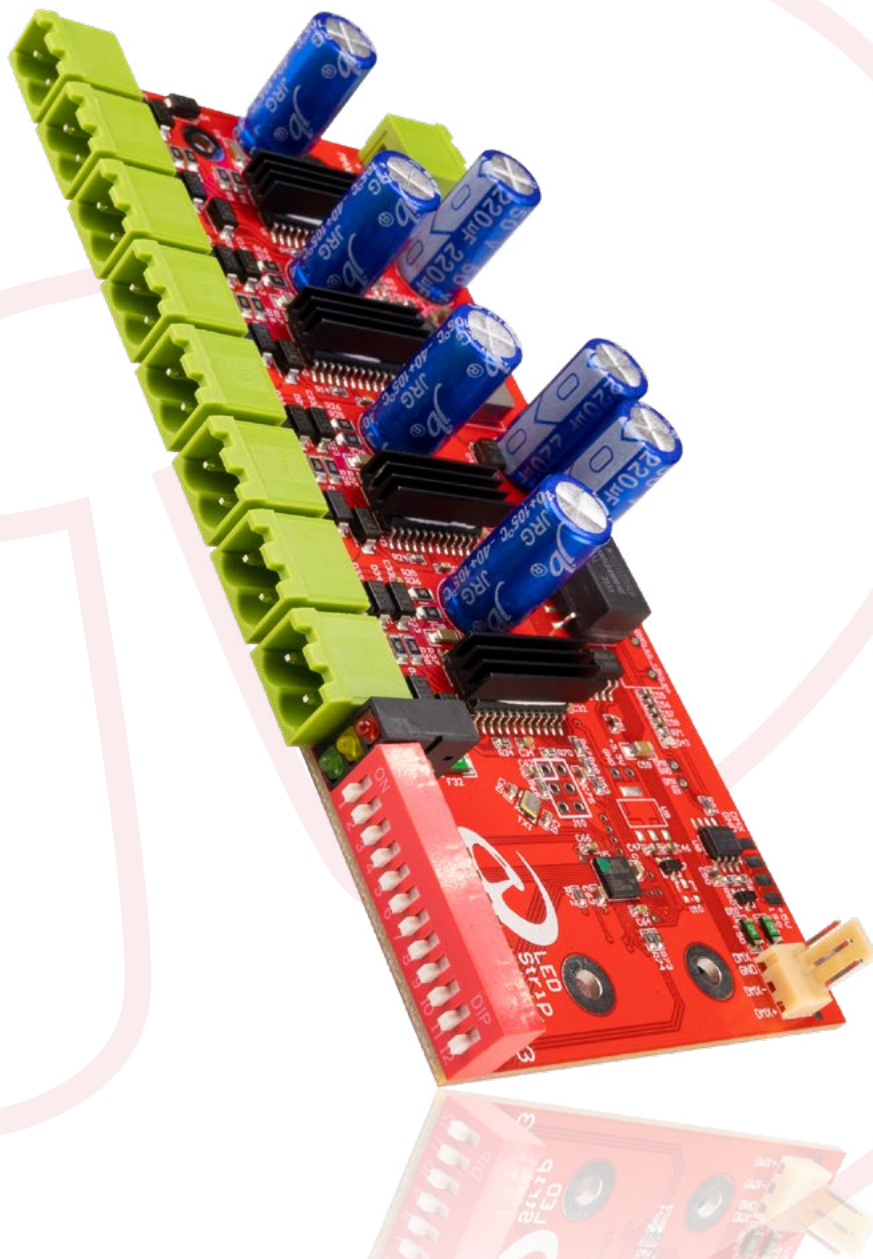




XMAS DIMMER

User Manual

www.ledstripstudio.com
info@ledstripstudio.com

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SAFETY INSTRUCTIONS

Installation should be performed only by a competent person or professional electrician. Make sure that the installation complies with the standards and rules that apply in your country.

- **Do not use the device if it seems to be damaged.**
- **Use the device only as described in this user manual.**
Any other use or use under other operating conditions is improper and may result in personal injury or property damage.
- **No liability will be assumed for damages resulting from improper use.**
Never open the controller and do not attempt repairs yourself.
- **Do not place the device close to heat sources and always ensure enough ventilation.**
- **Do not place the unit on surfaces that are heat sensitive.**

This device has been designed for indoor use only. Do not expose the unit to direct sunlight. Do not allow this device to meet liquids. Electrical shock could result. Also, damage to the device, smoke, and overheating could result from contact with liquids. Clean the device components that are accessible from the outside regularly. The cleaning frequency depends on the operating environment: damp, smoky or particularly dirty environments can cause greater accumulation of dirt on the device components. Clean with a dry soft cloth. Stubborn dirt can be removed with a slightly dampened cloth.

- **Never use solvents or alcohol for cleaning.**
- **Establish all connections when the unit is switched off.**
Use the shortest possible high-quality cables for all connections.
Make sure that cables cannot cause a trip hazard.
- **Never touch the plug contacts with sharp or metal objects.**
- **Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!**
- **Ensure that children do not detach any small parts (e.g. screws, connectors or the like) from the unit. They could swallow the pieces and choke!**
- **Never leave unattended children use electrical devices.**

DEVICE INTRODUCTION

XMAS DIMMER is a special 8 channel dual polarity DMX dimmer designed for dimming 12-36V dual polarity constant voltage (CV) fixtures with anti parallel LED diode connection.

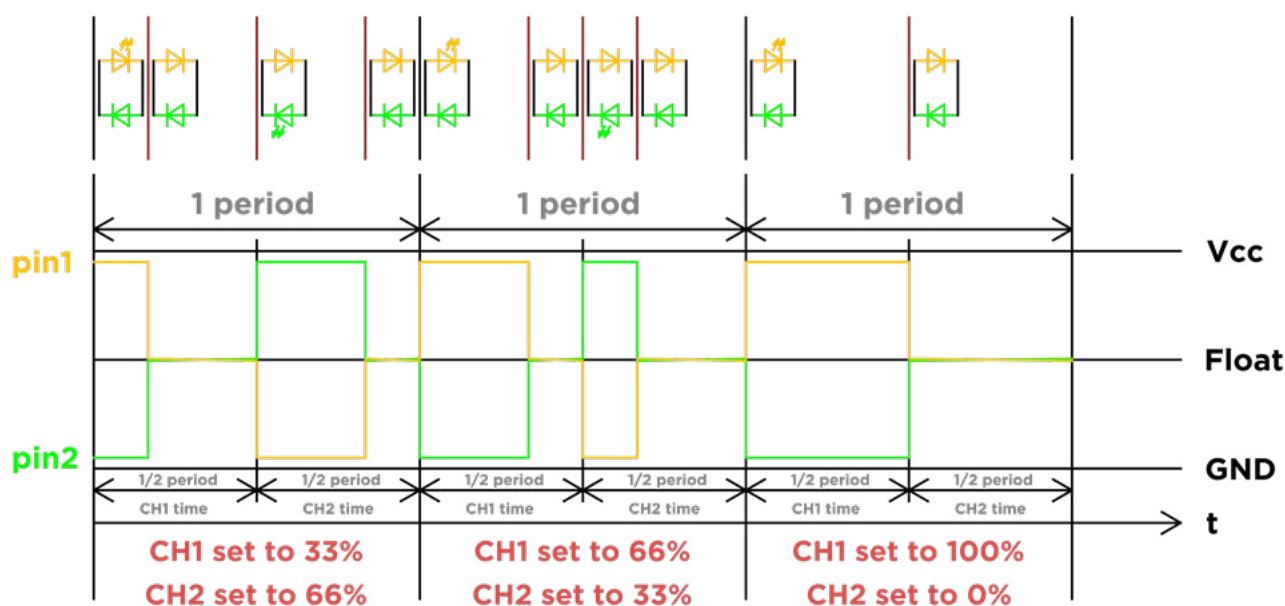
It has eight independent full H bridge outputs thus is ideal for LED fixtures like:

- **Xmas lights with anti parallel LED diode connection (odd and even sections controlled)**
- **CCT LED bulbs with anti parallel LED diode connection (e.g. EDISON CCT LIGHT BULBS)**

As all 8 output connectors and DIP switch for setting are on single edge of the board, it is ideal for adopting into customer enclosures.

With its high PWM frequency it is flicker-free on most video cameras, however as it works on a polarity change principal it will always flicker even on brightness set to maximum.

Each output is controlled by 2 DMX channels. One DMX channel is for PWM of one polarity and one DMX channel is for PWM of other polarity. To illustrate principal of individual polarity dimming adjustment, following timing diagram represents behavior of one Xmas dimmer output with different DMX values.



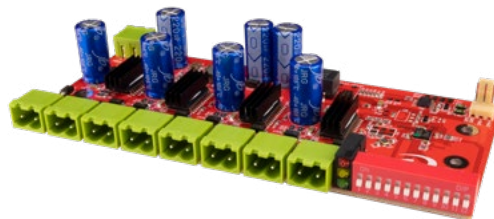
DEVICE SPECIFICATION

XMAS DIMMER

DMX dimmer for 2 polarity 12-36V LEDs/LED strings

Applications

- General illumination
- Decoration illumination
- Events, lounges, clubs
- Scenography
- Theatre
- Light show
- Special effects
- Showcase



Technical specification

Controls over	DMX512
Operating voltage	12-36V DC
Self power consumption	3W
Power input connector	2 pole plugable screw terminal block pitch 5mm
DMX in Channels total	16
DMX in port connector type	3pin header NSL 25-3
DMX in port type	DMX512
DMX in port protection	Yes, ESD
DMX in isolated	Yes
Output Channels total	8
OUTPUT port (connectors) count	8
Channels per output (connector)	1
OUTPUT port connector type	2 pole plugable screw terminal block pitch 5mm
OUTPUT port electrical type	Dual polarity PWM
OUTPUT port contain power	Yes, voltage = input voltage, max 0.5A/port
OUTPUT port protection	Yes, resettable fuse 0.7A
Output connector pins	A,B (Pin1,Pin2)
Address/parameter selector	12bit DIP switch
Status LEDs	Green: Power, Yellow: DMX status
Grayscale	8bit (256 levels)
PWM Frequency	~1000Hz
Works with controller	Any DMX512 controller
Operating air temperature	-10°C to 45°C
Storage air temperature	-30°C to 60°C
Relative humidity	5% to 80% non-condensing

Waterproof	No
Ingress Protection	IP00
Weight	72g
Dimensions	141 x 65 x 25 mm
Enclosure	no, PCB only
Mouting options	4x mounting hole diameter 3.2mm
Default package content	Xmas Dimmer, 9pcs 2 pole terminal block plug pitch 5mm, DMX break-out cable

Default package content

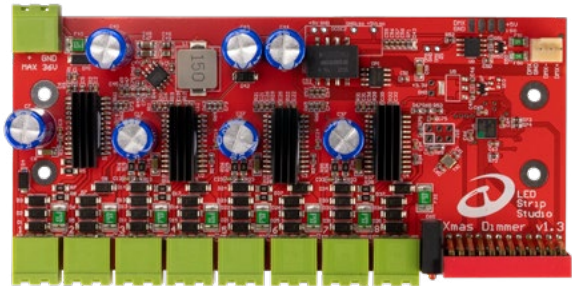
- XMAS DIMMER PCB
- DMX break-out cable
- 9pcs 2 pole terminal block plug pitch 5mm



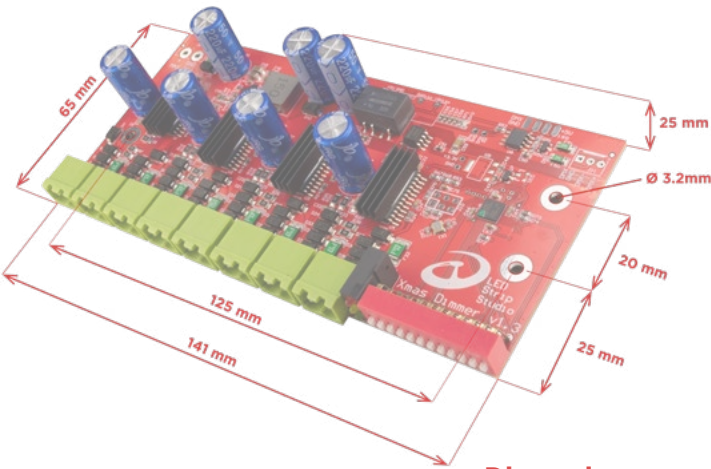
Front View



Rear View



Top View



Dimensions

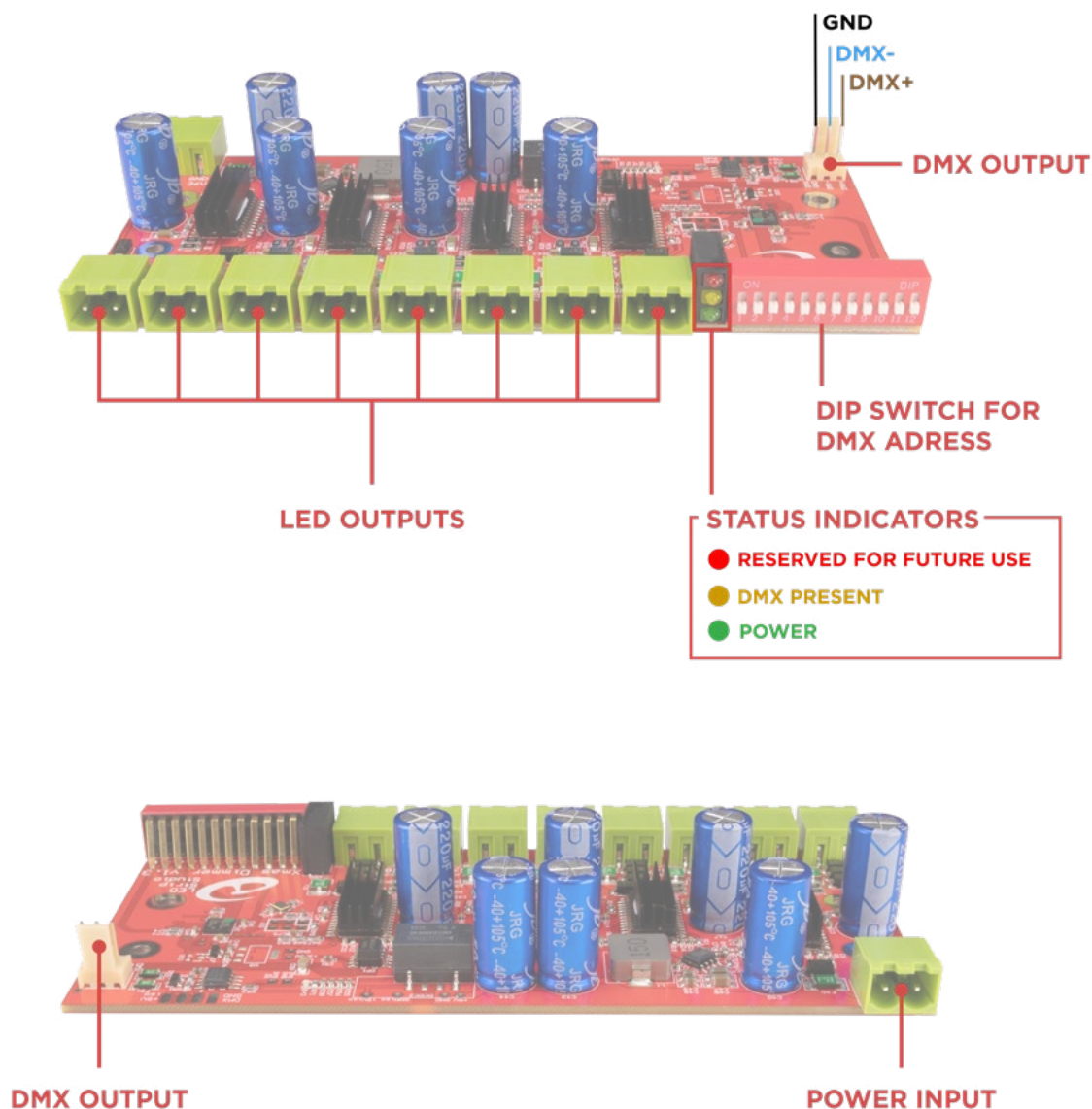
DEVICE COMPATIBILITY

XMAS DIMMER can be controlled by any DMX512 controller.

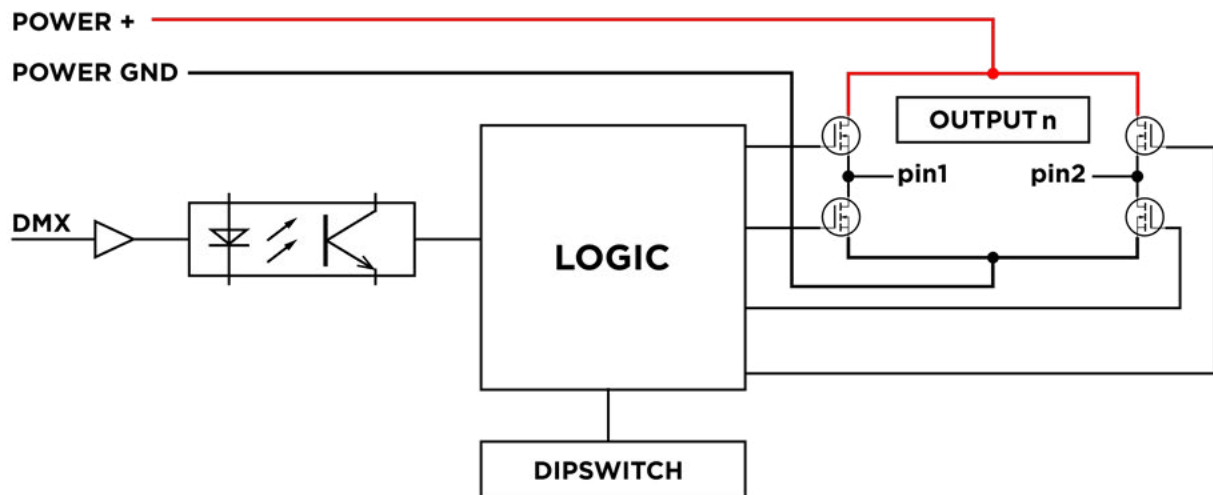
We encourage you to check our [LED STRIP STUDIO SOFTWARE](#) which is powerful tool able to generate DMX not only for XMAS DIMMER.

XMAS DIMMER can be used to control [EDISON CCT LIGHT BULB](#) produced by LED STRIP STUDIO.

DEVICE OVERVIEW

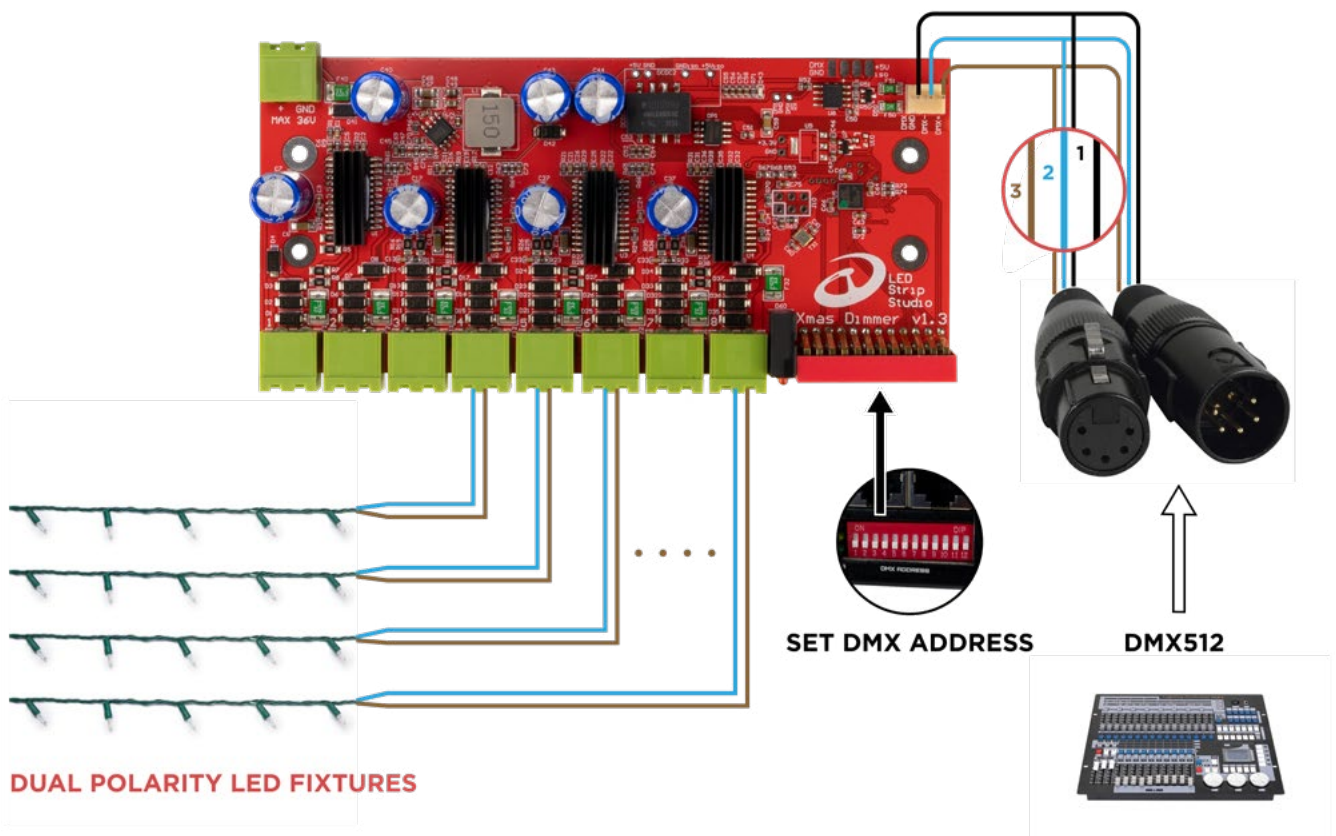


DEVICE BLOCK DIAGRAM

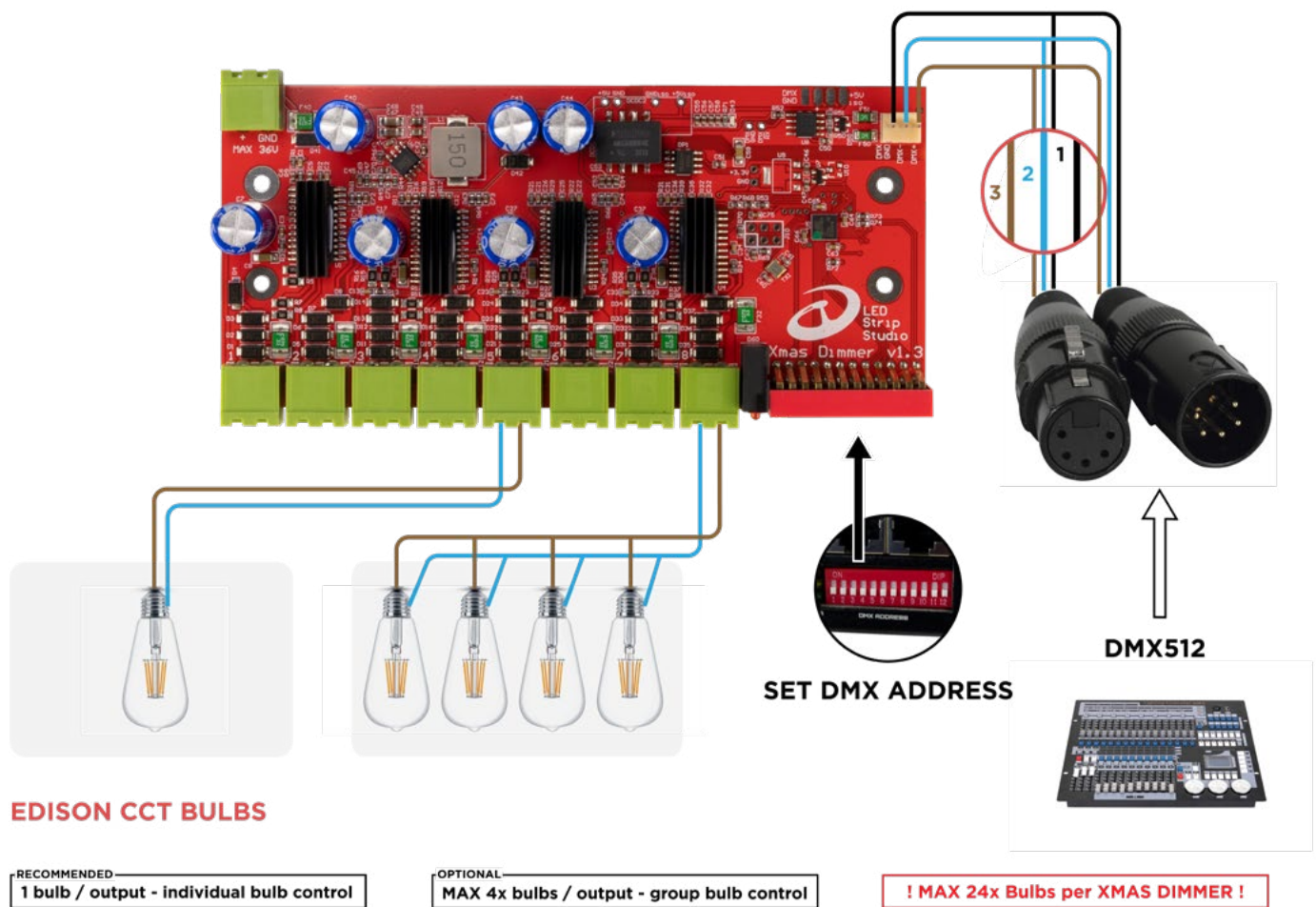


DEVICE CONNECTION

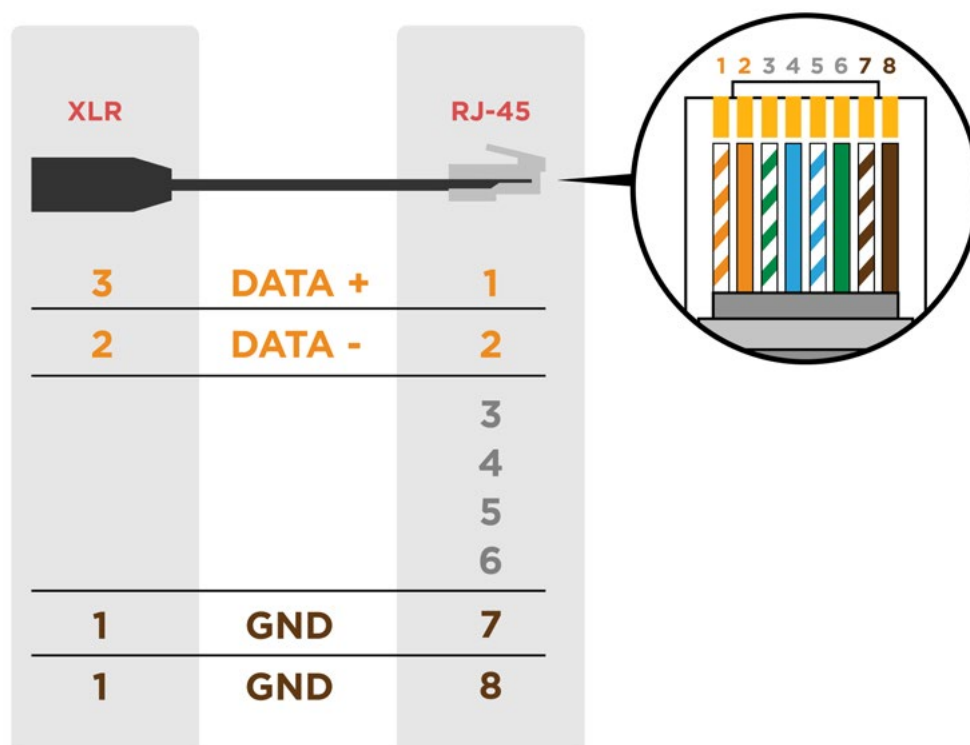
Connection scheme example of XMAS DIMMER:



Connection scheme example of XMAS DIMMER with EDISON CCT bulbs:



RJ-45 to XLR pinout:



DEVICE SETTINGS

Device DMX address is set by DIP switch only.
Use following table for DMX address settings:

DIP #1	DMX address value +1
DIP #2	DMX address value +2
DIP #3	DMX address value +4
DIP #4	DMX address value +8
DIP #5	DMX address value +16
DIP #6	DMX address value +32
DIP #7	DMX address value +64
DIP #8	DMX address value +128
DIP #9	DMX address value +256
DIP #10	Reserved for future use
DIP #11	Reserved for future use
DIP #12	Reserved for future use

Device DMX channel list:

DMX CH1	OUTPUT 1, Positive polarity duty (pin1+, pin2-)
DMX CH2	OUTPUT 1, Negative polarity duty (pin1-, pin2+)
DMX CH3	OUTPUT 2, Positive polarity duty (pin1+, pin2-)
DMX CH4	OUTPUT 2, Negative polarity duty (pin1-, pin2+)
DMX CH5	OUTPUT 3, Positive polarity duty (pin1+, pin2-)
DMX CH6	OUTPUT 3, Negative polarity duty (pin1-, pin2+)
DMX CH7	OUTPUT 4, Positive polarity duty (pin1+, pin2-)
DMX CH8	OUTPUT 4, Negative polarity duty (pin1-, pin2+)
DMX CH9	OUTPUT 5, Positive polarity duty (pin1+, pin2-)
DMX CH10	OUTPUT 5, Negative polarity duty (pin1-, pin2+)
DMX CH11	OUTPUT 6, Positive polarity duty (pin1+, pin2-)
DMX CH12	OUTPUT 6, Negative polarity duty (pin1-, pin2+)
DMX CH13	OUTPUT 7, Positive polarity duty (pin1+, pin2-)
DMX CH14	OUTPUT 7, Negative polarity duty (pin1-, pin2+)
DMX CH15	OUTPUT 8, Positive polarity duty (pin1+, pin2-)
DMX CH16	OUTPUT 8, Negative polarity duty (pin1-, pin2+)

WHAT IS A DMX ?

DMX512 (DMX in short) is a lighting protocol created in 1986 mainly to standardize method for lights dimming in theaters & stages. Even it is old it is still widely used today. It is very simple and quite robust protocol where controller sends 512 values a.k.a 512 Channels. Each channel is just value in range 0-255. You can find a lot of information on internet.

HOW MANY LEDS CAN BE CONNECTED TO XMAS DIMMER ?

It depends on your LED fixture specification. Basically it is important to NOT overload output(s). You can connect multiple LED fixtures to each output, but you cannot exceed Maximum output current per output specified in this manual or XMAS DIMMER datasheet (see [“OUTPUT port contain power” on page 5](#)). Of course if you connect more LED fixtures to single output, they will not be individually controllable.

HOW MANY XMAS DIMMERS CAN BE CONNECTED TO ONE DMX OUTPUT ?

Based on DMX512 specification you can connect 32 devices in daisy chain. In case you need to connect more than 32 devices, you can use DMX splitter. When total length of DMX cabling is high you should use a DMX terminator on the end of daisy chain.

WHY XMAS DIMMER USES RJ-45 FOR DMX ?

Simply because cat5/cat6 cables with RJ-45 are much cheaper, smaller, lighter and much easier to made than regular bulky XLRs.

HOW TO CONNECT DMX TO XMAS DIMMER ?

As DMX normally uses 5pin(or 3pin) XLRs and Xmas dimmer not, you have to connect DMX to 3pin header using connection diagram in this manual.

WARRANTY

This device has been designed and made using high quality components with several quality checks and testings. Therefore we are proud to provide **5 year** limited warranty for this device.

This limited warranty is valid for company or person (user) who purchased new device from us, or our authorized dealer/distributor and warranty period starts from date when user receive this device.

Limited warranty cover:

- **material defects**
- **assembly failures**
- **device malfunction**
- **this device only**

Limited warranty DO NOT cover and is void when this device:

- **has been used for different usage as specified in this manual**
- **has been opened without our permission**
- **has been modified or disassembled without our permission**
- **has been operated wrong way, e.g. over-voltage, over-current, exposed to high electromagnetic fields/discharges such as lighting strikes or ESD events with parameters way outside of HBM model**
- **has been stored or used outside of storage/operating temperature and humidity**
- **has been used in aggressive environment, corrosive environment, dusty environment or in environment with increased vibrations**
- **has been in contact with liquids**
- **has been connected wrong way, e.g. Short circuits, reverse polarity etc.**
- **has been mechanically damaged**
- **got unofficial attempts to firmware updates**

Limited warranty DO NOT cover:

- **shipping expenses to handle defective device.**
- **failures or damage of other equipments connected to this device**
- **user expenses caused by defective device**

For limited warranty claim process:

- **user must be able provide sufficient proof of purchase**
- **use email info@ledstripstudio.com with detailed description of device failure**
- **takes less than 30 days to resolve. This period starts from day we physically receive defective device (device return)**

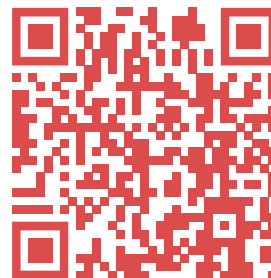
DISPOSAL OF YOUR OLD DEVICE

This device is an electronic device, and can be categorized as hazardous waste in your country. Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

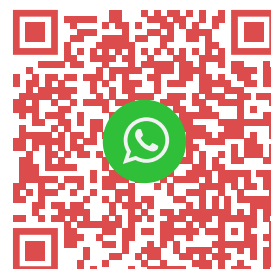
CONTACTS

Showtacle Ltd.
Lubietovska 8,
851 01 Bratislava
Slovakia, Europe

info@ledstripstudio.com
www.ledstripstudio.com
Tel.: +421 948 280 393



 facebook.com/ledstripstudio
 linkedin.com/company/ledstripstudio
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