Product Manual

BEAM Laboratories

3 Zone DMX Overrider

An innovative product that adds switch functions to any DMX controller, including emergency lighting override.

Supports single channel, RGB and RGBW fixtures

Introduction

DMX has been the preferred method of controlling and dimming LEDs since its inception in the 1980s. It has many benefits; the key ones being low cost, robustness and support by most lighting manufacturers.

In recent times, with the proliferation of programmable DMX controllers and smartphone apps, it has become necessary to have a simple override switch that modifies the DMX signal to turn a light (or bank of lights) on or off. This means that the user gets all the benefits of a smart DMX lighting system but with the convenience of 'real world' on/off/dim switches on the wall.

We recommend 3 position retractive switches. This gives an up/down/dim/off function.

The DMX overrider is also useful as a backup in the event of controller failures, and has an emergency lighting input.

Key Features

- Takes manual control of DMX lighting

- Allows conventional switches to override the background DMX

- DMX takes back control when a control channel changes

- Emergency / Fire Alarm lighting input

- 9-24v DC Operation

- Complies with the essential requirements of EN 61347-1 General and safety requirements for lamp control gear and EN 61347-2-13 particular requirements for electronic control gear for LED modules.
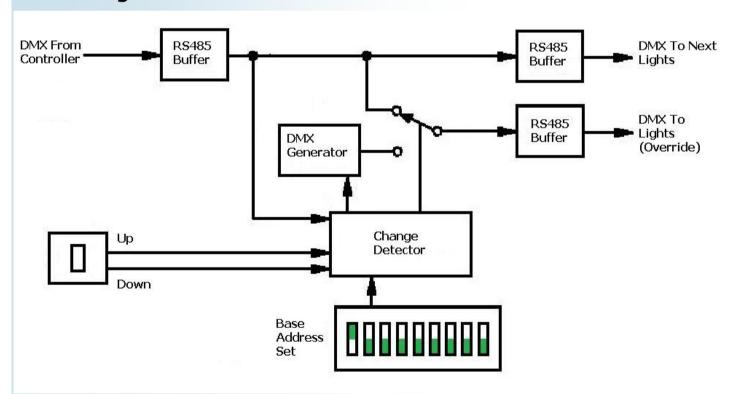
Emergency Input

When the emergency input is switched to 0v via a volt-free relay contact the DMX Overrider enters emergency mode. In this mode all channels are switched on at 30%. When the emergency input is removed the lights revert to their previous levels.

Suitability

The DMX Overrider will work with any DMX controller. However, best results will be achieved when coupled with a programmable DMX controller, such as products from the Nicolaudie, Sunlite, Chromateq or ENTTEC ranges.

The DMX Overrider will also work with any home automation system with a DMX card.
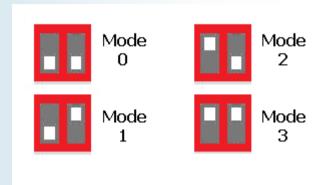
Block Diagram

Please note that only one zone is shown. The product has three zones.

Selecting Single-Channel or RGB/RGBW Modes

The mode is selected by setting the two way DIP switch as follows:

Mode 0: Single channel operation, brightness set at switch

This mode is when the user wants to override the brightness set by the DMX controller, and for that brightness to be remembered by the switch. So, after the lights are switched back on, they come on at the level set by the switch, not the DMX setting.

Mode 1: Single channel operation, brightness set by DMX

This mode is when the user wants to be able to turn the lights off , dim up or down. However, after they are switched off and on again, they will revert to that set by the DMX controller, not the brightness previously set by the switch.

Mode 2: RGB/RGBW operation, brightness set at switch

This mode is when RGB or RGBW lights are being controlled. When the 'down' switch is pressed the lights either dim down (long press) or dim down to zero (short press). When the lights come on they will be in white. A long press dims the lights up, a short press brings the lights on in white at the remembered brightness set by the switch.
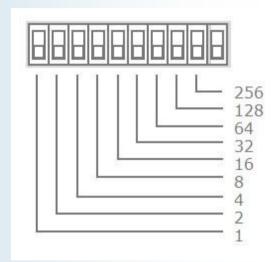
Mode 3: RGB/RGBW operation, brightness set by DMX

This mode is when RGB or RGBW lights are being controlled. When the 'down' switch is pressed the lights either dim down (long press) or dim down to zero (short press). When the lights come on they will be at the brightness and colour set by DMX. A long press dims the lights up, a short press brings the lights on in white at the remembered brightness set by the switch.

Setting the Control Channel

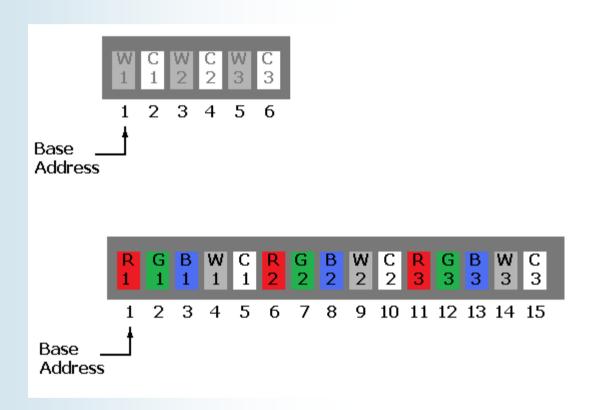The control channel is set by the DIP switch as follows:

Flipping the switch UP adds the number indicated to the base address. Thus, if the switches marked 1 and 8 were UP, the base address would be 9. The control channel is selectable between 1 and 490.

If no DIP switch is selected the DMX driver assumes the address 1.

Operation of the Control Channel

Upon switch-on, the unit assumes DMX mode, ie the overrider passes the DMX input to the light unadulterated. However, if the switch connected to that particular zone is pressed (up or down) then it takes control. The DMX sent to the lights is altered to reflect what the switch is telling it to do.

W 1	C 1	W 2	C 2	W 3	C 3
1	2	3	4	5	6

Base Address

R 1	G 1	B 1	W 1	C 1	R 2	G 2	B 2	W 2	C 2	R 3	G 3	B 3	W 3	C 3
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Base Address

For the DMX controller to take back control, it has to change the relevant control channel. It doesn't matter what the value of the control channel is, it just has to change. It is recommended that the control channel is set to a low value. Zero is not recommended as a value as the DMX controller will send a zero when switched off, and the Overrider may miss that the controller has been switched off.

Typical Projects

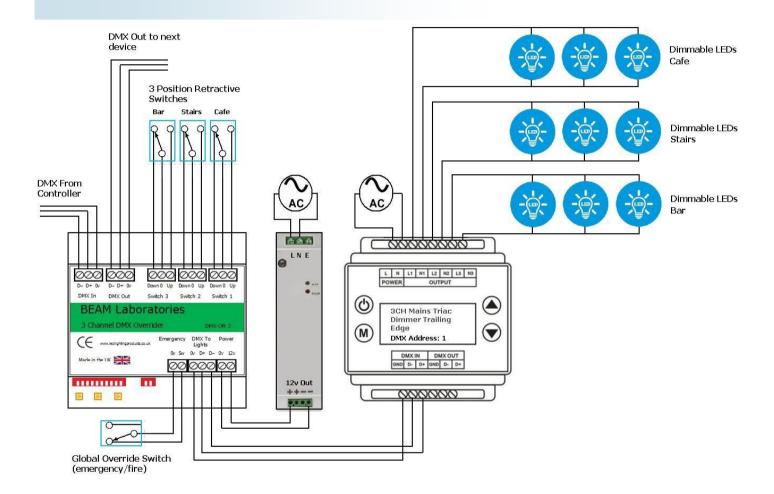Example 1: Three zones of white lighting in a bar with upstairs cafe

Scene Name	CH1	CH2	CH3	CH4	CH5	CH6
	Bar	Control	Cafe	Control	Stairs	Control
Morning Cleaning 6am-7am	100%	1	100%	1	100%	1
Coffee Service 7am-11am	80%	2	0%	2	0%	2
Lunch Service	60%	3	80%	3	80%	3
Evening Bar	60%	4	0%	4	0%	4

In this example there are retractive switches in the bar, the café and the stairs. The DMX controller automatically brings the lights on at different brightnesses depending on the time of day.

However, should any of the staff want the lights on or off, they simply use the wall switch.

This project would require a three channel DMX Overrider and a 3 channel mains dimmer.

Wiring A Three Zone Mains Dimmer (Example 1)

As an additional feature, there is a connection to the fire alarm. In the event of a fire, all lights are brought on at 30% brightness irrespective of switches or DMX input.

Diagnostic LEDs

The system status LEDs give a useful indication of what is going on. The indications are as follows:

Status

No indication -   Faulty unit or missing/reversed polarity DC input.

Solid   -   DMX input active, all OK

Flashing 1Hz   -   No DMX activity

Flashing 2Hz   -   Emergency Mode Active

CH

Solid dim   -   This is the decoded sum of the three control channels: a useful indication that
                       the address is set correctly

DMX/Switch

Off   -   DMX is in control for all three channels

Solid   -   One or more switches have been detected and are in control

Contacting Technical Support

Technical support is available by emailing info@ledlightingproducts.co.uk or by calling 01543 481532.

For customers outside the UK please dial +44 1543 481532.

The technical helpline is open Monday-Thursday 9:30am—4:30pm and Friday 9:30am—12:00 pm.

Warranty

LED Lighting Products Ltd warrants that the product it manufactures and sells will be free from

defects in materials and workmanship for a period of 1 year from the date of despatch. If the device proves defective within the respective period, LED Lighting will repair or replace the defective hardware at its sole discretion. If the failure is due to an operator error the user accepts to pay for any charge relating to the diagnosis of the hardware, faulty parts or shipping from our factory.

LED Lighting Products Ltd makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall LED Lighting Products Ltd be liable for indirect, special or consequential damages.

Opening the unit voids the warranty as described above.