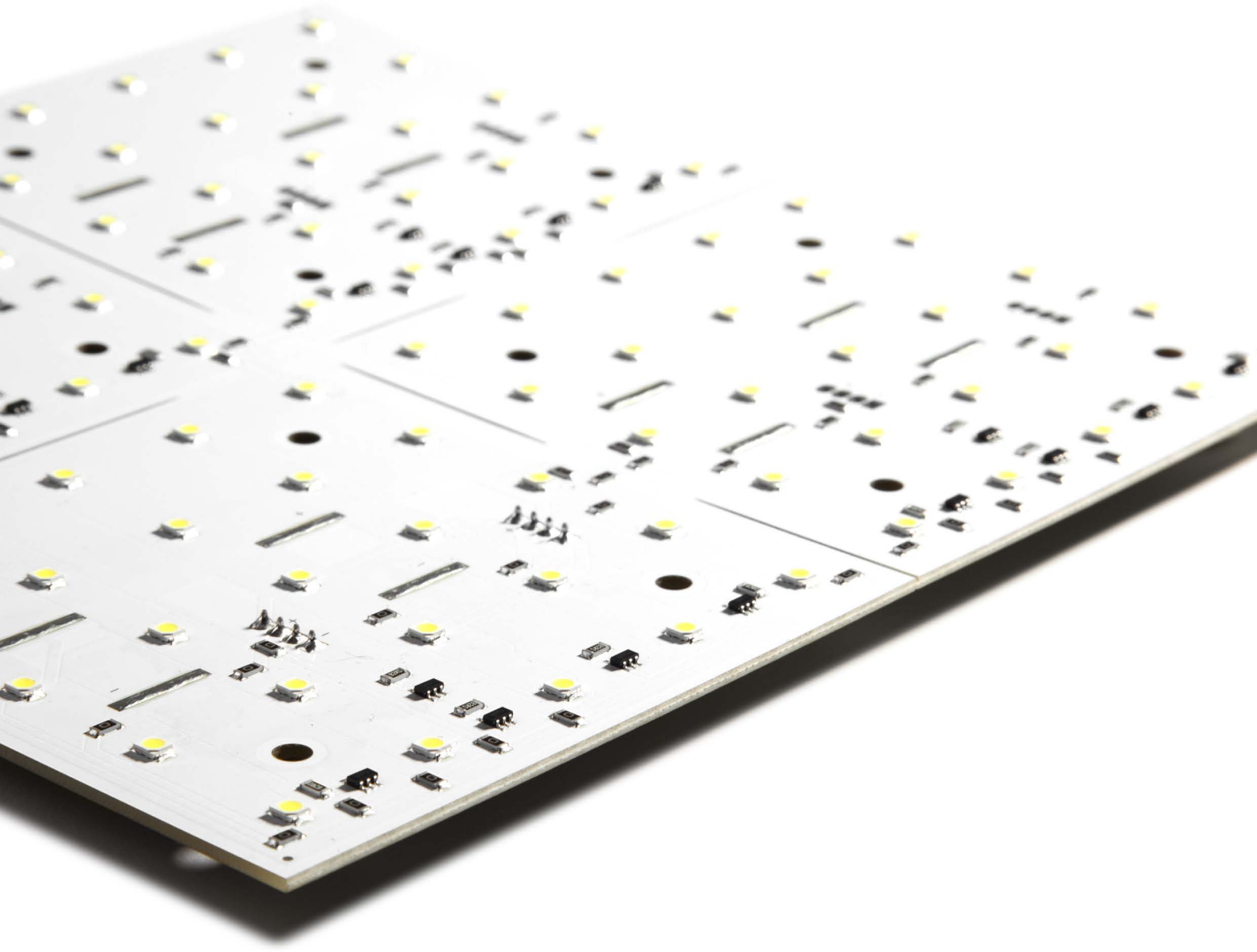
SCHNICK
SCHNACK
SYSTEMS

LED-Tile L20

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-Tiles L are equipped with high-quality, efficient singlecolour 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-Tiles L20 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 LED-Tiles L20 are available in seven colours:

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

The LED tile L20-10-10 is available in the dimensions of 199mm × 199mm equipped with 100 LEDs in a pitch of 20 mm. The LED-Tile can be easily disassembled by hand into four smaller tiles with dimensions 99,5mm x 99,5mm. Thanks to the ability to easily divide the tiles, the LED-Tile can be easily adjusted to just about every lighting situation.

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 LEDs are mounted with board holders.

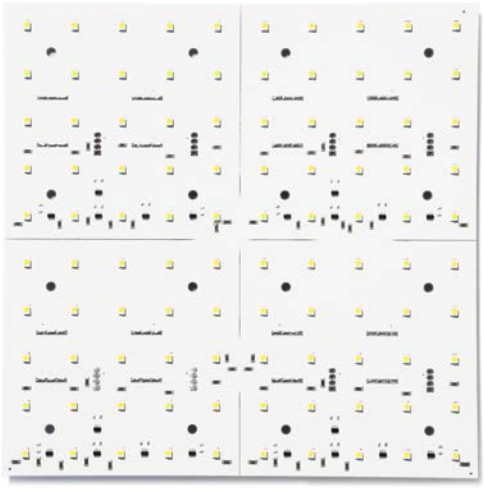
Control

The LED-Tiles L20 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-Tiles can also be activated via a corresponding power supply and – if dimmability is desired – with a Big Intelli Monochrome.

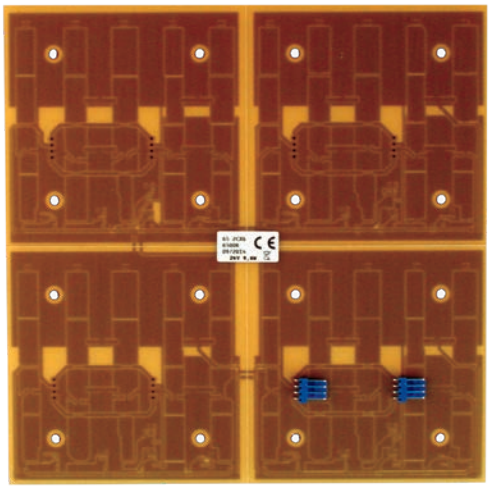
The LED-Tiles L20 are plug-compatible with the existing RGB LED system from Schnick-Schnack-Systems: Each of the three RGB channels is used to activate the LED-Tiles L. By using special cross cables, each LED-Tile in a section can be assigned to a channel. So the structure is simple. Thanks to the cross principle RGB controller can be used sustainably for monochrome LED-Tiles. Thanks to the integrated current regulator, even long power lines do not result in a decrease in brightness on the tile.

Mechanical data

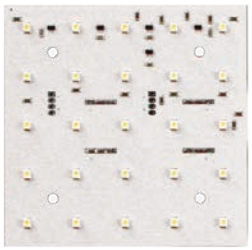
Features	LED-Tile L20-10-10	LED-Tile L20-5-5
Dimensions	199mm × 199mm	99,5mm × 99,5mm
Backlighted area	200mm × 200mm	100mm × 100mm
LED-Pitch	20mm	20mm
Number of LEDs	100	25
Pin connection and -colour	System connector blue	System connector blue
Safety class	IP00	IP00
Weight	130g	30g



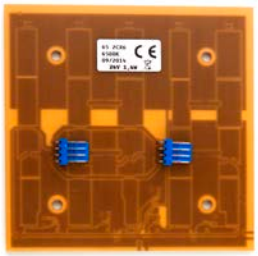
LED-Tile L20-10-10 (front view)



LED-Tile L20-10-10 (rear view)

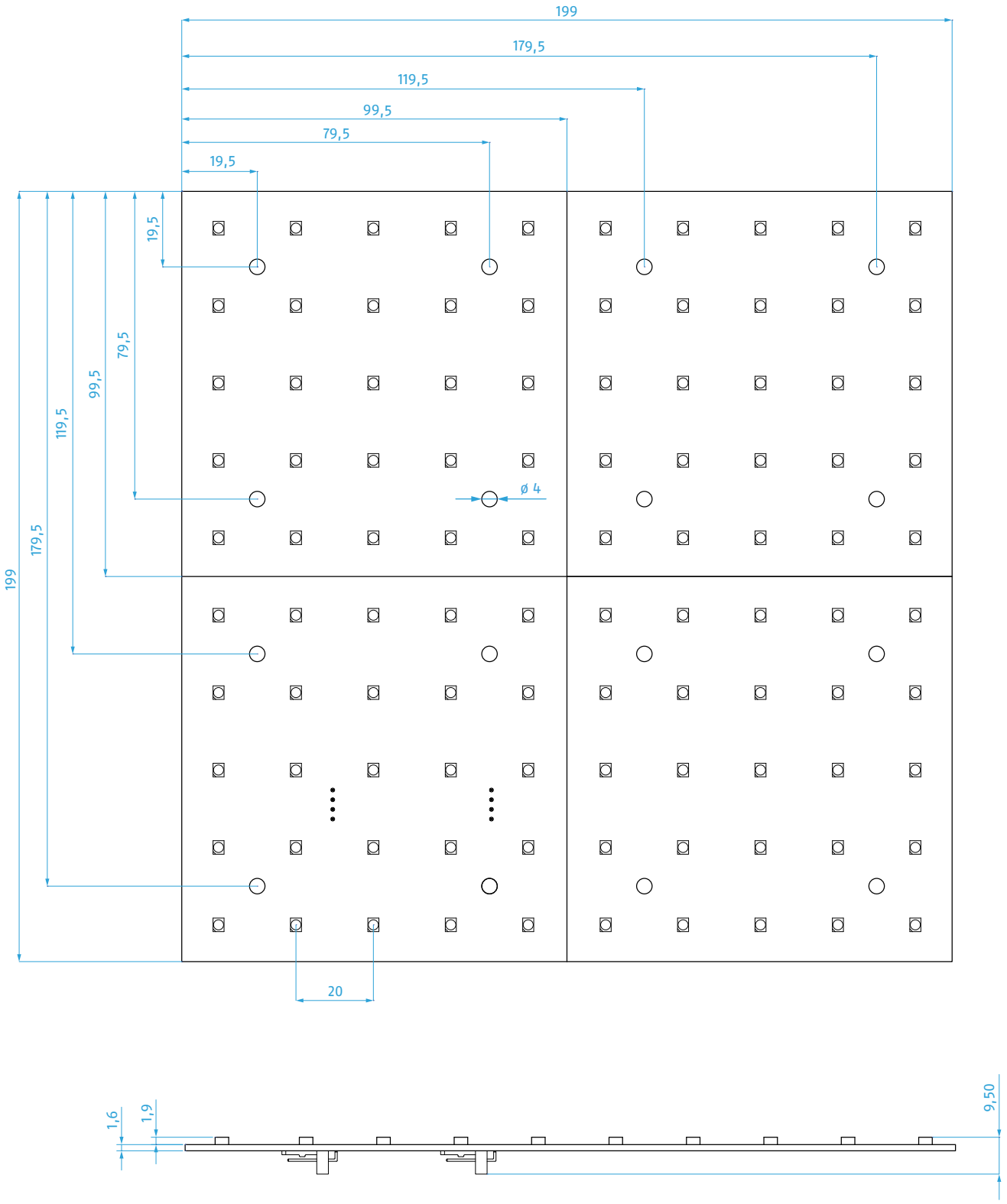


LED-Tile L20-5-5 (front view)

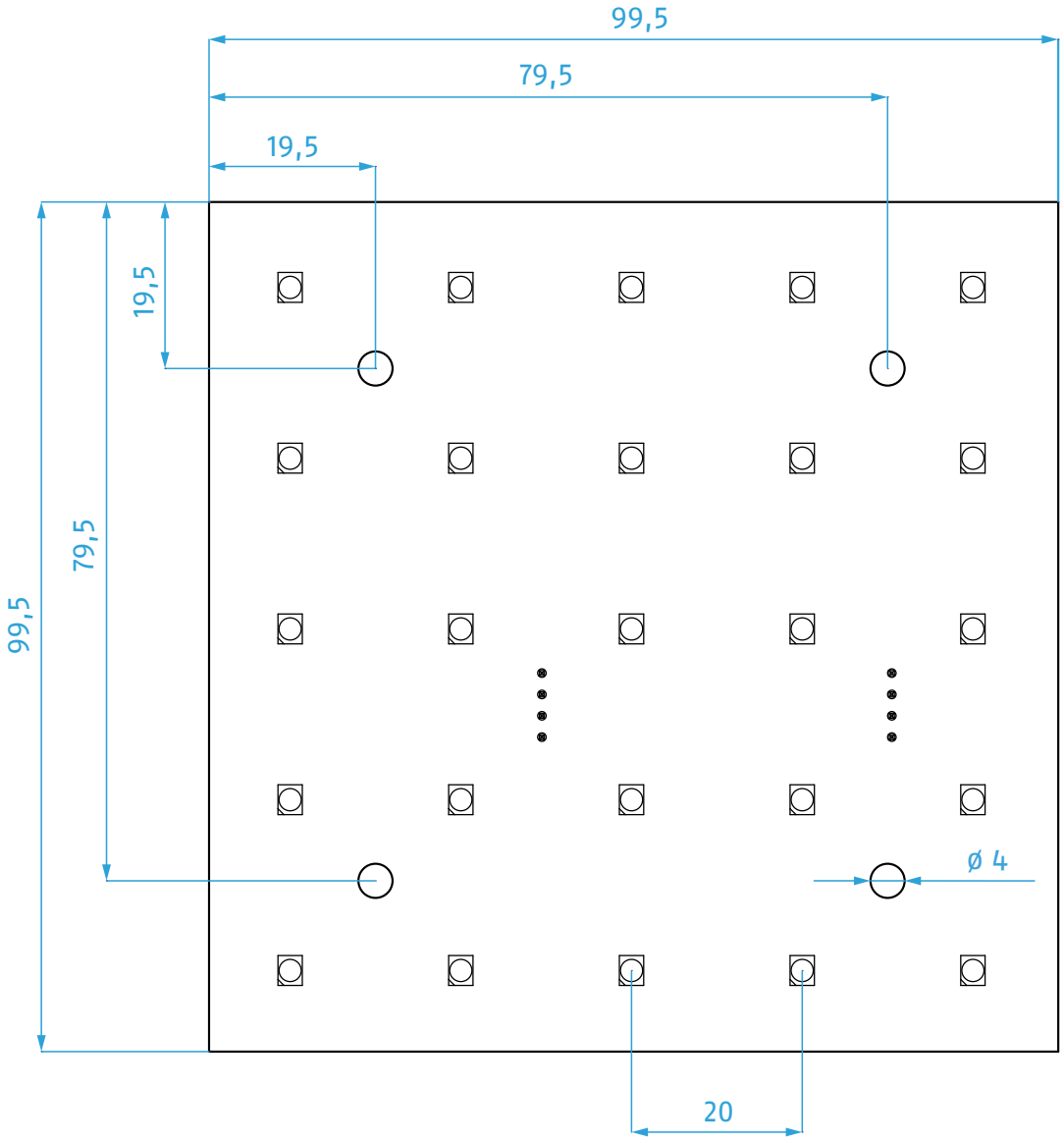


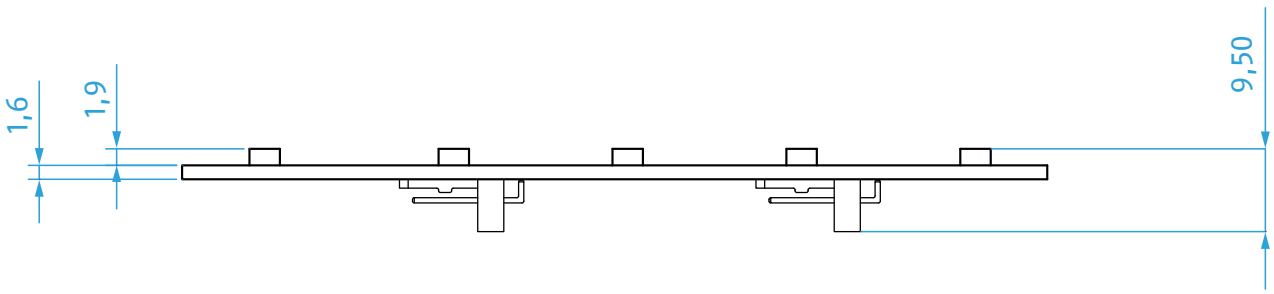
LED-Tile L20-5-5 (rear view)

CAD drawing*



* without scale / all units in mm


99,5
79,5
19,5
19,5
79,5
99,5
ø 4
20


1,6
1,9
9,50

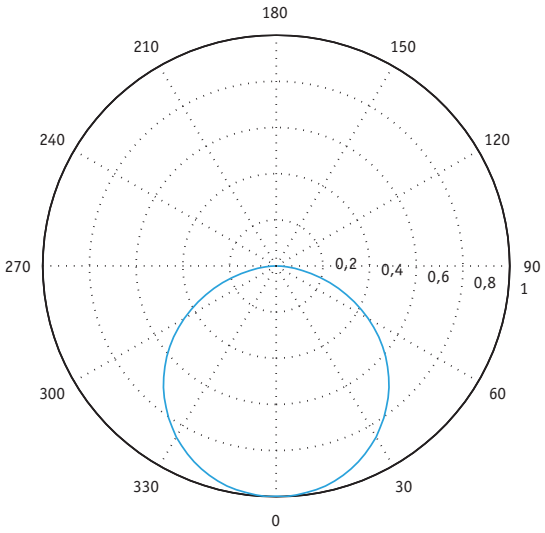
Optical Data

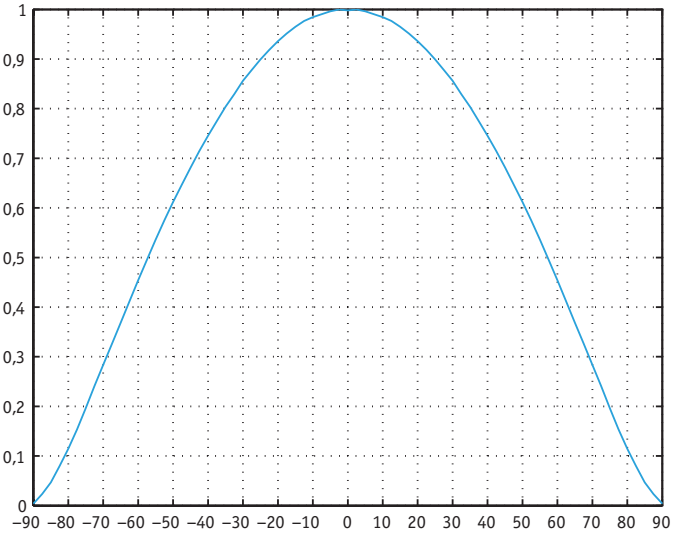
Features	LED-Tile L20-10-10	LED-Tile L20-5-5
Colour	6500K**	6500K**
	5700K	5700K
	5000K	5000K
	4000K	4000K
	3500K	3500K
	3000K	3000K
	2700K	2700K
Emission angle	115°	115°
Lighting current	581lm*	145lm*
Efficiency (at 20V)	65lm/W*	65lm/W*
Colour reproduction R_a	ca. 80*	ca. 80*
Light intensity	200cd*	50cd*

Distance/Lux table

Distance	LED-Tile L20-10-10	LED-Tile L20-5-5
0,5m	800lx*	200lx*
1m	200lx*	50lx*
2m	50lx*	12,5lx*

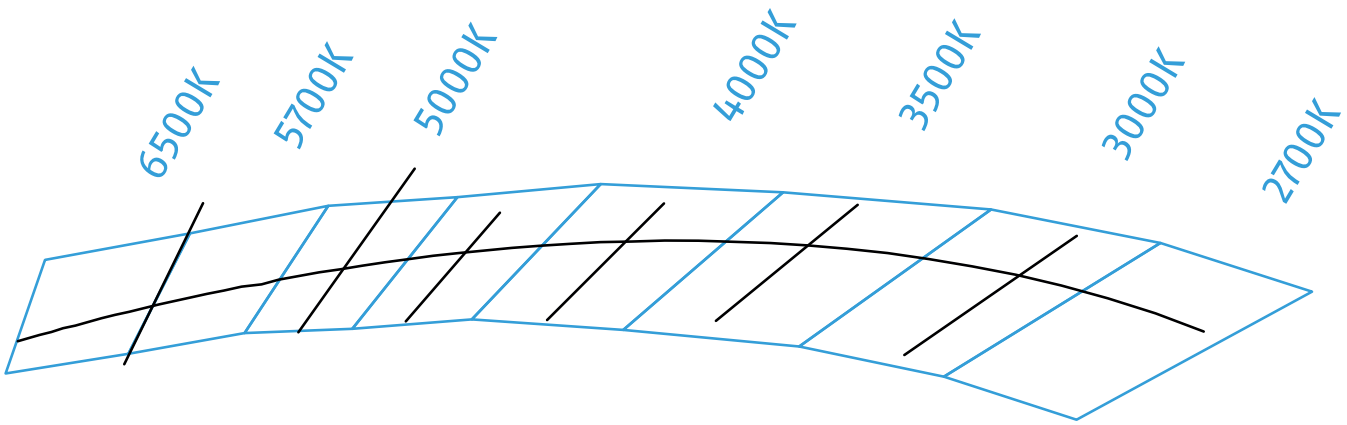
Light distribution curves



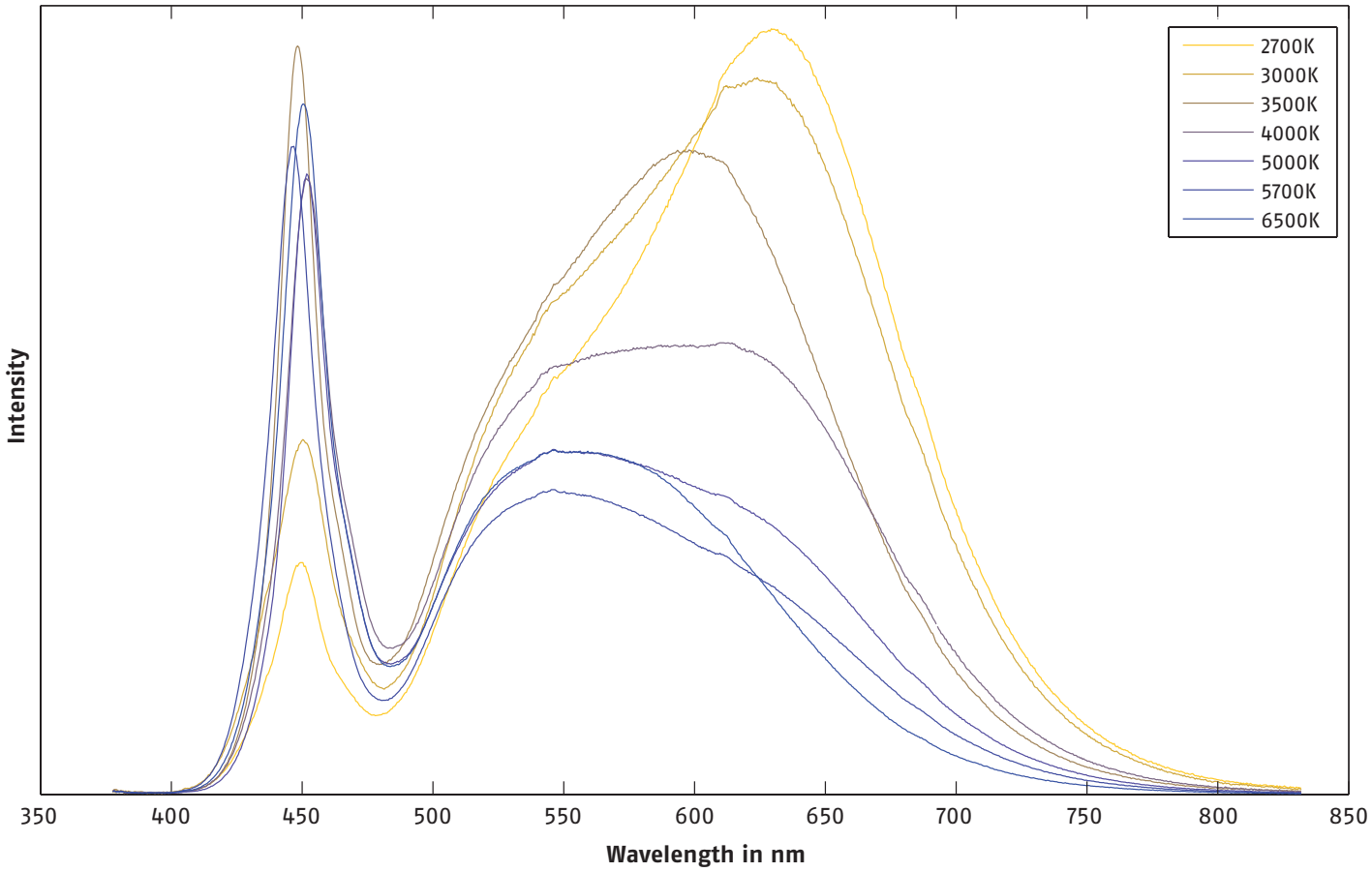


* The data provided are measured values. As these values are subject to fluctuations, the actual values of the delivered LEDs may deviate from them.
The photometric values were measured using an LED-Tile L20-10-10.
** For 6500K the R_a is at least 70

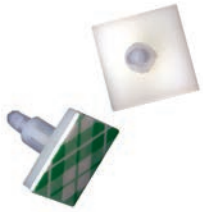
Binning (ANSI)

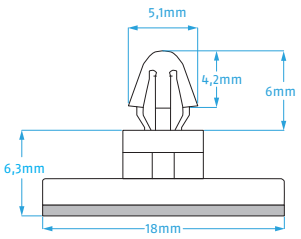


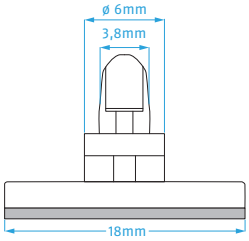
Spectral distribution

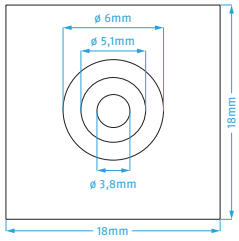


Mounting

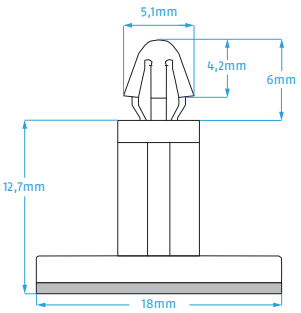


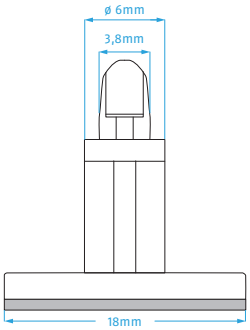


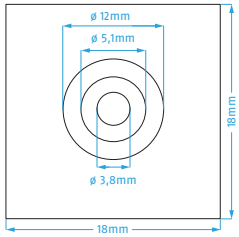




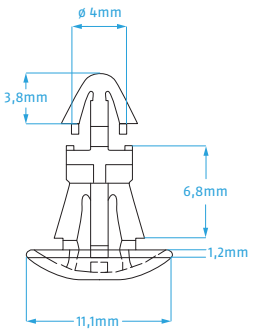
Description	Item number
PCB holder 6mm, self-adhesive version	802.0001

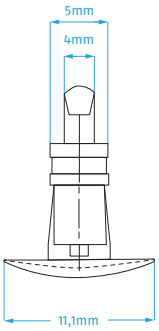


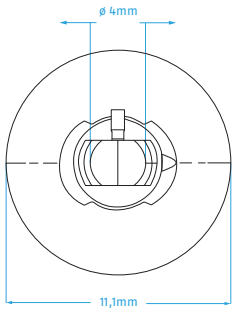




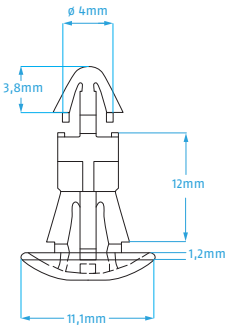
Description	Item number
PCB holder 12mm, self-adhesive version	802.0002

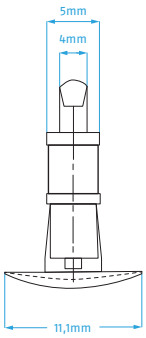


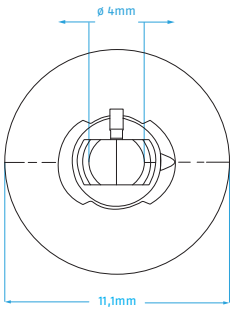




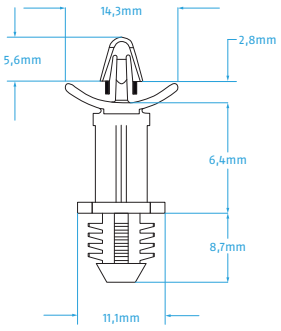
Description	Item number	Drill hole	Material thickness
PCB holder 6mm, plug-in version (for plates)	802.0003	5,4mm	1,5-1,6mm

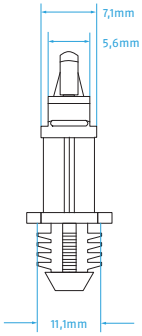


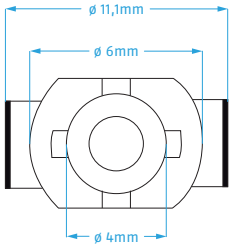




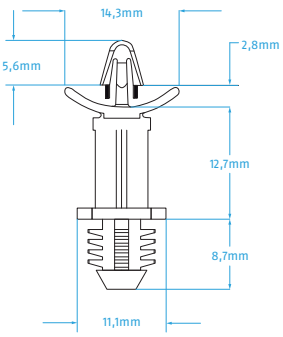
Description	Item number	Drill hole	Material thickness
PCB holder 12mm, plug-in version (for plates)	802.0004	5,4mm	1,5-1,6mm

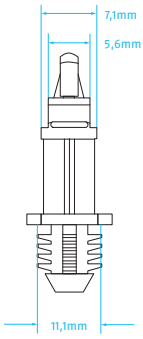


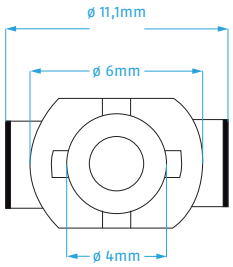




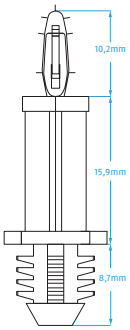
Description	Item number	Drill hole	Material thickness
PCB holder 6mm, drill version (for wood or plastic)	802.0006	7,9mm	minimum 6,4mm

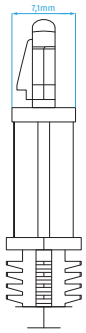


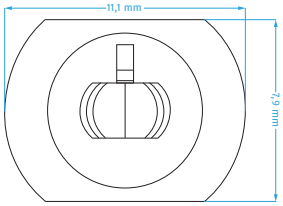




Description	Item number	Drill hole	Material thickness
PCB holder 12mm, drill version (for wood or plastic)	802.0007	7,9mm	minimum 6,4mm







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

Electrical Data

Features	LED-Tile L20-10-10	LED-Tile L20-5-5
Voltage	20-27V	20-27V
Current (I_{max})*	0,45A	0,113A

*At 24V

Pin Connection

System connector blue

Control options for LED-Tiles L20

There are countless combinations when using our LED-Tile L20 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-Tile L20-5-5

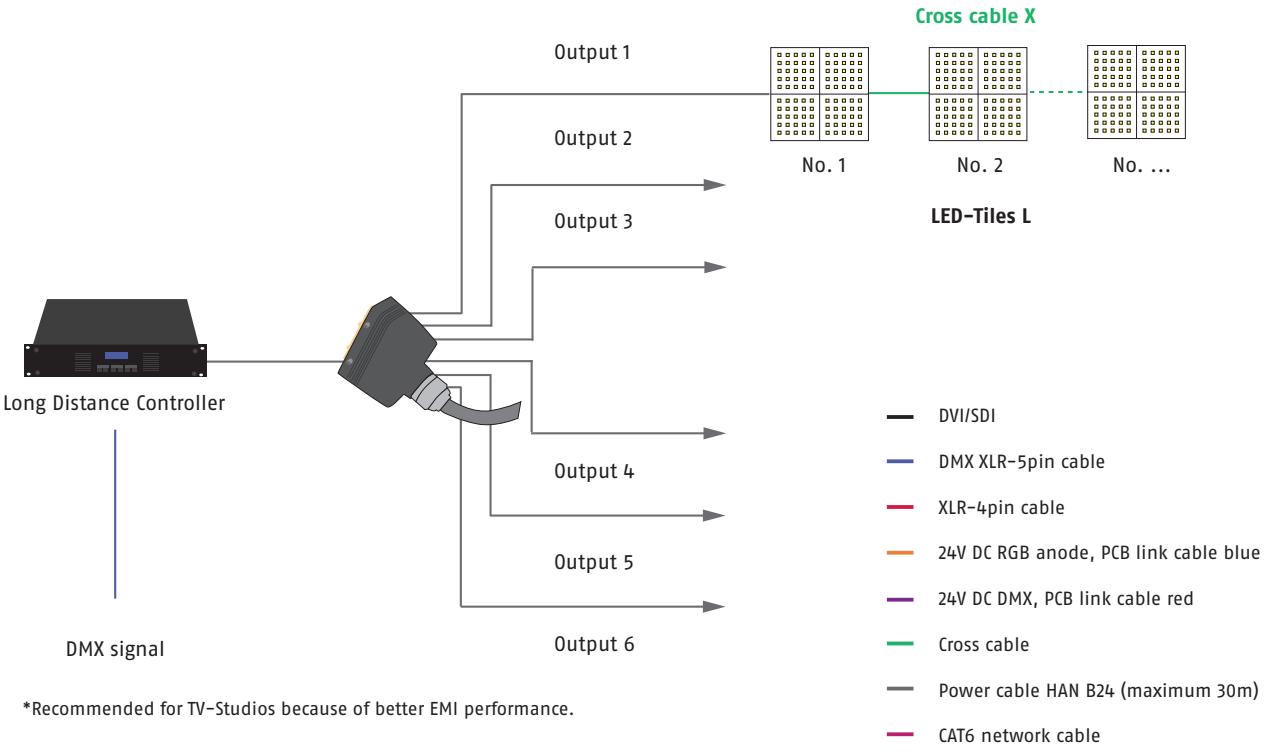
	Control channels	LED-Strip per channel	LED-Strip per power supply	Details see on page	Calculation example see on page
System Power Supply 4E with Intelligence (with 1 LED tile per control channel)	168	1	168		20
System Power Supply 4 with Intelligence* (with 1 LED tile per control channel)	168	1	168		
System Power Supply 4/4E with Intelligence (maximum number of LED tiles per control channel)	96	2	192	16	20
System Power Supply 4/4E with Big Intelli XLR (two Big Intellis each output)	24	8	192	16	
Sys One with Intelligence (XLR-Adapterboard), (with 1 LED tile per control channel)	42	1	42	14	
Sys One with Intelligence (XLR-Adapterboard), (maximum number of LED tiles per control channel)	24	2	48		
Sys One (System connector blue)	6	8	48	14	
Long Distance Controller	18	8	144	13	
Big Intelli monochrome with 70W power supply	1	24	24	18	
60W power supply (undimmed)			26	19	

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

Long Distance Controller

LED-Tile L20-10-10	LED-Tile L20-5-5
36 LED-Tiles per controller	144 LED-Tiles per controller
6 LED-Tiles per output	24 LED-Tiles per output
2 LED-Tiles per channel	8 LED-Tiles per channel

Cabling example for Long Distance Controller with LED-Tile L20*



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

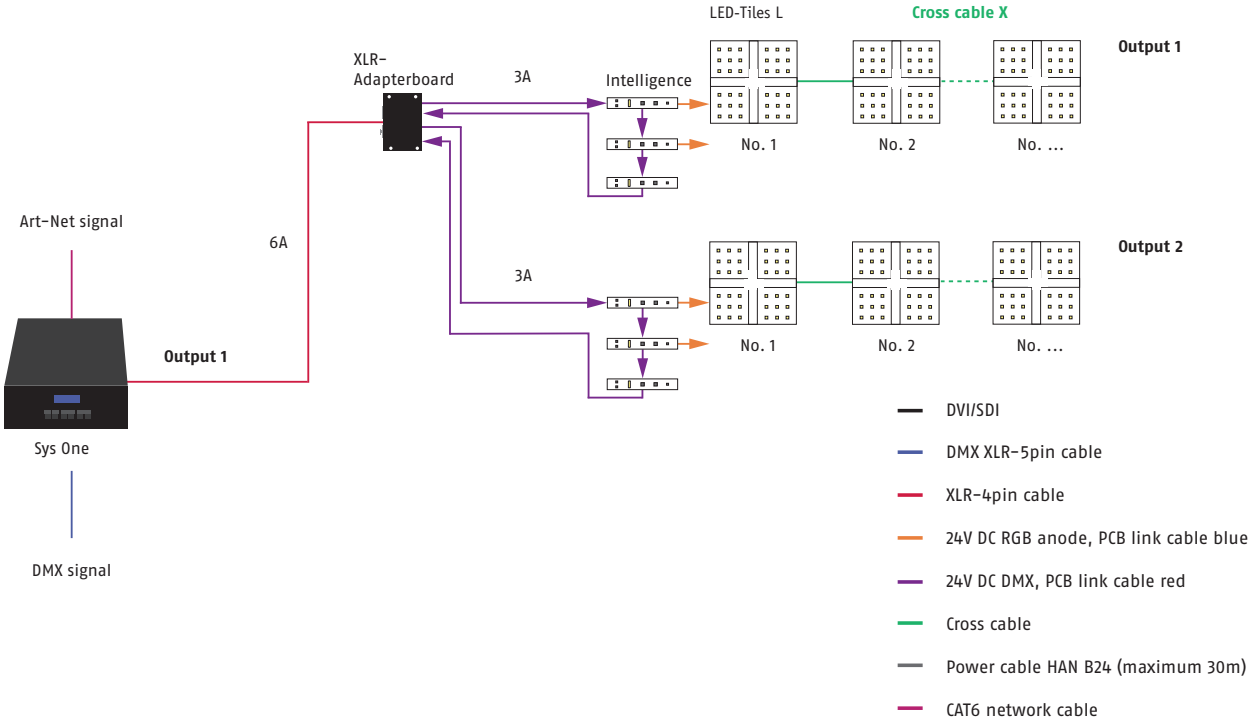
Sys One

Specific feature: fanless operating

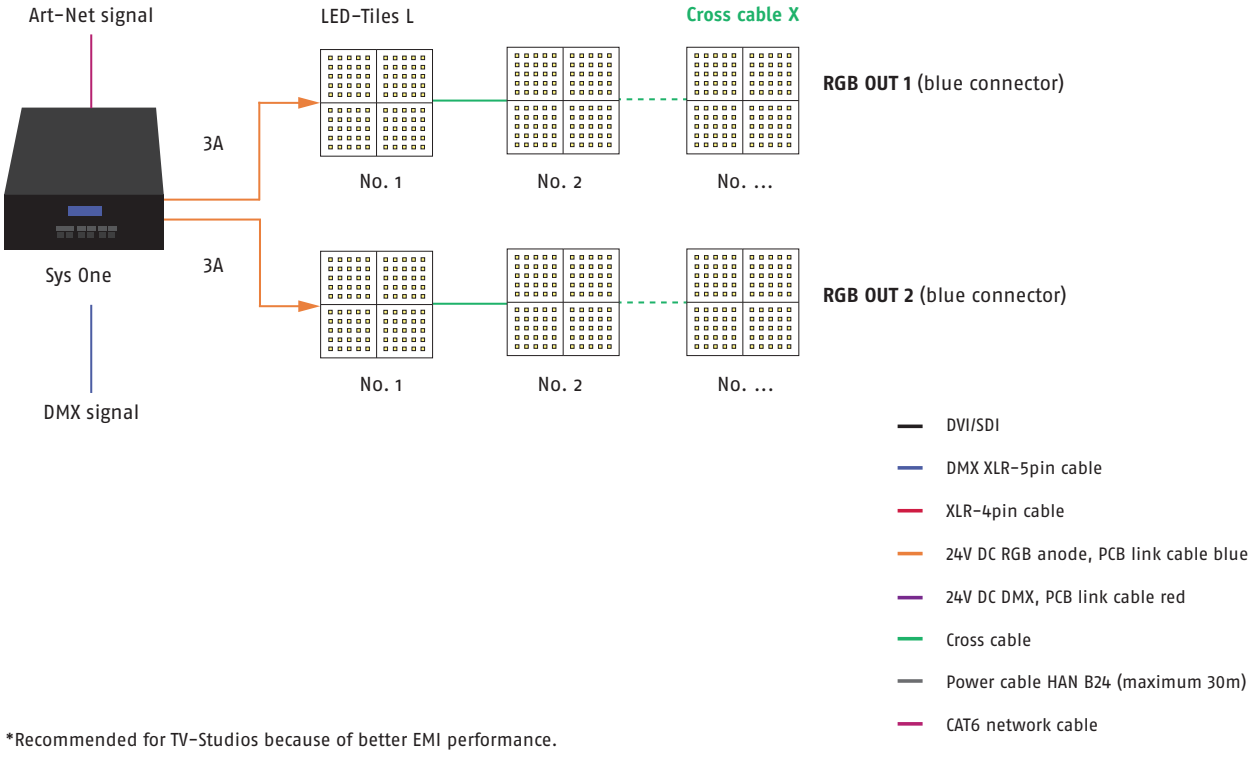
Power Data Out	LED-Tile L20-10-10	LED-Tile L20-5-5
Output XLR-4pin, **one control channel per LED tile**		maximum 42 LED-Tiles per controller 1 LED-Tile per channel
Output system connector blue	maximum 12 LED-Tiles per controller maximum 6 LED-Tiles per output maximum 2 LED-Tiles per channel	maximum 48 LED-Tiles per controller maximum 24 LED-Tiles per output maximum 8 LED-Tiles 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-Tile L20*



Cabling example for Sys One (System connector blue) with LED-Tile L20*



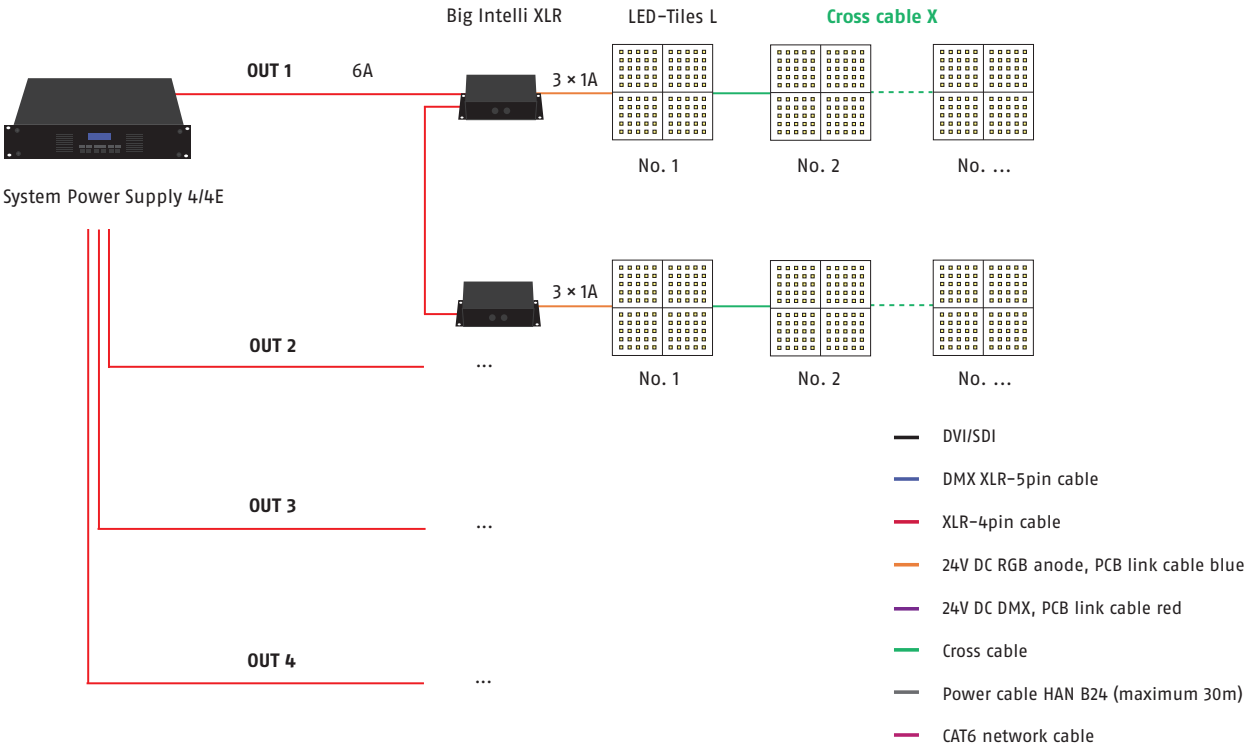
*Recommended for TV-Studios because of better EMI performance.

System Power Supply 4E and System Power Supply 4**

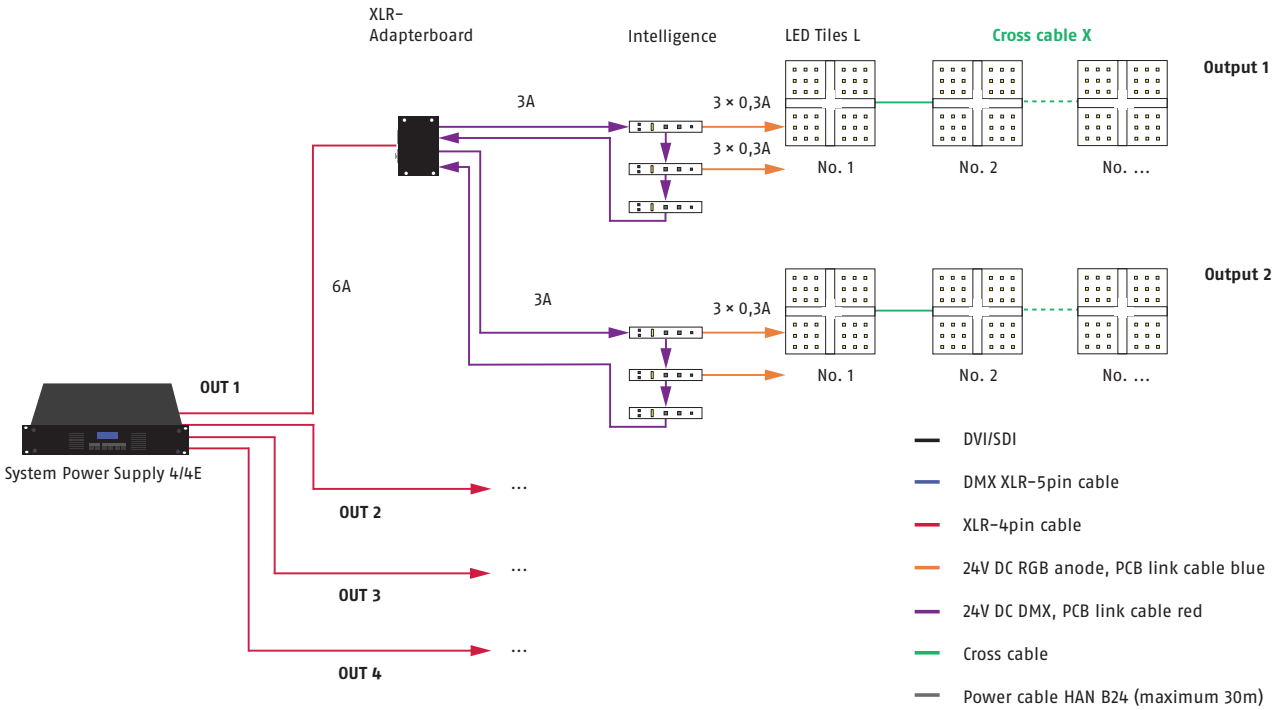
	LED-Tile L20-10-10	LED-Tile L20-5-5
with Big Intelli XLR*, two Big Intellis per output	maximum 48 LED-Tiles per controller maximum 12 LED-Tiles per output maximum 2 LED-Tiles per channel	maximum 192 LED-Tiles per controller maximum 48 LED-Tiles per output maximum 8 LED-Tiles per channel
with Intelligence*, maximum number of LED tiles per control channel		192 LED-Tiles per controller 48 LED-LED-Tiles per output 2 LED-Tiles per channel

* The System Power Supplies 4 and 4E can only control the LED-Tiles 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-Tile L20*



Cabling example for System Power Supply 4 or 4E and Intelligence with LED-Tile L20*

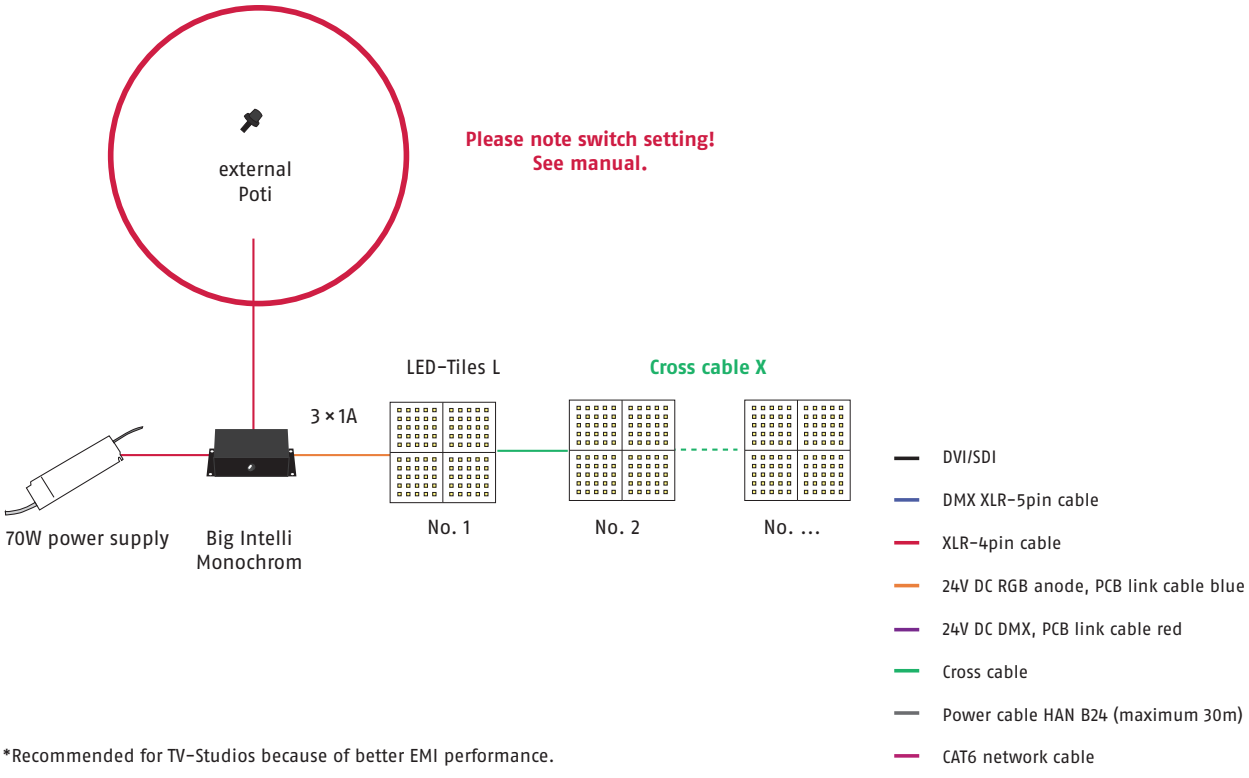


*Recommended for TV-Studios because of better EMI performance.

70W Power Supply and Big Intelli (dimmable)

LED-Tile L20-10-10	LED-Tile L20-5-5
maximum 6 LED-Tiles per controller	maximum 24 LED-Tiles per controller
maximum 6 LED-Tiles per channel	maximum 24 LED-Tiles per channel

Cabling example for 70W Power Supply and Big Intelli with LED-Tile L20*

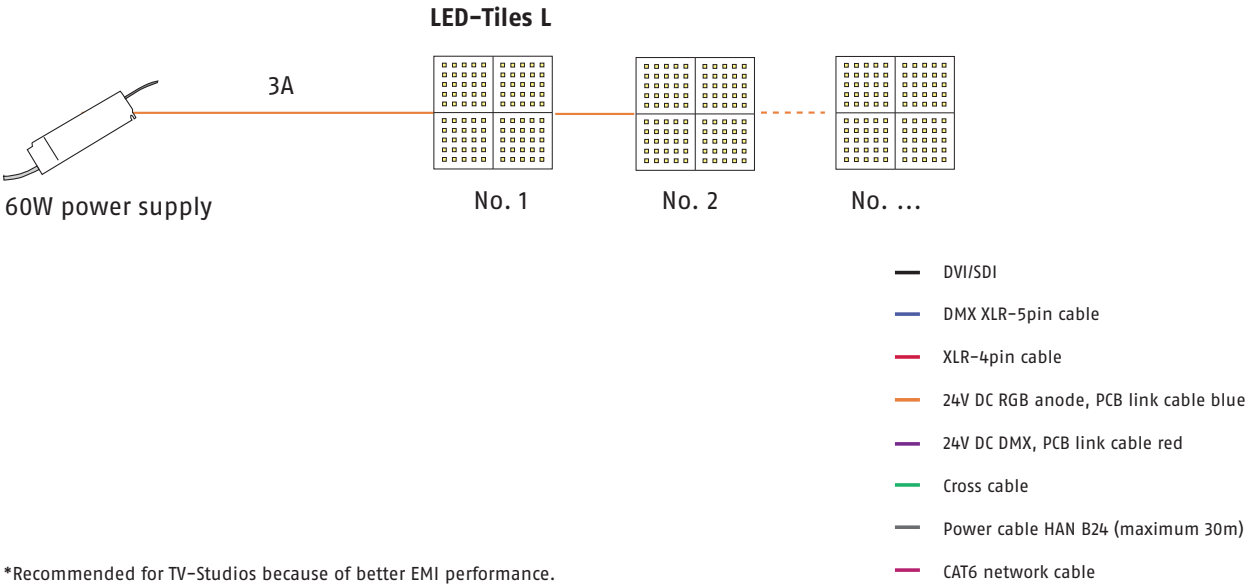


*Recommended for TV-Studios because of better EMI performance.

60W Power Supply (undimmed)

LED-Tile L20-10-10	LED-Tile L20-5-5
maximum 6 LED-Tiles per Power Supply	maximum 26 LED-Tiles per Power Supply

Cabling example for 60W Power Supply with LED-Tile L20*



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

Calculation example for System Power Supply 4E with Intelligence and LED-Tile L20-5-5

1. requirement: One control channel per LED tile

One Intelligence can control 3 × 0,3A (three control channels per Intelligence)

3 × 0,113A (I_{max} L20-5-5) =	0,339A
Requirement for Intelligence	0,07A
Total	**0,409A**

3A per system plug / **0,409A = 7 Intelligences, each with three LED tiles**

2 × 3A per Output ≙ 2 × 21 LED tiles = **42 LED tiles per output**

4 outputs per System Power Supply 4E ≙ 4 × 42 = **168 LED tiles per System Power Supply 4E**

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

One Intelligence can control 3 × 0,3A

0,3A per channel / 0,113A per LED tile = **2 LED tiles per channel**
Corresponds to 3 × 2 = **6 LED tiles per Intelligence**

6 × 0,113A (I_{max} L20-5-5) =	0,678A
Requirement for Intelligence =	0,07A
Total	0,748A

3A per system plug ≙ 3A / 0,748 = 4 Intelligences per system plug

≙ 8 Intelligences per output

≙ 32 Intelligences per System Power Supply 4(E)

≙ 32 × 6 = **192 LED tiles per System Power Supply 4E**

Order numbers

	LED-Pitch	Backlighted surface	Channels	Power (I_{max})	Colour	Item number
LED-Tile L20 (-10/-10) S[2]	20mm	200mm × 200mm	0/1[1]	0,45A	6500K	115.6562
					3500K	115.3562
					3000K	115.3062
					5700K	115.5762
					5000K	115.5062
					4000K	115.4062
					2700K	115.2762
LED-Tile L20 (-5/-5) S[2]	20mm	100mm × 100mm	0/1[1]	0,113A	6500K	115.6564
					3500K	115.3564
					3000K	115.3064
					5700K	115.5764
					5000K	115.5064
					4000K	115.4064
					2700K	115.2764

	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.

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.

Schnick-Schnack-Systems GmbH

Mathias-Brüggen-Straße 79
50829 Cologne (Germany)

Phone +49 (0) 221/99 20 19-0
Fax +49 (0) 221/16 85 09-73

info@schnickschnacksystems.com
www.schnickschnacksystems.com

Version May 2017: All technical data and the weight and dimension information were carefully created – errors reserved. Any colour deviations are printing-related.

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