the Fade Time for a memory.

### 6.2 MEMORIES:

Memories are recorded (or edited) from the **TEKO**'s LCD touch screen.

Memories are recalled from ePlate wall stations.

A **TEKO** dimmer can hold up to 80 memories. Each memory only contains the intensity levels for the dimmer channels that you select when you record (or edit) that memory. If a channel is not selected in a memory then recalling that memory will never affect that channel. Selected channels in a memory can have any level from 0% to 100%.

Memories are recorded (or edited) by either;

- Selecting channels and giving them a level via the touch screen controls.
- or
- Taking a 'snapshot' of the current DMX input levels. These levels can then be edited if required.

Refer to the [Memories Menu](#) for details on how to record memories.

Each memory controls the dimmer channels contained in that **TEKO** (either 6 or 12 channels, depending upon the **TEKO** model). This allows each **TEKO** dimmer to store different channel memory information whilst using the same memory numbers as other **TEKO** dimmers in the same LSCnet system. Controlling a memory number via an ePlate will make each **TEKO** dimmer on the LSCnet set its channels according to its own memory settings.

ePlate buttons send commands in the form of "Set Memory # to level # in # seconds".

For example, memory 2 contains channels 1 and 2 at 100% and channel 5 at 60%. It could be recalled in different ways by programming 3 ePlate buttons.

- A button programmed to Set Memory 2 to 100% level in 2 seconds will fade channels 1 and 2 to 100% and channel 5 to 60%
- A button programmed to Set Memory 2 to 0% level in 0 seconds will instantly turn off channels 1, 2 and 5.



- A button programmed to Set Memory 2 to 50% level in 10 seconds will slowly fade channels 1 and 2 to 50% and channel 5 to 30%

Memories can also be manually controlled by suitably programmed ePlate faders.

### 6.3 HOW MEMORIES & ZONES WORK

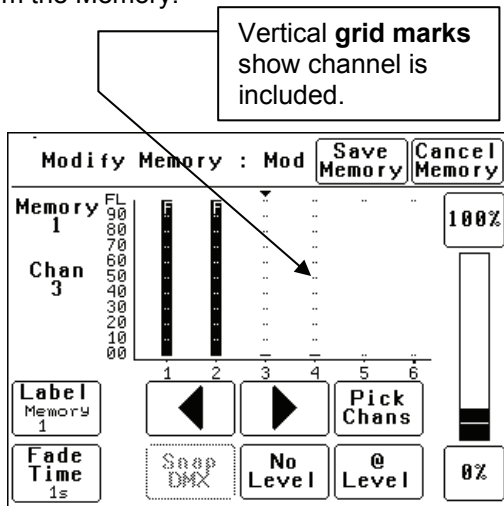
When a memory is recalled (faded up or down), it only affects the channels that are included in that memory.

A new (empty) memory does not contain any channels.

To include a channel in a memory, select the channel then give it a level (0% to 100%). Note that the level of an included channel can be 0%.

To remove a channel from a memory, select the channel then press [No Level].

Setting a channel to 0% does **NOT** remove it from the Memory.



This menu of a 6 channel **TEKO** dimmer shows a Memory containing four channels. Channels 1 and 2 are at full. Channels 3 and 4 are at 0%. Channels 5 and 6 are not in the Memory. This is shown by the absence of “grid marks” above these channels.

If this memory was saved and faded up it would set 1 and 2 to full, 3 and 4 to 0% and have **no effect** on the current state of 5 and 6.

When this memory is faded down, channels 1, 2, 3 and 4 will all fade to 0% but channels 5 and 6 would not be affected.

If a channel is **not included** in a memory then the channel is **not affected** when that memory is faded up or down.

***This is an important concept.***

It means you have to decide whether or not you want a channel to be in a memory. Fading up a

memory will not necessarily replace the current output of the dimmer with the memory you have just faded up. Only the channels in the memory will change. Any channels that are not in the new memory will remain as they were.

**Note: This is different to some lighting controllers that “crossfade” from one memory to another. In a “crossfade”, the incoming memory totally replaces the outgoing memory.**

This method of memory operation makes the **TEKO** very powerful as described below.

#### 6.3.1 Zones

The **TEKO**'s method of memory operation allows for complete flexibility of zone control when recalling memories.

Each memory can contain any number of channels from 1 to 6 or 12 (depending upon your model). A zone is created by recording a memory that **only contains the channels located in that zone.**

For example;

Zone 1 has channels 1 to 4 located in it.

We might use memories 1 to 5 for zone 1.

Memories 1 to 5 are recorded with only channels 1 to 4 in them.

Zone 2 has channels 5 to 12 located in it.

We might use memories 6 to 10 for zone 2.

Memories 6 to 10 are recorded with only channels 5 to 12 in them.

The memories for each zone are totally separate. Recalling memories 1 to 5 will never affect zone 2 because channels 5 to 12 are not contained in these memories.

Likewise, recalling memories 6 to 10 will never affect zone 1 because channels 1 to 4 are not contained in these memories.

The **TEKO** memory system is far more flexible than normal architectural zone systems, because it is also possible to have memories that control all the channels, thus creating a **master zone memory.**

For example; memories 11 to 14 might contain channel 1 to 12. These memories control all zones.

There is no limit to the number of ‘zones’ and ‘master zones’ that can be controlled in this manner.

#### 6.3.2 Controlling Memories

Memories are recalled by ePlates buttons or faders. ePlates are configured by a software application so that each button or fader sends a specific command. ePlates are shipped from the

factory with the most common commands pre-programmed into them.

Refer to [Pre Programmed ePlates](#) section.

The typical command to control a memory is “*Fade Memory Number # to Level #% in Time #*”

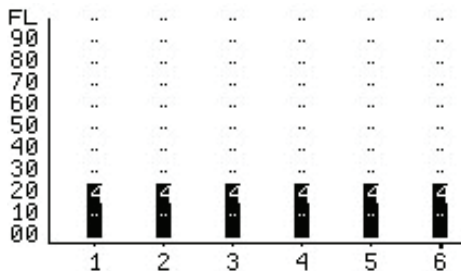
When this message is received by the **TEKO**, it will fade the channels listed in the *Memory Number* to the levels in that Memory, scaled by the *Level #%*. The time taken can be either a value in seconds or an instruction to use the time saved in the Memory.

Therefore, the same memory can be recalled at different levels from different buttons.

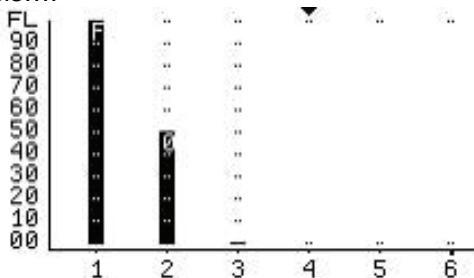
- One button might fade up the memory to full level.
- Another might fade the same memory to half level.
- Yet another button might fade the same memory off. This would be achieved by sending a command to playback the memory with its *Level at 0%*.

### 6.3.3 Simplified Memory Playback Example:

Assume that the current output looks like this. All channels of a 6 channel dimmer are at 24%.



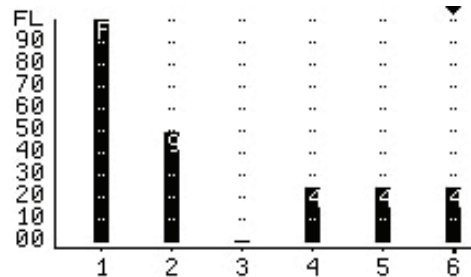
Lets playback Memory 1 which has the following levels....



Channel 1 is at 100%. Channel 2 is at 50%. Channel 3 is at 0%. Channels 4, 5 and 6 are not in the Memory (no grid lines above them).

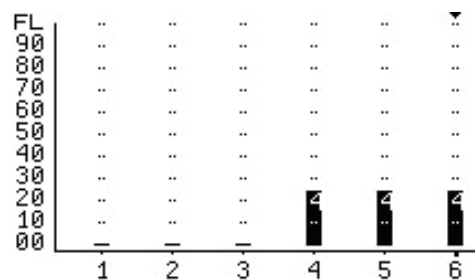
To fade UP memory 1, the message “*Fade Memory 1 to Level 100% in time 1s*” is sent from an ePlate. Channels 1, 2 and 3 will fade to their recorded levels in 1 second. Channels 4 to 6 are not affected.

The result is:



To fade DOWN memory 1, the message “*Fade Memory 1 to Level 0% in time 1s*” is sent. Channels 1, 2 and 3 will fade to 0%.

The result is:



### 6.3.4 LTP (Latest Takes Precedence)

When a memory is played back, each dimmer channel contained in the memory is set to its level in that memory. When another memory is played back, if the same channel is in that memory, then it goes to its level in this latest memory, even if the previous memory is still faded up. The “latest” memory takes precedence.

### 6.3.5 Active Memories

When a memory is played back, the memory is marked as “Active” and a command is sent to the ePlates to light the relevant indicator in the button.

As other memories are recalled, they may turn off channels that were part of this “active” memory. There may come a point where none of the dimmer channels in the original memory are on, even though there has not been a command to turn off this memory. When this happens, the dimmer sends a message that the Memory has been “Released”.

The result of this is that an indicator on an ePlate for a particular Memory will remain lit so long as at least one channel in that Memory is still active on a **TEKO**.

### 6.4 FADE TIMES

When a button ePlate is configured, you can choose to set a fade time for that button or use the default time held in the memory.

Therefore different buttons can recall the same memory but use different fade time.

When an ePlate fader that is controlling a memory is moved, the memory is told to fade to the level associated with the new fader position. The fader may be configured with a specific fade time, or to use the fade time associated with the memory it is controlling. Setting a fade time of 0.0s results in the memory directly tracking the fader as it moves. LSC suggests that manual faders be programmed with a fade time of 0.5seconds. This results in a much smoother looking fade as the fader is moved.

### 6.5 MEMORY RECOVERY AFTER POWER LOSS

When the power is restored to a **TEKO** after a power loss, channels controlled by DMX will immediately respond to the current DMX levels. However, channels controlled by Memories respond differently depending upon the duration of the power loss.

- If the power returns within 2 hours, the memory channels will return to their last memory levels.
- If the power returns after 2 hours, memory channels will remain OFF. To restore output you must recall the required memory.

### 6.6 PRE-PROGRAMMED EPLATES

ePlates are shipped from the factory with pre-programmed standard configurations that suit most requirements.

#### 6.6.1 Memory Control ePlates

Pre-programmed ePlates to control memories are available in the following configurations...

- **2 Button ePlates**

Button 1 recalls Memory 1 at 100%  
Button 2 recalls Memory 2 at 100%

- **4 Button ePlates**

Button 1 recalls Memory 1 at 100%  
Button 2 recalls Memory 2 at 100%  
Button 3 recalls Memory 3 at 100%  
Button 4 recalls Memory 4 at 100%

- **8 Button ePlates**

Button 1 recalls Memory 1 at 100%  
Button 2 recalls Memory 2 at 100%  
Button 3 recalls Memory 3 at 100%  
Button 4 recalls Memory 4 at 100%  
Button 5 recalls Memory 5 at 100%  
Button 6 recalls Memory 6 at 100%  
Button 7 recalls Memory 7 at 100%  
Button 8 recalls Memory 8 at 100%

- **1 Fader ePlates**

Fader 1 controls Memory 1

- **2 Fader ePlates**

Fader 1 controls Memory 1  
Fader 2 controls Memory 2

- **4 Fader ePlates**

Fader 1 controls Memory 1  
Fader 2 controls Memory 2  
Fader 3 controls Memory 3  
Fader 4 controls Memory 4

### 6.6.2 Memory/DMX Switching ePlates

A pre-programmed 2 button ePlate is available to control the operation of the Memory/DMX Switch.

Button 1 selects DMX. Button 2 selects Memory

### 6.7 RECORDING MEMORIES FOR PRE-PROGRAMMED EPLATES

The factory pre-programming of the ePlate buttons is designed for simple and predictable memory programming.

The buttons on the "Pre-Programmed" ePlates all recall a different memory number at full level.

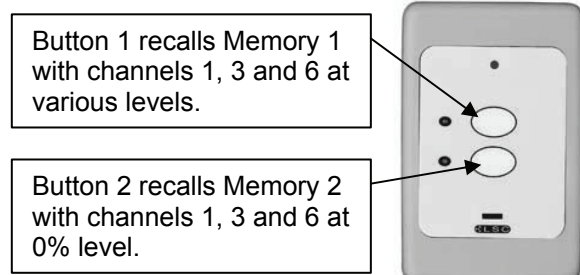
**Question:** If every button recalls a memory at full level, how do you turn a memory off?

**Answer:** You playback a different memory containing the same channels but with their levels set to 0% in that memory.

When a memory is recorded, it contains selected channel(s) at any level (including zero level). Therefore, if memory 1 contains channels at a level of 80%, pressing button 1 on an ePlate will fade up those channels to 80%.

If memory 2 contains the **same channels** at a level of 0%, pressing button 2 on an ePlate will fade those channels off.

For example;



Using this method, each pair of buttons on an ePlate are easily used as On (fade up) and OFF (fade down) buttons.

You record the odd numbered memories with the levels you require. You record the even numbered memories with the same channels but at 0% level.

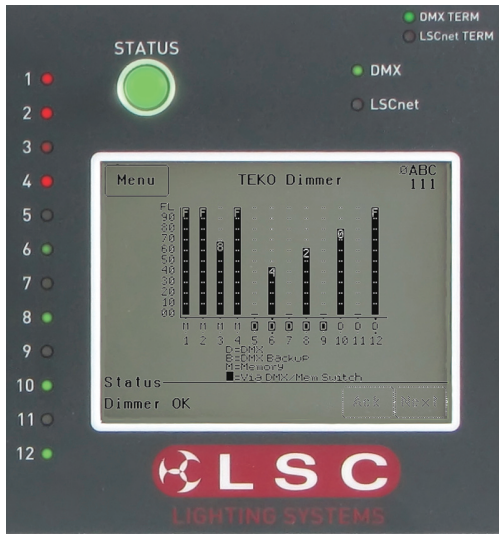
For example;

After you record memory 1, record memory 2 with the same channels (as used in memory 1) but with their levels set to 0%.

After you record memory 3, record memory 4 with the same channels (as used in memory 3) but with their levels set to 0%.

Contact LSC or your LSC agent if you have special ePlate requirements that cannot be achieved with the pre-programmed ePlates. LSC will then custom program your ePlates for your specific requirements.

## 7 Alarms and Troubleshooting



If the **TEKO** dimmer is not functioning correctly, check the LED indicators on the front panel and the status area at the bottom of the LCD screen for any messages.

### 7.1 STATUS LED

- **Green** = Normal operation.
- **Red (flashing)** = Alarm. See message on LCD touch screen.
- **Red (steady)** = Alarm is acknowledged but the problem still exists.

Possible causes of a flashing Status LED are;

- **Over Temperature.**

If the temperature of the **TEKO** is too high, the circuitry automatically switches off the dimmer outputs and all dimmer channels will flash red. Either reduce the load or increase the cooling to the **TEKO**. When the temperature returns to normal, the **TEKO** automatically returns to normal operation.

In the event of any alarm, read the message on the status area of the LCD screen. Press [**Ack**] on the touch screen to acknowledge the alarm. This stops the status LED from flashing but it remains red until the fault condition is rectified.

### 7.2 DMX LED

- **Green** = Valid DMX control signal connected.
- **Red (flashing)** = Error on DMX control signal.
- **Green (flashing)** = Loss of DMX control signal.

If the DMX LED is flashing RED, the **TEKO** Dimmer has detected an error in the DMX control signal. Try connecting the **TEKO** Dimmer to a known good DMX controller via the existing

DMX distribution installation. If the LED turns green, the DMX controller is faulty.

If the DMX LED is flashing Green, the **TEKO** Dimmer is not receiving a DMX control signal. Check that the lighting control desk is ON and sending a DMX output. Also check that any DMX splitters in the installation are working correctly and that all DMX cables are intact.

### 7.3 LSCNET LED

- **Green** = Valid LSCnet control signal connected (from ePlates).
- **Green (flashing)** = Data traffic detected on LSCnet.

### 7.4 CHANNEL LEDS

The numbered LED's around the perimeter of the control panel light when their respective dimmer channel is on. The brightness of the LEDs shows the channel level.

- They light green when under DMX control.
- They light red when under local control.

If a dimmer channel is not working check the MCB (Miniature Circuit Breaker) for that dimmer channel.

If the MCB has tripped (OFF), firstly try to determine the cause of the breaker tripping. It could be a blown lamp or a circuit overload. Rectify to problem (replace the lamp or reduce the load) then restore the MCB. If the MCB continues to trip, refer the problem to a suitably qualified person.

If the MCB has not tripped, you can test the operation of the dimmer from the local LCD touch screen. Refer to the [Channel Test](#) section for details. If the dimmer is working from the touch screen but not via DMX, check that the dimmer is patched to the correct DMX slot and configured for the correct control source.

## 8 Software Upgrades

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

### 8.1 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 software 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 **TEKO** Codelink connector which is located on the front panel of the **TEKO** dimmer.

#### CodeLINK Cable connections

Signal	Dimmer DB9 Female	PC Comms port DB9 Female
GND	5	5
Tx	3	3
Rx	2	2

The software version of your **TEKO** is momentarily displayed on the LCD touch screen when the **TEKO** is switched on or at any time by pressing **[Menu]** **[Options]** **[About]**.

### 8.2 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 CodeLINK 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. When the upgrade process is complete the dimmer will restart. The LCD 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.

## 9 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 **TEKO** provides a “DMX Thru” output allowing you to loop the DMX signal from one **TEKO** to the next. The last **TEKO** in the chain must have the “DMX Terminate switch” set to TERM to terminate the line.

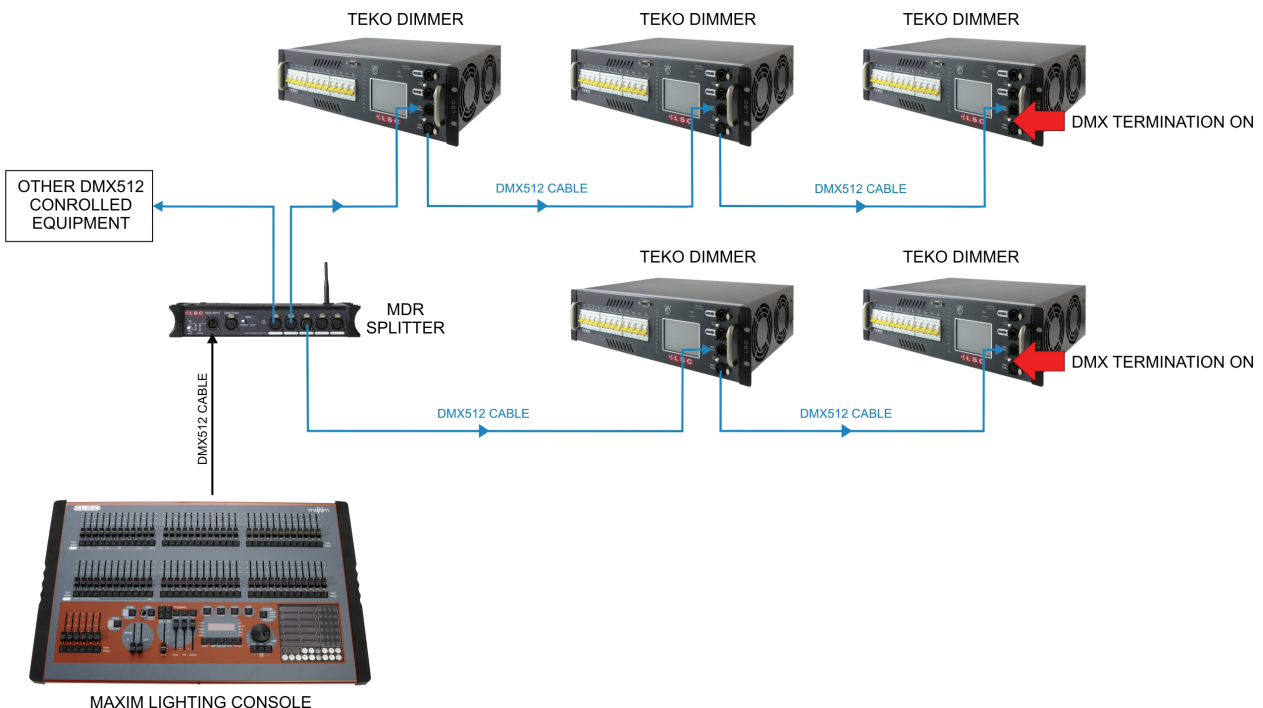
### 9.1 CABLE SELECTION

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.

### 9.2 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. The end of each DMX cable must be terminated to prevent the signal reflecting back up the line and causing possible errors. In the event of a fault on one of the cables, the other outputs from the MDR splitter will not be affected.



## 10 Maintenance

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

### **10.1 ROUTINE MAINTENANCE**

The **TEKO** 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.

### **10.2 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:  
Disconnect the dimmer from the input supply.  
Remove the cover panel from the dimmer.  
Use compressed air to blow out any accumulated dust from the fan and heatsink.  
Replace the dimmer cover and reconnect power.

### **10.3 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.

## 11 Specifications

### 11.1 DIMMER SPECIFICATIONS

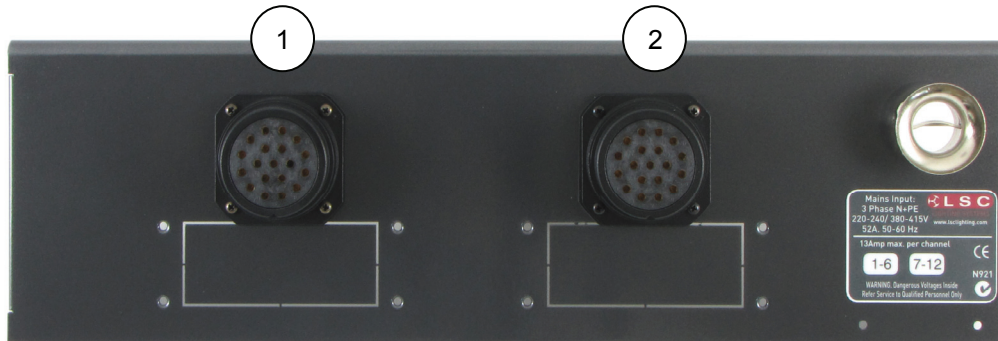
	TEKO		TEKO/20	TEKO/6	TEKO/3
<b>Number of Dimmer Channels</b>	12		12	6	3
<b>Rating per Dimmer Channel</b>	13A	10A	20 Amps	25 Amps	63 Amps
<b>Circuit Breaker Type</b>	MCB	RCBO	MCB/RCBO	MCB/RCBO	MCB
<b>Circuit Breaker breaking capacity</b>	6000 Amps				
<b>Current Control Technology©</b>	Yes				
<b>Dimmer Curve selection per Channel</b>	Yes				
<b>Memory Storage</b>	Yes 80				
<b>Power Switching Component</b>	Triac				
<b>Power-up in last known state</b>	Yes				
<b>Channel Output Level mimic LEDs</b>	Yes				
<b>DMX Data OK and Error LEDs</b>	Yes				
<b>Inductor Rise Time (peak to peak)</b>	250µs				
<b>Number of cooling Fans</b>	1		2	1	2
<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>	133 mm		133 mm	133 mm	133 mm
<b>Width</b>	480 mm		480 mm	480 mm	480 mm
<b>Depth (excludes load sockets)</b>	270 mm		330 mm	270 mm	330 mm
<b>Weight unpacked / packed</b>	19kg / 22kg		21kg / 24kg	19kg / 22kg	21kg / 24kg



## 11.2 LOAD SOCKET WIRING

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

### Socapex 19 Pin Multipole Connectors



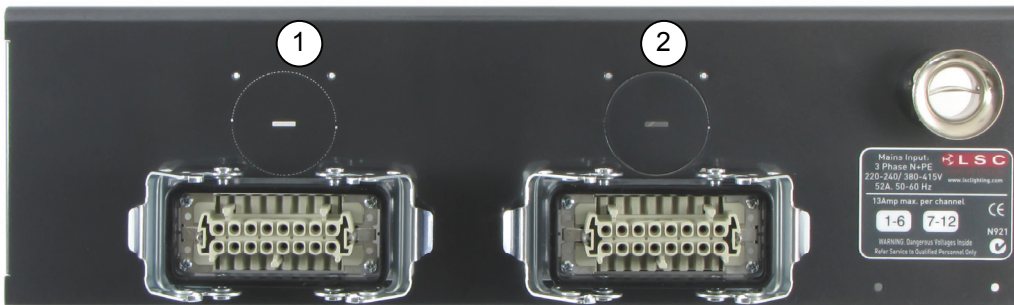
Connector #1	Function	Connector #2	Function
Pin 1	Chan 1 Active	Pin 1	Chan 7 Active
Pin 2	Chan 1 Neutral	Pin 2	Chan 7 Neutral
Pin 3	Chan 2 Active	Pin 3	Chan 8 Active
Pin 4	Chan 2 Neutral	Pin 4	Chan 8 Neutral
Pin 5	Chan 3 Active	Pin 5	Chan 9 Active
Pin 6	Chan 3 Neutral	Pin 6	Chan 9 Neutral
Pin 7	Chan 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



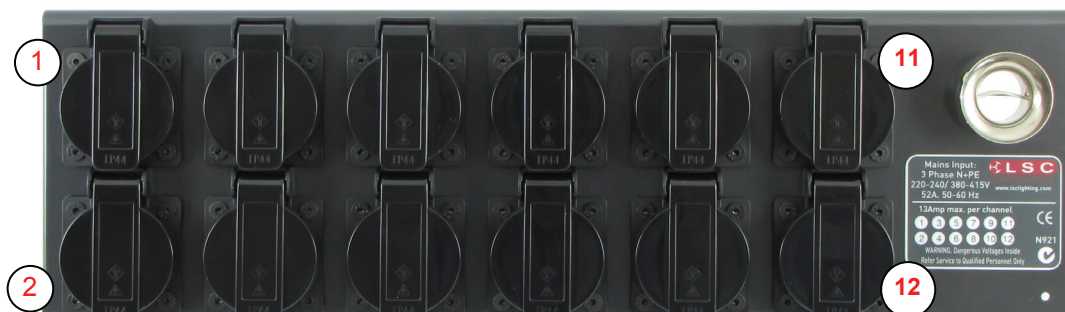
### Wieland and Harting 16 Pin Multipole Connectors



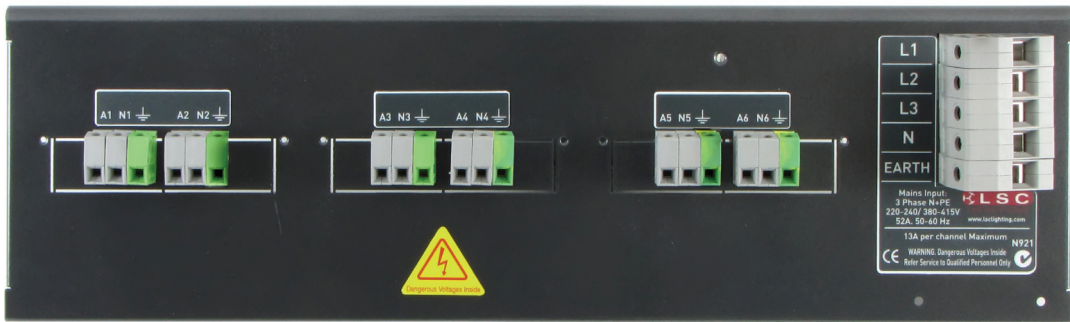
Connector #1	Function	Connector #2	Function
Pin 1	Chan 1 Active	Pin 1	Chan 7 Active
Pin 2	Chan 2 Active	Pin 2	Chan 8 Active
Pin 3	Chan 3 Active	Pin 3	Chan 9 Active
Pin 4	Chan 4 Active	Pin 4	Chan 10 Active
Pin 5	Chan 5 Active	Pin 5	Chan 11 Active
Pin 6	Chan 6 Active	Pin 6	Chan 12 Active
Pin 7	Not used	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.

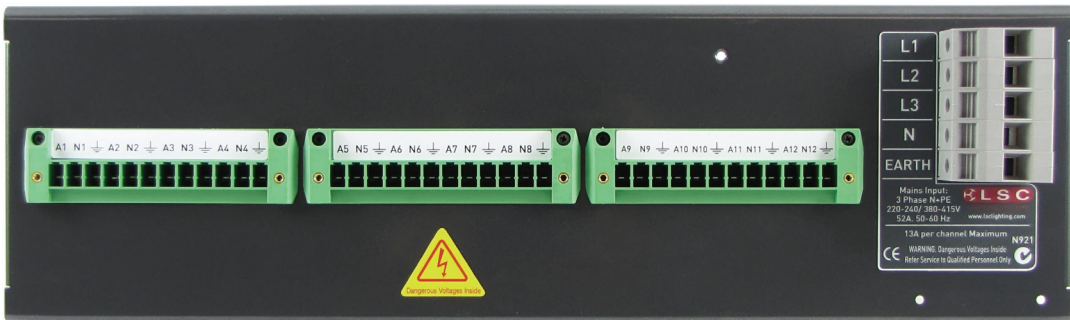
### Shuko 2 pin Connectors



### 6 Channel with screw terminals



### 12 Channel with screw terminals



### 3 Channel x 63Amp CEEform



## 12 Compliance Statements

### 12.1 C TICK COMPLIANCE

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.

### 12.2 CE COMPLIANCE

The **TEKO** 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 characteristics 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)



### 12.3 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.

### 12.4 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.

