Strand Lighting®

ProPack

User's Manual

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Strand Lighting is a Philips group brand

PHILIPS

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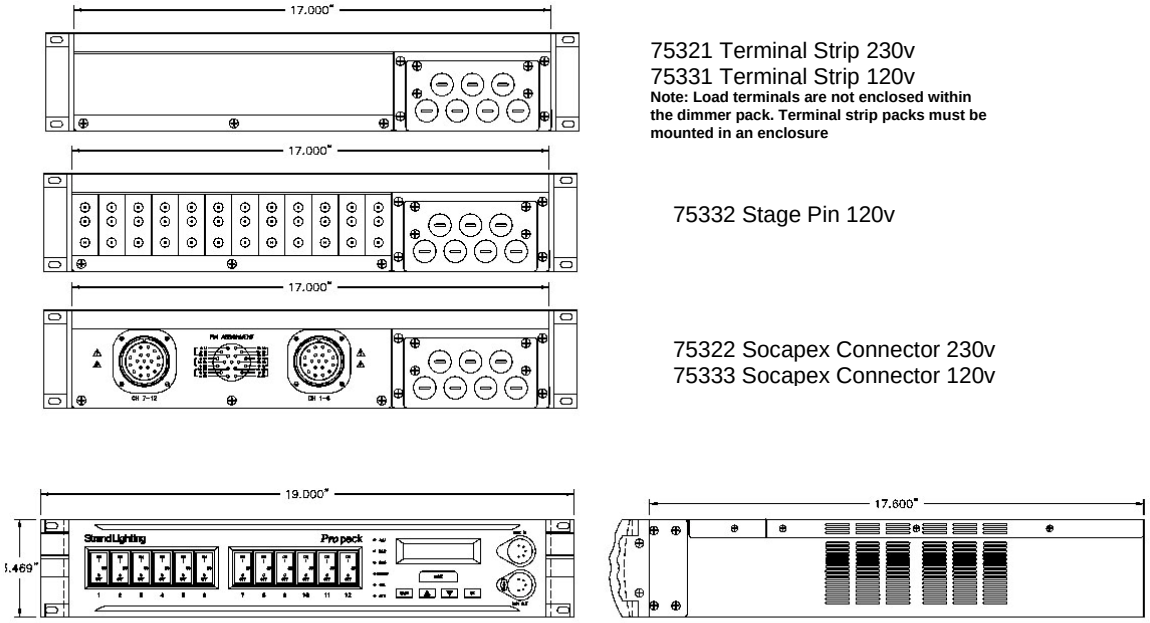
Table of contents

Introduction

Strand Lighting ProPack dimmer packs are compact, portable dimming units, designed for use in conjunction with a lighting control console.

The ProPack accepts standard DMX512 multiplexed digital control input

The physical dimensions of a ProPack dimmer pack are shown in Figure 1.



75321 Terminal Strip 230v
75331 Terminal Strip 120v
Note: Load terminals are not enclosed within the dimmer pack. Terminal strip packs must be mounted in an enclosure

75332 Stage Pin 120v

75322 Socapex Connector 230v
75333 Socapex Connector 120v

Figure 1

120v Specifications

Power Requirements

Voltage: 100 - 120 Volts AC.
Frequency: 60 Hz.
Three phase + Neutral + Ground

All ProPack dimmer packs must be Grounded.

Dimming Capacity

Each pack contains twelve dimmers each with a Maximum load of 2.0kW (20A Magnetic Breaker) per dimmer - total 24kW per dimmer pack.

Dimmer Output Connections

ProPack is available with a variety of output options to suit different operating conditions and national standards.

Connector Options

Part Number 75331	Terminal Strips
Part Number 75332	Stage Pin
Part Number 75333	2 x Socapex Connector

Control Inputs

USITT DMX512(1990) multiplexed digital control, via 5 pin XLR connector.

Physical Dimensions (unpacked)

Height: 3.75”
Width: 19”
Depth: 18”

Weight: 34 lbs (approximately)

Environment (Operating)

Temperature: 0°C - 37°C.
Relative humidity: 60% - 90%.
Condensation level: Zero.

ProPack are suitable only for use in an area of office level cleanliness. The space should have sufficient volume to allow exhaust air to circulate and cool.

Protection

Classification	IP30.
Equipment Class	Class 1.

Installation

WARNING
Hazardous voltages are present in Propack.
Ensure that the mains supply is isolated before opening the equipment for installation or servicing.

Dimmer packs should be installed and serviced only by suitably qualified personnel.

ProPack may be installed mounted together in a rack (for hire or touring purposes).

120v Installation Notes

In order to enhance the reliability of the dimmers, it is recommended that they are operated within the following environmental limits:

Temperature: 18°C - 25° C
Relative Humidity: 60% - 80%
Condensation level: Zero

The dimmers may emit a slight buzzing noise when in operation. They should be installed away from areas where such noise would be undesirable.

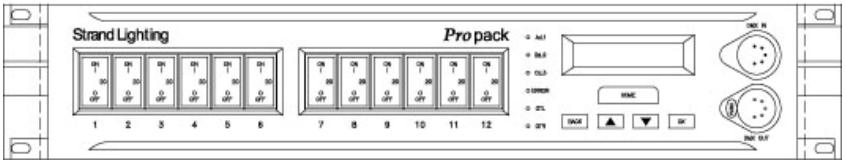


Figure 2

Mains Power Input Connections

ProPack dimmer packs require a nominal mains input at 120V 60Hz AC. This supply must be three phase. Separate Neutral and Ground conductors are required.

WARNING
ProPack dimmer packs must be Grounded.

The Neutral conductor must have the same (or greater) cross-sectional area, as the Phase conductor(s).

(SCR dimmers operate using ‘phase control’. This renders the ‘balancing’ of loads across phases - and thus a reduction in Neutral currents impossible)

ProPack dimmer packs should be connected to their mains supplies via adequately rated cable, together with any associated plug and socket connectors. For full power operation the supply must be rated at 80A for three phase operation. These ratings may be reduced if the supply protective devices are selected to limit the current drawn to appropriate limits. Should supply diversity be applied care is required in the sizing of supply neutral conductors. If in doubt please seek advice from Strand Lighting.

For safety in operation each ProPack must be fed from an appropriately fused supply.

It is strongly recommended that the mains supply to the ProPack is taken via a local circuit breaker, so that the supply may be easily disconnected for plugging and unplugging of load connectors and for service or maintenance.

All cables, switchgear and protection equipment must be selected and installed in accordance with locally electrical regulations.

Mains Cable Entry

The mains input cable will enter the pack via the Rear Connection Panel.

Rear Cable Entry

Remove the Rear Connection Panel. It is secured to the base by four screws, as shown in Figure 3. The panel should be punched with a single hole to accept the appropriate cables and strain relief for your installation.

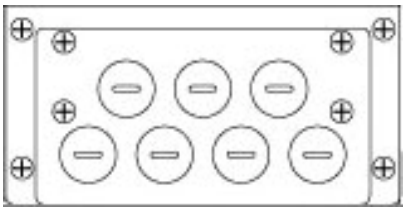


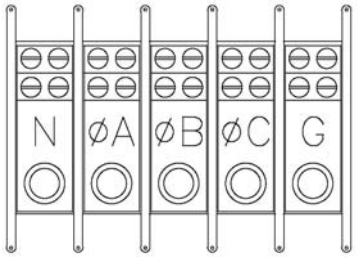
Figure 3

Mains Cable Termination

The mains input is connected at a set of screw terminal blocks, situated inside the pack, at the right hand side (looking from the front of the pack). The terminals will accept cables of up to #6 AWG in size. Always connect ground and neutral first.

1. Loosen all three phase terminals Neutral and Ground.

2. Place incoming cable inside terminals and tighten securely.



3 Phase Operation at 80A per phase

Protection

The mains supply to each ProPack must be protected against external overload. Appropriate circuit breaker ratings should not exceed 80 Amps for a three phase supply. If the available mains supply is not capable of providing the full rated currents, the protection device rating must be reduced accordingly; it will not be possible to use the dimmers with their maximum rated loads.

Protection systems on the supply to each dimmer pack should limit the potential fault current level to 10,000AIC or less.

Power Distribution

To achieve correct Grounding and mains power distribution, it is recommended that all dimmers and lighting control equipment within the installation should draw mains power from one central distribution point. This should be as close as possible to the mains power intake for the site or building. The wiring from the distribution point to the lighting equipment should ideally be used for supplying power to the lighting equipment alone, and not to other appliances or equipment.

ProPack must be properly Grounded, both for safety and to ensure correct operation.

It is essential that all Ground connections within the overall installation are at comparable potentials. If this is not the case, circulating currents may be generated in signal earth connections, possibly leading to fluctuating light levels and (in some extreme cases) damage to wiring or equipment.

If in doubt, as to the nature of your local electrical supply arrangements please seek advice from an authorative person at your site or an electrical contractor.

Rack Mounting

The ProPack dimmer pack is designed for rack mounting. Care should be taken to mount the unit securely in an equipment rack designed to hold equipment of this type.

To prevent overheating of rack-mounted dimmers when in use, a fan, or set of fans, should be fitted to the top of the equipment rack, such that air is extracted upwards. To ensure adequate cooling, the fan(s) should provide an airflow of about 16 litres per second across the top of each dimmer pack.

A gap of 1 U (1.5 inches) is required between adjacent pairs of dimmer racks. Leave a rear ventilation clearance of 4 inches. Due to the weight of the unit, rack side supports are recommended, but care must be taken to ensure that these do not obstruct ventilation.

WARNING
Additional Forced ventilation may be advised if racks are mounted within a flight case or similar closely constraining enclosure.

230v Specifications

Power Requirements

Voltage: 200 - 260 Volts AC.
Frequency: 50 - 60 Hz.
Three phase + Neutral + Earth

All ProPack dimmer packs must be Earthed for safety in use.

Dimming Capacity

Each pack contains twelve dimmers each with a Maximum load of 15A (3kW) per dimmer - total 36kW per dimmer pack.

Dimmer Output Connections

ProPack is available with a variety of output options to suit different operating conditions and national standards.

Socket Options

Part Number 75321	Terminal Strips
Part Number 75322	2 x Socapex Connector

Control Inputs

USITT DMX512(1990) multiplexed digital control, via 5 pin XLR connector.

Physical Dimensions (unpacked)

Height: 90 mm.
Width: 483 mm
Depth: 460 mm

Weight: 15.3Kg (approximately)

Environment (Operating)

Temperature: 0°C - 37°C.
Relative humidity: 60% - 90%.
Condensation level: Zero.

ProPack are suitable only for use in a dry, internal environment.

Protection

Classification	IP30.
Equipment Class	Class 1.

Installation

WARNING
Hazardous voltages are present in Propack.
Ensure that the mains supply is isolated before opening the equipment for installation or servicing.

Dimmer packs should be installed and serviced only by suitably qualified personnel.

ProPack may be installed mounted together in a rack (for hire or touring purposes).

230v Installation Notes

In order to enhance the reliability of the dimmers, it is recommended that they are operated within the following environmental limits:

Temperature: 18°C - 25°
Relative Humidity: 60% - 80%
Condensation level: Zero

ProPack dimmers are designed such that Earth leakage currents are minimised, allowing their use on mains power supplies protected by 30mA Residual Current Devices. However, utilising RCD protection in dimming installations may present problems. For specific advice please contact Strand Lighting

The dimmers may emit a slight buzzing noise when in operation. They should be installed away from areas where such noise would be undesirable.

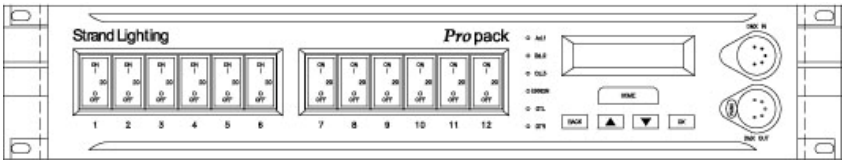


Figure 5

Mains Power Input Connections

ProPack dimmer packs require a nominal mains input at 230V 50Hz AC. This supply may be either single or three phase (star only), depending on the method of connection. In either case separate Neutral and Earth conductors are required.

WARNING
ProPack dimmer packs must be Earthed for safety in operation.

The Neutral conductor must have the same (or greater) cross-sectional area, as the Phase conductor(s).

(Triac and thyristor dimmers operate using ‘phase control’. This renders the ‘balancing’ of loads across phases - and thus a reduction in Neutral currents impossible)

ProPack dimmer packs should be connected to their mains supplies via adequately rated cable, together with any associated plug and socket connectors. For full power operation the supply must be rated at 125A for single phase operation, 63A for three phase operation. These ratings may be reduced if the supply protective devices are selected to limit the current drawn to appropriate limits. Should supply diversity be applied care is required in the sizing of supply neutral conductors. If in doubt please seek advice from Strand Lighting.

For safety in operation each rack must be fed from an appropriately fused supply.

It is strongly recommended that the mains supply to the dimmers is taken via a local isolating switch, so that the supply may be easily disconnected for plugging and unplugging of load connectors and for service or maintenance.

All cables, switchgear and protection equipment must be selected and installed in accordance with locally prevailing electrical regulations.

Mains Cable Entry

The mains input cable will enter the pack via the Rear Connection Panel.

Rear Cable Entry

Remove the Rear Connection Panel. It is secured to the base by four screws, as shown in Figure 2.

Rear Cable Entry

Remove the Rear Connection Panel. It is secured to the base by four screws, as shown in Figure 6.

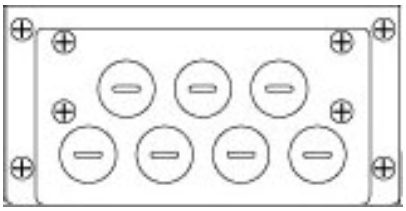


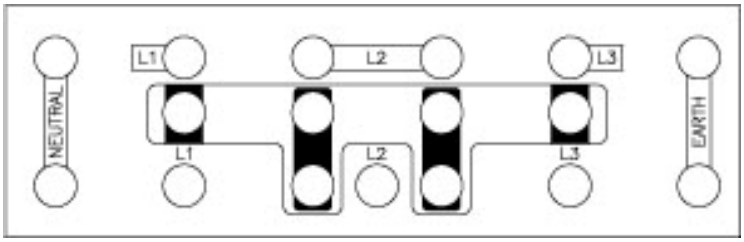
Figure 6

Mains Cable Termination

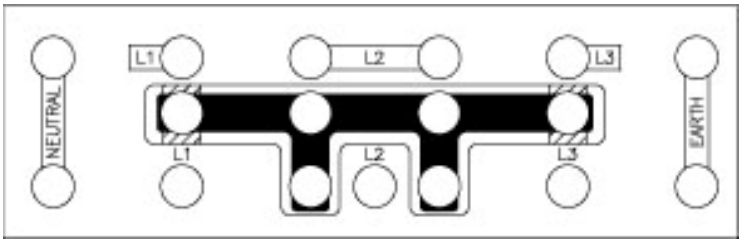
The mains input is connected at a set of screw terminal blocks, situated inside the pack, at the right hand side (looking from the front of the pack). The terminals will accept cables of up to 16 mm2 in size. If it is required to connect a ProPack to a single phase supply, the link bar supplied with the pack should be used to join the three phase terminals together, as follows (refer to right-hand diagram in Figure 73):

1. Loosen all three phase terminals.

2. Place incoming cable inside terminals and tighten securely.



3 Phase Operation at 80A per phase



Single Phase Operation 230v

Figure 7 Mains Jumper Settings

WARNING

Do NOT fit the link bar when the pack is connected to a three phase supply

Protection

The mains supply to each dimmer pack must be protected against external overload. Appropriate fuse or circuit breaker ratings are 63A for a three phase supply. If the available mains supply is not capable of providing the full rated currents, the protection device rating must be reduced accordingly; it will not be possible to use the dimmers with their maximum rated loads.

Protection systems on the supply to each dimmer pack should limit the potential fault current level to 1500A or less.

Power Distribution

To achieve correct Earthing and mains power distribution, it is recommended that all dimmers and lighting control equipment within the installation should draw mains power from one central distribution point. This should be as close as possible to the mains power intake for the site or building. The wiring from the distribution point to the lighting equipment should ideally be used for supplying power to the lighting equipment alone, and not to other appliances or equipment.

ProPack must be properly Earthed, both for safety and to ensure correct operation.

It is essential that all Earth connections within the overall installation are at comparable potentials. If this is not the case, circulating currents may be generated in signal earth connections, possibly leading to fluctuating light levels and (in some extreme cases) damage to wiring or equipment.

Care should be taken when differing electrical supplies (for example local generation for dimmers, public mains for control console) are in use or internal mains power distribution is TN-C (combined neutral & earth conductors)

If in doubt, as to the nature of your local electrical supply arrangements please seek advice from an authorative person at your site.

Rack Mounting

The ProPack dimmer pack is designed for rack mounting. Care should be taken to mount the unit securely in an equipment rack designed to hold equipment of this type.

To prevent overheating of rack-mounted dimmers when in use, a fan, or set of fans, should be fitted to the top of the equipment rack, such that air is extracted upwards. To ensure adequate cooling, the fan(s) should provide an airflow of about 16 litres per second across the top of each dimmer pack.

A gap of 1 U (44.5mm) is required between adjacent pairs of dimmer racks. Leave a rear ventilation clearance of 100mm. Due to the weight of the unit, rack side supports are recommended, but care must be taken to ensure that these do not obstruct ventilation.

WARNING
Additional Forced ventilation may be advised if racks are mounted within a flight case or similar closely constraining enclosure.

Control Input

The ProPack accepts DMX512 control inputs:

DMX512

The DMX512 input will accept a multiplexed digital control signal which conforms to USITT specification DMX512 (1990). Details of this specification are available from USITT on request.

The DMX512 control input is via a five-pin male XLR type connector. Pin connections are shown in Figure 8. A five-pin female XLR connector is also fitted to allow a series of ProPack dimmer packs (or other DMX512 equipment) to be daisy chained together.

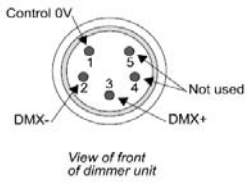


Figure 8 DMX512 Pin Outs

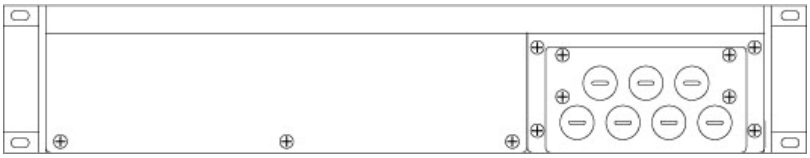
Dimmer Outputs

Dimmer output connections are by means of either receptacle/socket outlets on all styles of the ProPack dimmer packs, except the terminal strip version. Terminals on all terminal strip packs are exposed and these packs must be mounted in an enclosure.

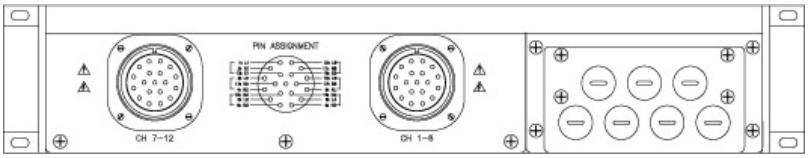
When operating from a three phase supply, dimmers 1, 2, 3 & 4 are connected to phase 1, dimmers 5, 6, 7 & 8 to phase 2, and dimmers 9, 10, 11 & 12 to phase 3.

Plugs and Connectors used for dimmer output connections must be of the correct type to match the socket outlets.

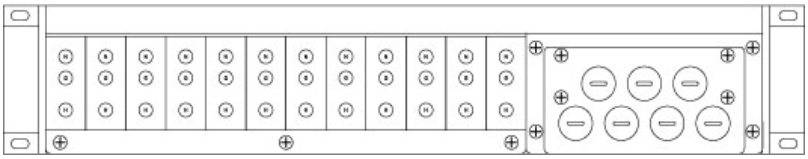
It is important that plugs are wired correctly. Figure 9 shows the various types of socket outlets fitted to ProPack dimmer packs.



Terminal Strip



Socapex



Stage Pin (120v Only)

Figure 9

Service and Maintenance

ProPack dimmer packs do not require routine maintenance other than external cleaning. However, in common with all electrical equipment, they should be periodically checked to ensure that they remain in good condition. Any repairs or maintenance to the internal electronics, or other circuitry, should be carried out only by authorised Strand Lighting Service personnel or approved Service Providers.

Safety Tests

ProPack dimmer packs are subjected to safety inspections and tests prior to shipment from the Strand Lighting factory.

If, as part of routine maintenance, the packs are to be subjected to electrical safety tests applied using a ‘standard’ Portable Appliance Tester, the following points should be observed:

The nature of the electronic dimmer circuits means that an ‘insulation test’ using a voltage in the order of 500V will give a result of approximately 1.7MO. Although this may appear as a test failure, the apparently low resistance is normal for these dimmer packs and is not due to failing insulation. User safety is not at risk.

Caution
A high voltage ‘Flash’ test must not be applied to a ProPack dimmer pack.

Note A high current Earth/Ground continuity test must not be applied to the signal ground pins of the control input connector(s).

Set up

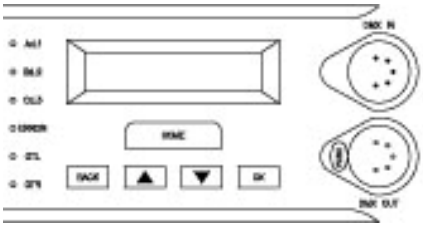
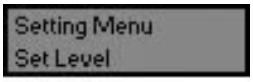


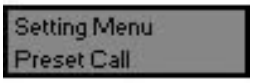
Figure 10 Set up keys and displays

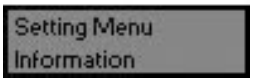
The ProPack dimmer pack offers a selection of set up and configuration features that are accessed from the front panel using the four set up keys and LCD Display.

Menu and setting selections are made with the Up and - keys. To exit any menu press the ESC escape key and OK is the confirmation key.

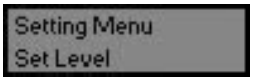
At the top level of the menu with the display of ProPack, press +/- to navigate through the menus.







Set Level



When a control console is not available, the dimmer levels on ProPack dimmer systems can be individually set to a desired level using the front panel keys. After the selection of +/- key to the Set Level display, press OK to enter into the Set Level Menu

Set all Dimmer Levels

Press “-“ to change the display to ALL, OK to confirm setting of all dimmer levels.

Set single Dimmer Level

Press +/- to select the required dimmer (1-12), OK to confirm setting of that particular channel.

The Default is Input, press +/- to select the required level of that dimmer follow by OK.

Address

This menu is to set either the DMX512 start address if the dimmer channels are used sequentially, or each DMX512 address can be patched individually to each dimmer channel.

Start Address

Patch

Curves

This menu is used to select a dimmer curve for any or all the dimmers in a system. There are five dimmer curves available to choose from S-Curve, Square, Non –Dim, Low Cut and Linear Power laws.

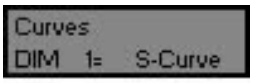
When the Curve menu is shown after pressing the OK key, use the + and - keys to select either the “Curve All” menu for all dimmers or for the “Curve Independent” menu for a single dimmer.

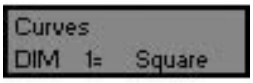
Set Curve for all Dimmers

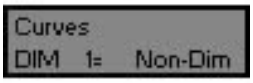
When in the “Curve All” menu, press the OK key once, then use the + and - keys to select one of the five curves.

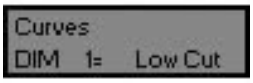
Set Curve for Single Channel

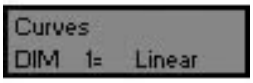
When in the “Curve Independent” menu, press the OK key once, the dimmer Channel # will be displayed, use the + and - keys to select the dimmer channel (1 – 12) to be set. Press the OK key again followed by the + and - keys to select the preferred curve. Repeat the above process until all channels are set.



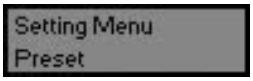








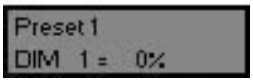
Preset



The Preset Menu allows the editing and recording of the internally stored presets. Presets can be stored in any one of the 40 internal presets.

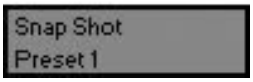
Set Level

The Set Level menu allows you to edit the saved levels stored for each dimmer in each preset.

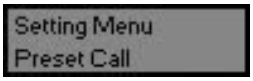


Snap Shot

Snapshot is to take a snap shot from the DMX512input, when the snaps display on the LCD window, press OK to take the DMX512level from the DMX512input.



Preset Call

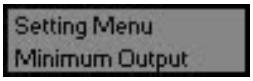


The preset call menu allows you to replay one of the previously stored presets. These can either be triggered locally from the control panel or remotely.

Local

Choose the Local Option with OK and then select the required scene to playback using the + / - keys and select using the OK button.

Minimum Output



This menu is to set the minimum output level of all or selected dimmers. Press the OK key once to confirm and press the + and - keys to select either the “Min Output DIM All”, “Min Output DIM Odd” “Min Output DIM Even” or individual dimmers

Set Minimum Output for All, Odd or Even Dimmers

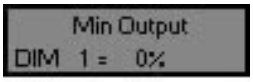
When in the “Min Ouput Dim All” “Min Output DIM Odd” or “Min Output DIM Even” menu, press the OK key once and the minimum level will be displayed as a percentage.

Use the + and - keys to select the minimum level (0 to 30%) for all dimmers.

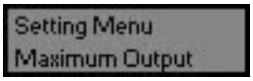
Set Minimum Output Level for Single Dimmer

When in the “Min Output DIM #” menu, press the “+ / -“ key once, to select the desired dimmer (1 – 12) to be set and then press the OK key

Now the percentage min level will be displayed, Use the + and - keys to select the desired Min Level (0 – 30%). Repeat the above process until all dimmers are set.



Maximum Output



This menu is to set the Maximum output level of all or selected dimmers. Press the OK key once to confirm and press the + and - keys to select either the “Max Output DIM All”, “Max Output DIM Odd” “Max Output DIM Even” or individual dimmers

Set Maximum Output Level for All, Odd or Even Dimmers

When in the “Max Output Dim All” “Max Output DIM Odd” or “Max Output DIM Even” menu, press the OK key once, the Maximum level will be displayed as a percentage.

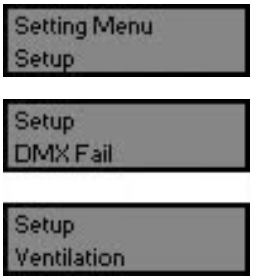
Use the + and - keys to select the Maximum level (70 to 100%) for all dimmers.

Set Maximum Output Level for a Single Dimmer

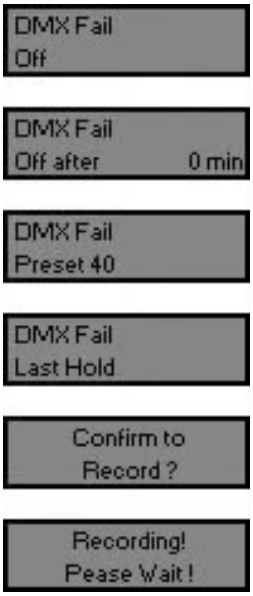
When in the “Max Output DIM #” menu, press the “+ / -“ key once, to select the desired dimmer (1 – 12) to be set and then press the OK key.

Now the percentage min level will be displayed, Use the + and - keys to select the desired Maximum Level (70 – 100%). Repeat the above process until all channels are set.

Setup



DMX Fail



This menu is to select what action the dimmer pack should follow on loss of DMX512 or DMX512 absence. The dimmer pack can be set as Off, Switch Off after a time interval, Select a Preset or Hold the last state when the DMX512 fails.

Press the OK key once to confirm and press the + and - keys to select either

“Off” to hold the last lighting level.
“Off after” to hold the lighting level for a certain period of delay time
“Preset” to hold the lighting level to a lighting preset.
Or
“Last Hold” to keep the last good received DMX512 state

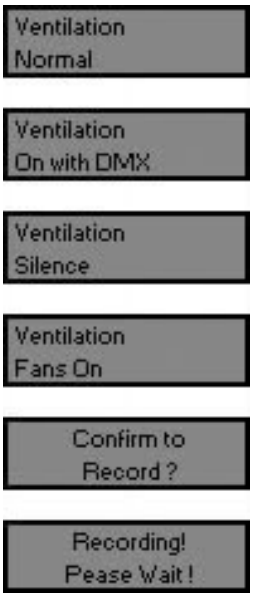
Setting the Delay when DMX512 fails

When in the “Off after” menu, press the OK key once, then use the + and - keys to select the delay before before the system black outs. Press OK key once to confirm the delay time.

Set Preset when DMX512 fails

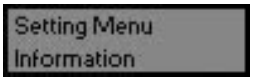
When in the “Preset” menu, press the OK key once, then use the + and - keys to select the Preset # of lighting level while DMX512 fail. Press OK key once to confirm the Preset number.

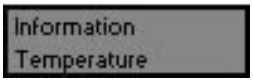
Ventilation



The ventilation control menu allows you to control how the internal cooling fans operate. The menu gives you a choice of Normal (Fans on with Temperature), On with DMX512 Signal, Silent (no Fans) or Fans On.

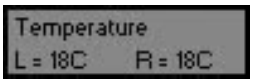
Information





To view the software version select the Software Vision and Press OK

To view the internal dimmer rack temperature, select the Temperature and press OK. Two temperatures are displayed, one for the left heat sink (dimmers 1 – 6) and the other for the right heat sink (dimmers 7 – 12).



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