

BEAM Laboratories

## Intelligent DMX Router



An innovative solution to using multiple DMX controllers



## Table of Contents

Introduction	3
Key Features	3
Suitability	4
Block Diagram	4
Principle of Operation	5
Provision for noise and jitter	5
Wiring Up	5
Setting the Control Channel and operating mode	6
Diagnostic LEDs	7
Contacting Technical Support	7
Glossary	8
Warranty	9
Spare Parts	10



## 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, Wifi and Ethernet controllers it has become desirable to have more than one controller controlling one bank of lights. This could be two wall controllers at the entrance and exit of a room, or a standard wall controller with an ArtNet controller 'bolted on'.

## Key Features

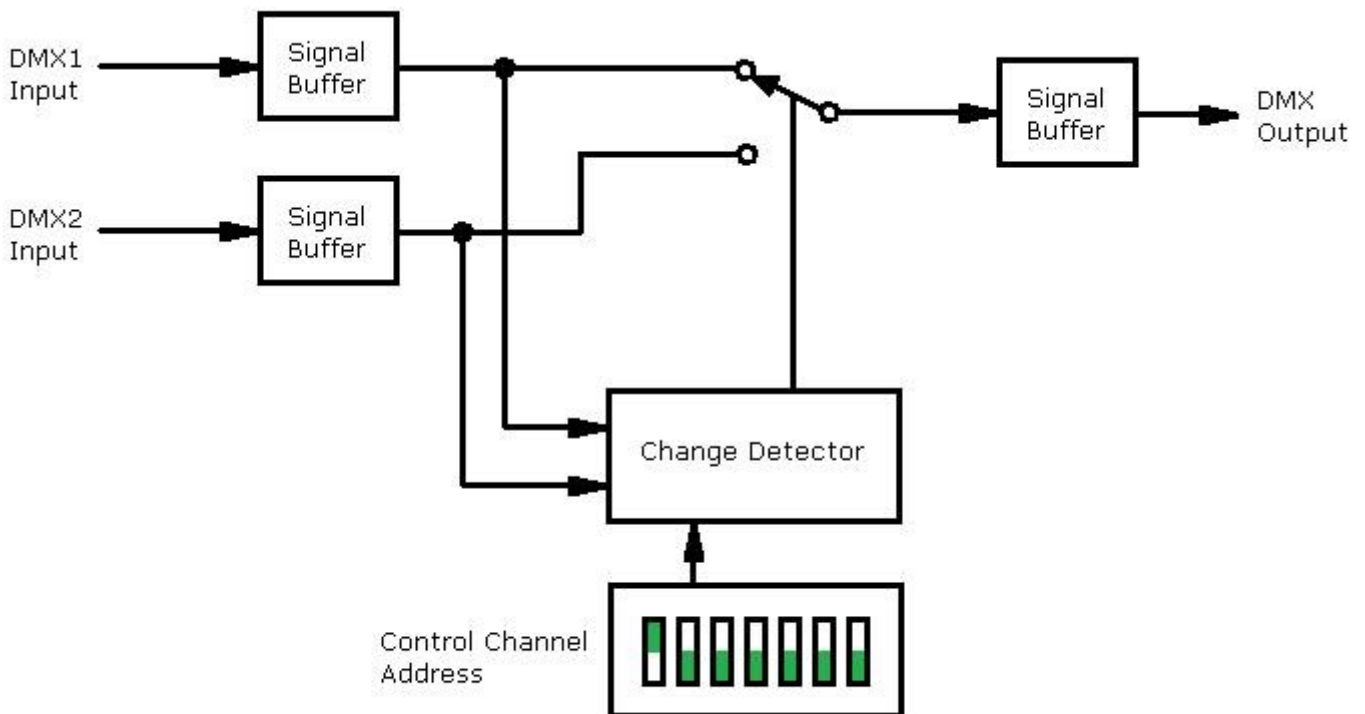
- Allows two DMX controllers to operate one universe of lighting
- Cascadable, many DMX sources can be routed.
- Additional mode that caters for noisy or jittery DMX sources
- Two DMX inputs, one DMX output
- DMX input is routed to DMX output depending on state of control channel
- RJ45 DMX Communication Ports
- DMX Out signal is buffered for glitchless downstream operation
- Status LEDs that indicate:
  - DMX Active / Inactive
  - Which DMX Universe is 'in control'
  - Analogue Indication of the decoded control channel
- DMX Chips are socketed for ease of replacement
- 9-27v 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.

## Suitability

The DMX router is suitable for any programmable DMX controller. Examples are any of the products from the Nicolaudie, Sunlite, Chromateq, ENTTEC ranges.

The DMX router will NOT operate to full specification on non-programmable DMX controllers such as the Traxon Jog or E:CUE Elite as it requires a dedicated DMX channel to act as a control channel.

## Block Diagram



## Principle of Operation

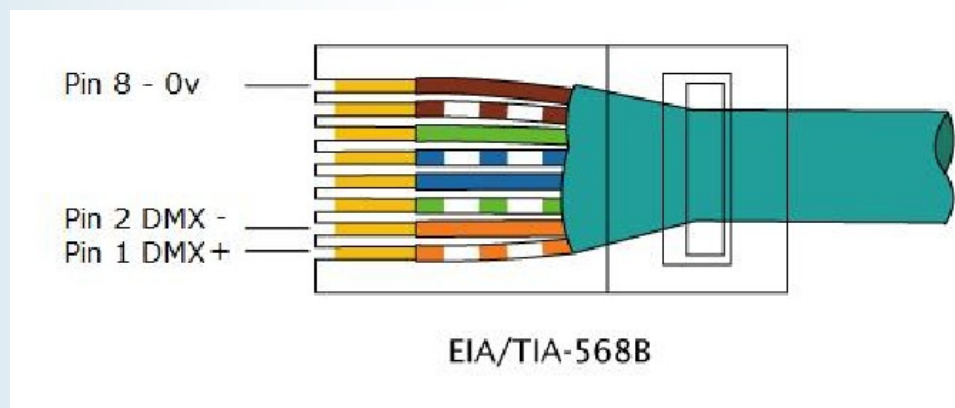
The DMX router operates by continually monitoring a single DMX channel from two DMX inputs. If it detects a change on this channel, the entire DMX universe on this input is routed to the output.

## Provision for Noise and Jitter

Certain DMX controllers, especially those with analogue sliders generate small changes to their DMX output, even when the slider isn't being moved. In this case, the router should be set to mode 2. In this mode the controller must generate a change of at least 10 to initiate control.

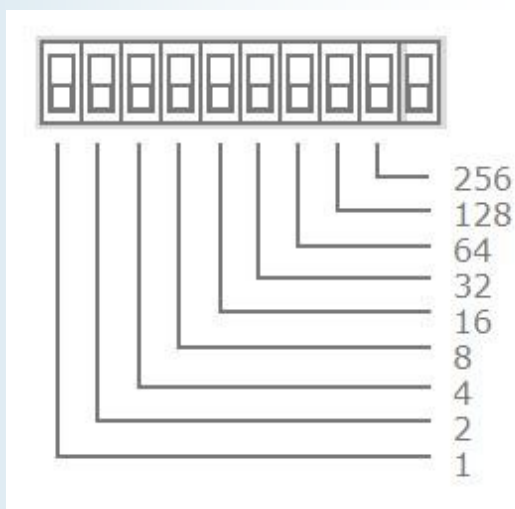
## Wiring Up

The router requires a 9-24v DC supply. The unit is protected against reverse polarity. The DMX signals are connected via RJ45 connectors, as shown below:



## 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 511.

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

## Setting the Operating Mode

With the extreme right-hand DIP switch down the unit assumes mode 1. Thus, if any change in the control channel is detected, control is assigned to that input.

With the extreme right-hand DIP switch up the unit enters mode 2. This requires a change of greater than ten to initiate control. This mode is useful for DMX controllers that have analogue sliders and hence generate small changes without the slider being moved.



## Diagnostic LEDs

The system status LEDs give a useful indication of what is going on. The ideal indication is 3 steady LEDs. The indications are as follows:

### Status

- No indication - Faulty unit or missing/reversed polarity DC input.
- Solid - Two DMX inputs active, all OK
- Flashing 1Hz - No DMX activity on either input
- Flashing 2Hz - DMX activity on one input only

### CH

- Solid dim - This is the decoded control channel, a useful indication that the address is set correctly

### DMX1/DMX2

- Solid - Indicates which DMX input is routed to the output

## Contacting Technical Support

Technical support is available by emailing [info@ledlightingproducts.co.uk](mailto: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.**





## Glossary

**Base Address:** The address, set by front panel DIP Switch that the unit decodes and sends to the output terminal as a PWM signal.

**Dimmer:** One discretely controlled device or parameter of a device out of 512 possible in the DMX512 protocol. Also referred to as "Address", "DMX Channel" or "Output Channel"

**DMX:** 512 addresses or slots' worth of control information as conveyed by DMX512 protocol. A lighting system may have more than 512 discrete things to control, so multiple universes may be required.

**PWM:** Pulse Width Modulation. The preferred method of dimming LEDs.



## Spare Parts

As DMX signals are exposed to the real world they often see surges, incorrect polarity, even mains voltage. For this reason the DMX Chips are socketed for ease of replacement.

Replacement DMX chips are available, part number SN75176BN (Sipex).