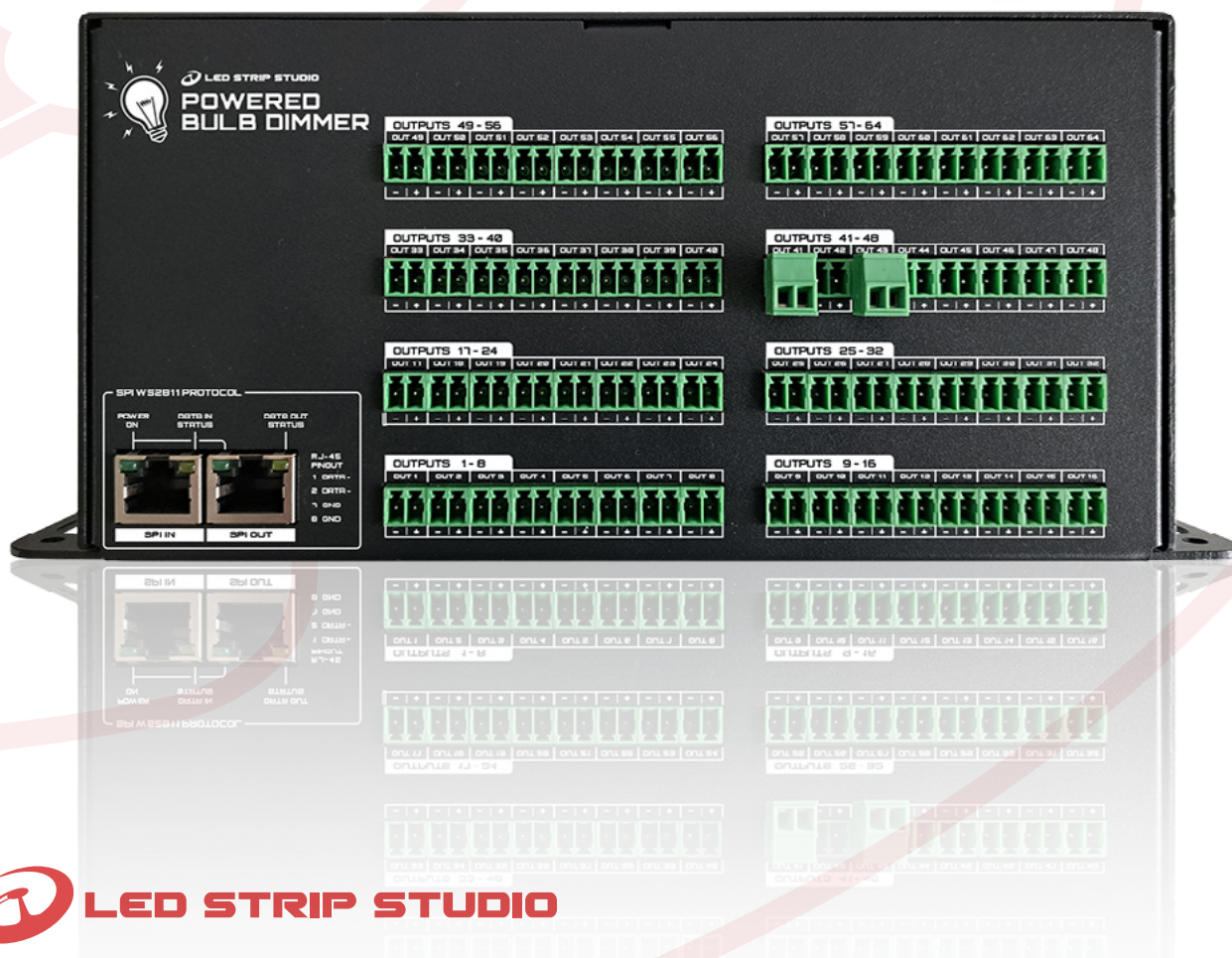




POWERED BULB DIMMER

User Manual

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Specifications in this manual and design are subject to change without notice.

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 let children unattended use electrical devices.**

DEVICE INTRODUCTION

POWERED BULB DIMMER is a special 64 channel SPI dimmer with built-in power supply designed for dimming 12-24V constant voltage (CV) fixtures such as dimmable LED bulb or short LED strips.

It has 64 independent open-drain outputs ideal for:

- **single color LED bulb or LED strips (64 independent sections)**
- **CCT LED strips**
- **RGB LED strips**
- **RGBW LED strips**

POWERED BULB DIMMER is power supply with SPI dimmer in aluminum enclosure providing “out-of-the-box” solution for entertainment industry.

With its high PWM frequency it is flicker-free on most video cameras.

DEVICE SPECIFICATION

POWERED BULB DIMMER

SPI dimmer for LED lights

Applications

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



Technical specification

Controls over	SPI
Operating voltage	85-264 VAC 50/60Hz
Rated power	148W
Self power consumption	2W
Maximum power consumption	170W
Power In/Out connector	PowerCON connector 230V/20A
SPI in port connector type	RJ-45
SPI in port type	Differential 800kHz SPI (WS2811, WS2812B, SK6812, TM1809....)
SPI in port protection	Yes, ESD
SPI out port connector type	RJ-45
SPI out port type	Differential 800kHz SPI (WS2811, WS2812B, SK6812, TM1809....)
SPI out port protection	Yes, ESD
Output Channels total	64
OUTPUT port (connectors) count	64
OUTPUT port connector type	2 pole pluggable terminal block pitch 3,5mm for wire 0,5...1,5mm2
OUTPUT port electrical type	Open Drain, Max 500mA / Channel 12V version: Max 12,2A Total 24V version: Max 6, 1A Total
OUTPUT port balanced power	12V version: 190mA/Channel 24V version: 95mA/Channel
OUTPUT port protection	Yes, self resettable fuse
Status LEDs on RJ45 connectors	Green: Power, Yellow: SPI status
LED output dimming type	PWM
Grayscale	8bit (256 levels)
PWM Frequency	2kHz
Maximum controller count	48

DATA I/O max. cable length	100m with Cat5e or better
Works with controller	Any WS2811 controller with differential SPI output. e.g. SPI MATRIX, LEC3
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	30
Weight	1290g
Dimensions	243,5 x 93 x 105 mm
Enclosure	Aluminium
Mouting options	Side tabs with holes for screws, cable ties, clamps, safety wire

Default package content

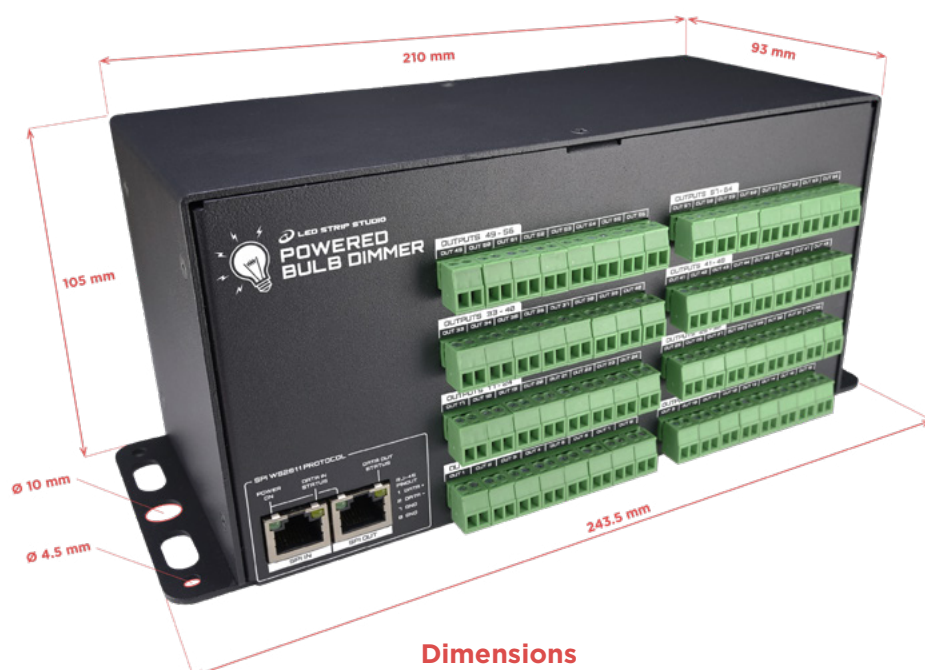
- POWERED BULB DIMMER
- 64pcs 2 pole terminal block plug pitch 3,5mm
- PowerCon power cable with plug based on destination country



Front View



Rear View



Dimensions

DEVICE VARIANTS

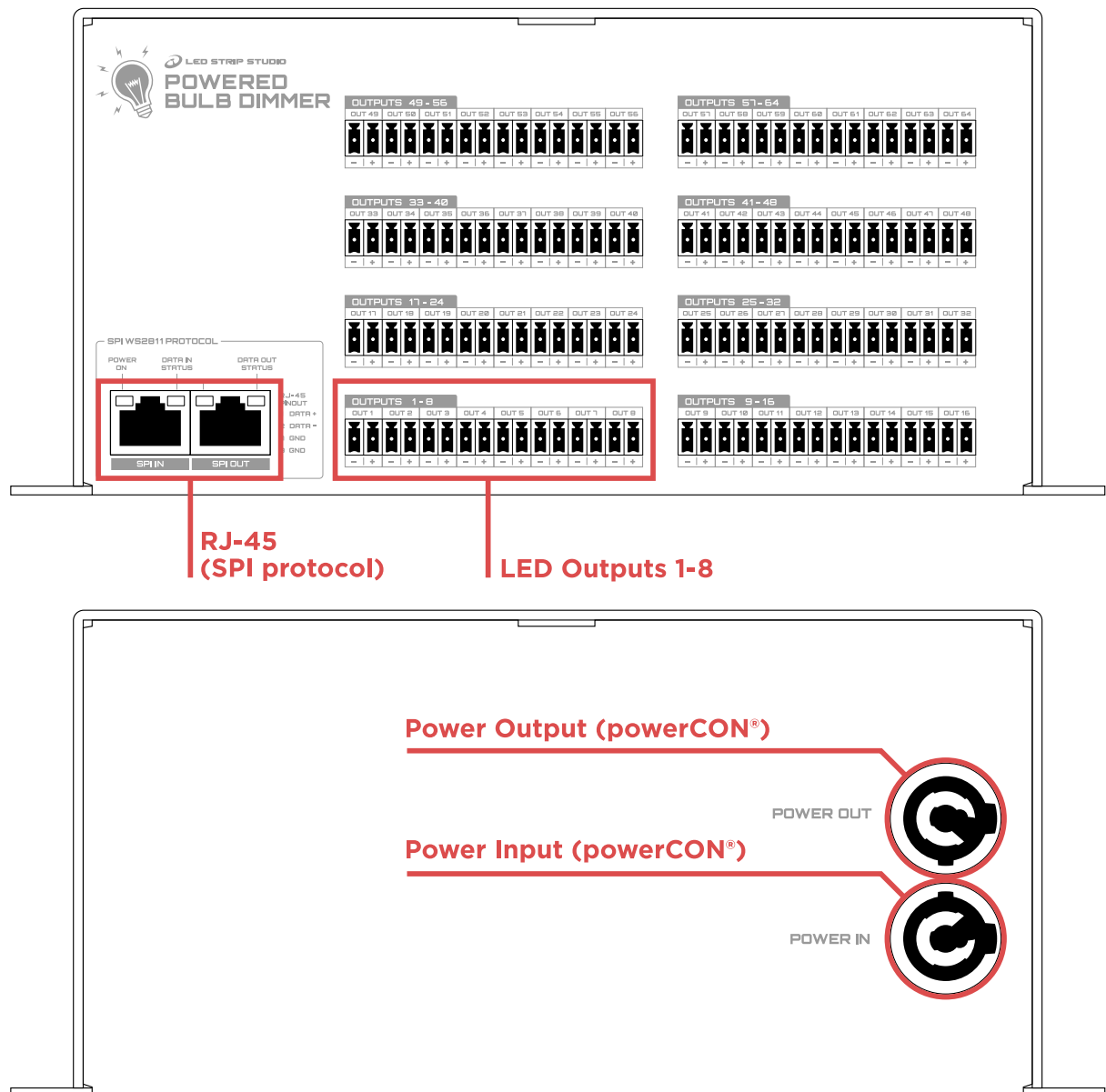
POWERED BULB DIMMER has built in power supply. At the request of the customer it can be 12V or 24V.

DEVICE COMPATIBILITY

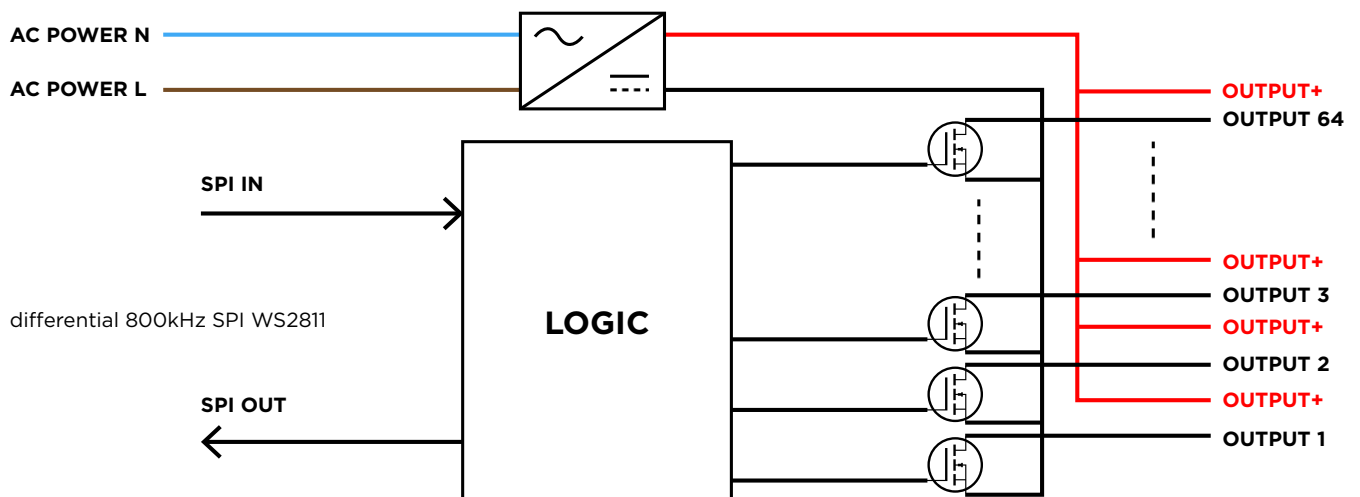
POWERED BULB DIMMER can be controlled by any SPI controller with differential 800kHz SPI (WS2811, WS2812B, WS2814, SK6812, TM1809....), like our [LEC 3](#) or [SPI MATRIX](#). SPI controllers which do not have differential data signal output, like our [SPI LED CONTROLLER](#) or [REACTIVO 2](#), can be used with [THE SYMMETRIZER](#).

We encourage you to check our [LED STRIP STUDIO](#) software which is powerful tool able to generate WS2811 signal, not only for POWERED BULB DIMMER.

DEVICE OVERVIEW

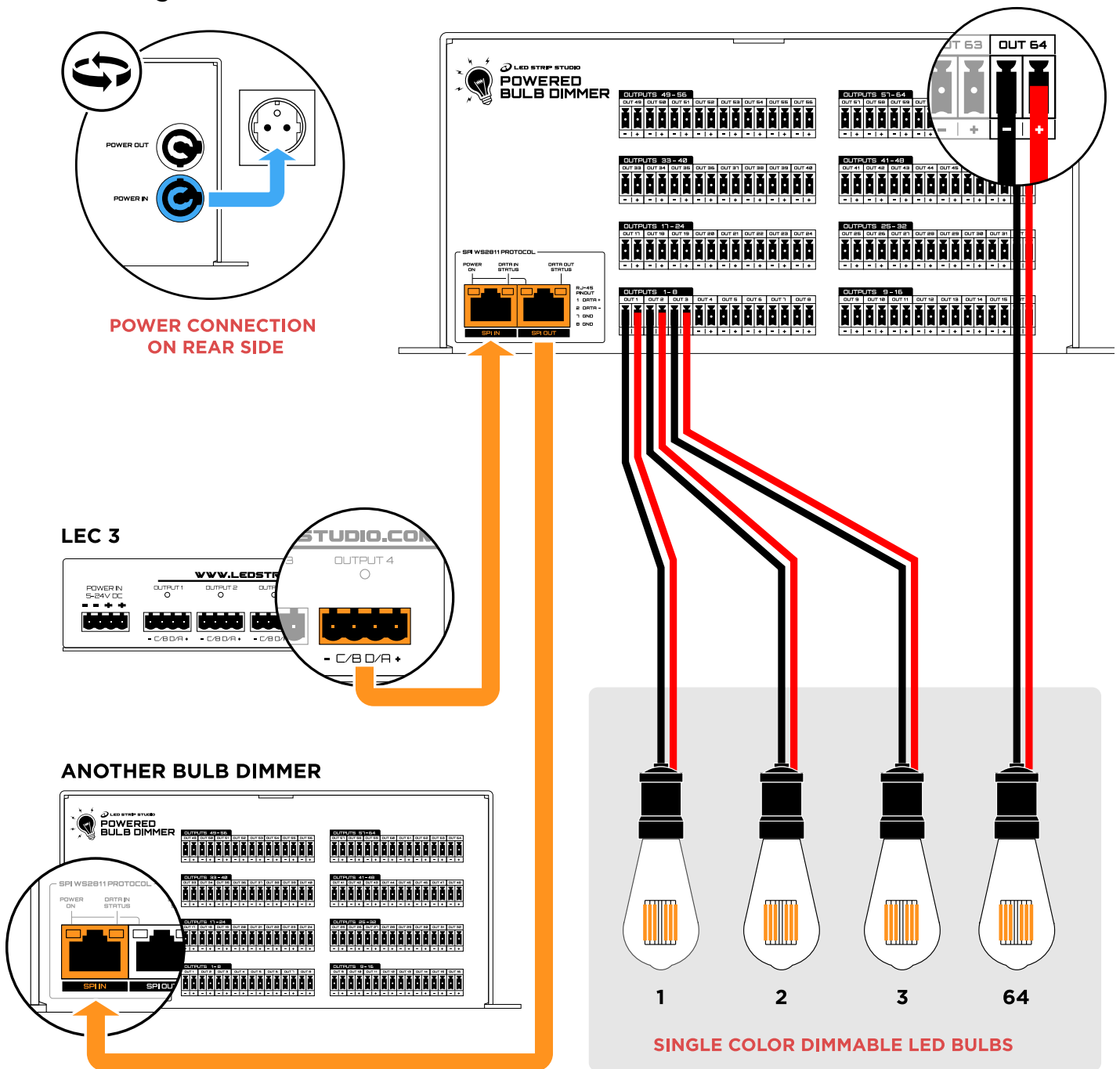


DEVICE BLOCK DIAGRAM

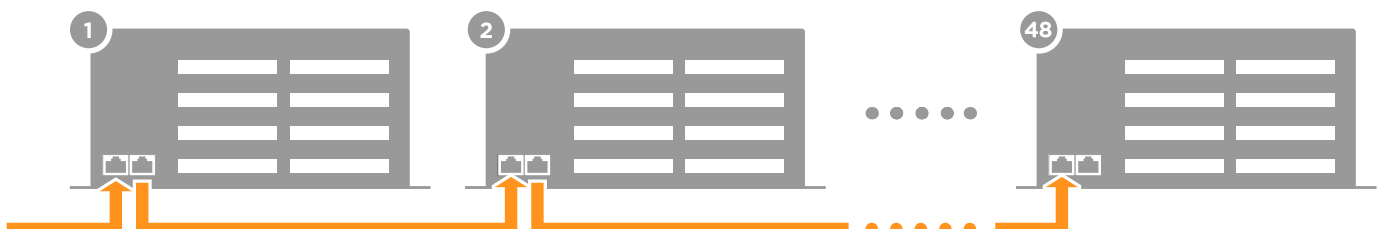


DEVICE CONNECTION

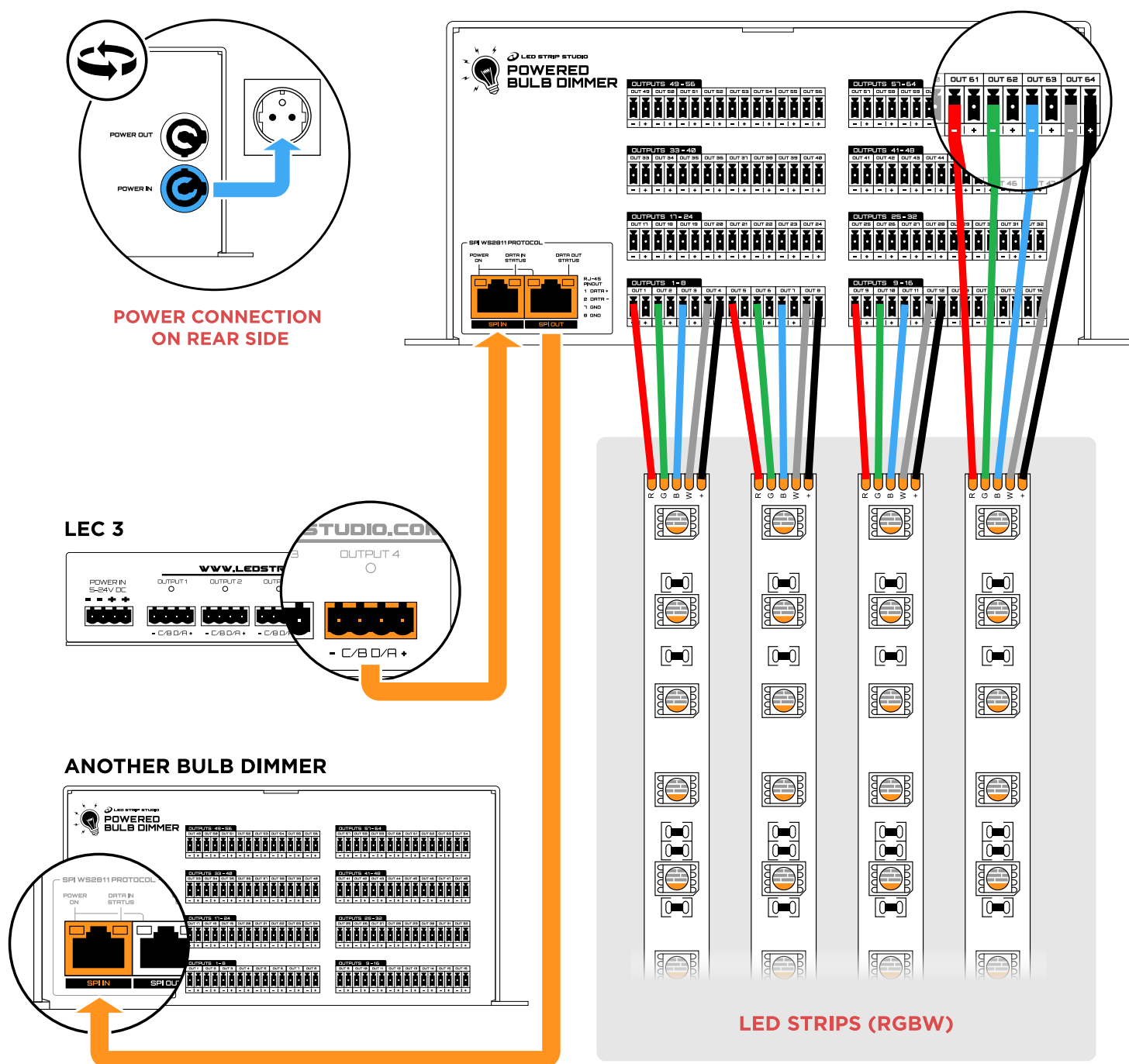
Connection scheme example of POWERED BULB DIMMER with single color dimmable LED bulbs:



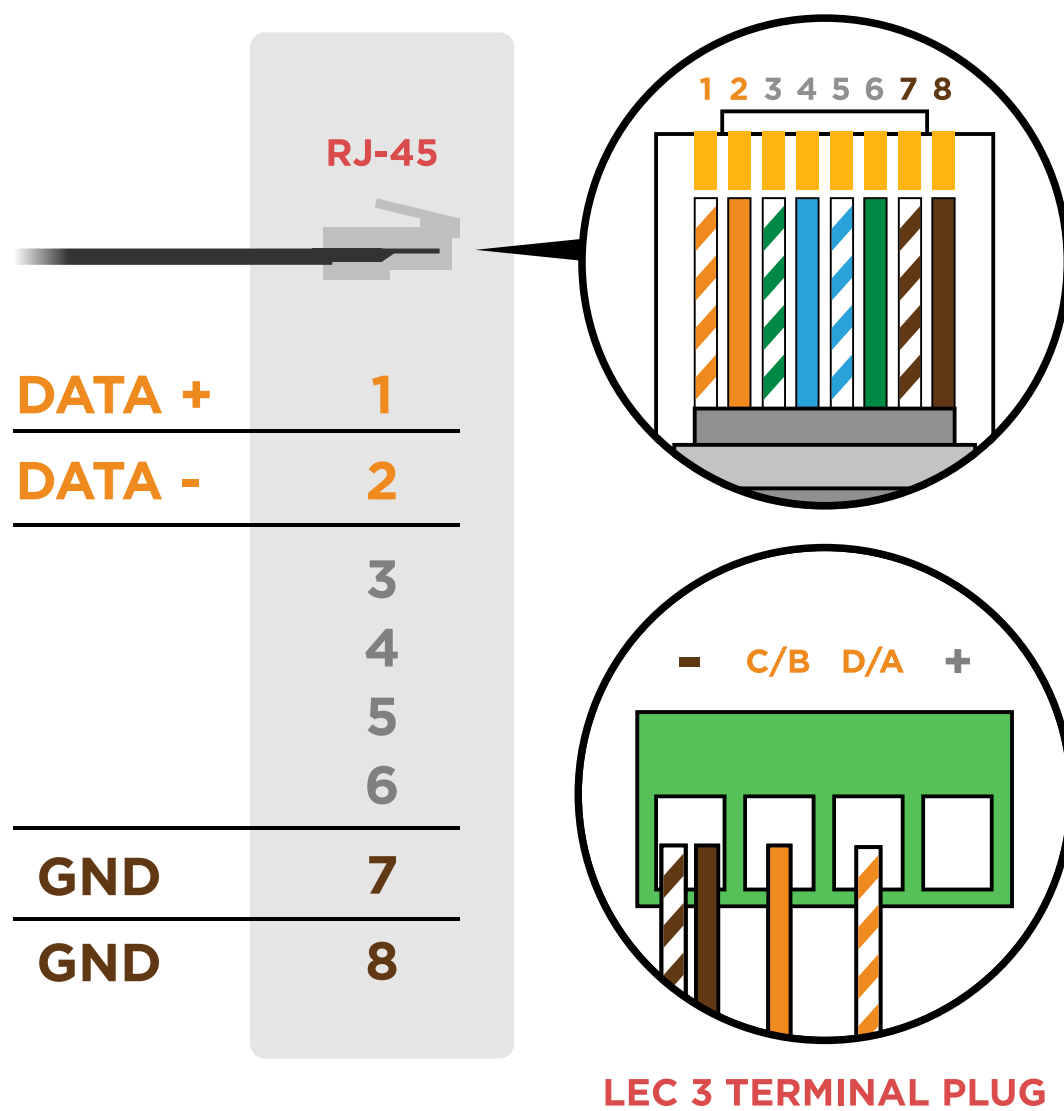
You can daisy chain up to 48 POWERED BULB DIMMERS together



Connection scheme example of POWERED BULB DIMMER with RGBW strip:

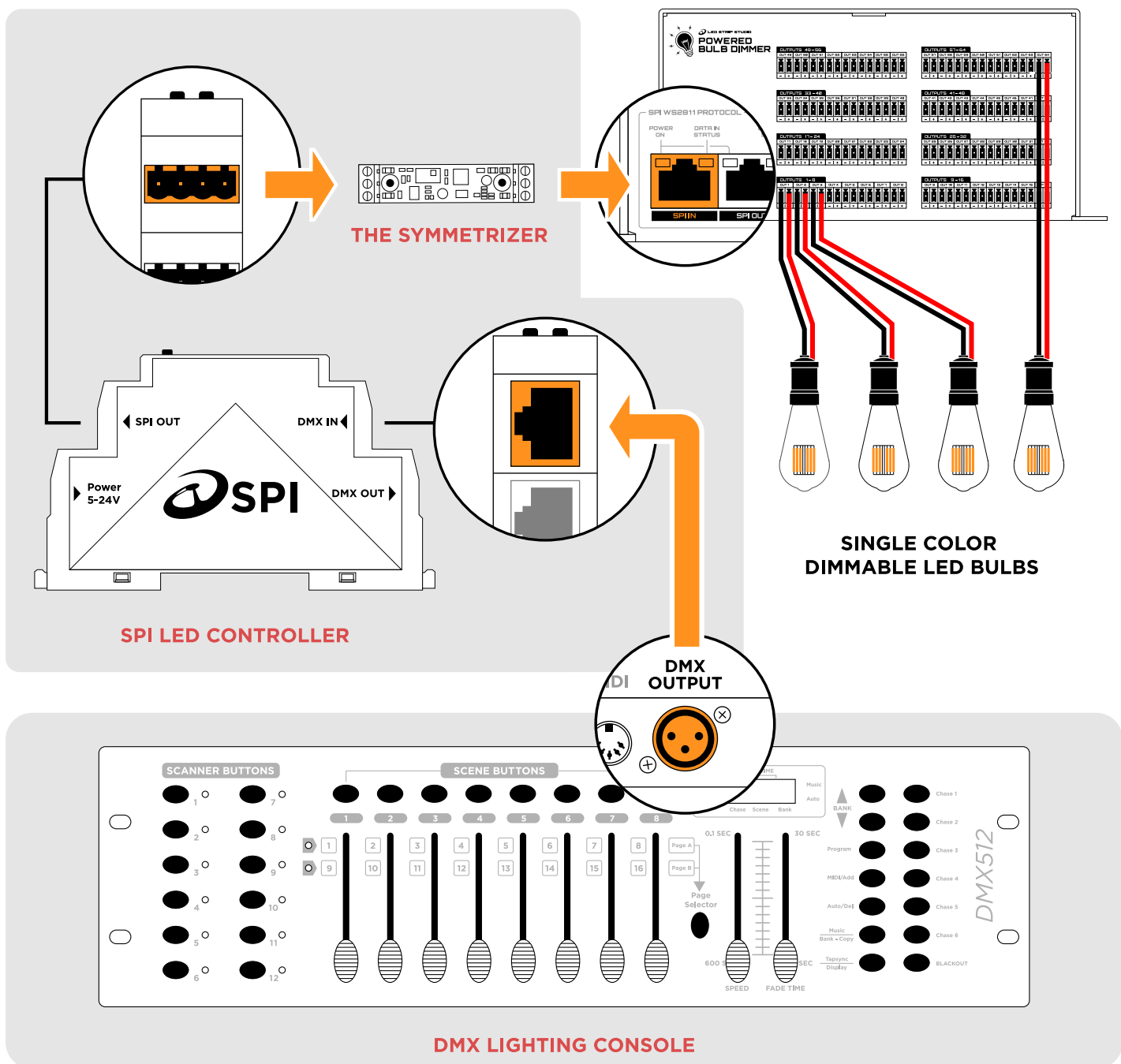


SPI TO RJ-45 PINOUT



CONTROL WITH DMX

The POWERED BULB DIMMER can be controlled via DMX using an **SPI LED CONTROLLER**:



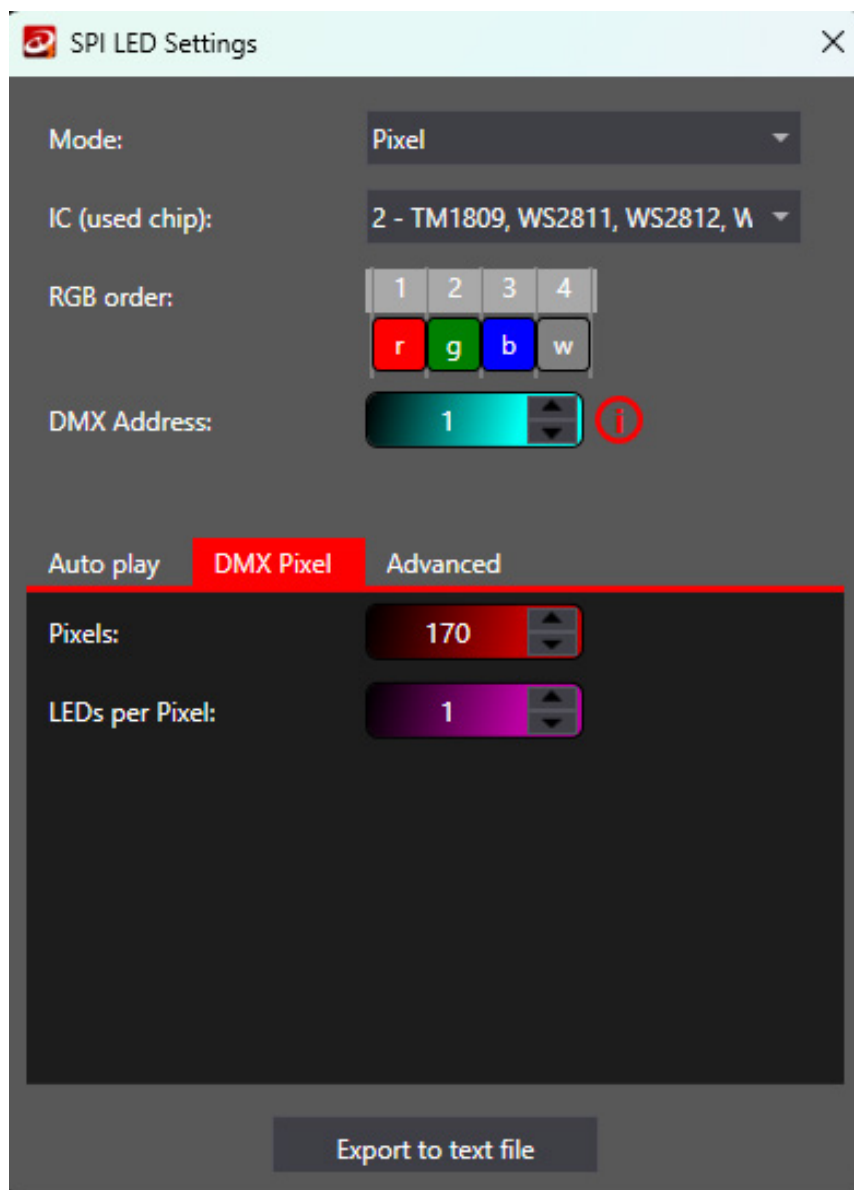
There are two variants of control via DMX:

- **PIXEL MODE**
- **SD CARD MODE**

PIXEL MODE

This mode converts incoming DMX signal into RGB pixel format.

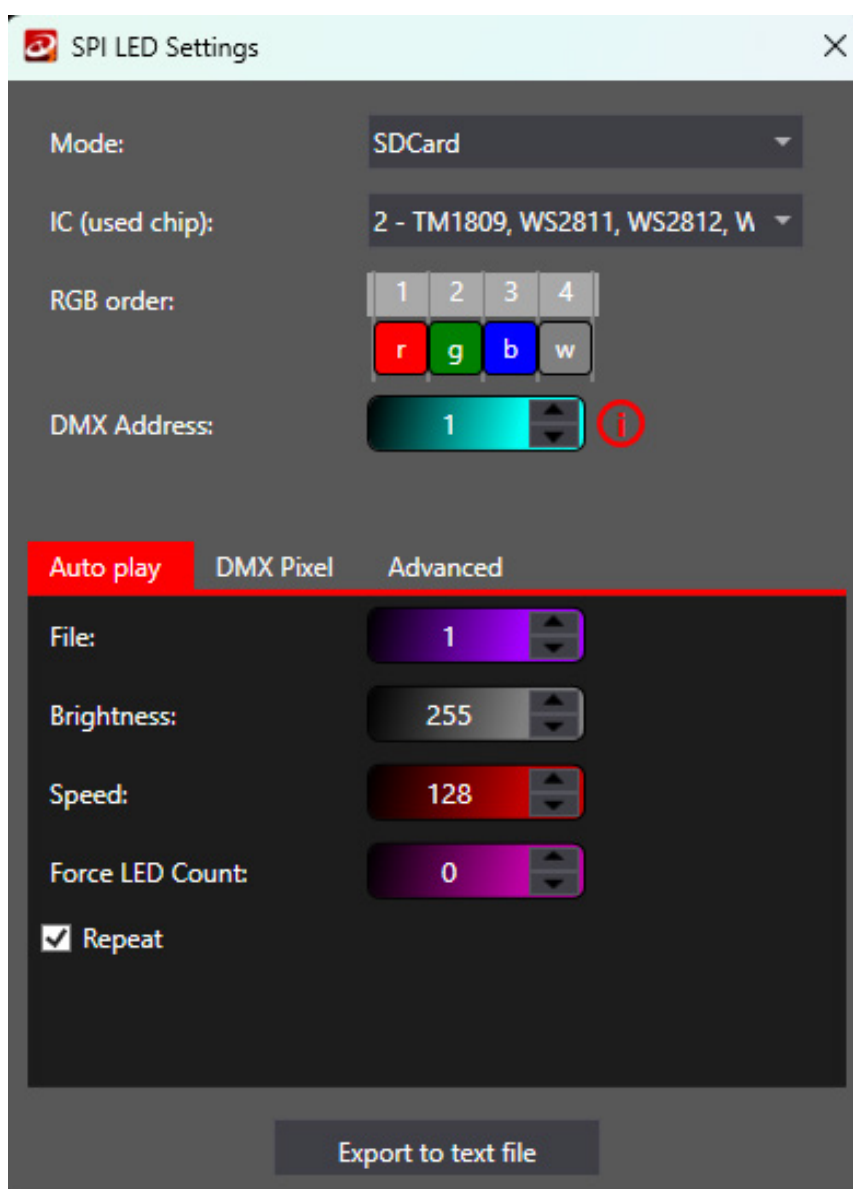
In **LSS3 software** you can set starting DMX address and define how many pixels should be used (in DMX Pixel tab). Each pixel uses 3 DMX channels for red, green and blue color. In this case each POWERED BULB DIMMER output used one DMX channel.



SD CARD MODE

In this case, SPI LED Controller uses LN2 files from the SD Card to be played. LN2 files can be also create in **LSS3 software** na stranke. You set starting DMX address and it need 7 DMX channels:

1. **BRIGHTNESS**
2. **ANIMATION**
3. **ANIMATION SPEED**
4. **RED**
5. **GREEN**
6. **BLUE**
7. **WHITE**



WHAT IS A SPI WS2811 PROTOCOL?

Motorola developed the SPI architecture in the 1980s . A serial peripheral interface (SPI) is an interface commonly used in computers and embedded systems to facilitate short-distance communication between a microcontroller and one or more peripheral integrated circuits (ICs).

WS 2811 protocol is used for led drivers IC's. It used 24bits data, 8bits for each RGB color (32bits when it is RGBW).With 8bits you can set value in range 0-255. You can find a lot of information on internet.

HOW MANY LEDS CAN BE CONNECTED TO POWERED BULB 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 POWERED BULB DIMMER datasheet. Of course if you connect more LED fixtures to single output, they will not be individually controllable.

HOW MANY POWERED BULB DIMMER CAN BE CONNECTED TO ONE SPI OUTPUT ?

For optimal frame rate you can connect 48 devices in daisy chain. In case you need to connect more than 48 devices, you need use another SPI output. For example our LEC 3 PRO has 4 SPI outputs, so you can connect 4x48 POWERED BULB DIMMER.

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.

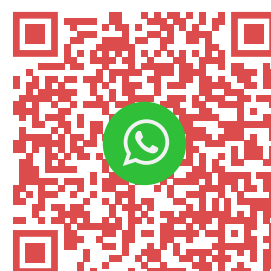
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