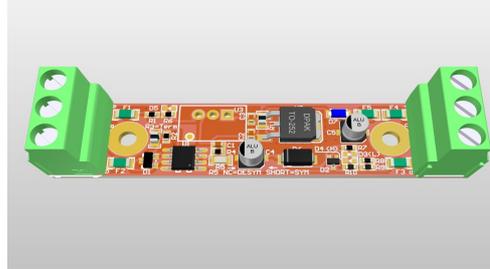# LED STRIP STUDIO
www.LEDSTRIPSTUDIO.COM
DATASHEET

PRODUCT: THE SYMMETRIZER v1.1

Product description

THE SYMMETRIZER allows you to extend the SPI data signal over long cables (+100 meters):

– From LED controller to SPI strips/pixels

– From SPI strips/pixels to SPI strips/pixels as the "booster"

Applications

General illumination

Decoration illumination

Events, lounges, clubs

Scenography

Theatre

Light show

Special effects

Showcase

THE SYMMETRIZER is universal data signal converter from differential data to TTL data, OR by simple setting by soldering 2 pads it become TTL data to differential data converter. This allow you to use twisted pair to transfer TTL signal over long distances by converting them to differential and then back to TTL.

Specification

|	
Operating voltage	5V to 24V DC
Operating current	0.05A
Rated power	<1.2W
Channel count	1
Ports	TTL data + POWER port & DIFFERENTIAL port
TTL port pins	GND, DATA, +POWER
DIFFERENTIAL port pins	GND, B, A
Port connection type	Screw terminal blocks pitch 5mm, wire max 1.5mm2
TTL Data type	TTL like level. L range 0-0.7V, H range 3.5-5V
DIFFERENTIAL Data type	differential minimum 0.2V, max voltage 0-5V to GND
Max frequency	1MHz
TTL port protection	YES
DIFFERENTIAL port protection	YES
Output filter (slew limiting)	NO
Power indicator	YES
Data indicator	YES, High & Low indicator on TTL side
Dimension	70*15.2*15 mm, 2x mounting hole d=3mm
Operating air temperature	-30°C to 65°C
Storage air temperature	-30°C to 85°C
Relative humidity	5% to 80% non-condensing
Weight	10g

DATASHEET

PRODUCT: THE SYMMETRIZER v1.1

Drawing
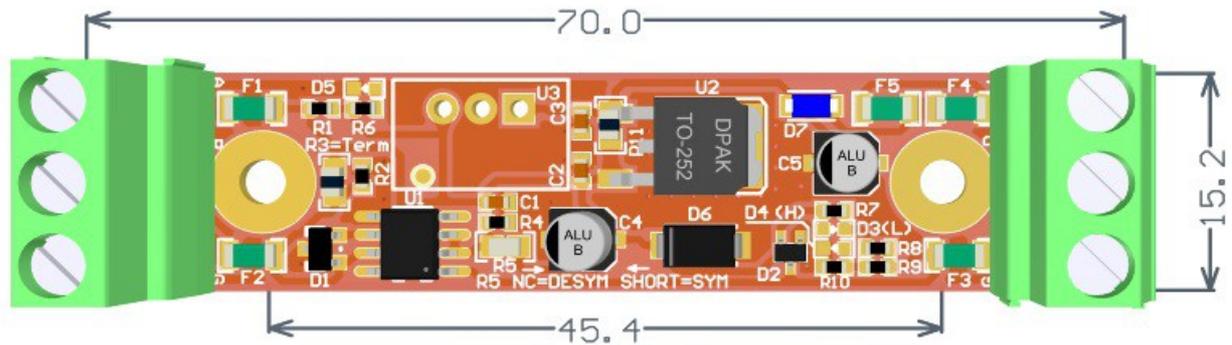
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PRODUCT: THE SYMMETRIZER v1.1

pinout & controls:

POWER INDICATOR

A
B
GND

POWER+
TTL DATA
GND

DIRECTION SELECTOR

N.C. = Differential to TTL ➡
SHORTED = TTL to Differential ⬅

TTL HIGH INDICATOR
TTL LOW INDICATOR
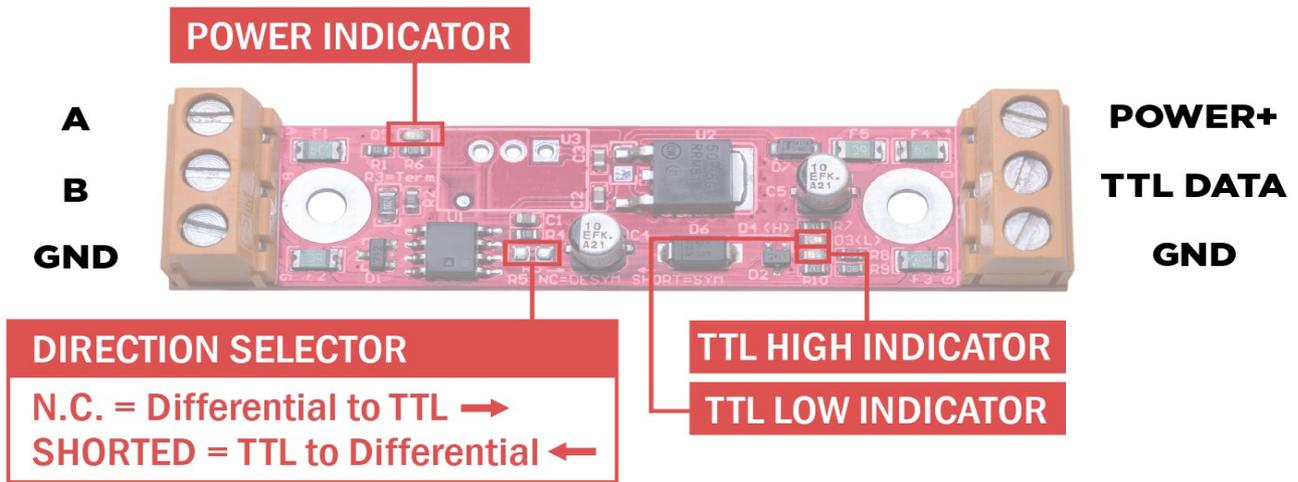
connection example with LEC3 (or SPI MATRIX) controller:

IMPORTANT!

Advanced settings

Outputs - advanced

Enable symmetry for LEDs: ● ON| ○ OFF ⓘ

Save advanced Output Sett.

Activate
"Enable symmetry for LEDs"
in web configuration!

**LEC3 to SPI strip/pixel
with loooooong signal cable diagram**

Power supply
for LED strip/pixels

POWER IN 5-24V DC

WWW.LEDSTRIPSTUDIO.COM

OUTPUT 1 OUTPUT 2 OUTPUT 3 OUTPUT4

- - + +   -C/B D/A +   -C/B D/A +   -C/B D/A +   -C/B D/A +

Provide 5-24V POWER
for LEC3 controller

**Long cable
~20m+ if power cable used
~100m+ if twisted cable used (e.g. CAT5)**

*A & B should be twisted pair
for best performance, all
unused wires connect to GND

SPI LED strip / pixels

GND
DIN
5V

WS2812B

GND
Dout
5V

GND
DIN
5V

WS2812B

GND
Dout
5V

THE SYMMETRIZER

GND
DATA TTL
POWER

GND
B
A

Short cable
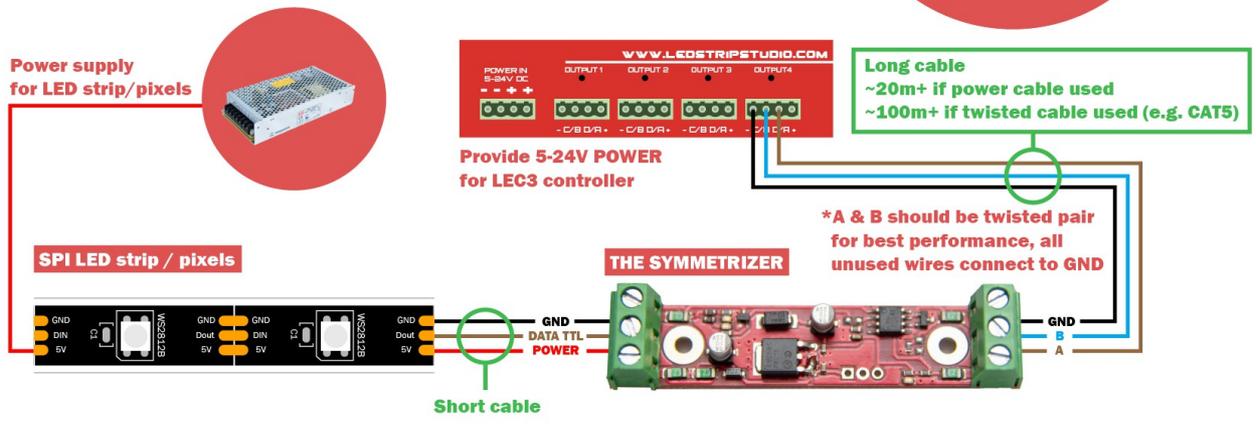
PRODUCT: THE SYMMETRIZER v1.1

connection example from pixel to pixel / or controller to pixel:

Long cable
~20m+ if power cable used
~100m+ if twisted cable used (e.g. CAT5)

*A & B should be twisted pair for best performance, all unused wires connect to GND

THE SYMMETRIZER

Short cable

LED strip with signal output to be extended

LED strip with signal input to be extended

SPI LED strip / pixels

Power supply for LED strip/pixels