

# LED-Strip L12 MK2

Product Sheet



# Introduction

## FEATURES

- System compatible with other series from Schnick-Schnack-Systems
- Made in Germany

- High-quality LEDs
- Even colours thanks to best possible degree of sorting (ANSI batch selected)
- Wide emission angle 115°
- Dimmable in a way suitable for cameras
- Linear light dimming, also for stageless control in the lower intensity range, using patented Lehmann-Modulation
- Even brightness despite various supply line lengths due to integrated linear regulator
- Enough "headroom" for longer durability

- Can be directly connected to 24V DC

- Low surface temperature
- With connected (through hole) plug connectors
- Extremely robust and reliable
- Various mounting options

## Use

The LED-Strips L are equipped with high-quality, efficient single-colour or white LEDs. The LEDs can be activated in blocks. Thus, they are the ideal LED light source for applications for which only one solid light colour is needed. The LED-Strips L12 MK2 are used in, amongst other things, architecture (e.g. accents on walls, floors, counters/bars, decoration elements), in backlighting for light boxes and stretch ceilings, in light pens and in trade fair appearances.

## Technology

The Strips L12 MK2 are available in seven different shades of white and four colours:

- Warm white (2700K, 3000K, 3500K)
- Neutral white (4000K)
- Cold white (5000K, 5700K, 6500K)
- Red
- Green
- Blue
- Amber

The led strip L12 is available in a length of 125mm, 250mm and 500mm equipped with ten, 20 or 40 LEDs in a pitch of 12,5mm. Due to the practical dimensions, the LED strips can follow almost every curve and bending.

The distance between the individual LEDs is dimensioned in a way that results in homogenous illumination. Thanks to the Lehmann-Modulation, stageless brightness control is also possible in the lower intensity range, as is (flicker-free) dimming that is suitable for cameras.

When using diffusers, the distance needed to create a homogeneous surface depends on the material. There should be at least 5cm from the topside of the LED to the diffuser.

The LED strips are mounted with board holders.

## Control

The LED-Strips L12 MK2 are activated via the Long Distance Controller, the Sys One or System Power Supplies 4 and 4E with a Big Intelli XLR. In terms of small installations, the LED-Strips can also be activated via a corresponding power supply and – if dimmability is desired – with a Big Intelli Monochrome.

The LED-Strips L12 MK2 are plug-compatible with the existing RGB LED system from Schnick-Schnack-Systems: Each of the three RGB channels is used to activate the LED-Strips L. By using special cross cables, each LED-Strips in a section can be assigned to a channel. So the structure is simple. Thanks to the cross principle RGB controller can be used sustainably for monochrome LED strips. Thanks to the integrated current regulator, even long power lines do not result in a decrease in brightness on the strip.

# Mechanical data

Features	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
Length	125mm	250mm	500mm
LED-Pitch	12,5mm	12,5mm	12,5mm
Number of LEDs	10	20	40
Pin connection and -colour	System connector blue	System connector blue	System connector blue
Safety class	IP00	IP00	IP00
Weight	10g	15,4g	29g



LED-Strip L12-125 (front view)



LED-Strip L12-125 (rear view)



LED-Strip L12-250 (front view)



LED-Strip L12-250 (rear view)

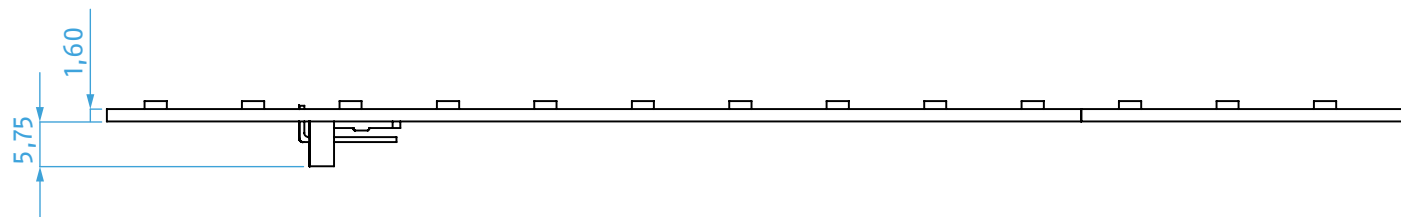
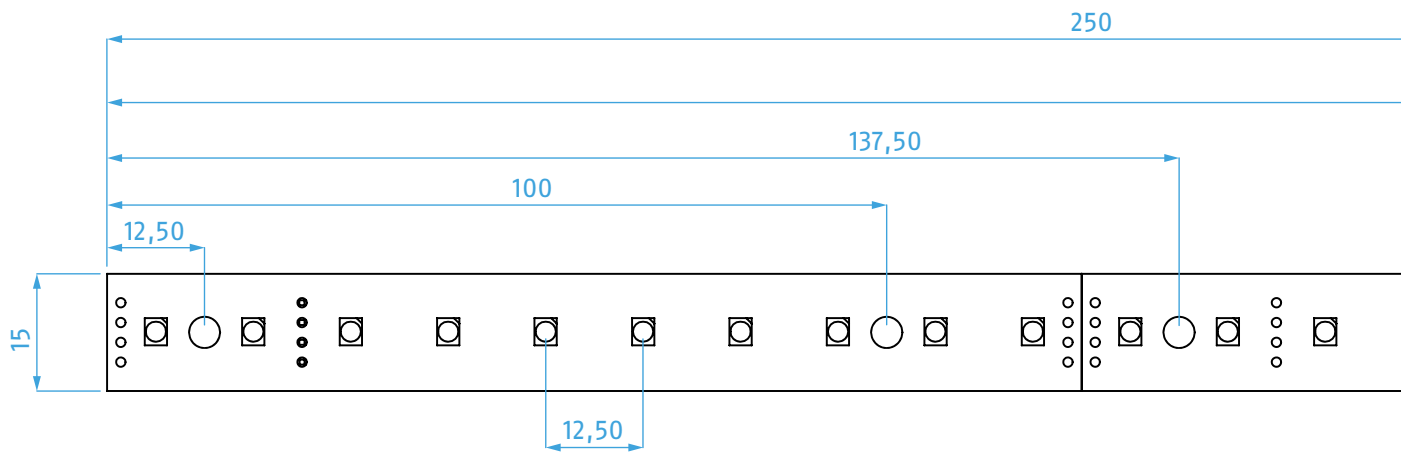
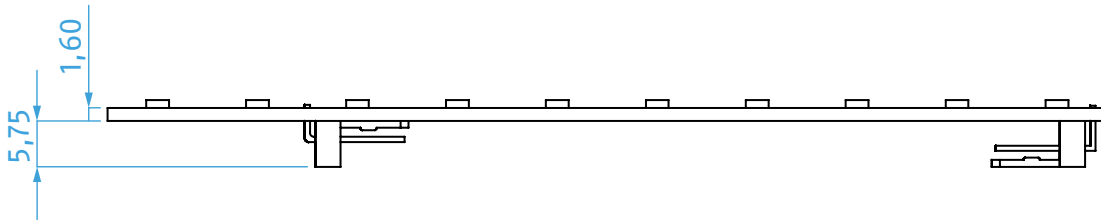
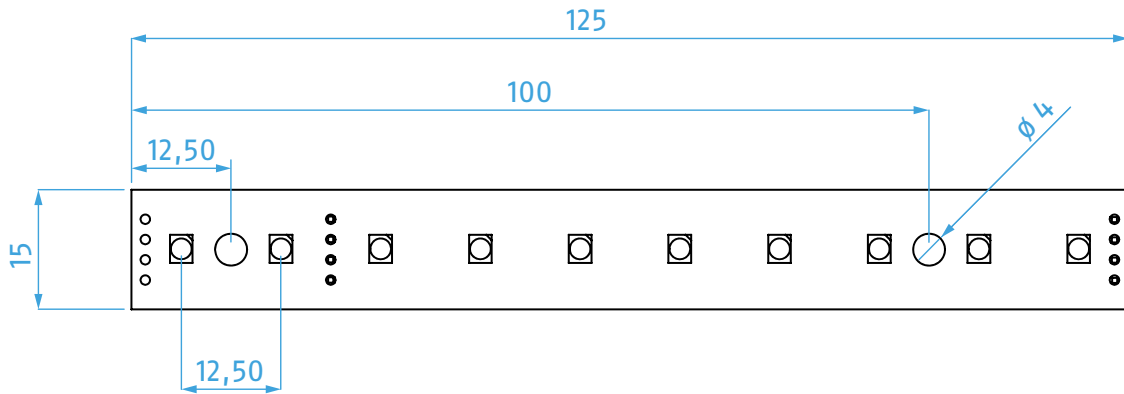


LED-Strip L12-500 (front view)

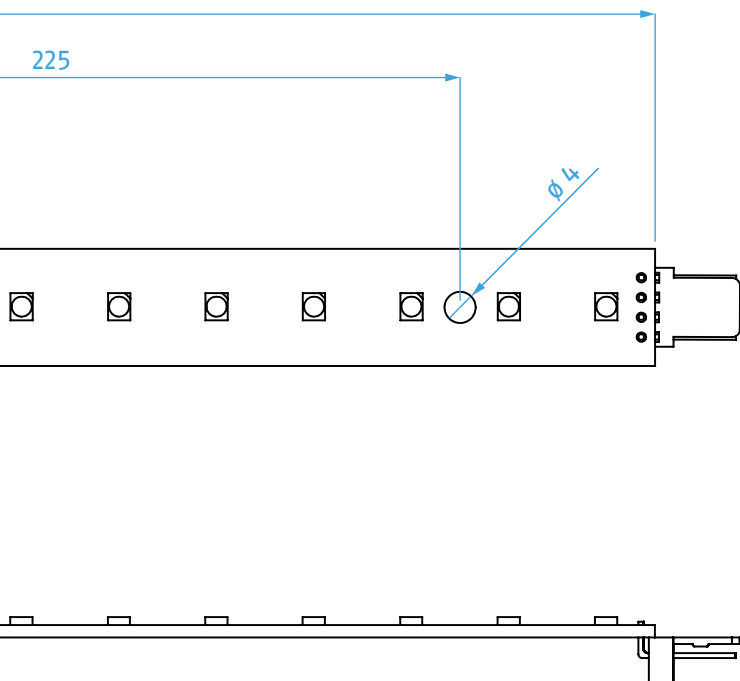


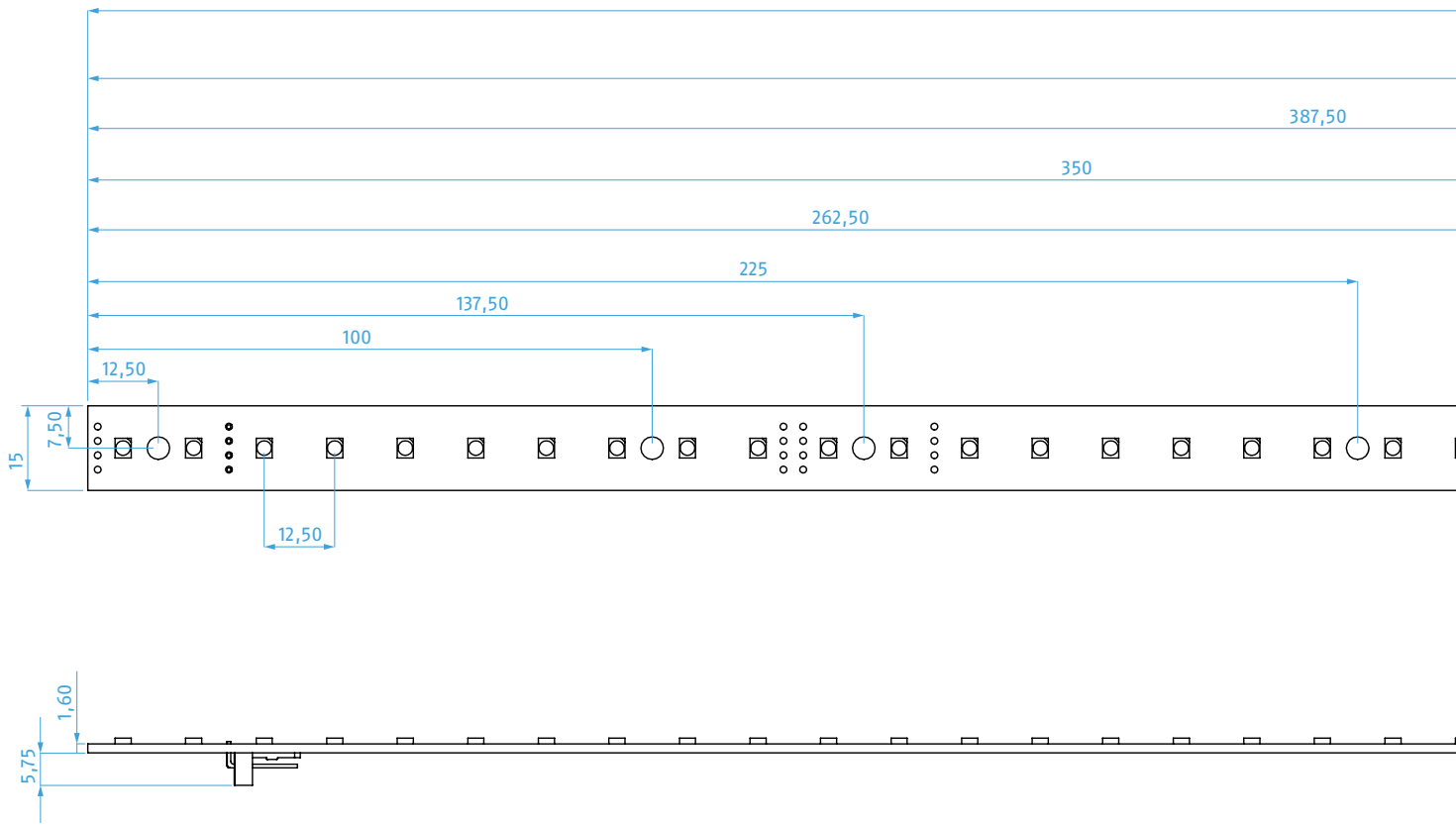
LED-Strip L12-500 (rear view)

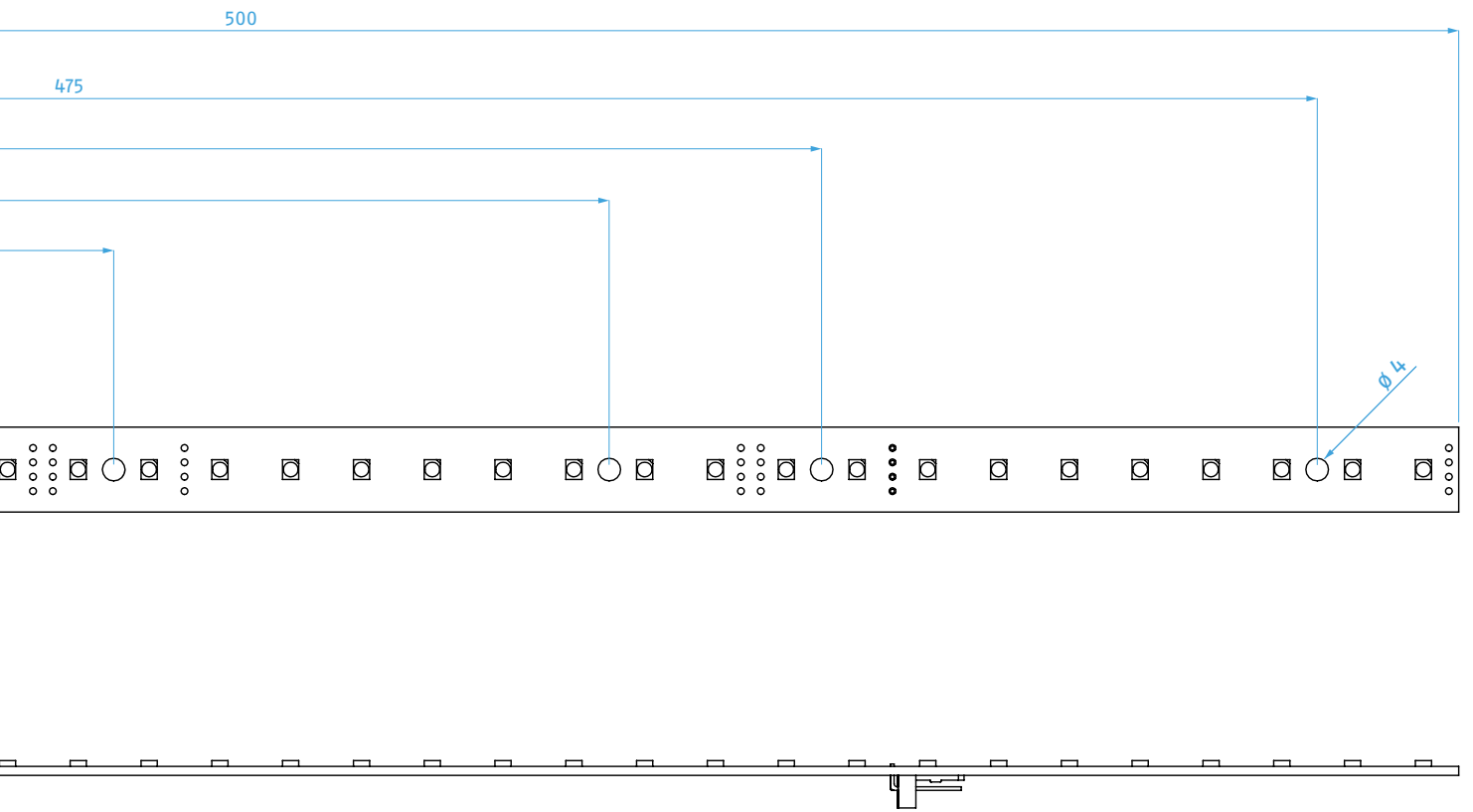
# CAD drawing\*



\* without scale / all units in mm







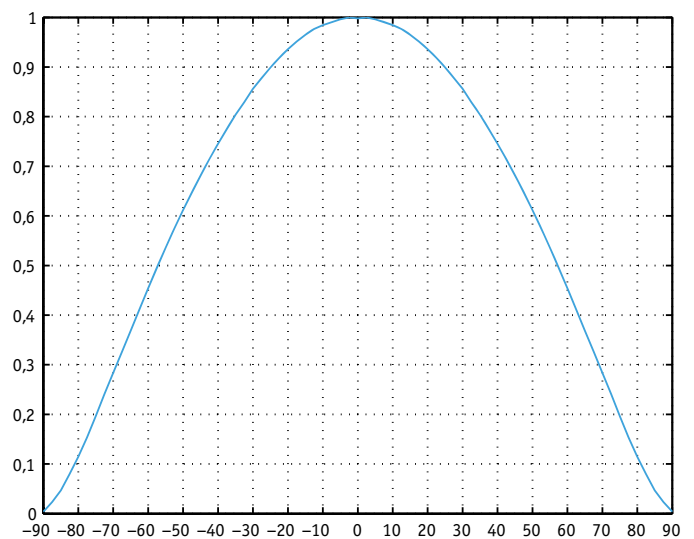
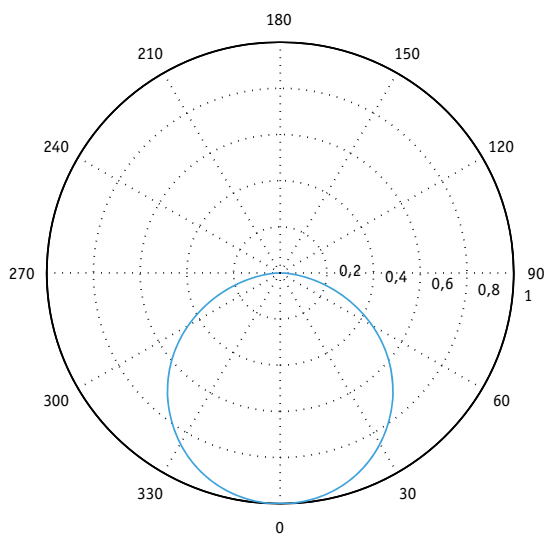
# Optical Data

Features	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
Colour	6500K**	6500K**	6500K**
	5700K	5700K	5700K
	5000K	5000K	5000K
	4000K	4000K	4000K
	3500K	3500K	3500K
	3000K	3000K	3000K
	2700K	2700K	2700K
Emission angle	115°	115°	115°
Lighting current	58lm*	116lm*	233lm*
Efficiency (at 20V)	ca. 65lm/W*	ca. 65lm/W*	ca. 65lm/W*
Colour reproduction $R_a$	ca. 80*	ca. 80*	ca. 80*
Light intensity	20cd*	40cd*	80cd*

## Distance/Lux table

Distance	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
0,5m	80lx*	160lx*	320lx*
1m	20lx*	40lx*	80lx*
2m	5lx*	10lx*	20lx*

## Light distribution curves

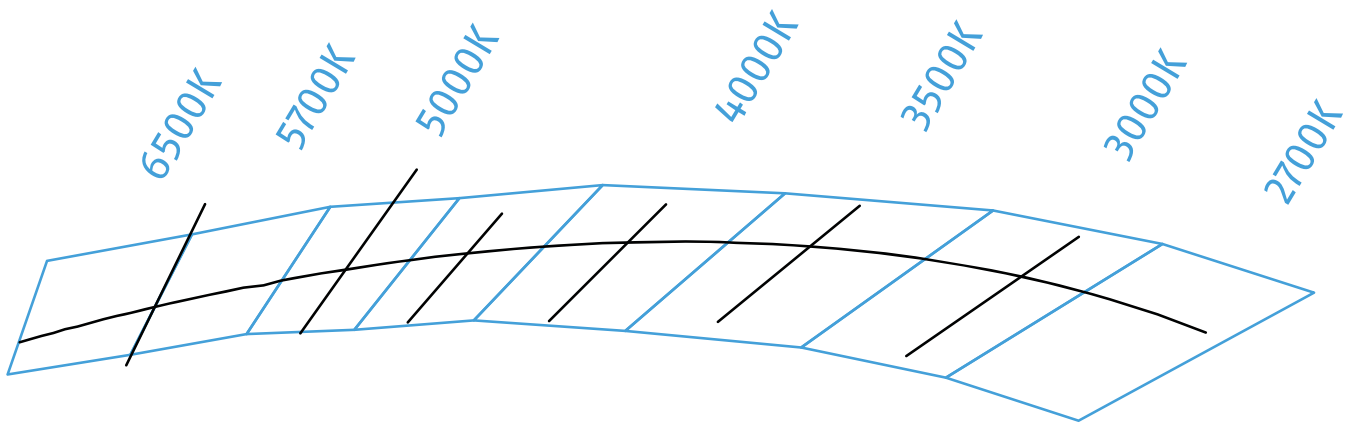


\*The data provided are measured values. As these values are subject to fluctuations, the actual values of the delivered LEDs may deviate from them. The photometric values were measured using an LED-Strip L12-125 in white (red, green, blue and amber on request).

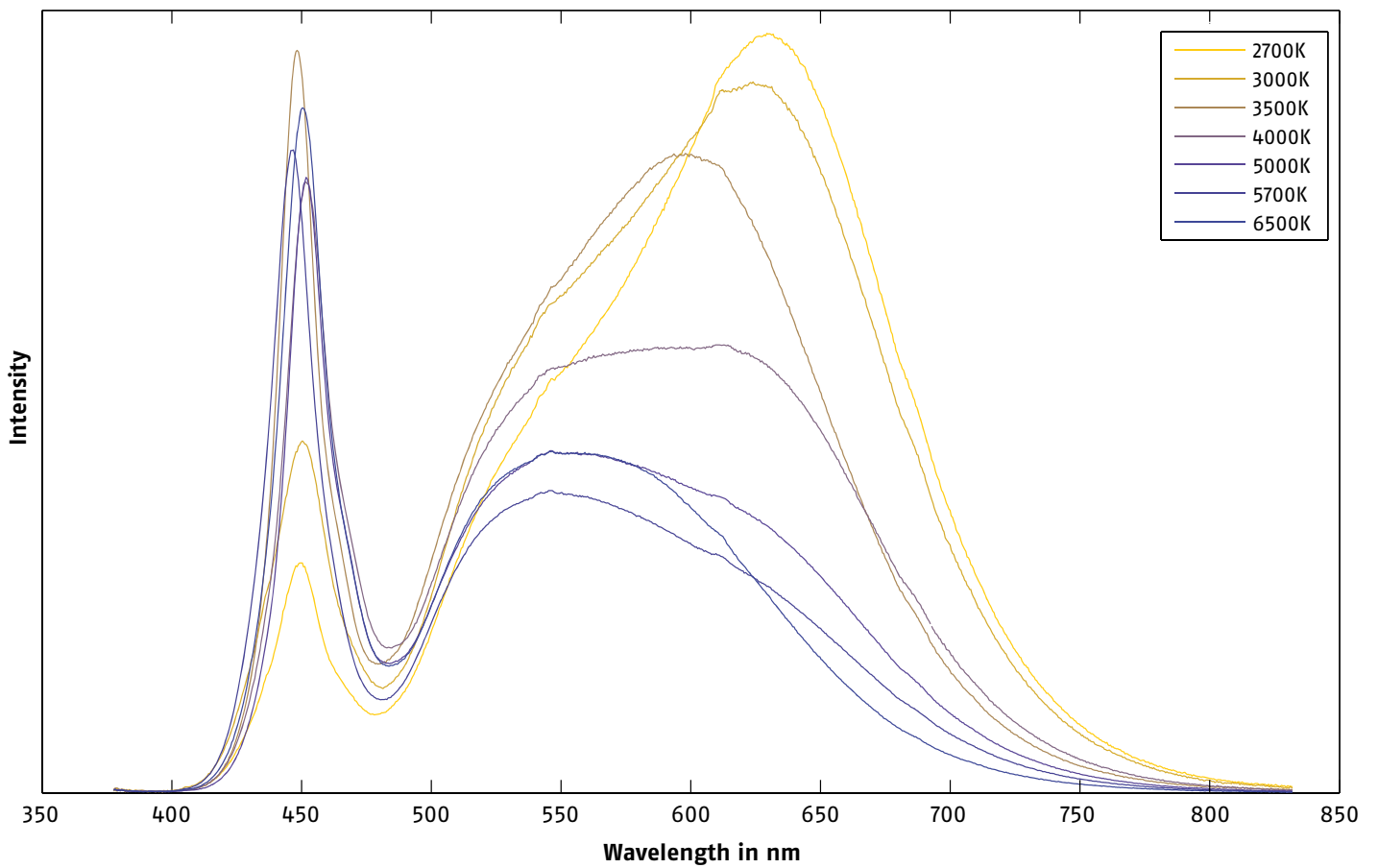
\*\* For 6500K the  $R_a$  is at least 70



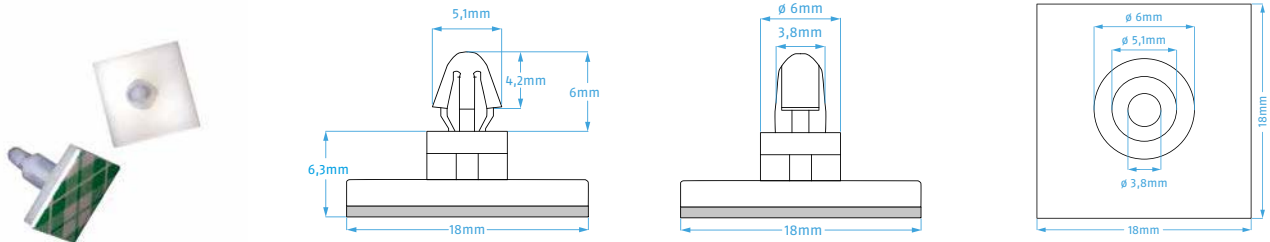
**Binning (ANSI)**



**Spectral distribution**



# Mounting

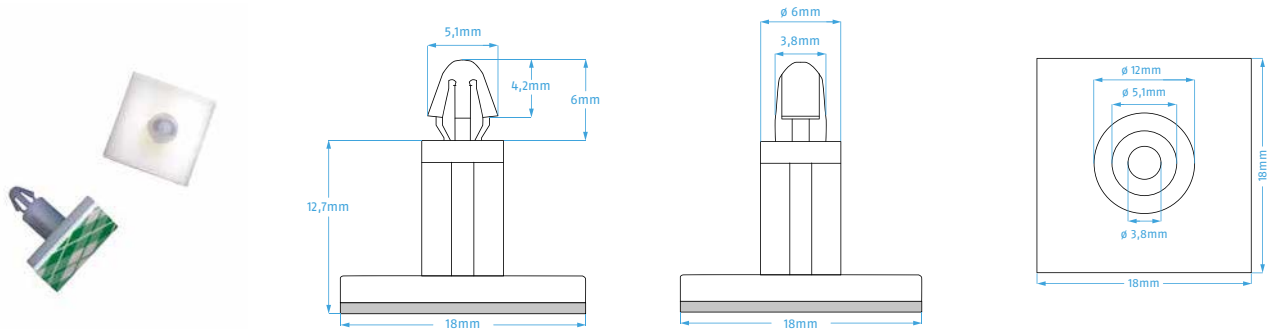


**Description**

PCB holder 6mm, self-adhesive version

**Item number**

802.0001

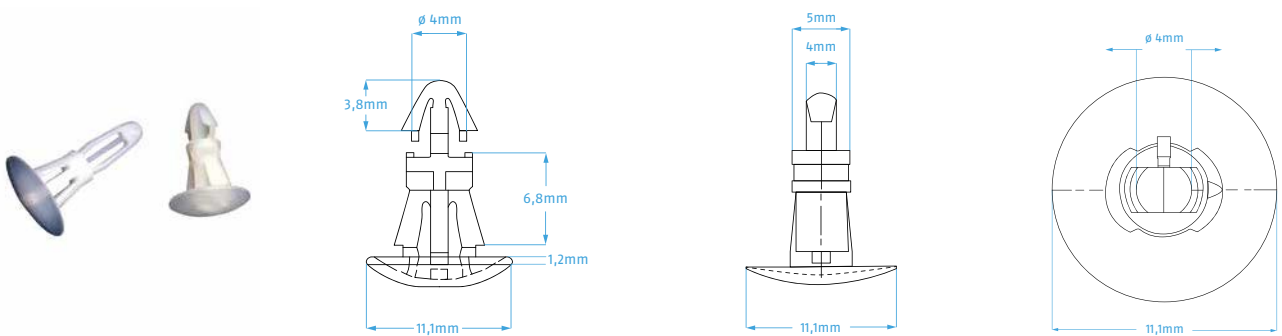


**Description**

PCB holder 12mm, self-adhesive version

**Item number**

802.0002



**Description**

PCB holder 6mm, plug-in version (for plates)

**Item number**

802.0003

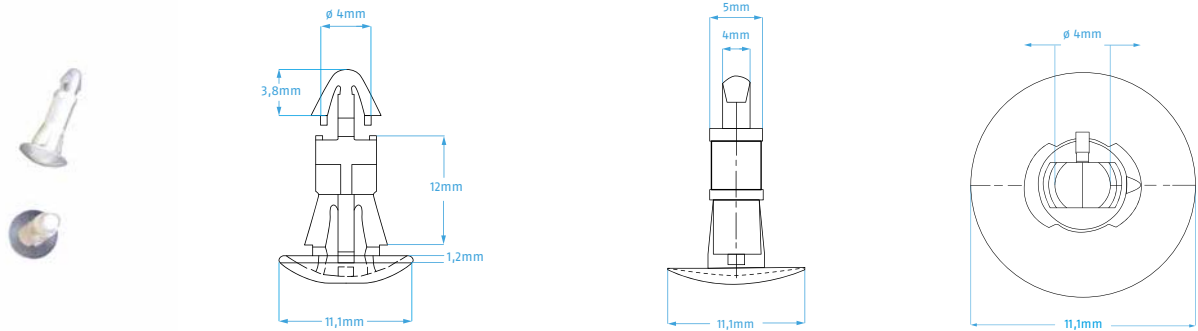
**Drill hole**

5,4mm

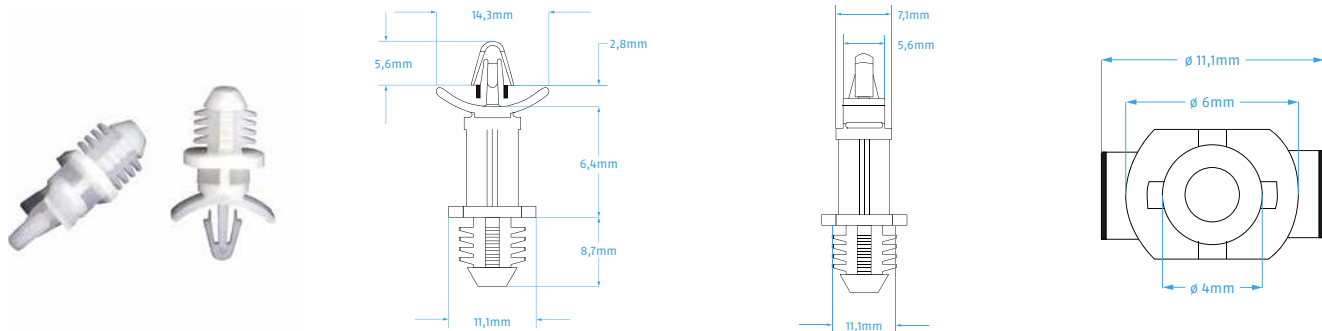
**Material thickness**

1,5-1,6mm

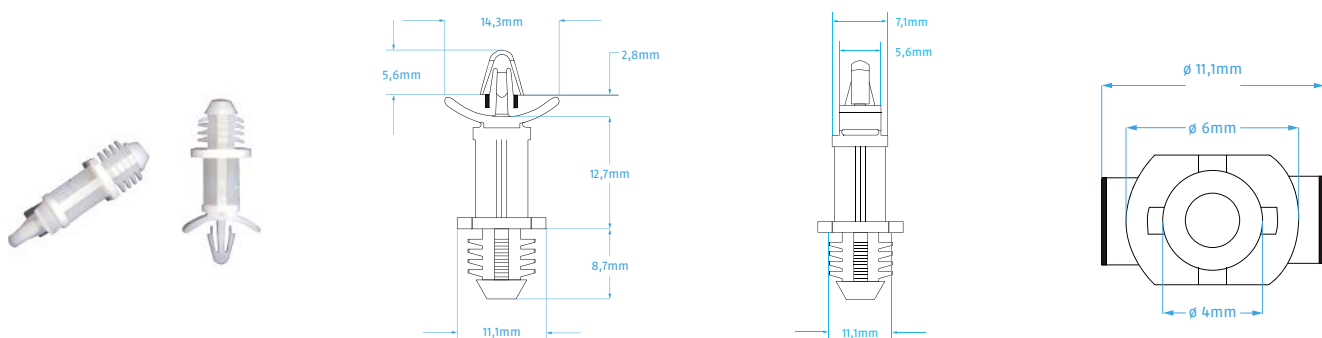
LED-Strips L with soldered Intelligence need PCB holders with a height of at least 12mm.



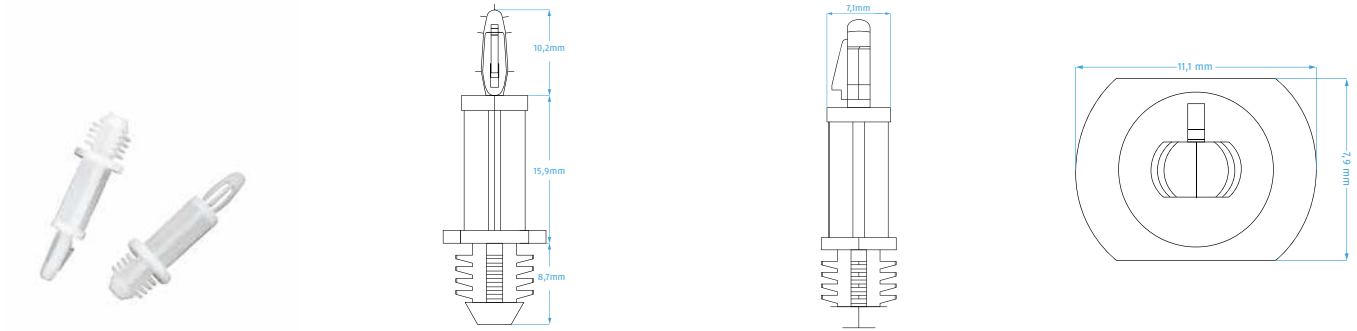
Description	Item number	Drill hole	Material thickness
PCB holder 12mm, plug-in version (for plates)	802.0004	5,4mm	1,5-1,6mm



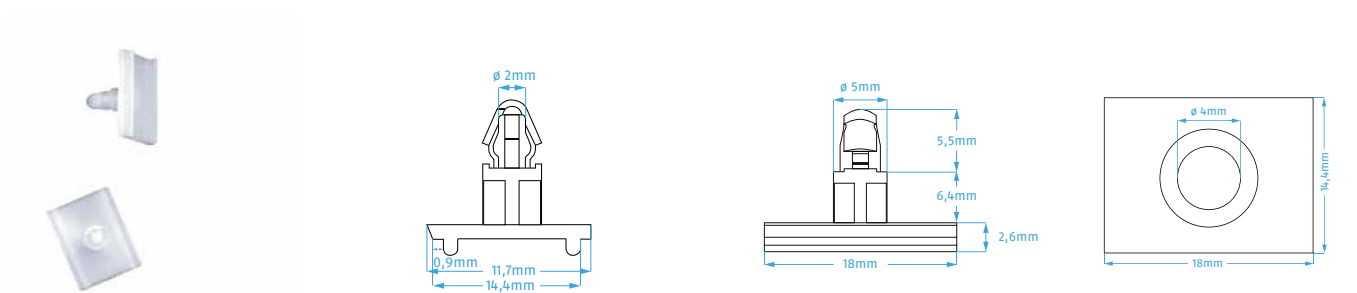
Description	Item number	Drill hole	Material thickness
PCB holder 6mm, drill version (for wood or plastic)	802.0006	7,9mm	minimum 6,4mm



Description	Item number	Drill hole	Material thickness
PCB holder 12mm, drill version (for wood or plastic)	802.0007	7,9mm	minimum 6,4mm



Description	Item number	Drill hole	Material thickness
PCB holder 16mm, drill version (for wood or plastic)	802.0008	7,9mm	minimum 6,4mm

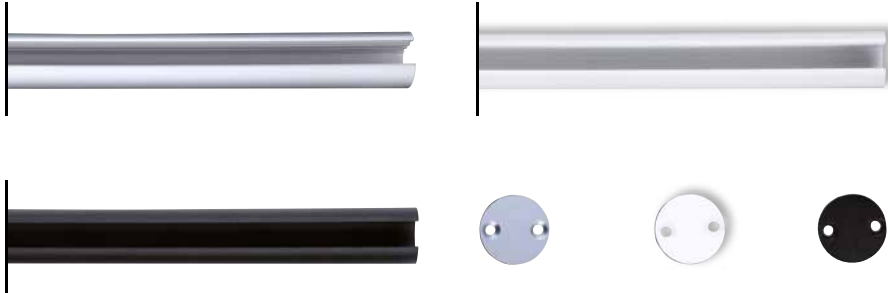


Description	Item number
PCB holder 6mm, plug-in version (for click-profile)	802.0009

LED-Strips L with soldered Intelligence need PCB holders with a height of at least 12mm.

# Accessoires

## Cylindrical profiles



Cylindrical profiles	Item number
Cylindrical profile, 2m, ø 25mm, aluminium anodised	804.2504
Cylindrical profile, 2m, ø 25mm, white	804.2505
Cylindrical profile, 2m, ø 25mm, black	804.2506

Bracket	Item number
Bracket for cylindrical profile (white)	802.0037
Bracket for cylindrical profile (transparent)	802.0038
Bracket for cylindrical profile (black)	802.0039

Covering	Item number
Covering for cylindrical profile 2m, transparent	804.2594

Head ends	Item number
Head end aluminium natural, lasered, 2mm thin, including screws	804.2520
Head end aluminium, rotated, anodised, 12mm width, including screws	804.2541
Head end aluminium, rotated, anodised, 12mm width, with cable outlet, including screws	804.2551
Head end white, lasered, 2mm thin, including screws	804.2522
Head end white, rotated, 12mm width, including screws	804.2542
Head end white, rotated, 12mm width, with cable outlet, including screws	804.2552
Head end black, lasered, 2mm thin, including screws	804.2523
Head end black, rotated, 12mm width, including screws	804.2543
Head end black, rotated, 12mm width, with cable outlet, including screws	804.2553

Special lengths and colours available upon request. For special colours please provide relevant RAL-information.

## Rectangular profiles



Rectangular profiles	Item number
Rectangular profile, 2m, 24mm × 30mm (W × H), aluminium anodised	804.2401
Rectangular profile, 2m, 24mm × 30mm, aluminium anodised, in pack of ten	804.2411
Rectangular profile, 2m, 24mm × 30mm (W × H), white	804.2402
Rectangular profile, 2m, 24mm × 30mm (W × H), white, in pack of ten	804.2412
Rectangular profile, 2m, 24mm × 30mm (W × H), black	804.2403
Rectangular profile, 2m, 24mm × 30mm (W × H), black, in pack of ten	804.2413

Brackets	Item number
Bracket for rectangular profile, 2m, plastic, black	802.0040
Bracket for rectangular profile, 2m, plastic, black, in pack of ten	802.0041

Click profile	Item number
Click eachfile for rectangular profile, 2m, transparent	804.2492
Click eachfile for rectangular profile, 2m, in pack of ten	804.2493

Head ends	Item number
Head end aluminium anodised, 6mm, including screws	804.2431
Head end aluminium anodised, 12mm, including screws	804.2441
Head end white, lacquered, 6mm, including screws	804.2432
Head end white, lacquered, 12mm, including screws	804.2442
Head end black, lacquered, 6mm, including screws	804.2433
Head end black, lacquered, 12mm, including screws	804.2443

Special lengths and colours available upon request. For special colours please provide relevant RAL-information.

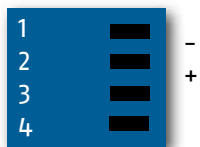
# Electrical Data

Features	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
Voltage	20-27V	20-27V	20-27V
Current ( $I_{\max}$ White)*	0,045A	0,09A	0,18A
Current ( $I_{\max}$ Green and Blue)*	0,07A	0,14A	0,28A
Current ( $I_{\max}$ Red and Amber)*	0,035A	0,07A	0,14A

\*At 24V

# Pin Connection

## System connector blue



# Control options for LED-Strip L12 MK2

There are countless combinations when using our LED-Strips L12 MK2 with Intelligence. Of course, the possible combinations always depend on the respective product.

However, in order to give you an overview of our system, we have presented some scenarios with example calculations and cabling examples on the following pages.

## Overview of control options for LED-Strip L12-250 MK2 in white

	Control channels	LED-Strip per channel	LED-Strip per power supply	Details see on page	Calculation example see on page
System Power Supply 4E with Intelligence (with 1 LED strip per control channel)	192	1	192		24
System Power Supply 4 with Intelligence* (with 1 LED strip per control channel)	192	1	192		
System Power Supply 4/4E with Intelligence (maximum number of LED strips per control channel)	72	3	216	20	24
System Power Supply 4/4E with Big Intelli XLR (two Big Intellis each output)	24	11	264	20	
Sys One with Intelligence (XLR-Adapterboard), (with 1 LED strip per control channel)	48	1	48	18	
Sys One with Intelligence (XLR-Adapterboard), (maximum number of LED strips per control channel)	18	3	54		
Sys One (System connector blue)	6	11	66	18	
Long Distance Controller	18	10	180	17	
Big Intelli monochrome with 70W power supply	1	33	33	22	
60W power supply (undimmed)			32	23	

\*A System Power Supply 4 cannot control more than 60 channels per output.

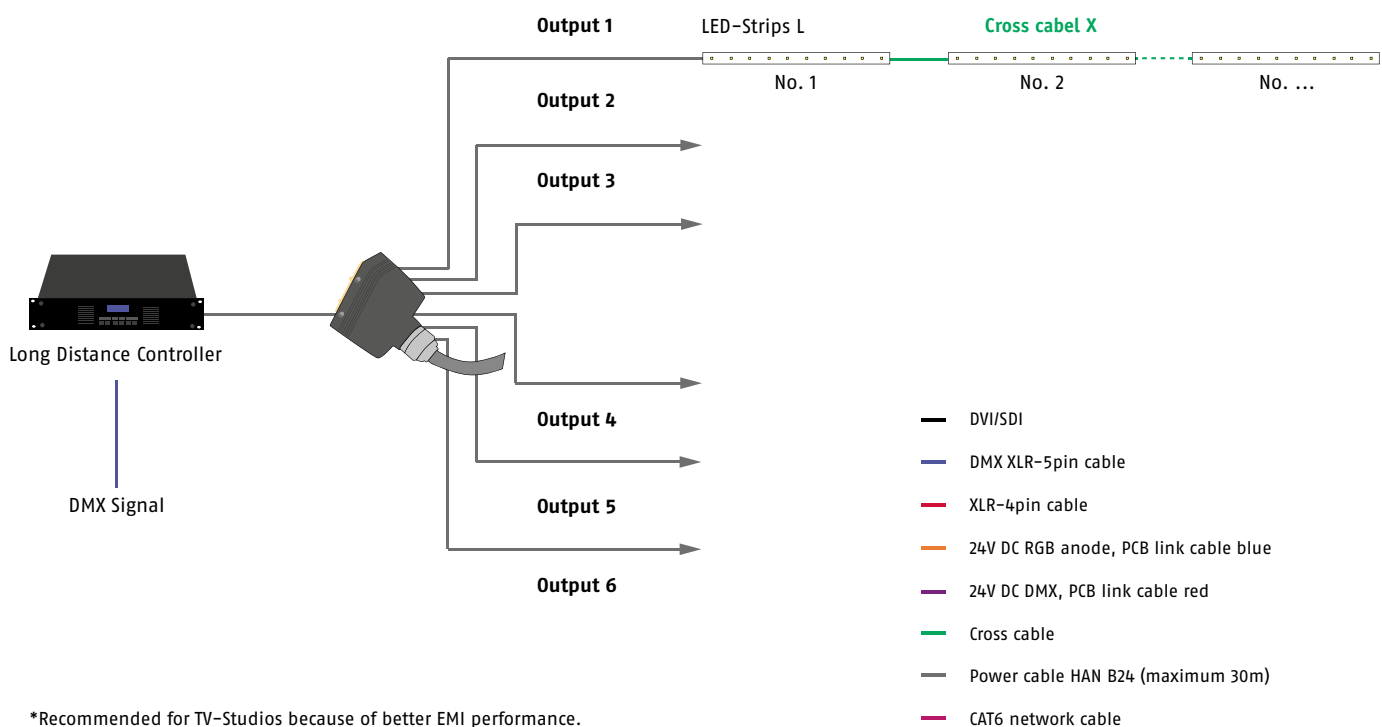


## Long Distance Controller



	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
White	378 LED-Strips per controller 63 LED-Strips per output 21 LED-Strips per channel	180 LED-Strips per controller 30 LED-Strips per output 10 LED-Strips per channel	90 LED-Strips per controller 15 LED-Strips per output 5 LED-Strips per channel
Blue and Green	234 LED-Strips per controller 39 LED-Strips per output 13 LED-Strips per channel	108 LED-Strips per controller 18 LED-Strips per output 6 LED-Strips per channel	54 LED-Strips per controller 9 LED-Strips per output 3 LED-Strips per channel
Red and Amber	486 LED-Strips per controller 81 LED-Strips per output 27 LED-Strips per channel	234 LED-Strips per controller 39 LED-Strips per output 13 LED-Strips per channel	108 LED-Strips per controller 18 LED-Strips per output 6 LED-Strips per channel

## Cabling example for Long Distance Controller with LED-Strip L12\*



\*Recommended for TV-Studios because of better EMI performance.

## Sys One

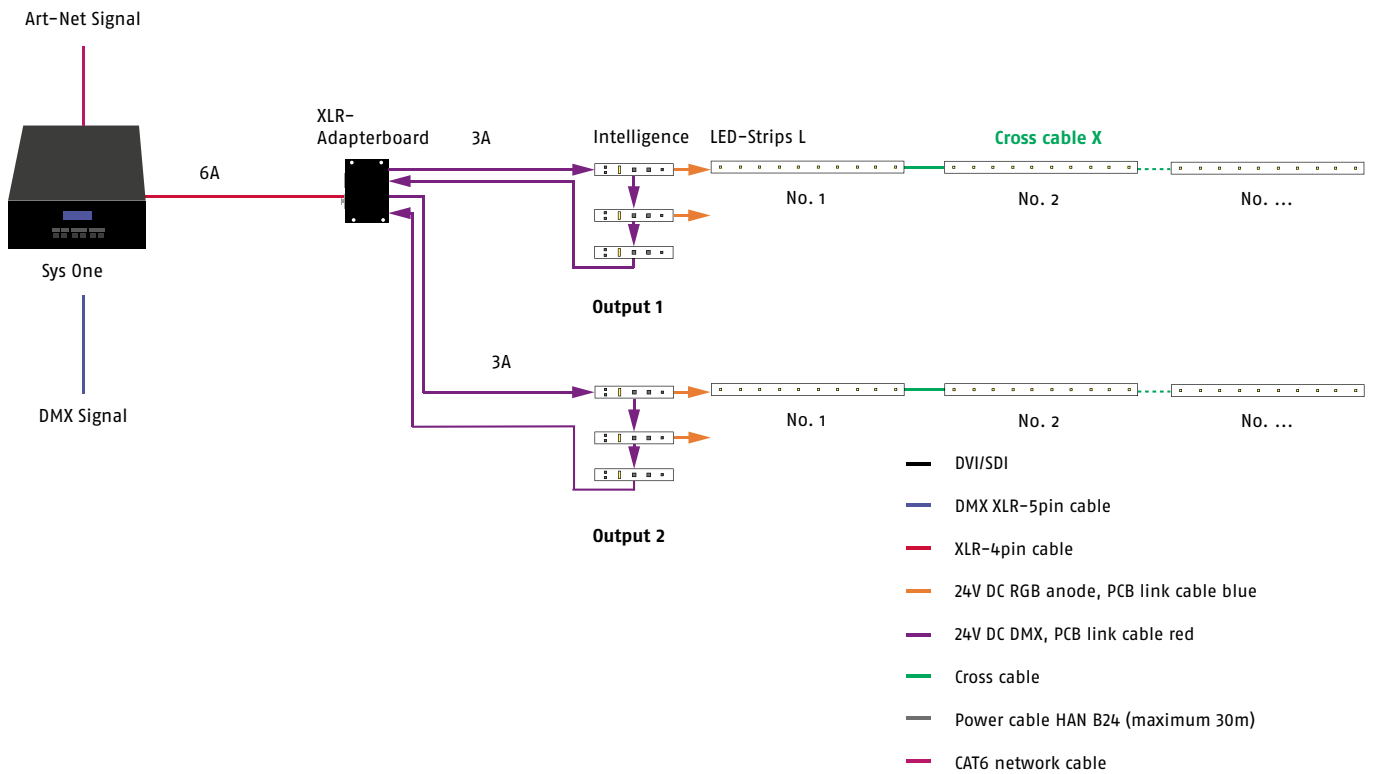
Specific feature: fanless operating



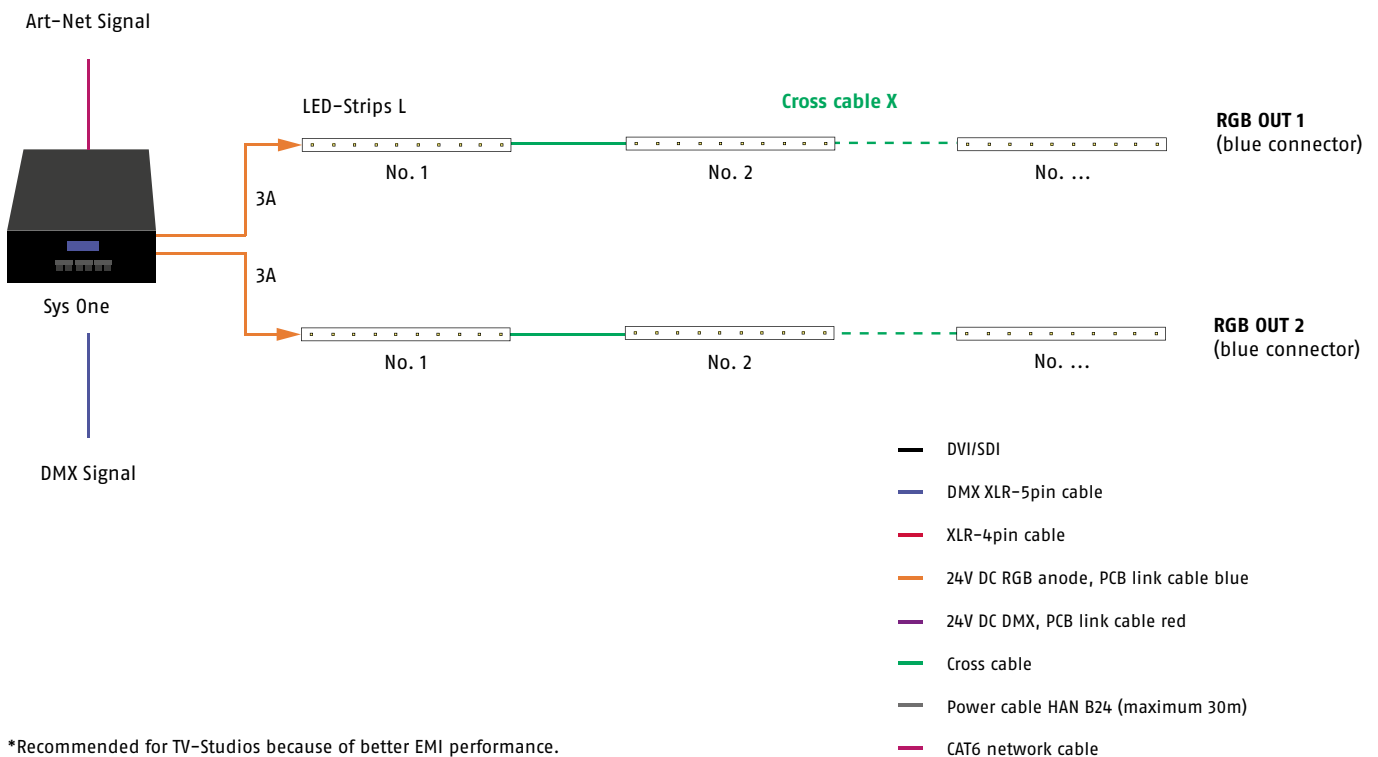
Power Data Out	Colour	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
Output XLR-4pin, one control channel per LED strip	White	maximum 84 LED-Strips per controller 1 LED-Strip per channel	maximum 48 LED-Strips per controller 1 LED-Strip per channel	maximum 24 LED-Strips per controller 1 LED-Strip per channel
	Blue and Green	maximum 60 LED-Strips per controller 1 LED-Strip per channel	maximum 36 LED-Strips per controller 1 LED-Strip per channel	maximum 18 LED-Strips per controller 1 LED-Strip per channel
	Red and Amber	maximum 102 LED-Strips per controller 1 LED-Strip per channel	maximum 60 LED-Strips per controller 1 LED-Strip per channel	maximum 36 LED-Strips per controller 1 LED-Strip per channel
Output system connector blue	White	maximum 132 LED-Strips per controller maximum 66 LED-Strips per system connector blue maximum 22 LED-Strips per channel	maximum 66 LED-Strips per controller maximum 33 LED-Strips per system connector blue maximum 11 LED-Strips per channel	maximum 30 LED-Strips per controller maximum 15 LED-Strips per system connector blue maximum 5 LED-Strips per channel
	Blue and Green	maximum 84 LED-Strips per controller maximum 42 LED-Strips per system connector blue maximum 14 LED-Strips per channel	maximum 42 LED-Strips per controller maximum 21 LED-Strips per system connector blue maximum 7 LED-Strips per channel	maximum 18 LED-Strips per controller maximum 9 LED-Strips per system connector blue maximum 3 LED-Strips per channel
	Red and Amber	maximum 168 LED-Strips per controller maximum 84 LED-Strips per system connector blue maximum 28 LED-Strips per channel	maximum 84 LED-Strips per controller maximum 42 LED-Strips per system connector blue maximum 14 LED-Strips per channel	maximum 42 LED-Strips per controller maximum 21 LED-Strips per system connector blue maximum 7 LED-Strips per channel

Please note: connect only one output variable (XLR-4pin or System connector blue)!

### Cabling example for Sys One (XLR-4pin connector) with Intelligence and LED-Strip L12\*



### Cabling example for Sys One (System connector blue) with LED-Strip L12\*



\*Recommended for TV-Studios because of better EMI performance.

## System Power Supply 4E and System Power Supply 4\*\*

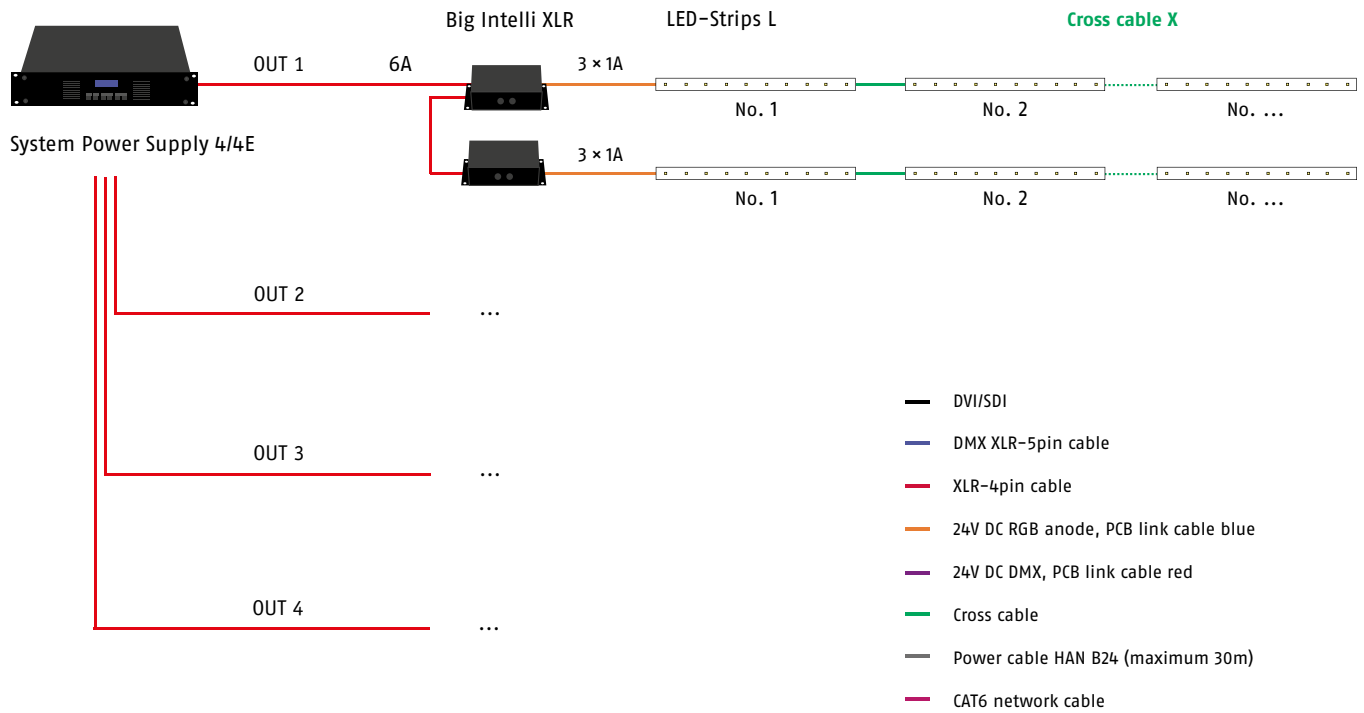


	Colour	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
with Big Intelli XLR*, two Big Intellis per output	White	maximum 528 LED-Strips per controller maximum 132 LED-Strips per output 22 LED-Strips per channel	maximum 264 LED-Strips per controller maximum 66 LED-Strips per output 11 LED-Strips per channel	maximum 120 LED-Strips per controller maximum 30 LED-Strips per output 5 LED-Strips per channel
	Blue and Green	maximum 336 LED-Strips per controller maximum 84 LED-Strips per output 14 LED-Strips per channel	maximum 168 LED-Strips per controller maximum 42 LED-Strips per output 7 LED-Strips per channel	maximum 72 LED-Strips per controller maximum 18 LED-Strips per output 3 LED-Strips per channel
	Red and Amber	maximum 672 LED-Strips per controller maximum 168 LED-Strips per output 28 LED-Strips per channel	maximum 336 LED-Strips per controller maximum 84 LED-Strips per output 14 LED-Strips per channel	maximum 168 LED-Strips per controller maximum 42 LED-Strips per output 7 LED-Strips per channel
with Intelligence*, maximum number of LED strips per Intelligence	White	maximum 432 LED-Strips per controller maximum 108 LED-Strips per output 6 LED-Strips per channel	maximum 216 LED-Strips per controller maximum 54 LED-Strips per output 3 LED-Strips per channel	maximum 96 LED-Strips per controller maximum 24 LED-Strips per output 1 LED-Strip per channel
	Blue and Green	maximum 288 LED-Strips per controller maximum 72 LED-Strips per output 4 LED-Strips per channel	maximum 144 LED-Strips per controller maximum 36 LED-Strips per output 2 LED-Strips per channel	maximum 72 LED-Strips per controller maximum 18 LED-Strips per output 1 LED-Strip per channel
	Red and Amber	maximum 576 LED-Strips per controller maximum 144 LED-Strips per output 8 LED-Strips per channel	maximum 288 LED-Strips per controller maximum 72 LED-Strips per output 4 LED-Strips per channel	maximum 144 LED-Strips per controller maximum 36 LED-Strip per output 2 LED-Strips per channel

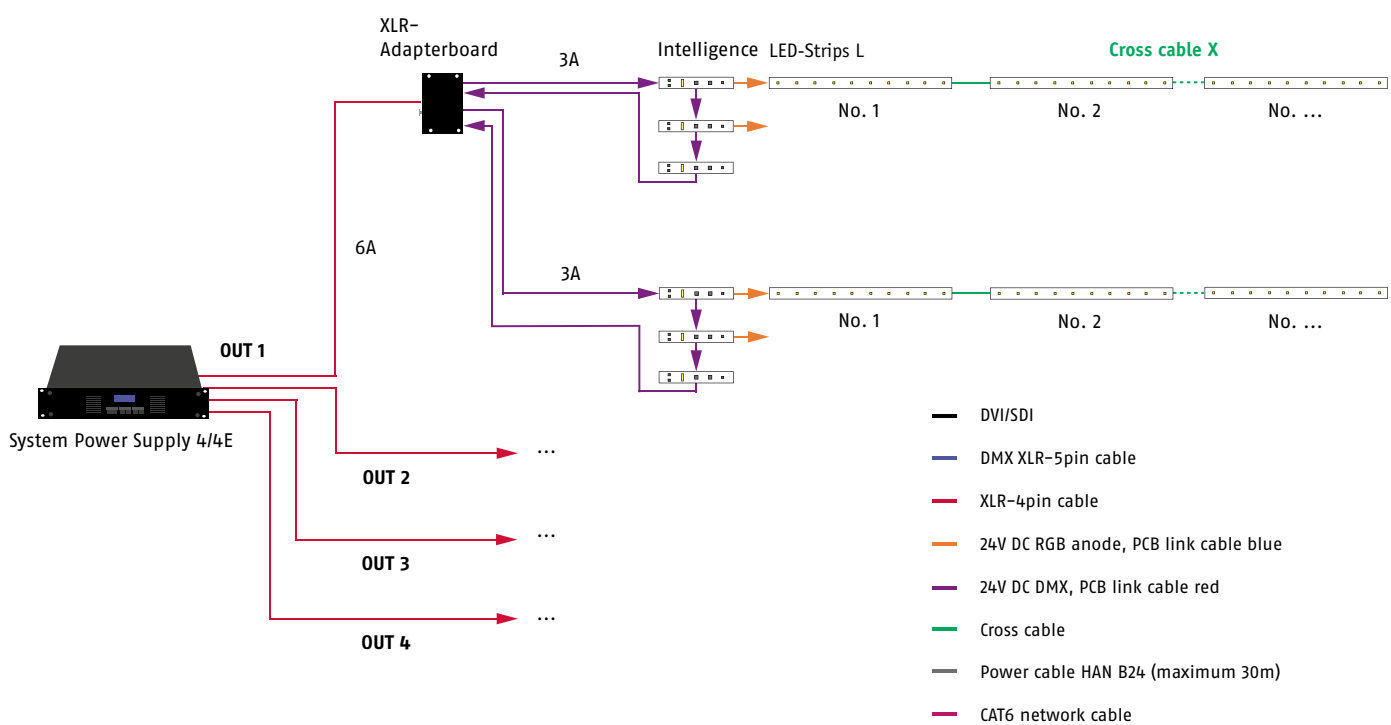
\* The System Power Supplies 4 and 4E can only control the LED-Strips L with an additional Intelligence.

\*\* A System Power Supply 4 cannot control more than 60 channels per output.

### Cabling example for System Power Supply 4 or 4E and Big Intelli XLR with LED-Strip L12\*



### Cabling example for System Power Supply 4 or 4E and Intelligence with LED-Strip L12\*



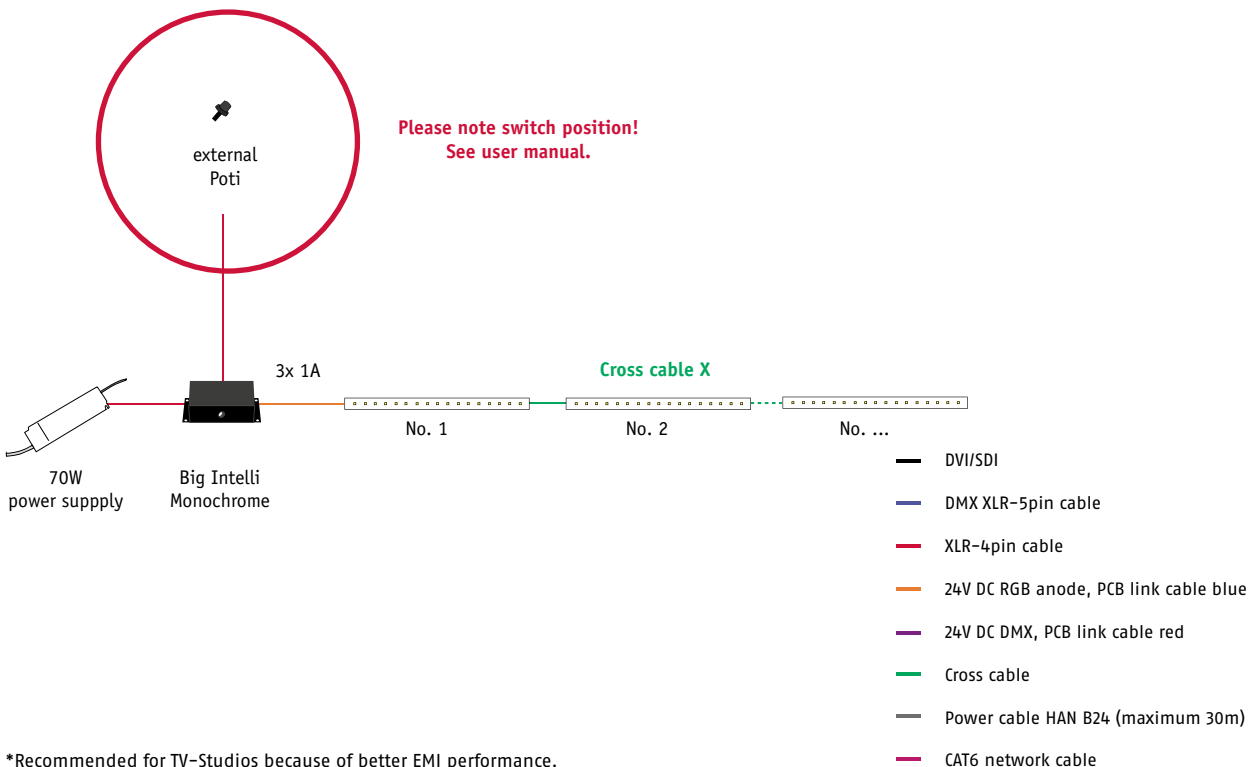
\*Recommended for TV-Studios because of better EMI performance.

### 70W Power Supply and Big Intelli (dimmable)



	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
White	maximum 66 LED-Strips per Power Supply 66 LED-Strips per channel	maximum 33 LED-Strips per Power Supply 33 LED-Strips per channel	maximum 15 LED-Strips per Power Supply 15 LED-Strips per channel
Blue and Green	maximum 42 LED-Strips per Power Supply 42 LED-Strips per channel	maximum 21 LED-Strips per Power Supply 21 LED-Strips per channel	maximum 9 LED-Strips per Power Supply 9 LED-Strips per channel
Red and Amber	maximum 84 LED-Strips per Power Supply 84 LED-Strips per channel	maximum 42 LED-Strips per Power Supply 42 LED-Strips per channel	maximum 21 LED-Strips per Power Supply 21 LED-Strips per channel

### Cabling example for 70W Power Supply and Big Intelli with LED-Strip L12\*



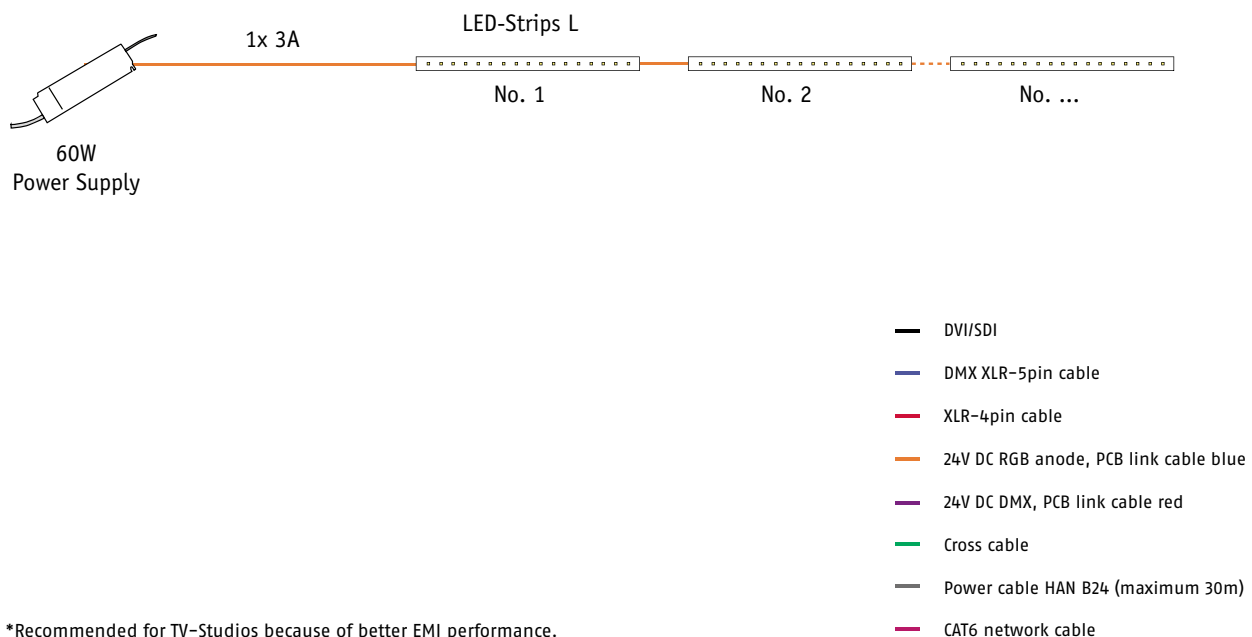
\*Recommended for TV-Studios because of better EMI performance.

### 60W Power Supply (undimmed)



	LED-Strip L12-125	LED-Strip L12-250	LED-Strip L12-500
White	maximum 64 LED-Strips per Power Supply	maximum 32 LED-Strips per Power Supply	maximum 16 LED-Strips per Power Supply
Blue and Green	maximum 41 LED-Strips per Power Supply	maximum 20 LED-Strips per Power Supply	maximum 10 LED-Strips per Power Supply
Red and Amber	maximum 82 LED-Strips per Power Supply	maximum 41 LED-Strips per Power Supply	maximum 20 LED-Strips per Power Supply

### Cabling example for 60W Power Supply with LED-Strip L12\*



\*Recommended for TV-Studios because of better EMI performance.

## Calculation example for System Power Supply 4E with Intelligence and LED-Strip L12-250

### 1. requirement: One control channel with each LED-Strip

One Intelligence can control  $3 \times 0,3A$  (three control channels per Intelligence)

$3 \times 0,09A (I_{\max} \text{ L12-250}) =$	0,27A
Requirement for Intelligence	0,07A
Total	<b>0,34A</b>

3A per system plug / **0,34A = 8 Intelligences, each with three LED-Strips**

$2 \times 3A$  per Output  $\triangleq 2 \times 24$  LED-Strips = **48 LED-Strips per output**

4 outputs per System Power Supply 4E  $\triangleq 4 \times 48 =$  **192 LED-Strips per System Power Supply 4E**

### 2. requirement: As few Intelligences as possible should be used.

One Intelligence can control  $3 \times 0,3A$

$0,3A$  per channel /  $0,09A$  per LED-Strip = **3 LED-Strips per channel**  
**Corresponds to  $3 \times 3 = 9$  LED-Strips per Intelligence**

$9 \times 0,09A (I_{\max} \text{ L12-250}) =$	0,81A
Requirement for Intelligence =	0,07A
Total	0,88A

3A per system plug  $\triangleq 3A / 0,88A = 3$  Intelligences per system plug

$\triangleq 6$  Intelligences per output

$\triangleq 24$  Intelligences per System Power Supply 4(E)

$\triangleq 24 \times 9 =$  **216 LED-Strips per System Power Supply 4E**



# Order numbers

	LED-Pitch	Length	Channels	Power (I <sub>max</sub> )	Colour	Item number				
LED-Strip L12-125 S <sup>2</sup> MK2	12,5mm	125mm	0/1 <sup>1</sup>	0,045A	6500K	103.6555				
					3500K	103.3555				
					3000K	103.3055				
					5700K	103.5755				
					5000K	103.5055				
					4000K	103.4055				
					2700K	103.2755				
				0,035A	Red	103.0145				
					Amber	103.0155				
				0,07A	Green	103.0185				
					Blue	103.0195				
				LED-Strip L12-250 S <sup>2</sup> MK2	12,5mm	250mm	0/1 <sup>1</sup>	0,09A	6500K	103.6552
									3500K	103.3552
									3000K	103.3052
5700K	103.5752									
5000K	103.5052									
4000K	103.4052									
2700K	103.2752									
0,07A	Red	103.0142								
	Amber	103.0152								
0,14A	Green	103.0182								
	Blue	103.0192								
LED-Strip L12-500 S <sup>2</sup> MK2	12,5mm	500mm	0/1 <sup>1</sup>					0,18A	6500K	103.6542
									3500K	103.3542
									3000K	103.3042
				5700K	103.5742					
				5000K	103.5042					
				4000K	103.4042					
				2700K	103.2742					
				0,14A	Red	103.0342				
					Amber	103.0352				
				0,28A	Green	103.0382				
					Blue	103.0392				

	Operating voltage	Power ( $I_{max}$ )	Power (auxiliary power)	Channels	Connection	Item number
LED-Intelligence	24V DC	3 × 0,3A	0,07A	3	System connector red/blue	302.0015
Big Intelli XLR (in case)	24V DC	3 × 1A	0,07A	3	System connector red/blue XLR-4pin	203.0030
Big Intelli Monochrome (in case)	24V DC	3 × 1A		1	System connector red/blue	203.0031

	Operating voltage	Power ( $I_{max}$ )	Channels	Input	Output	Item number
System Power Supply 4E	110-240V AC	4 × 6A*	4 × 3072 channels (DPB) 4 × 512 channels (DMX)	Ethercon RJ 45 XLR-5pin IN/Trough	4 × XLR-4pin	203.0003
System Power Supply 4	110-240V AC	4 × 6A	4 × 60	XLR-5pin IN/Trough	4 × XLR-4pin	203.0002
Sys One	110-240V AC	1 × 6A or 2 × 3A or 2 × (3 × 1A)	1 × 512** or 2 × 512**	XLR-5pin IN/Trough	1 × XLR-4pin 2 × System connector red 2 × System connector blue	203.0007
Long Distance Controller	110-240V AC	6 × (R: 0,9A + G: 1,1A + B: 1,1A)	18	XLR-5pin IN/Trough	Multicore-24pin	203.0001
70W-Power Supply (24V DC)	220-240V AC				System connector red	204.0151
60W-Power Supply (20V DC)	100-240V AC				System connector blue (L-Series)	204.0653

\* Note: american version only 4 × 4A at 110V

\*\* depending on the output configuration

# ESD warning

Please be aware that electrostatic discharges can destroy LED boards, and our experience shows that this does happen. During assembly, we recommend wearing at least one antistatic wrist strap and avoiding static discharges – such as those that arise when removing protective film or dry cleaning acrylic glass, for example – near LEDs! Antistatic materials should be used when packaging the LED boards. Normal bubble wrap or other plastic bags are not suitable.

For reasons of safety and radio shielding, please only use systems we have approved to provide a power supply for our LED components. All technical information is based on the version at the time of printing.

We reserve the right to make technical specifications in terms of a product improvement without prior notice. Printing – even excerpts – requires the written consent of Schnick-Schnack-Systems GmbH.

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## **Why Schnick Schnack Systems?**

As installation times become increasingly shorter the complexity of systems simultaneously increases as do the requirements of customers.

We are a supplier who delivers high-quality reliable systems – under tight deadline constraints that are not only quick to install but also simple to operate and service.

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We reserve the right to make changes that serve further improvement.