www.lumi-con.de
Lumi Con LED-Lighting-Technologies
Dr. Karl Schrödinger
Setheweg 12
D-14089 Berlin

Datasheet
Low Power Stripe RGB

LPS12-X-X-RGB-X
Rev. 1.3 – 03/2011

Low-Power-LED-Stripe LPS12-X-X-RGB-X

Product example:
LPS12-R-500-RGB-E

Features

- Low Power RGB-LED stripes with different length
- Production lenght available from 250mm to 1500mm suitable for Lumi-Con Dimmers
- Stripe-Segments can be serially connected up to 1500mm length (for operating with Lumi-Con DIMMER TD2-230)
- Simply to connect to Lumi-Con TD2-Dimmer, directly connected to mains voltage (230V) without AC adaptor
- Dimmable, all colours adjustable through independent RGB dimming of all three colours
- Low power consumption
- Different package versions available
- Board-Version available

Applications

- Deko Lighting
- Advertising, displays, etc.
- Picture and TV back ground illumination
- Furniture illumination (kitchen, side boards etc.)
- Stair case illumination (e. g. integration into handrail)
- Illumination of show cases

Part Numbers

LPS12-X-X-X-X

- Connection: E (single side), Z (both sides)
- Colour: RGB
- Lenght (approx. mm): 250, 500, 750, 1000, 1250, 1500
- Package (R-, U-, B-Version)

Attention!

When connecting to Lumi-Con Dimmer please read carefully the dimmer instruction. Set up should be done by skilled personnel only! Please read instruction carefully.

1 Description

The lighting units consist of 250mm long segments of LED stripes, up to 6 stripes are integrated in one package. Each segment includes 12 RGB LEDs (red, green, blue). Different connection versions are available to simplify mounting of the modules (see below).

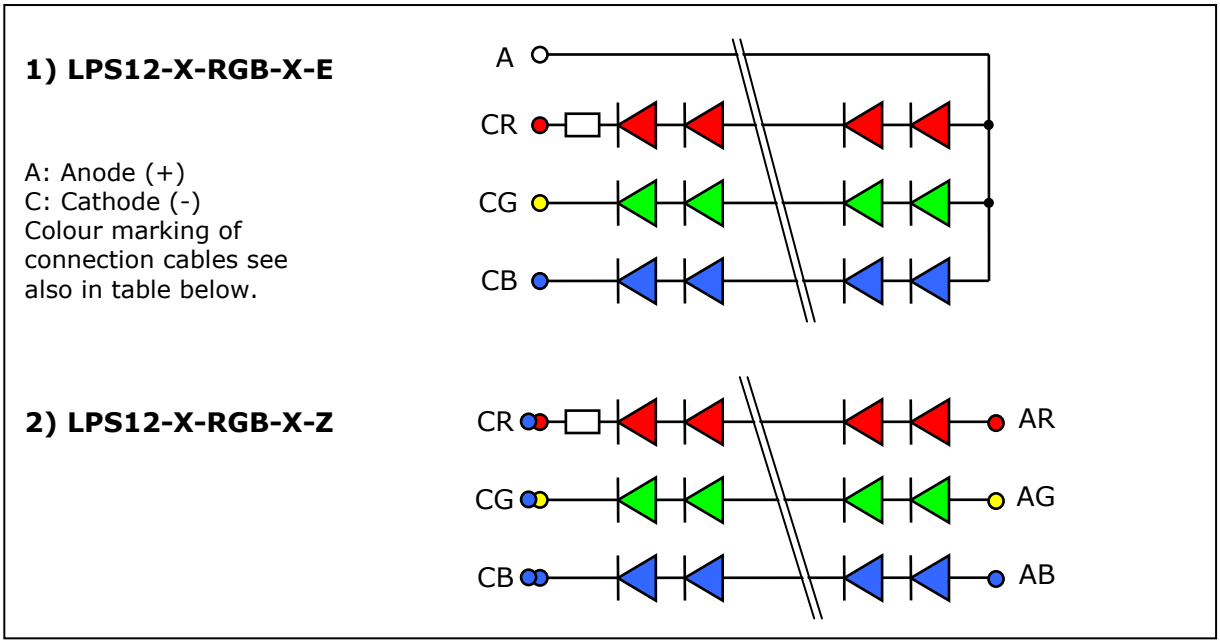


Fig. 1: Connection versions of LPS12-X-RGB-X-X

The red LED path includes a series resistor to adapt to the different LED forward voltages. Thus a similar forward voltage for all colours is reached at 20mA drive current.

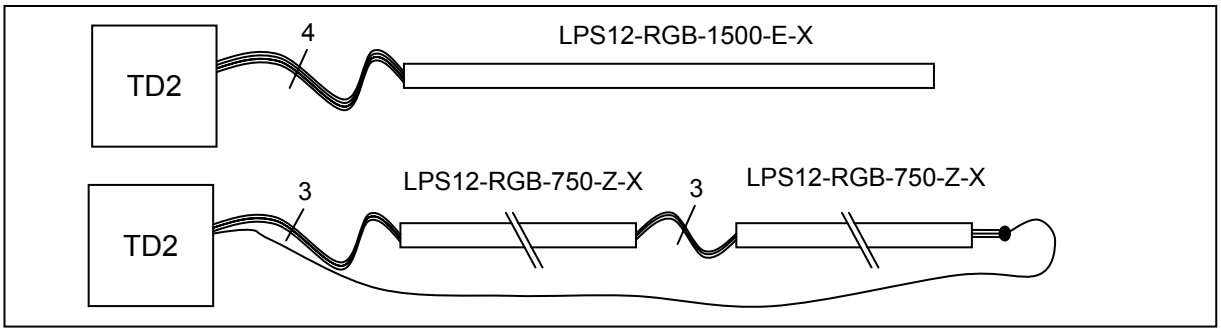


Fig. 2: Connection example

2 Dimensions

1.1. Color Coding of Interconnects

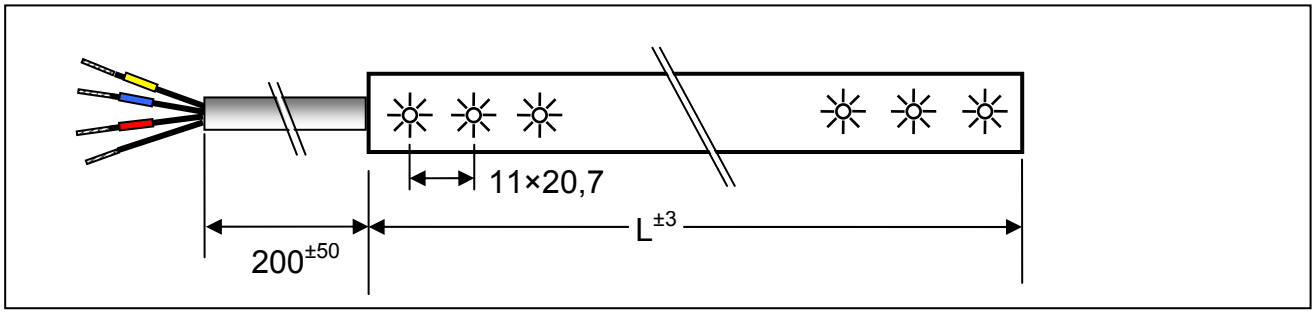


Bild 3: Single sided connection (packaged versions)

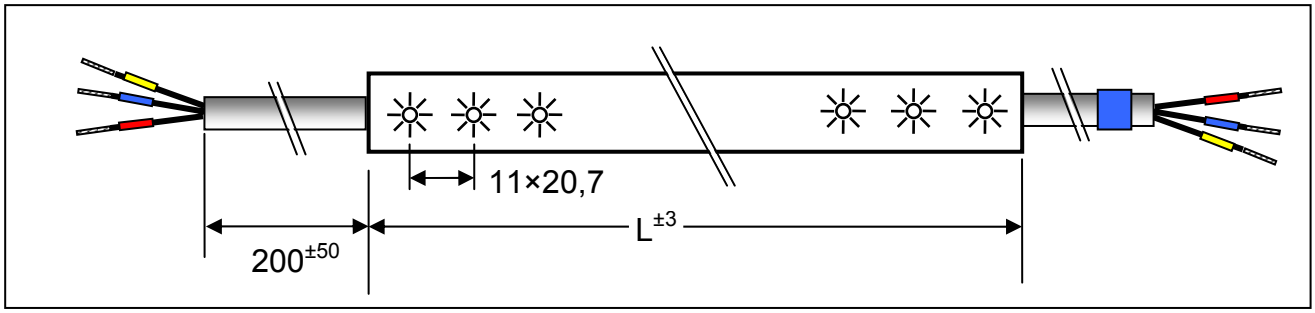


Bild 4: Connection at both sides *(packaged versions)*

Table 1: Colour coding of connections

	Anode (+)			Cathode (-)		
LED colour	blue	green	red	blue	green	red
RGB, einseitiger Anschluss	no colour coding			blue	green	red
RGB, zweiseitiger Anschluss	blue	green	red	blue-blue	blue-green	blue-red

It is recommended to use additional strain relief for connection cables (see accessory below).

1.2. R-Version

The stripes are mounted into a fully isolating acrylic glas tube with 13 mm diameter ready to connect to Lumi-Con TD2-Dimmers.

Table 2: Dimensions of the R-Versions

Number of Segments (S)	1	2	3	4	5	6
Number of LEDs	12	24	36	48	60	72
Length L (mm), ± 3mm	258,4	506,8	755,2	1003,6	1252	1500,4
Length coding (part no.)	250	500	750	1000	1250	1500
Diameter of tubes	∅13mm					

1.3. U-Version

The stripes are mounted fully isolated inside a rectangular aluminium U-profil. The U-profile measures 16 x 12mm. The module has a diffused cover.

Table 3: Dimension of the R-Version

Number of segments (S)	1	2	3	4	5	6
Number of LEDs	12	24	36	48	60	72
Length L (mm), ± 3mm	283	532	780	1028	1277	1225
Length coding (part no.)	250	500	750	1000	1250	1500
Hight (mm)	12					
Width (mm)Breite	16					

1.4. B-Version

A board version is also available. Dimensions are noted below.

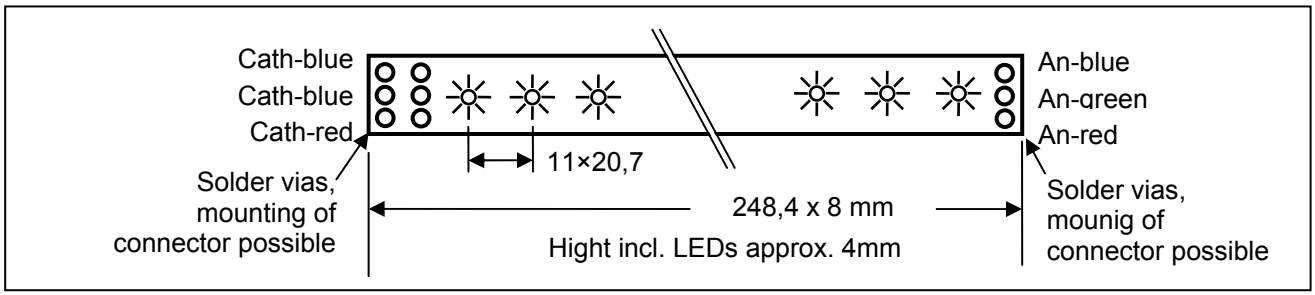


Fig. 5: Dimension of the board version

1.5. Accessory

Tripple-Dimmer TD2 (different versions)	SC2-230-M-…
1 set (2 Stück) mounting clamps (drawing see below)	LPS-BEF
Strain relief (drawing see below)	LPS-ZE
Isolation unit for board, 260mm long (comming soon)	LPS12-ISO
Mounting unit for U-version (comming soon)	LPS-MON-U
Mounting unit for R-version (comming soon)	LPS-MON-R

Fig. 6: Mounting clamp for R-version: LPS-BEF (2 pcs. per lighting unit included)

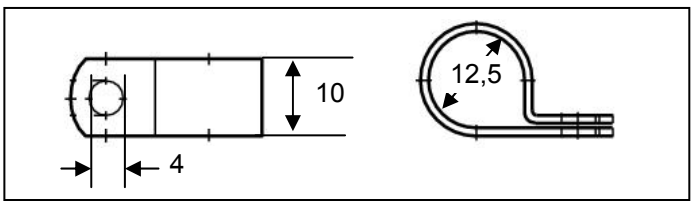
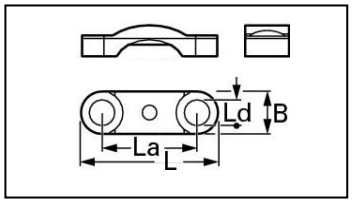


Fig. 7: Strain relief LPS-ZE, L=20, La = 14, Ld=3.2, B=5.5mm (1 piece included per unit)



3 Operating conditions and electrical data*

Specification for one segment (12 LEDS)			Min	Typ	Max	Note
Operating ambient temperature	T_{AMB}	°C	0		40	1
Humidity	RH	%			90	1
Power consumption	P_{RGB}	W		2.3	3	2
Max current per string	I_{MAX}	mA			20	
Forward voltage, red	V_{FRGB-R}	V	35,2	38,8	44,8	I = 20mA, 3
Forward voltage, green	V_{FRGB-G}	V	34,8	38,4	43,2	I = 20mA
Forward voltage, blue	V_{FRGB-B}	V	34,8	38,4	44,4	I = 20mA
Optical efficiency, red	η_R	Lm/W		43		I = 20mA
Optical efficiency, green	η_G	Lm/W		36		I = 20mA
Optical efficiency, blue	η_B	Lm/W		11		I = 20mA

Notes:

1) Non condensing, operation only in dry ambient.

2) 3 x 20mA

3) Including resistor (680 Ω per segment)

*) All current and power numbers are rms-values unless otherwise noted.

4 Installation and Precautions

Lumi-Con Low-Power-LED-Stripe LPS12 requires a power adapter generating the necessary currents from mains voltage. Lumi-Con offers suitable DIMMER modules. If you operate the stripes with power adapters from other suppliers please read those instruction notes.

Operate the LED-Stripes in dry ambient only (operating class IP20).

Don't touch any part of the stripes if the acrylic glass tube is broken. Switch off the stripes immediately and don't try to repair it by yourself.

The acrylic glass tube is sensitive to alcohol and other solvents and surface may be damaged. Thus don't clean them using such substances.

5 Precautions if Using Lumi-Con DIMMER Modules

Lumi-con DIMMER modules are directly connected to mains voltage (230V≈). Before you connect to mains voltage (initially) please make sure that all necessary connections are correct. Assure that you have **protection against contact** for all wires including the circuit, mains voltage wires and wires to the LEDs thus no occasional contact can happen (exception: Sensor inputs S1, S2). The module must not be operated in wet ambient or outside, except explicitly specified.

The whole circuit including the LED stripes and wires may show up to 350V peak voltage referred to ground. **Please do not touch the circuit and the connected components including the LEDs** if the circuit is powered up. In case of failure please switch of or separate from mains voltage immediately. Do not try to repair the module even it seems simple; this includes also broken fuses.

Please read carefully the DIMMER instruction notes.

Lumi-Con modules fulfil the *EC Low Voltage Directive 2006/95/EC* (former 73/23/EEC), the *EC EMC Directive 2004/108/EC* as well as the RoHS compliancy (*EC Directive 2002/95/EC*). In addition they are compliant to *EuP Directive 2005/32/EG: Eco-Design of Energy Using Products*.

Attention please!
The information herein is given to describe certain components and shall not be considered as warranted characteristics. Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Lumi-Con components may only be used in life-support devices or systems with the expressed written approval of Lumi-Con.