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Side Diffuse 12

The liniLED® Side Diffuse 12 LED strip (IP68) is a high quality, flexible LED strips with a unique, diffuse co-extrusion technology. The combination of high quality and exceptional flexibility, allows for an endless range of indoor and outdoor applications. The liniLED® Side Diffuse 12 LED strip comes with a pre-assembled mirror welded connector for instant waterproof IP68+/IP69K usage.

In order to power liniLED® products safely, it is absolutely necessary to operate them with an electronically stabilized power supply protected against short circuits, overload and overheating.

To ease the luminaire/ installation approval, electronic control gear for liniLED® products should carry the CE mark. Preferably a controller from the liniLED® Control Range. In Europe, the declarations of conformity must include the following standards: CE: EN 55015, IEC 61547 and IEC 61000-3-2. For the latest version of this datasheet, visit our website: www.liniLED.com

UPS's

- Made in Europe
- Unique diffuse co-extrusion technology (hollow chamber)
- IP68/ IP69K
- Flexible: bend radius > 150 mm
- Dimmable
- Effective heat dissipation
- Excellent lumen/ Watt efficacy
- Binning ± 50k
- UV, frost, seawater & chlorine vapour resistant
- Available in various white colours
- An extensive range of accessories
- Plug & Play

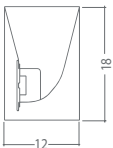
Available colours

Colour	Description
Ultra Warm White 2400K	liniLED® Side Diffuse 12 White UWW 2400K
Extra Warm White 2700K	liniLED® Side Diffuse 12 White EWW 2700K
Warm White 3000K	liniLED® Side Diffuse 12 White WW 3000K
Natural White 4000K	liniLED® Side Diffuse 12 White NW 4000K
Cold White 6500K	liniLED® Side Diffuse 12 White CW 6500K



Product codes & characteristics

	Ultra Warm White 2400K	Extra Warm White 2700K	Warm White 3000K	Natural White 4000K	Cold White 6500K
Product code [m]	11819	11820	11821	11822	11823
Power (24 V DC)	8.9 W/m	8.9 W/m	8.3 W/m	8.6 W/m	8.6 W/m
Power (25 V DC)	9.3 W/m	9.3 W/m	8.6 W/m	9 W/m	9 W/m
Typical CCT ²	2243K	2533K	2866K	3724K	6091K
CRI	89	91	90	93	93
Luminous flux	102 lm/m	113 lm/m	101 lm/m	116 lm/m	111 lm/m
Luminous efficiency	11 lm/W	13 lm/W	12 lm/W	13 lm/W	13 lm/W
Spool length	Max. 10 m				
Section length	5 cm				
LED	Duris tm E 3				
Number of LEDs	6 per section / 120 per metre				
Max. connection length	10 m				
Operation voltage	24 V DC				
Max. operation voltage	25 V DC				
Beam angle	110°				
Dimensions	12 x 18 mm				
Dimmable	PWM dimming, 24 V DC Common Anode				
Binning	± 50K				
Mac adam	2 steps				
Weight	240 gram per metre				
Expected lifetime	B50/L70 > 50,000 hours @ T _c = 40 °C				
Degree of protection (IP)	IP68+ > 50 m/ IP69 K ³				
Storage temperature	-20 °C .. 55 °C				
Operation temperature	-30 °C .. 55 °C ³				
Minimal bending radius	150 mm				

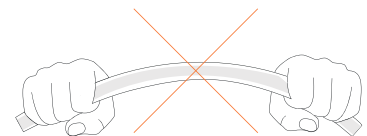
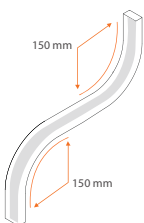


² Productname CCT refers to internal PCB for typical CCT output refer to Datasheet table.

³ Max. connection length between -20 °C and -30 °C is 7 metres.

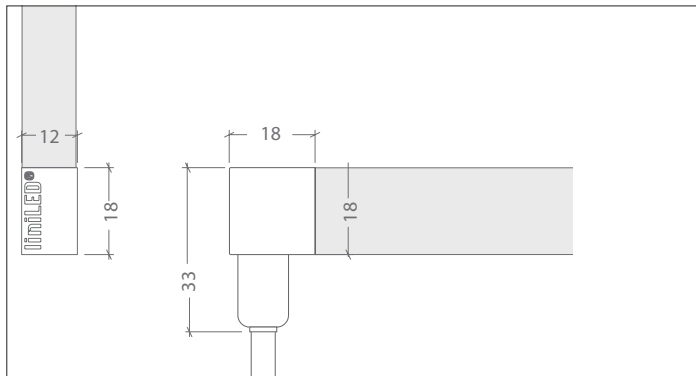
Bending radius

Maximum bending radius is 150 mm. Solely bend up or downward. Do not compress, stretch or bend the LED strip.

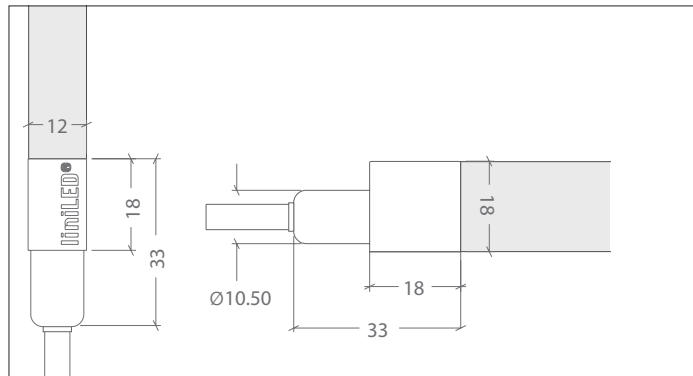


Connectors (The liniLED® Diffuse 12 Connectors are pre- assembled).

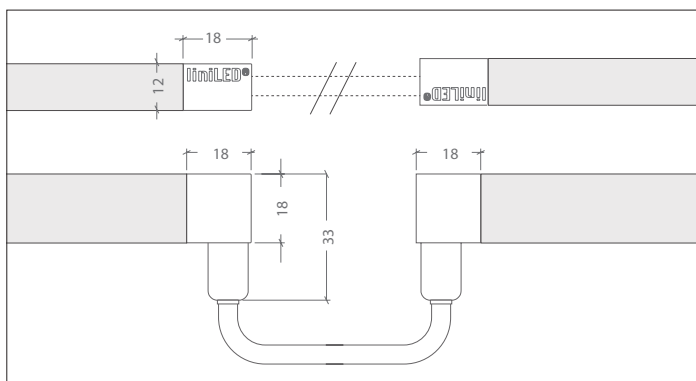
liniLED® Diffuse Connector 90° Angle 12



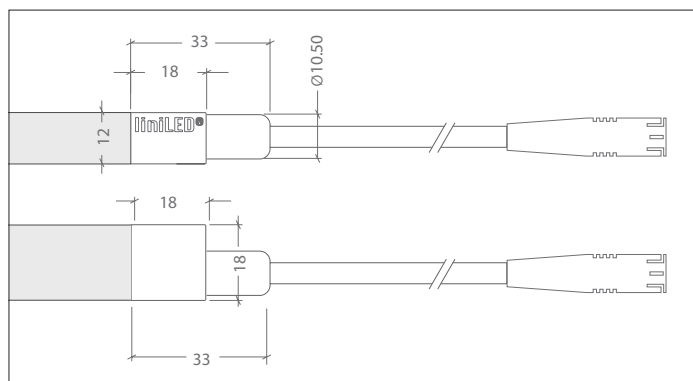
liniLED® Diffuse Connector Straight 12



liniLED® Diffuse Extension Cord 12



liniLED® Diffuse Connector Male/Female 12



For more information about the liniLED® Diffuse 12 Connectors see the Datasheet of the liniLED® Diffuse Connect 12.

This Connector can be used for the liniLED® Top Diffuse 12 and the liniLED® Side Diffuse 12.

Power consumption

To power the liniLED® LED strips and lighting fixtures, a power supply from the liniLED® Power assortment can be selected. Selection of the correct power supply must be done by taking the total requested power and the environment into account.

The total power consumption can be calculated by summing the requested power of all connected products. To calculate the power consumption of a single length of LED strip, use the equation below. The typical equation is valid if the product is supplied by a 24 V DC constant voltage power supply. If the output voltage of a power supply is increased, the power consumption will increase with the same ratio and needs to be corrected by using the optional part of the equation found between brackets.

$$P_{\text{STRIP}} = P_{\text{PRODUCT}} \times X_{\text{LENGTH}} \times 110\% \left[\times \frac{U_{\text{SUPPLY}}}{24} \right]$$

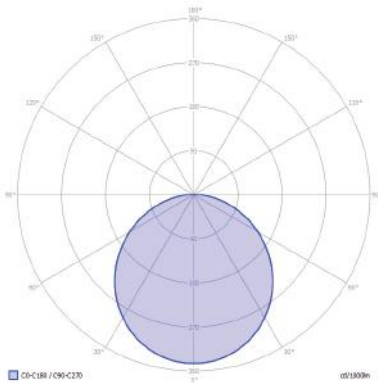
- P_{STRIP} Calculated power consumption of one LED strip in Watt
 P_{PRODUCT} Typical power consumption in Watt per metre of the selected LED strip
This value can be found under 'Product characteristics' on page 2
 X_{LENGTH} Length of the connected LED strip in metres
110% Safety margin to buffer differences over all production batches
- Optional:*
- U_{SUPPLY} Set supply voltage of the power supply in Volt
24 Nominal supply voltage of liniLED® in Volt

Photometric information

In the process of lighting design and calculations, the luminous flux and beam angle alone are not enough information to create a representative and realistic calculation or render. There is one set of photometric files for a one metre length of LED strip and one for a segment length, that corresponds to the cutting length of each LED strip type. Using the one metre data, quick calculations and long lengths can be simulated with photometric software. The segment data allows very detailed simulations, even curved lines can be approached in high detail.

The information on the website is available in two different file formats:

- Eulumdat (*.ldt)
- IES LM-63-1995 (*.ies)



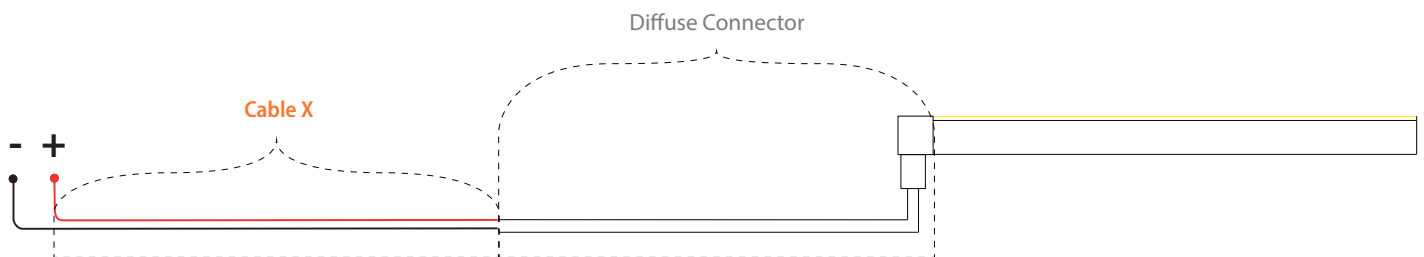
liniLED® Side Diffuse 2400 t/m 6500K

Cable selection

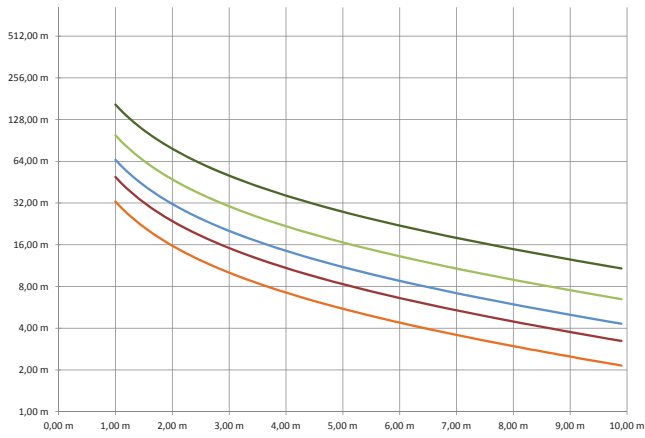
The liniLED® LED strips need a minimum voltage at the beginning of the LED strip to function according to the specifications. The table below gives an indication of the maximum cable length based on the cable thickness and power supply voltage. The connection between the cable and LED strip is with a liniLED® Mirror Welded Connector.

In case the required length is larger than the length mentioned in this table, the supply voltage is different or if a detailed wire plan with branches is planned, please contact your distributor for a detailed cable calculation.

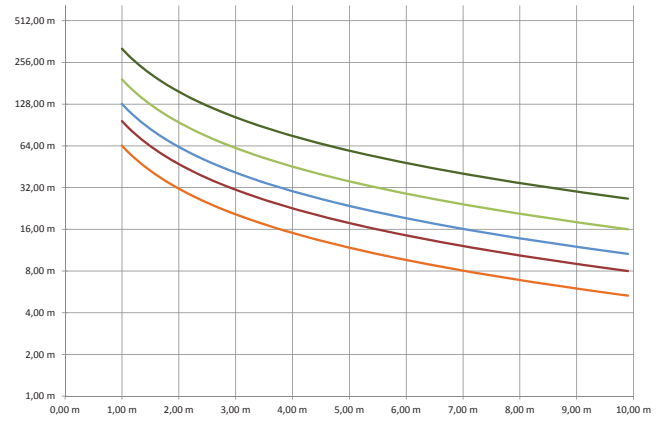
Cable X information	LED strip	Max. cable length 2400, 2700K		Max. cable length 3000K		Max. cable length 4000, 6500K	
		@ 24 V DC	@ 25V DC	@ 24 V DC	@ 25V DC	@ 24 V DC	@ 25V DC
liniLED® cable (2 x 0.50 mm ²) 0.035 Ω/m	1 m	33.53 m	65.57 m	36.05 m	70.40 m	34.75 m	67.90 m
	2 m	16.12 m	32.14 m	17.38 m	34.56 m	16.73 m	33.31 m
	5 m	5.68 m	12.08 m	6.18 m	13.05 m	5.92 m	12.55 m
	10 m	2.19 m	5.40 m	2.44 m	5.88 m	2.31 m	5.63 m
Cable (2 x 0.75 mm ²) 0.023 Ω/m	1 m	50.45 m	98.64 m	54.23 m	105.91 m	52.27 m	102.15 m
	2 m	24.25 m	48.35 m	26.15 m	51.99 m	25.17 m	50.10 m
	5 m	8.54 m	18.18 m	9.30 m	19.63 m	8.91 m	18.88 m
	10 m	3.30 m	8.12 m	3.68 m	8.85 m	3.48 m	8.47 m
Cable (2 x 1.00 mm ²) 0.018 Ω/m	1 m	67.07 m	131.14 m	72.11 m	140.81 m	69.50 m	135.81 m
	2 m	32.25 m	64.29 m	34.77 m	69.12 m	33.46 m	66.62 m
	5 m	11.36 m	24.17 m	12.36 m	26.10 m	11.84 m	25.10 m
	10 m	4.39 m	10.80 m	4.89 m	11.77 m	4.63 m	11.26 m
Cable (2 x 1.50 mm ²) 0.012 Ω/m	1 m	100.90 m	197.28 m	108.47 m	211.82 m	104.55 m	204.30 m
	2 m	48.51 m	96.71 m	52.30 m	103.98 m	50.34 m	100.21 m
	5 m	17.08 m	36.36 m	18.60 m	39.27 m	17.82 m	37.76 m
	10 m	6.61 m	16.25 m	7.37 m	17.70 m	6.97 m	16.95 m
Cable (2 x 2.50 mm ²) 0.007 Ω/m	1 m	167.92 m	328.33 m	180.53 m	352.53 m	174.01 m	340.01 m
	2 m	80.74 m	160.95 m	87.05 m	173.05 m	83.79 m	166.79 m
	5 m	28.44 m	60.52 m	30.96 m	65.36 m	29.65 m	62.85 m
	10 m	11.00 m	27.04 m	12.26 m	29.46 m	11.61 m	28.21 m



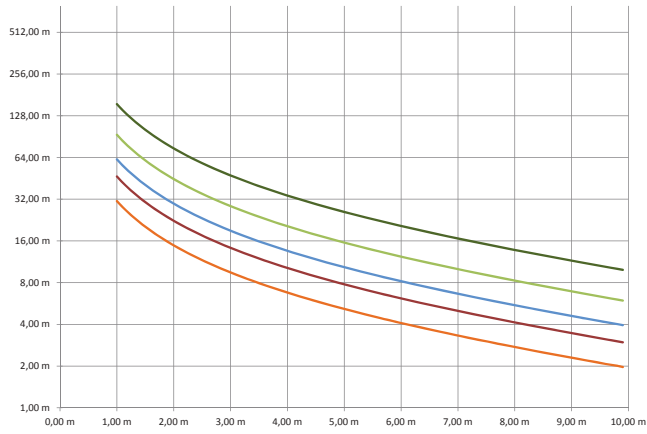
Maximum cable length



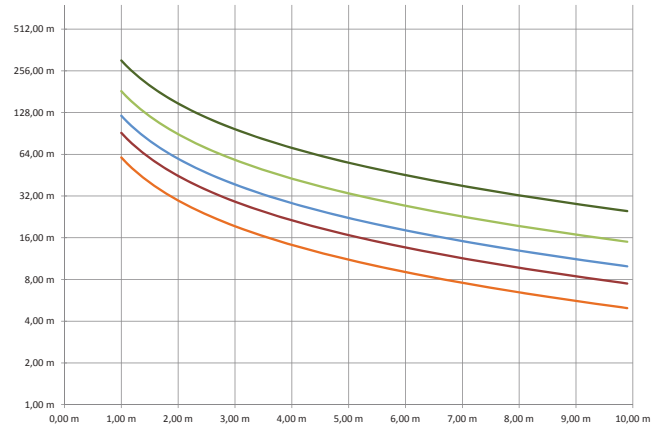
2400K @ 24 V DC



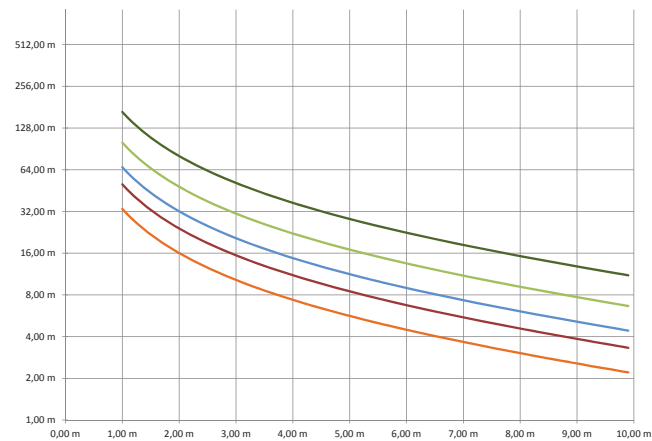
2400K @ 25 V DC



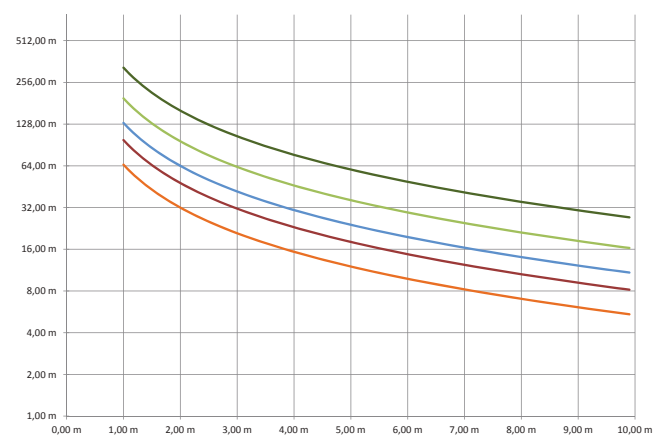
2700K @ 24 V DC



2700K @ 25 V DC

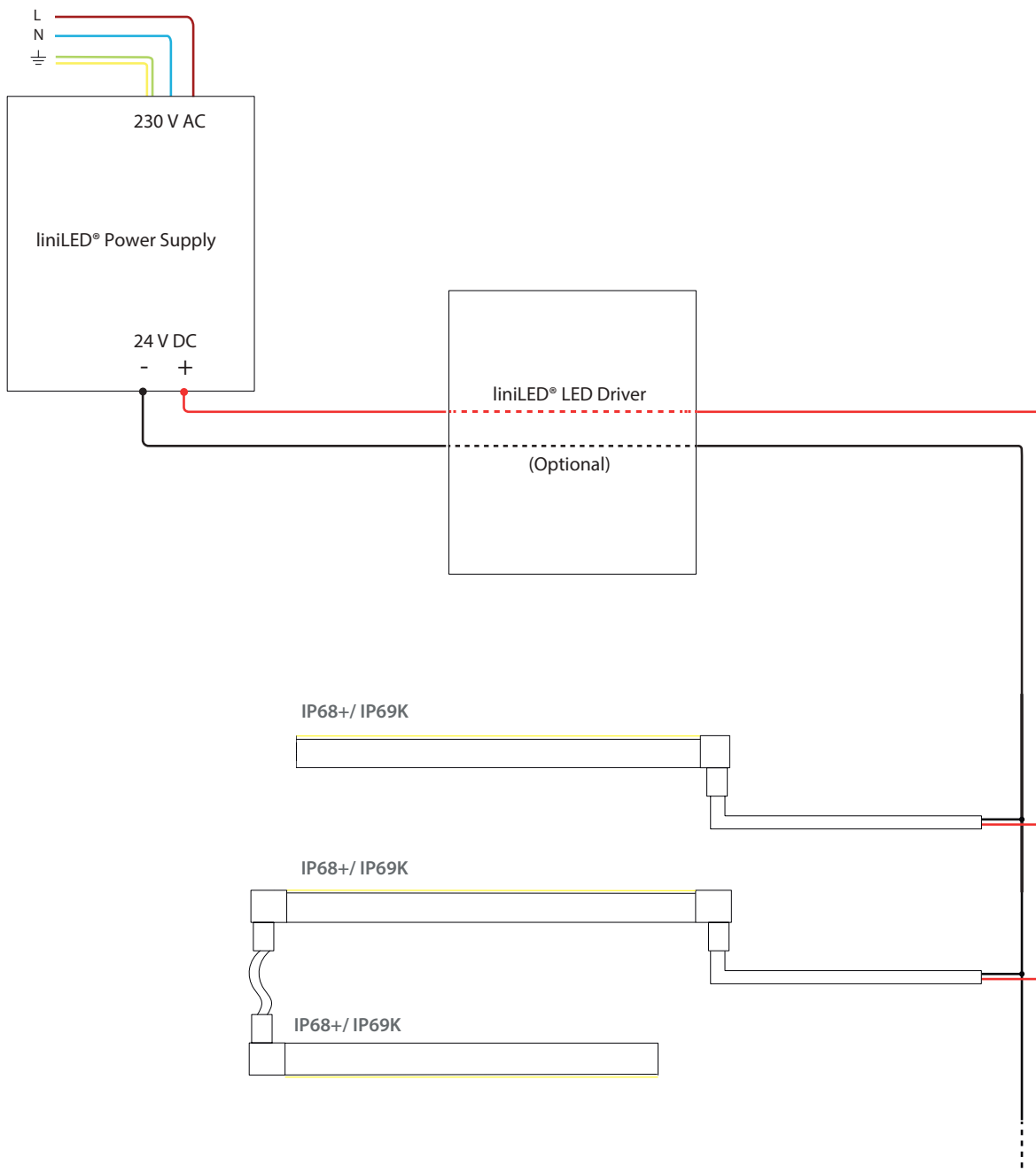


3000K/ 4000K/ 6500K @ 24 V DC



3000K/ 4000K/ 6500K @ 25 V DC

Power & Connection diagram



Disclaimer

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Symbols

-  Manufacturer's declaration that the product meets the applicable EC directives.
-  Suitable for mounting on all surfaces and suitable to cover with insulating material.
-  Passed glow wire test at 850 degrees Celsius. Global European regulations specify 650 degrees Celsius by default.
-  Restriction of Hazardous Substances (RoHS): product complies with the RoHS directive and each homogeneous material does not exceed the limits for the materials mentioned under the RoHS directive (Pb, Hg, Cd, Cr6+, PBB and PBDE).
-  Dust-tight, no ingress of dust. Protected against the effects of continuous immersion in water (Immersion in water at a maximum depth of 50 metres) Only in combination with the liniLED® Mirror Welded Connector).
-  Dust-tight, no ingress of dust. Protected against close-range high pressure, high temperature spray downs.
-  Protected against impact energy of 5 joules.
-  Bending of the LED strip is possible with a radius of ≥ 150 millimetres in the specified direction.
-  Electrical appliance class III: this product is designed to be supplied from an extra-low voltage (≤ 60.0 V DC or ≤ 42.4 V AC).
-  Product is resistant against ultraviolet (UV) light or sunlight. Non-UV resistant products can degrade or discolor fast when exposed to UV light.
-  Product can be cleaned with normal cleaning agents as specified in the datasheet under 'chemical compliances'.
-  This product can be stored and used below 0 degrees Celsius. Verify the minimum storage and operation temperature in the datasheet for the lowest temperature allowed.
-  This product can be applied in seawater and its environment. Elements in seawater will have no harmful effect on the product. For chemical specifications see datasheet. Verify the IP rating for proper use.
-  This product can be applied inside swimming pool environments. Elements in the air will have no harmful effect on the product. For chemical specifications of these elements see datasheet. Verify the IP rating for proper use.
-  This product is available on request and can be applied submerged in swimming pools and their environment. Disinfectants will have no harmful effect on the product. For chemical specifications of these elements see datasheet. Verify the IP rating for proper use.
-  The binning tolerance of this product is 2 MacAdam.
-  The CRI value of this product is 80 or higher.
-  System guarantee of 5 years when the complete system consist of liniLED® Products with the 5 year system warranty logo.