



# OPERATING MANUAL



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# Chilli Jr Dimmer Operating Manual

This equipment is designed for professional stage lighting control only, and is unsuitable for any other purpose. It should only be used by, or under the supervision of, an appropriately qualified or trained person.

Zero 88 Lighting Ltd. reserves the right to make changes to the equipment described in this manual without prior notice.

E & OE.

Federal Communications  
Commission

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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## Table of Contents

Introduction .....	5
Manual Conventions.....	5
Overview of the Chilli Jr .....	5
Front Panel Controls.....	6
Channel Selection Buttons.....	6
Output Indicators .....	6
Run Button .....	6
Grab Button.....	6
Set Up Button.....	6
Up and Down Buttons .....	6
Main Display.....	6
Run Indicator.....	6
Set Up Indicator .....	6
Display Indicators .....	6
DMX OK Indicator.....	6
Installation .....	7
Mounting the Dimmer.....	7
Connecting to the Mains .....	8
Load Connections.....	8
DMX Connection.....	9
Terminating the DMX .....	9
User Interface .....	10
Run Mode.....	10
Testing Channels.....	10
Set Up Mode .....	10
Entering Set Up.....	10
Test Level.....	10
DMX Address.....	11
DMX Fail.....	11
Preheat.....	11
Law .....	11
Program Memory.....	12
Resetting the Dimmer.....	12
Exiting Set Up .....	12
Dimmer Lock Function .....	12
Locking the dimmer .....	12
Unlocking the dimmer.....	12
Technical Specifications.....	13

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## Introduction

This manual describes the operation of the Chilli Jr installation dimmer.

This section provides a general overview of the dimmer. The following section gives a description of the front panel controls.

The 'Installation' section contains information about installing and connecting the dimmer to the mains supply, the loads and the control system.

The 'User Interface' section describes the various functions of the dimmer which are accessible via the front panel controls.

Technical specifications can be found at the end of the manual.

## Manual Conventions

References to front panel controls, indicators and displays appear in capital letters, for example :

RUN button, GRAB button, DMX OK indicator, MAIN DISPLAY, etc.

## Overview of the Chilli Jr

The Chilli Jr is a six channel installation dimmer, each channel being rated at a maximum of 10 Amps.

The dimmer works under DMX control, and can be assigned a DMX start address.

The dimmer features an individual channel test facility, with an adjustable output level.

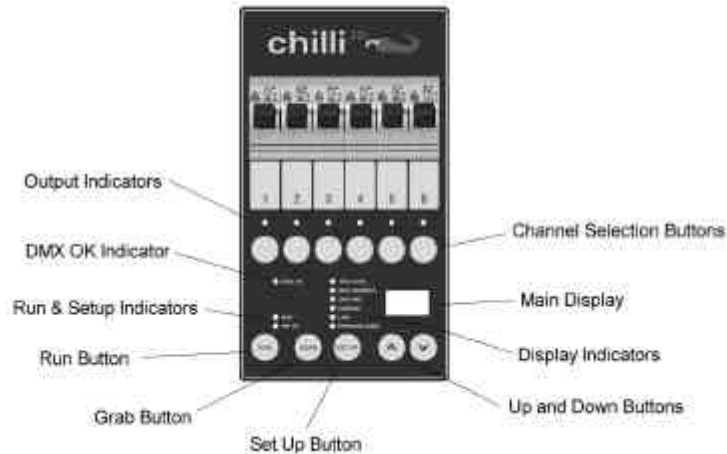
Each dimming channel can be set to follow one of three dimming laws : Normal, Linear or Switch.

The dimmer features a global channel preheat function, which can be set to 'on' (5%) or 'off' (0%).

The dimmer features an internal backup memory, which may be programmed by capturing the DMX control signal.

The dimmer provides front panel indication of the control signal status, channel output levels and DMX address.

The dimmer may be locked to prevent unauthorised changes to the set up.



### Front Panel Controls

The control panel provides the user interface to the Chilli Jr dimmer. The following sections summarise the front panel controls and displays.

### Channel Selection Buttons

The six channel selection buttons are used for selecting channels when setting up the dimmer, or for testing the channel outputs.

Each button contains a yellow indicator which is lit when the corresponding channel is selected.

### Output Indicators

The six green indicators above the CHANNEL SELECTION BUTTONS mimic the current output levels of the dimmer channels.

### Run Button

This button is used to select 'Run Mode' on the dimmer.

### Grab Button

This button is used to grab the current DMX input values when programming the backup memory on the dimmer.

### Set Up Button

This button is used to select Set Up mode, and also to cycle through the various Set Up options.

### Up and Down Buttons

These buttons are used to adjust the value shown in the MAIN DISPLAY.

### Main Display

This display provides operating data about the dimmer, and also shows the menu options and values in Set Up mode.

### Run Indicator

This red indicator shows that the dimmer is in Run Mode.

### Set Up Indicator

This red indicator shows that the dimmer is in Set Up Mode.

### Display Indicators

To the left of the MAIN DISPLAY are six red indicators, used to show the currently selected option in Set Up Mode. These indicators are labelled :

- TEST LEVEL
- DMX ADDRESS
- DMX FAIL
- PREHEAT
- LAW
- PROGRAM MEM

### DMX OK Indicator

This indicator shows the status of the DMX Input signal as follows :

<b>On</b>	DMX Dimmer Data being received OK
<b>Fast Flash</b>	DMX Data being received, but <u>not</u> dimmer data.
<b>Slow Flash</b>	DMX data errors detected
<b>Off</b>	No DMX data received

## Installation

This section deals with installing the Chilli Jr dimmer and connecting the mains supply, loads and DMX input.

**WARNING – DISCONNECT THE DIMMER FROM THE MAINS SUPPLY BEFORE REMOVING THE FRONT COVER.**

### Mounting the Dimmer

The dimmer is provided with four 6mm diameter fixing holes for wall mounting.

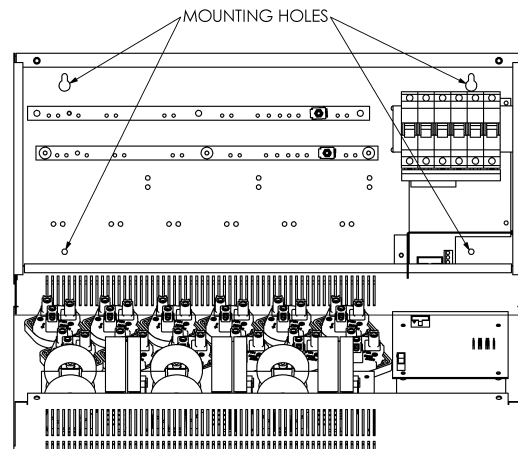
The mounting holes can be accessed by undoing the screws on the front cover and lowering it down.

The unit should be sited in a dry, ventilated location where ambient temperature and humidity are within the operating range of the unit. (See Technical Specifications)

**The dimmers have ventilation slots on the upper and lower surfaces to allow convection cooling. Under no circumstances should these be blocked.**

The recommended minimum clearance on all sides of the dimmer is 100mm.

If trunking with a depth greater than 75mm is used for the dimmer wiring, then a trunking or conduit coupler should be used between the trunking and dimmer to avoid blocking the ventilation slots.



## Connecting to the Mains

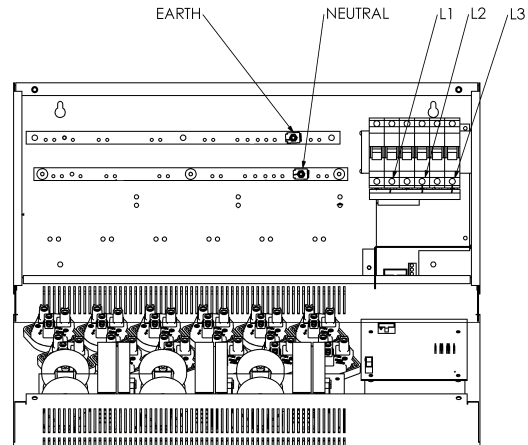
When connecting the dimmer, a secure Earth connection, and mains isolator are essential for safety.

### Phase – Neutral Voltage must not exceed 255 Volts.

The dimmers are supplied with a selection of knockouts on the top and sides for cable entry. These knockouts should be removed by pushing them *from inside the case*. Appropriate cable glands or grommets should be fitted to the knockout holes to protect the cables from damage.

Chilli Jr dimmers are designed to run on a nominal 230 VAC, 50Hz 3 phase supply. Connection details are shown opposite. Supply phase connections can be linked together for single phase operation.

**Note : Ensure that all terminal screws are tight before energising the unit. Vibration in transit may cause screws to become loose.**



Supply Wiring – Socketed Variants

## Load Connections (Hardwired variant only)

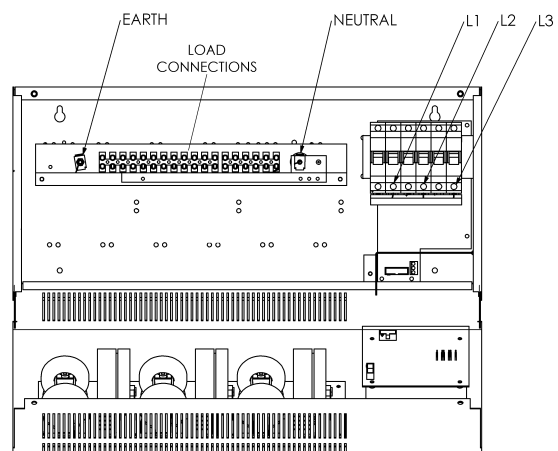
Load cables are connected to screw terminal blocks located on the rear panel of the unit.

The terminals are labelled L1, E, N1, L2, E, N2, etc. Each will accept a 6mm<sup>2</sup> cable, and should be connected as follows :

L1 – Load Circuit 1 – Live  
E – Load Circuit 1 – Earth  
N1 – Load Circuit 1 – Neutral

L2 – Load Circuit 2 – Live  
E – Load Circuit 2 – Earth  
N2 – Load Circuit 2 – Neutral

...continue for all 6 load circuits.



Supply Wiring – Hardwired Variants

**Warning – Do not use common Neutrals for multiple loads.**



## DMX Connection

The DMX control input is connected via a 3-way screw terminal block on the control PCB. (See diagram)

To gain access to the screw terminal block, remove the isolation shield by removing its fixing screw.

**Note : The isolation shield must be re-fitted once the DMX connections have been made.**

The terminals required are labelled : DMX+, DMX- and 0V.

It is essential that these terminals are connected correctly and that all DMX devices in the system have the same polarity. Failure to do so will cause the unit to respond incorrectly to the control signal.

## Terminating the DMX

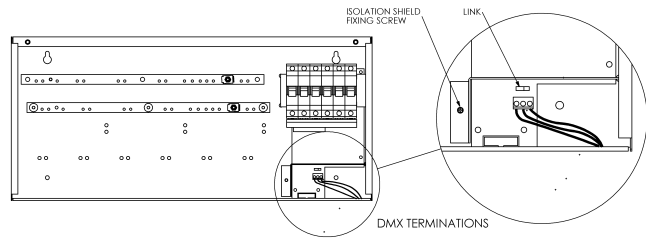
If the dimmer is the last unit in the DMX system, then the control line should be terminated. The Chilli Jr dimmer provides a simple way of doing this.

A 2 position link is located on a 3 pin connector above the DMX connections.

To terminate the DMX, connect the left and middle pins with the link. (i.e. the pins labelled 'TERM' on the PCB)

To remove the termination, connect the middle and right pins.

**Note : Terminating the DMX line on a unit in the middle of a DMX system is likely to cause other units in the system not to respond properly. Only the LAST unit in the DMX line should be terminated.**



*DMX Connections & Termination Link*

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## User Interface

This section describes the two main operating modes of the Chilli Jr dimmer (Run and Set up).

### Run Mode

This is the normal operating mode for the dimmer.

When in run mode, the RUN light on the dimmer should be lit, and the DMX signal will control the dimmer outputs.

The MAIN DISPLAY will show the DMX start address for the unit, unless the test buttons are in use.

If the dimmer is in Set up mode (indicated by the Set Up light being on) press the RUN button to enter Run mode.

### Testing Channels

To use the manual channel test facility :

- Press the appropriate CHANNEL SELECTION button.
- The yellow light in the CHANNEL SELECTION button will light.
- The TEST LEVEL light will be on, and the MAIN DISPLAY will show the current test level.
- The dimmer output will be set to the current test level.

The test level can be adjusted temporarily using the UP and DOWN buttons. The MAIN DISPLAY shows the current test level.

Press the CHANNEL SELECTION button once again to return the channel to DMX input control. The yellow light in the CHANNEL SELECTION button will go out, the TEST LEVEL light will go out and the MAIN DISPLAY will return to show the DMX address for the dimmer.

**Note : If multiple channels are being tested, then the displays will show the test status until all channels are de-selected.**

## Set Up Mode

Set Up mode is used to set up the dimmer parameters as required by the user. The dimmer will continue to respond to the DMX input signal while in set up mode. If you are unsure of any of the functionality of the dimmer, please contact Zero 88 technical support or your local Zero 88 distributor.

### Entering Set Up

To enter Set Up mode, press the SET UP button. The SET UP light will come on.

When the dimmer is in Set Up mode, the SET UP button will cycle through the following dimmer options :

- Test Level
- DMX Address
- DMX Fail
- Preheat
- Law
- Program Mem

Each of the above options has a corresponding red light to show the current selection.

The following sections describe how each of these options work.

### Test Level

*Sets the level for the channel test function.*

- Use the SET UP button to select the Test Level option.
- The TEST LEVEL light will come on and the MAIN display will show the current test level.
- Use the UP and DOWN buttons to adjust the test level as required.
- Push the SET UP button to move to the next Set Up option, or the RUN button to return to run mode.

### DMX Address

Sets the DMX start address for this unit

- Use the SET UP button to select the DMX Address option.
- The DMX ADDRESS light will come on and the MAIN DISPLAY will show the current DMX start address for the dimmer.
- Use the UP and DOWN buttons to set the DMX address as required.
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

### DMX Fail

Sets the way the dimmer will respond to a DMX control signal failure such as a cable being unplugged or a control desk failure.

- Use the SET UP button to select the DMX Fail option.
- The DMX FAIL light will come on and the MAIN DISPLAY will show the current failure mode for the dimmer.
- Use the UP and DOWN buttons to select the required DMX failure mode. (The table below shows the options and the corresponding display)
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

Fail Mode	Main Display	Description
Hold Last State	Hld	Dimmer holds the last good signal until the DMX input is regained.
Fade to Black	F00	Dimmer will fade to black (all channels off) over 3 seconds. When DMX signal is regained, dimmer will return to this signal.
Fade to Memory	F01	Dimmer will crossfade to its internal backup memory in 3 seconds. This memory is user programmable. When DMX signal is regained, dimmer will return to this signal.

### Preheat

Sets a 'preheat' level for the dimmer. This can be used to 'warm' the filaments of your lamps and increase lamp life. The function can be set to 'On' (5%) or 'Off' (0%).

- Use the SET UP button to select the Preheat option.
- The PREHEAT light will come on and the MAIN DISPLAY will show the current preheat setting for the dimmer.
- The yellow lights in the CHANNEL SELECTION buttons will come on, showing that all channels are selected.
- Use the UP and DOWN buttons to set the preheat level 'On' or 'Off'.
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

### Law

Sets the dimming law for the channels of the dimmer. The dimming law will change the way in which the dimmer responds to the control input signal.

- Use the SET UP button to select the Law option.
- The yellow light in CHANNEL SELECTION button 1 will come on, indicating that dimmer channel 1 is selected.
- The LAW light will come on and the MAIN DISPLAY will show the current Law for the selected channel.
- Use the UP and DOWN buttons to set the Law required for the selected channel. (The table below shows the options and the corresponding display).
- To select another channel, press the appropriate CHANNEL SELECTION button. The yellow lights and MAIN DISPLAY will change accordingly.
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

Dimmer Law	Main Display
Normal	Nor
Switch	Siu
Linear	Lin

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### Program Memory

Programs the internal backup memory of the dimmer. The memory can be used in the event of a DMX failure. (see section on DMX Fail Mode)

#### To Program the Memory :

- Set the dimmer outputs using a DMX controller to the levels you wish to record in the memory.
- Use the SET UP button to select the Program Mem option.
- The PROGRAM MEM light will come on and the MAIN DISPLAY will show the current status of the memory. (If the memory is unprogrammed, the display will be blank, if it is programmed, the display will show 'prg').
- Press the GRAB button.
- The levels of the 6 dimmer channels will be stored in the memory. The MAIN DISPLAY will show 'prg'.
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

#### To Clear the Memory :

- Use the SET UP button to select the Program Mem option
- The PROGRAM MEM light will come on and the MAIN DISPLAY will show the current status of the memory. (If the memory is unprogrammed, the display will be blank, if it is programmed, the display will show 'prg')
- Push and hold the UP and DOWN buttons together for 1 second.
- The MAIN DISPLAY will go blank to show that the memory has been cleared.
- Push the SET UP button to move to the next set up option, or the RUN button to return to run mode.

### Resetting the Dimmer

This will reset the dimmer to its factory configuration and reset all of the dimmer parameters to their default values. (as shown below)

Press and Hold the UP and DOWN buttons together and press the SET UP button for approximately 1 second (until the MAIN DISPLAY show 'rst').

The dimmer will be reset as per the following table :

Parameter	Default Setting
Test Level	50%
DMX Fail mode	Hold Last State
DMX Address	001
Law (all channels)	Normal
Preheat	Off (0%)
Memory	Unprogrammed

### Exiting Set Up

To exit set up mode, press the RUN button. The dimmer returns to Run Mode, the SET UP light will go out and the RUN light will come on.

### Dimmer Lock Function

The Chilli Jr dimmer can be 'locked' to prevent unauthorised users changing the set up.

When the dimmer is locked, it is not possible to enter Set Up mode. If the SET UP button is pressed, the MAIN DISPLAY shows 'LOC' for approximately 1 second, then returns to showing the DMX address.

### Locking the Dimmer

When the dimmer is in Run mode, press and hold the UP and DOWN buttons together, and press the GRAB button (until the MAIN DISPLAY shows 'LOC').  
The dimmer will now be locked.

### Unlocking the Dimmer

Press and hold the UP and DOWN buttons together, and press the GRAB button (until the MAIN DISPLAY shows 'UnL')  
The dimmer will be unlocked and the set up menu will be accessible.

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## Technical Specifications

### Electrical

Number of channels	6
Min. Channel Capacity	0.1 Amps
Max. Channel Capacity	10 Amps
Total Dimmer Capacity	60 Amps
Dimmer Duty Cycle	100%

#### Supply Voltage

- Single Phase 2 wire – 230 VAC
- Three Phase Star 4 wire - 250/444 VAC

Supply Frequency            50Hz

### Control Input

- USITT DMX 512 – 1990
- Internally selectable termination
- Start address via front panel interface

### Channel Outlets

- 2 regional sockets per channel OR
- Internal terminal connections
- Channel Protection via 10 A thermal magnetic circuit breaker (1 per channel)

### Mechanical

Size : 550mm x 250mm x 145mm  
Weight : 10 Kg

### Environmental

Operating temperature range : 5°C - 40°C  
Humidity : 0 – 95% non condensing  
Cooling : Convection

### EMC

#### Emissions

- EN50081-1 1992
- EN55015

#### Susceptibility

- EN50082-1 1997

#### Electrical Safety

- EN60950-1 Class 1

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