

- [Introduction](#)
  - [Compliance](#)
  - [Revisions](#)
- [Warnings & Safety](#)
- [Installation](#)
  - [Removing the cover](#)
  - [Connecting the mains](#)
- [Getting started](#)
- [Configuration & Settings](#)
  - [Default Mode & Channel Test](#)
  - [Manual Control](#)
  - [DMX Address](#)
  - [DMX Fail](#)
  - [Memories](#)
  - [Sequences](#)
  - [Preheat](#)
  - [Topset](#)
  - [Dimmer Laws](#)
  - [Super User](#)
    - [Lock](#)
    - [Reset](#)
    - [Firmware Version](#)
    - [Temperature](#)
    - [RDM](#)
- [Maintenance & Care](#)
- [Electrical](#)
- [Mechanical](#)
- [Troubleshooting](#)
- [Support](#)



Betapack has served the industry for 30 years with legendary reliability, robustness, versatility and value for money.

Betapack 4 builds on this heritage by distributing both dimming and “hot power” to a mixed rig of both tungsten and LED fixtures in a single, affordable device. Betapack 4 continues to serve the most modern applications in lighting rental, installation and portable situations for many thousands of venues worldwide.

Betapack 4 includes variants with sockets to match most global standards, and is supplied with MCBs on every channel. The versatility of the Betapack 4 means it can be 19" rack mounted or installed on a wall using the brackets supplied, or made portable by using the included Easicarry kit consisting of a handle and four feet. Its legendary reliability and durability make it the dimmer of choice for many thousands of venues worldwide.

#### [Betapack 4](#)

[Please read this manual before use, especially the Warnings & Safety section.](#)

E&OE. Cooper Lighting Solutions reserves the right to make changes to the equipment and specification described in this manual without prior notice.

# Introduction

## Thank you

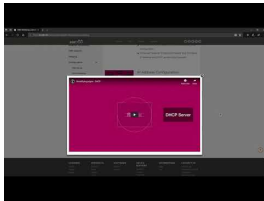
Thank you for choosing Betapack 4 by Zero 88 to fulfil your lighting power needs. We sincerely hope that your new unit will bring you years of trouble free service. We make great efforts to build in reliability and serviceability at every stage of our development and production processes and include a three-year limited warranty - giving you peace of mind for your investment.

Our extensive dealer network can also provide you with technical service and sales support in your local language no matter where you are in the world. If you have any questions, comments or problems our contact details can be found at [zero88.com/support](http://zero88.com/support)

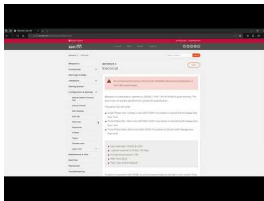
Once again, thank you for choosing Zero 88.

## This manual

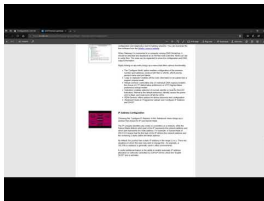
This online manual describes the operation of Betapack 4.



For an overview of the Zero 88 Online Manuals, take a look at this video.



For detailed information on each function, the manual has been divided into chapters - one for each major area, which can be navigated using the menu on the left-hand side. You can also search the manual using the search bar top right.



Each section or whole chapters can be exported to PDF by tapping "PDF", found just below the search bar. The whole manual can be exported as a PDF, by tapping "PDF" at the top page of the manual.

Zero 88 online manuals are updated regularly to ensure you have all the relevant information and useful tips. Check out the Revisions section to see what has been added. If you see something that doesn't look right, or have suggestions, please send us an email to [support@zero88.com](mailto:support@zero88.com).

## Compliance

• EN 55015:2013 + A1:2015: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

**Betapack 4** • EN 61547:2009: Equipment for general lighting purposes - EMC Immunity requirements

**complies with** • EN 61439-1:2011: Low-voltage switchgear and controlgear assemblies. Part 1: General Rules

**the following** • EN 61439-2:2011: Low-voltage switchgear and controlgear assemblies. Part 2: Power switchgear and controlgear assemblies

**standards:** • EN 50581:2012: Assessment of products with respect to RoHS II

## Revisions

### Change log of this manual

- July 2020 - Manual Restructured - ES
- June 2020 - Manual Created - ES

## Warnings & Safety

- Do not remove the covers without first completely disconnecting Betapack 4 from the mains supply.
- This product must be earthed.
- This equipment is designed for professional stage lighting control and is unsuitable for any other purpose. It should be used by, or under the supervision of, an appropriately qualified or trained person.

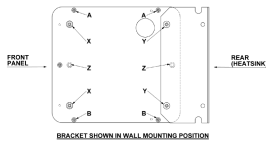
# Installation

Betapack 4 is designed for indoor use only.



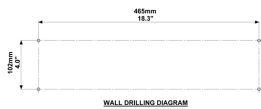
## In a 19" Rack

Betapack 4 is supplied with side brackets fitted for rack mounting.

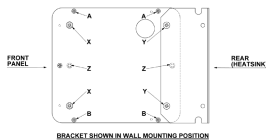


## On a wall

Undo the four screws 'X' to remove the brackets, replace the screws in the holes for future use. Stand Betapack 4 on one end. Remove the two screws 'Y', fit the brackets as shown and replace screws 'Y'. Fit the other bracket on the other end.



The wall drilling positions are shown. **WARNING** Completely fit one bracket at a time. Removal of all four screws 'Y' at the same time can allow the heatsink assembly to fall out! Allow a minimum vertical spacing of 130mm between packs, and between packs and other equipment. A spacing of 180mm is recommended for ease of wiring and servicing.



## For Portable Use

The 'Easicarry' Kit, consisting of a handle and four feet, is included with Betapack 4. To fit, remove the brackets. Fit the handle using the screws supplied and holes 'Z'. Fit the four feet to the other end using the holes 'X' and 'Y'.

When one or more Betapack 4 units are mounted in an enclosed rack, a fan **MUST** be fitted to ensure that adequate cool air is circulated. Up to three Betapack 4s may be stacked in free air.

Temperature	Output Levels (% of control)	Main display
<75°C	100%	normal
75°C → 80°C	100%	"075c"
80°C → 85°C	80%	"080c"
85°C → 90°C	60%	"085c"
90°C → 95°C	40%	"090c"
>95°C	0%	"hot"
sensor fault	100%	"err"

## Ventilation

Betapack 4 is convection cooled with air flowing over the rear mounted heatsink.

Betapack 4 is convection cooled and includes a temperature sensor which monitors the internal temperature. If the temperature rises above the normal operating level the outputs are first reduced, then switched off altogether until the temperature falls back to a safe level.

The table shows how Betapack 4 will react under these conditions.  
(Note: The temperature shown on the display will be the actual temperature not the rounded figures given in the table).

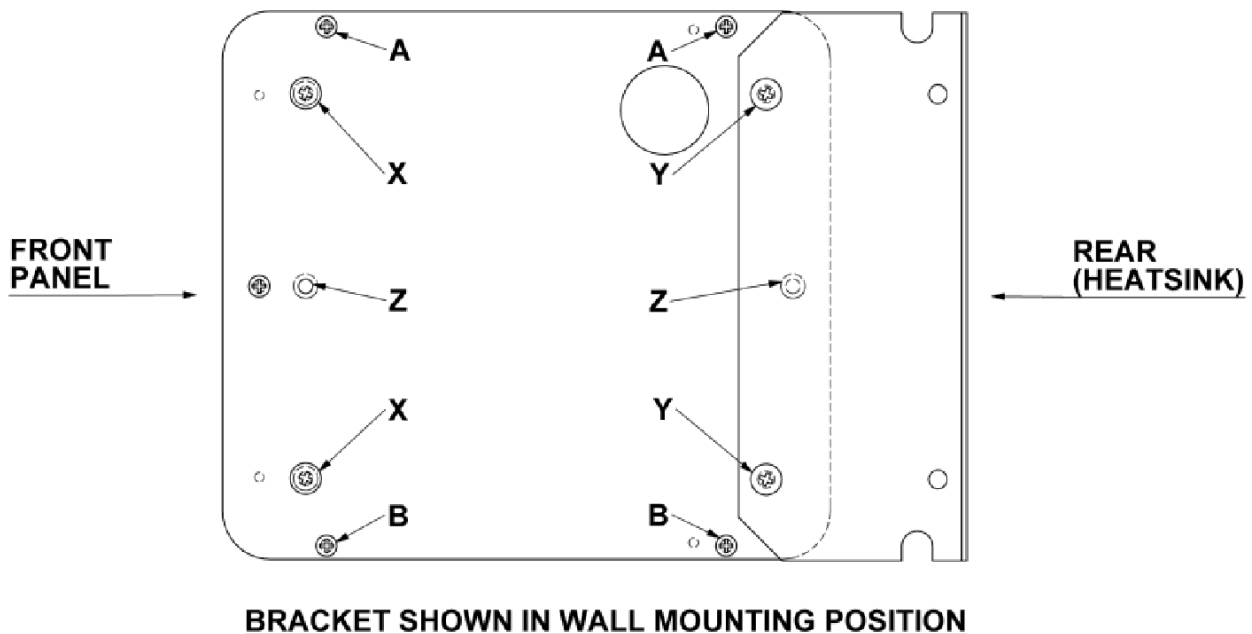
## Removing the cover

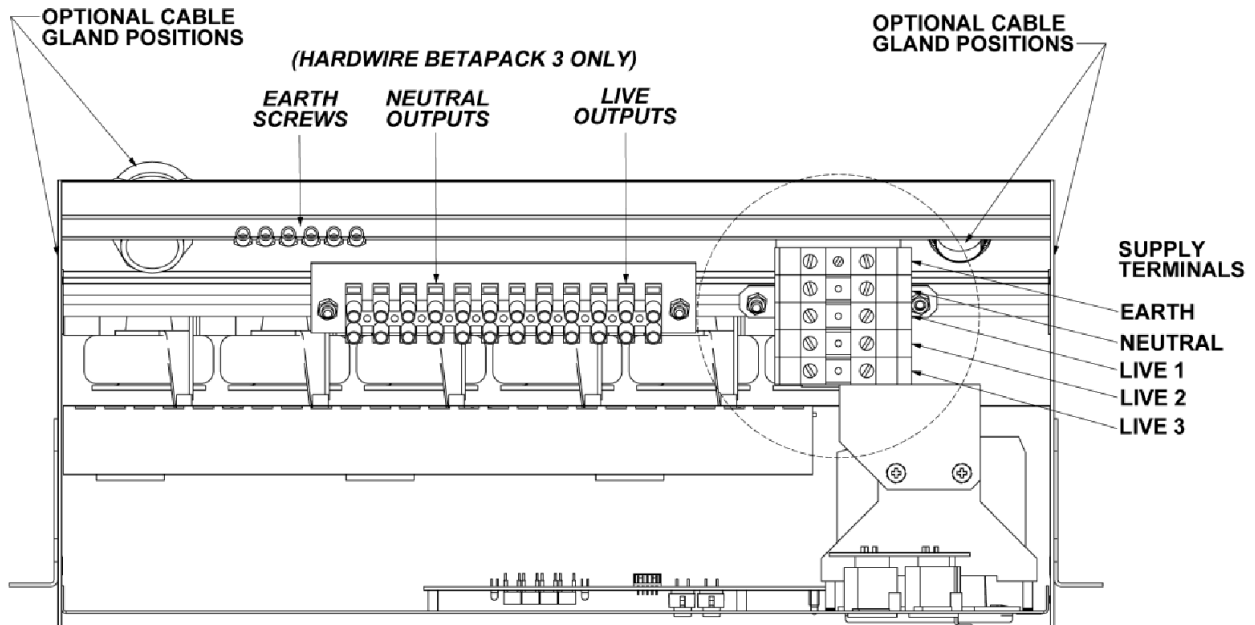
Do not remove the covers without first completely disconnecting Betapack 4 from the mains supply.

Isolate and disconnect Betapack 4 from the mains supply.

The mains supply terminals (and output terminals on the hardwire version) are located under the top cover. To remove the top cover, remove the four screws from the side plates marked "A" in the diagram below.

The Triacs (type BTA40-600A/B) are located under the bottom cover. To remove the bottom cover, remove the four screws from the side plates marked "B" in the diagram below.

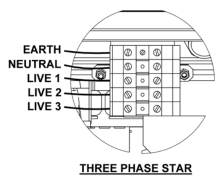




## Connecting the mains

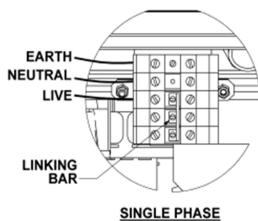
This product must be earthed.

- A separate isolator and secure mains earth connection are required.
- Phase to Neutral voltage must not exceed 255VAC.
- All wiring entering Betapack 4 must be rated to +85°C, H07RN-F cable is recommended.
- Cut outs are provided on the ends and rear for PG21 glands; one is supplied.
- Supply terminals will accept wire sizes between 1.5mm<sup>2</sup> and 16mm<sup>2</sup>. Tightening torque is between 1.2Nm and 2.4Nm.
- Hardwire Live/Neutral output terminals will accept wire sizes up to 6mm<sup>2</sup>.
- Hardwire Earth output ring-tags (blue crimp) will accept wire sizes between 1.0mm<sup>2</sup> and 2.5mm<sup>2</sup>. These may be replaced if larger diameter wiring is installed.



### Three phase

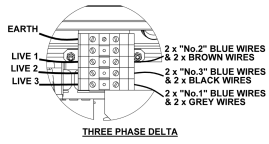
Betapack 4 is supplied configured for three-phase star operation as shown.



### Single phase

For single-phase operation, fit the supplied linking bar between the L1, L2 and L3 terminals as shown.

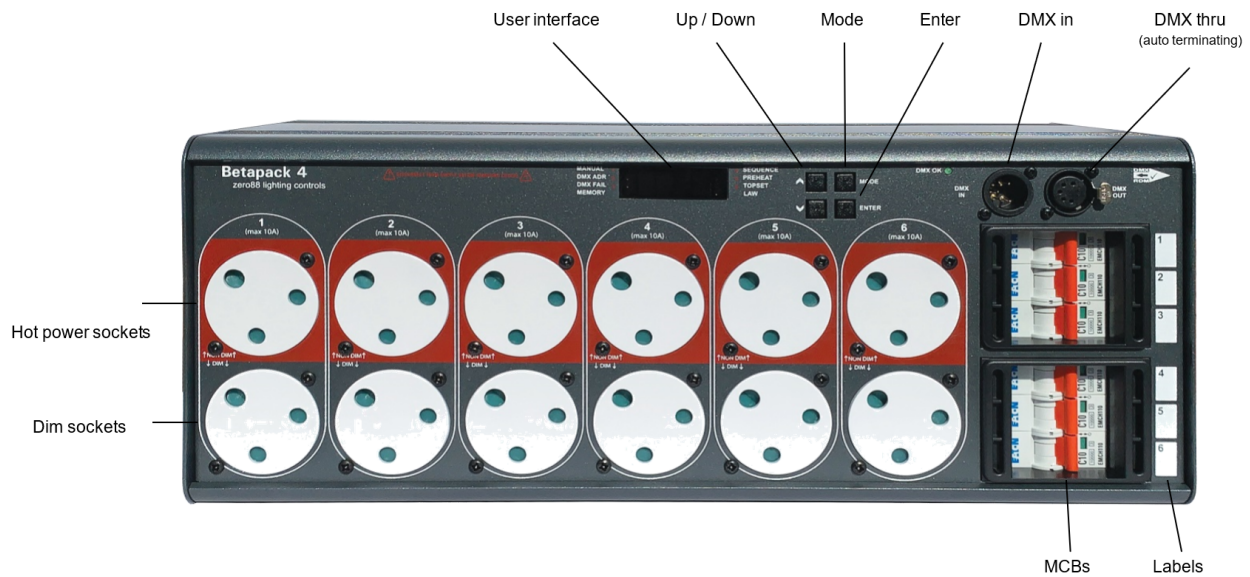




## Three phase delta

For three-phase delta operation, the 6 neutral wires must be removed from the terminal block, and the crimped ferrules must be cut off. Strip the ends of these 6 wires, and reconnect as shown.

# Getting started



Betapack 4 distributes both dimming and non-dimming (“hot power”) to a mixed rig of both tungsten and LED fixtures. Each of the six channels are capable of driving up to 10 amp loads.

The dim and hot power socket for each channel share the same channel MCB. The hot power sockets are fed directly from the channel's MCB. Hot power sockets are therefore not affected by DMX control, and are on dependent on the state of the MCB. The dimmed and hot power sockets for a channel can therefore be used simultaneously, providing that the total channel load does not exceed 10 amps.

Betapack 4 features MCBs as standard. When dimming, there are preheat, topset and 3 laws per channel, 12 memories, 3 99-step sequences, local control and DMX patch per channel.

An isolated DMX512-A input and loop-through allow for remote operation. When the loop-through plug is not inserted, the DMX line is automatically terminated.

The DMX control port supports RDM (Remote Device Management) functionality.

# Configuration & Settings

Configuration & settings affect the “Dim” sockets only. The “hot power” sockets will be unaffected by these settings.



The main display consists of four seven-segment displays; the data displayed is dependent on the set-up mode of Betapack 4. Around the outside of these displays are eight red LEDs which indicate the current set-up mode of Betapack 4. An additional green LED is used for DMX indication.

Betapack 4 has a default mode for operation. In this mode none of the set-up mode LEDs will be lit, and the main display will show the DMX address(es).

## Mode button

The Mode button is used to cycle through the different set-up modes. They are:

- Manual control
- DMX address
- DMX fail
- Memory
- Sequence
- Preheat
- Topset
- Law

## Enter button

The Enter button is used to confirm actions.

## Up & Down buttons

These are used to adjust the values shown in the main display. Pressing both buttons together will reset the display to the default values.

## Default Mode & Channel Test

If a block patch has been set, then the display will show the DMX start address of the block.

If individual DMX addresses have been set for each channel, then the 'Up & Down' Arrows can be used to select which DMX address to display, or alternatively if 'Auto' is selected, then the display will cycle through all six DMX addresses. In either case, the DMX address is prefixed by the channel number.

Holding down the 'Enter' button in default mode will change the display to 'Out', and the top 6 setup LEDs (numbered) will change to displaying an indication of the current output levels. Each LED will be lit if the current output level for that channel is greater than 20%.

While keeping the 'Enter' button held down in Default Mode, use the 'Up & Down' Arrows to set a level of 100% on a single channel. Release the 'Enter' button to remove this level.

## Manual Control

The Manual Control Mode allows you to set-up a look on Betapack 4 without using an external controller.

Select 'Manual' mode using the 'Mode' button. The display will show C.LLL, where C is the channel number and LLL is the level. Select the channel you require or 'A' for all channels, using the 'Up & Down' Arrows and press 'Enter'. Now set the level you require using the 'Up & Down' Arrows and press 'Enter' again to confirm and move back to the channel selection.

The Manual Control levels are reset to zero if power to Betapack 4 is lost.

## DMX Address

There are 2 ways that Betapack 4 can be patched – a single DMX start address can be set for the block of 6 channels (block patch), or each channel can be given a different DMX start address.

For block patch, the range of DMX start addresses is 001 – 507. For individual patch, the range of DMX start addresses is 001 – 512

Select 'DMX ADR' using the 'Mode' button, the display will show C.AAA, where C is the channel number and AAA is the current DMX address for that channel. Select the channel you require (1-6), or 'A' for all channels (block patch), using the 'Up & Down' Arrows and press 'Enter'. Now set the address you require using the 'Up & Down' Arrows and press 'Enter' again to confirm and move back to the channel selection.

Status	Description
On	DMX data (start byte of 00) being received OK.
Flash Fast	Data being received, but not DMX data (start byte of 00)
Flash Slow	DMX data errors occurring.
Off	No DMX data being received.

DMX indication LED behaviour.

## DMX Fail

Fail Mode	Main Display
Hold Last State	Hold
Fade to Zero	F 00
Fade to Memory 1 - 12	F 01 – F 12
Fade to Sequence 1 - 3	S 01 – S 03

There are four DMX fail modes available – ‘hold DMX’, ‘fade to black’, ‘fade to memory’ and ‘fade to sequence’.

Select ‘DMX Fail’ using the ‘Mode’ button. Using the ‘Up & Down’ Arrows select your preferred choice.

If there is no DMX present, the selected memory/sequence will be re-called immediately.

## Memories

Betapack 4 will store 12 memories for standalone operation, these can only be re-called if there is no DMX present.

1. Set-up the scene using the ‘Manual’ control function or a DMX controller.
2. Select ‘Memory’ using the ‘Mode’ button.

Using the ‘Up & Down’ Arrows select the required memory number and press the ‘Enter’ button to confirm. A ‘p’ should appear next to the memory to signify that it has been programmed.

Holding both the ‘Up & Down’ Arrows for 1 second will clear the selected memory. If these buttons are held for 5 seconds, ALL memories will be cleared.

If memories are cleared which are used in sequences, they will be removed automatically from those sequences.

## Sequences

Betapack 4 will store 3 sequences of up to 99-steps each. Each step is a link to one of the 12 programmed memories. Sequences can only be replayed if there is no DMX present.

Each sequence can have a fade time (0-60s) and dwell time (1-60s) programmed. It is only possible to add steps to or remove steps from the end of a sequence.

### **Step 1**

Program the required looks using the 'Memories' function (see above).

### **Step 2**

Select 'Sequence' using the 'Mode' button.

### **Step 3**

Use the 'Up & Down' Arrows to select the required sequence (the number of steps already programmed in each sequence is shown after the sequence number on the display) and press the 'Enter' button to confirm.

### **Step 4**

The display will now change to show the current step number, followed by the memory currently programmed in that step. Use the 'Up & Down' Arrows to select the required step number (or Fade time 'F' or dwell time 'd') and press the 'Enter' button to confirm.

### **Step 5**

**For steps:** If there is no DMX present, the selected memory will be immediately re-called. Use the 'Up & Down' Arrows to select the memory for that step and press the 'Enter' button to confirm. Only programmed memories may be selected. If the step is at the end of the sequence, then the step number will automatically increment, and further steps may now be programmed in the same way. Otherwise the display will return to step number selection mode.

**For fade and dwell times:** If there is no DMX present, the sequence will now run. Use the 'Up & Down' Arrows to change the time and press the 'Enter' button to confirm.

When done, or to return to sequence selection mode (step 3 above) at any point, press and hold the 'Enter' button for 1s.

At step 3 above, holding both the 'Up & Down' Arrows for 1 second will clear the selected sequence. If these buttons are held for 5 seconds, ALL sequences will be cleared.

At step 5 above, if the selected step is at the end of the sequence, holding both the 'Up & Down' Arrows will clear the selected step.

## **Preheat**

Preheat can be selected on a per channel or all channel basis. The preheat level is 5% and cannot be adjusted.

Select 'Preheat' by cycling through the modes using the 'Mode' button.

Select required channel or 'A' for all channels, using the 'Up & Down' Arrows and press 'Enter', to confirm.

Now select on/off using the 'Up & Down' Arrows. Press 'Enter' to confirm and return to the channel selection.

Note that Preheat is only applied if there is a DMX input present, and the law is not set to 'Switch'.

## Topset

Topset can be selected on a per channel or all channel basis. On Betapack 4, Topset is applied as a limiting (not scaling) value.

Select 'Topset' by cycling through the modes using the 'Mode' button.

Select required channel or 'A' for all channels, using the 'Up & Down' Arrows and press 'Enter', to confirm.

Now select the topset level you require, again using the 'Up & Down' Arrows and press 'Enter' to confirm and return to the channel selection.

Note that if the law is set to 'Switch', the setting in Topset will instead be used to determine the switch-point. The 'Topset' LED will flash in this case, to indicate the setting being made.

## Dimmer Laws

Output Law	Main Display
Normal	n
Switch	S
Linear	L

Three dimmer laws are available, which can be selected per channel.

Select 'Law' mode using the 'Mode' button. Using the 'Up & Down' Arrows select the channel required, or 'A' for all channels. Press 'Enter' to confirm. Now select the law you require, again using the 'Up & Down' Arrows and press 'Enter' to confirm and return to the channel selection.

Note that if the law is set to Switch, the switch-point can be set in the 'Topset' menu.

## Super User

Betapack 4 has a number of hidden functions, located in the Super User Menu. The super user menus can only be accessed from the Default mode (no LEDs lit). To enter Super User press and hold the 'Up & Down' Arrows together and press and hold the 'Mode' button for 5 seconds. All the mode LEDs will flash to indicate Betapack 4 is in super user mode.

The 'Up & Down' Arrows are used to cycle through the various super user functions. Pressing the 'Mode' button at any point will revert to normal operation. If no buttons are pressed after 20 seconds the unit will automatically revert to normal operation.

## Lock

Press the 'Up & Down' Arrows until the display shows "LOC". Press 'Enter' to confirm this action. Betapack 4 will revert to the Default mode. Pressing the 'Mode' button now will only cycle between Manual Control and Default Mode.

If Super User is entered when Betapack 4 is locked, only the unlock function will be available. The display will show "UNL". To unlock Betapack 4, press and hold the 'Enter' button for 5 seconds. Betapack 4 will unlock and exit super user returning to the Default mode.

## Reset

Press the 'Up & Down' Arrows until the display shows "rset". Press 'Enter' to confirm. The display will flash briefly to confirm this action. Betapack 4 will be reset to its default settings, shown in the table below:

Set Up Parameter	State
Manual Control Levels	All Off
DMX Addresses	Block patch at 001
DMX Fail Mode	Hold Last State
Memory	All Memories Cleared
Sequence	All Sequences Cleared
Preheat	Off (0%) for all channels
Topset	100% for all channels
Law	Normal law for all channels
Switch law switch point	50% for all channels
RDM	Enabled

## Firmware Version



To identify which version of firmware is loaded in Betapack 4, press the 'Up & Down' Arrows until the firmware version is shown in the display (e.g. 02.00) Press and hold the 'Enter' button for 1s, and Betapack 4's CPU serial number will be displayed. Press the 'Enter' button again to return to the version display. Note that the firmware version will also be shown briefly on start up.

## Temperature

Press the 'Up & Down' Arrows until the temperature is shown in the display, shown as xxxC, where xxx is the temperature in Centigrade. The 'Enter' button has no function in this mode.

## RDM

Protocol Version	1.0
Device Model ID	307 (0x0133)
Supported Parameters	DMX_START_ADDRESS, SENSOR_DEFINITION, SENSOR_VALUE, DEVICE_LABEL, MANUFACTURER_LABEL, DEVICE_MODEL_DESCRIPTION
Sub Devices	6 (one per channel)

To enable or disable RDM (Remote Device Management) functionality on the DMX control port, press the 'Up & Down' Arrows until "ron" or "rof" is displayed. The 'Enter' button toggles this setting between "ron" (RDM enable) and "rof" (RDM disabled).

# Maintenance & Care

## Portable Appliance Testing

Betapack 4 will fail the portable appliance high voltage test as it has capacitors connected between Live 1/2/3 and Earth, and between Neutral and Earth, to enable it to comply with CE regulations.

## Transportation & storage

Care should be taken when transporting Betapack 4. The cardboard box which Betapack 4 is supplied in is intended only for one or two journeys, and should not be relied upon to keep the dimmer safe for prolonged use.

## WEEE

If you wish to discard this product, please contact your local authorities or Zero 88 dealer and ask for the correct method of disposal. Used electrical and electronic products should not be mixed with general household waste.

# Electrical

Do not remove the covers without first completely disconnecting Betapack 4 from the mains supply.

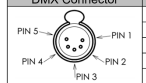
Betapack 4 is designed to operate on 230VAC +10% -15% at 50-60Hz (auto sensing). The pack may not operate satisfactorily outside this specification.

The packs may be wired:

- Single Phase: 60A 1 phase 2-wire 230V (255V max phase to neutral) Earth leakage less than 1mA
- Three Phase Star: 20A 4-wire 230/380V (255V max phase to neutral) Earth leakage less than 1mA
- Three Phase Delta: 30A 3-wire 230V (255V max phase to phase) Earth leakage less than 4mA
  
- Max total load: 13.9kW @ 230V
- Load per channel: 0.1A Min; 10A Max
- No load consumption: 10W
- Rise Time: 80uS
- Triac Type: BTA40-600A/B

If used in conjunction with MCBs, to avoid nuisance tripping use high inrush current (Type K) MCBs.

The “dim” sockets allow for lighting loads which are resistive or inductive, including tungsten, transformer driven low voltage (e.g. pinspots), and quartz halogen. Electronic transformers plugged into the “dim” socket must be suitable for leading edge dimming.

DMX Connector	Pin	Description
	1	COM
	2	DMX -
	3	DMX +
	4	Not used (linked between male and female connectors)
	5	Not used (linked between male and female connectors)

## DMX

Conforms to USITT DMX512-A (isolated).

One male and one female 5 pin XLR connector. DMX line is automatically terminated when the loop-through plug is not inserted.

# Mechanical

Always observe the operating environment information. If this environment is exceeded, it is likely that damage will occur to your Betapack 4.

- Height: 175mm
- Width: 440mm
- Depth: 195mm
- Weight: 8.0kg (17.6lb)
- IP Rating: IP2X (indoor use only)
- Ambient Temperature: +5°C to +40°C.
- Relative Humidity: 5% to 95% non-condensing.

# Troubleshooting

If you are experiencing problems with Betapack 4, please check the list below for common causes and solutions. If you are unsure how to make any of the checks, please contact Zero 88 technical support for advice or assistance.

These checks should ONLY be carried out by a qualified electrician.

Symptoms	Solutions
Betapack 4 does not power up when power is applied.	<ol style="list-style-type: none"><li>1. Check there is a mains voltage on the incoming supply terminal.</li><li>2. Check the incoming supply terminals are all adequately tightened.</li><li>3. Check the link cable between the control PCB on the front panel and the power PCB has not been disconnected or damaged.</li></ol>
Betapack 4 is powering up but some or all of the channels are either not working or will not go to full output.	<ol style="list-style-type: none"><li>1. Check the channel breakers are in the 'on' position.</li><li>2. Check the channels have not had a Topset applied to them. Please see "Topset" for further details.</li><li>3. If Betapack 4 is wired single phase check that the single-phase link bar has been fitted. If it is fitted check the screws are adequately tightened. Please see "diagram 3" for further details.</li></ol>
Channels will switch on and off but are not able to be dimmed.	<ol style="list-style-type: none"><li>1. The channel law has been set to switch. Please see "Dimmer Laws" for further information.</li></ol>
The display is outputting a sequence of numbers after the Betapack 4 has been powered up.	<ol style="list-style-type: none"><li>1. Channels have been soft patched.</li><li>2. Please see "DMX Address" for further details.</li></ol>
Unable to access any of the Betapack 4 functions.	<ol style="list-style-type: none"><li>1. Betapack 4 has been locked.</li><li>2. Please see "Lock/Unlock" for further details.</li></ol>
Channel is remaining on all the time, even after disconnecting the controller and power cycling the Betapack 4.	<ol style="list-style-type: none"><li>1. Triac has failed. Please contact your local service centre or contact Zero 88 technical support for further information</li></ol>

# Support

Support requests can be submitted through our support forum at [zero88.com/forum](https://zero88.com/forum) or via email to [support@zero88.com](mailto:support@zero88.com)

For more urgent requests, please contact Zero 88 by telephone on +44 (0)1633 838088 – 24 hour answer service available.