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Top Diffuse 12 G4

The liniLED® Top Diffuse 12 LED strip (IP68+/IP69K) 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® Top 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 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

USPs

- Unique diffuse co-extrusion technology (hollow chamber)
- IP68+ (suitable for permanent submersion up to 50 metres)
- IP69K (resistant against high pressure spray downs for easy cleaning)
- UV, frost, seawater, cleaning agents & chlorine vapour resistant
- Up to 2 SDCM ellipse
- Extra long lifetime – 60,000 h (L80/B10)
- Internal constant current regulator
- Excellent lumen/Watt ratio
- Available in 10 metre lengths
- Single piece reel-to-reel technology
- Pre-assembled with liniLED® Welded Connector (Straight or 90° Angle)
- Made in Europe

Available colours

Colour	Description
 Warm White 3000K	liniLED® Top Diffuse 12 WW 3000K G4
 Natural White 4000K	liniLED® Top Diffuse 12 NW 4000K G4

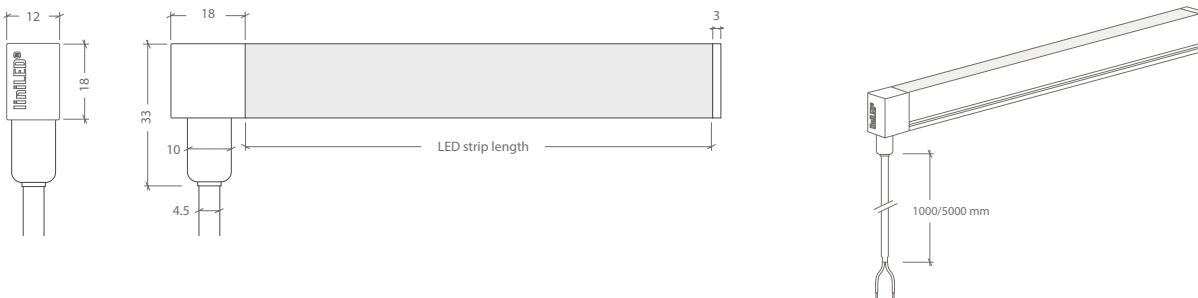


Technical specifications

	Top Diffuse 12 3000K G4	Top Diffuse 12 4000K G4
Product code [m]	12401	12402
Power (24V DC)	7.0 W/m	7.0 W/m
Power (25V DC)	7.3 W/m	7.3 W/m
CCT ¹	2896 K	3655 K
CRI	>80	>80
Luminous flux ¹	212 lm/m	232 lm/m
Luminous efficiency ¹	30 lm/W	33 lm/W
Spool length	Max. 50 m	
Section length	50 mm	
LED type	3014	
Number of LEDs	6 per section/120 per metre	
Max. connection length	10 m	
Min. operating voltage	23V DC	
Max. operating voltage	25V DC	
Dimensions	12 x 18 mm	
Dimmable	PWM dimming, 24V DC Common Anode	
MacAdam Steps	3 steps	
Weight	240 gram per metre	
Expected lifetime	L80/B10 > 60,000 hrs @ Tc = 40°C	
Ingress protection	IP68+ > 50 m/IP69K	
Storage temperature	-30°C ... 55°C	
Operating temperature ²	-30°C ... 55°C	
Minimum bending radius	150 mm	

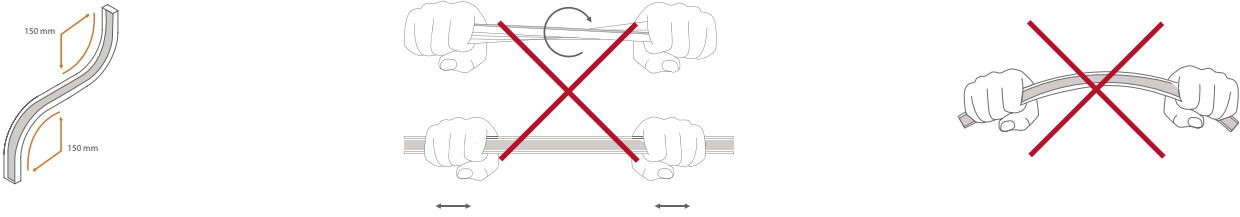
¹ Typical measured values are given, which due to tolerances in components and production process can vary up to 10%.

² Max. connection length between -30°C and -20°C is 7 metres.

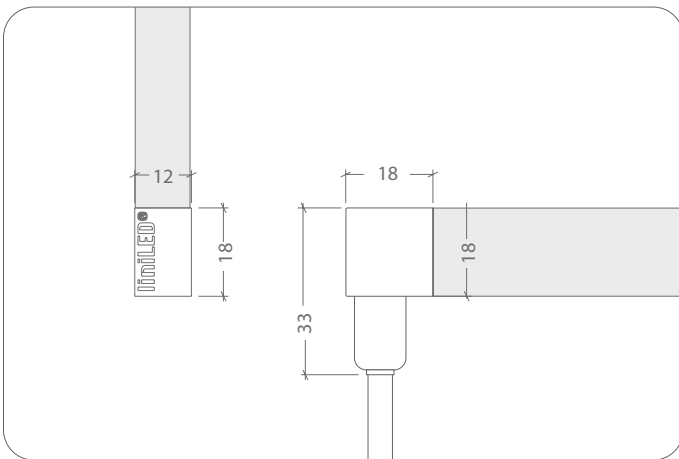


Bending radius

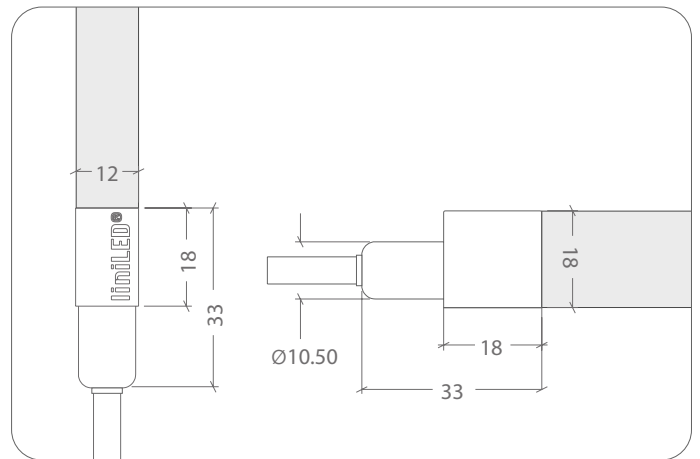
Maximum bending radius is 150 mm. Solely bend up or downward. Do not compress, stretch or bend the LED strip sideways.



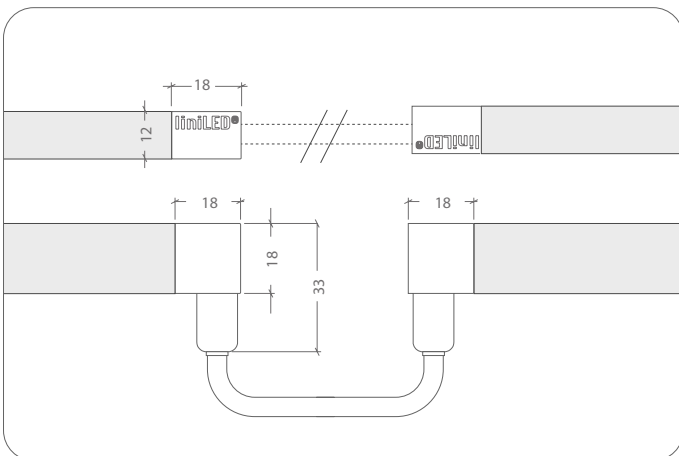
Connectors



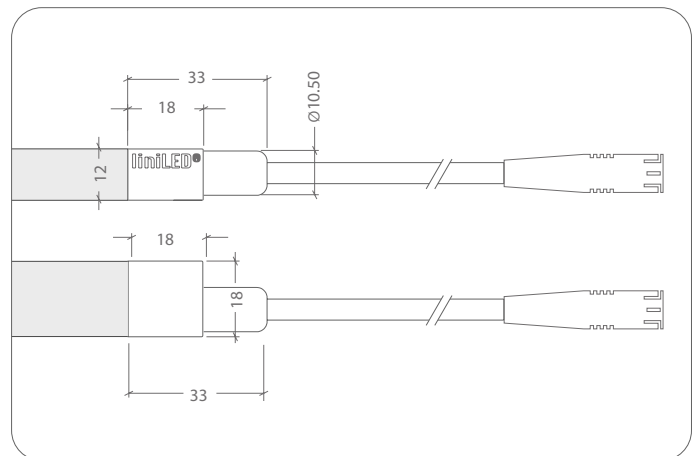
liniLED® Diffuse Connector 90° Angle 12



liniLED® Diffuse Connector 90° Straight 12



liniLED® Diffuse Extension Cord 12



liniLED® Diffuse Connector Male/Female 12

These connectors can be used for the liniLED® Top Diffuse 12 and the liniLED® Side Diffuse LED strip and are pre-assembled.

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.

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

- 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:

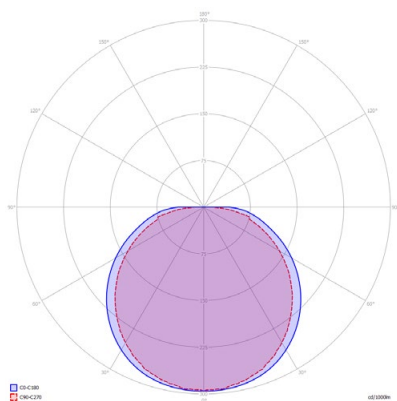
- U_{SUPPLY}** Set supply voltage of the power supply in Volt
24 Nominal supply voltage of liniLED® in Volt

Photometric information (preliminary)

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® Top Diffuse 12 3000K

Maximum cable length

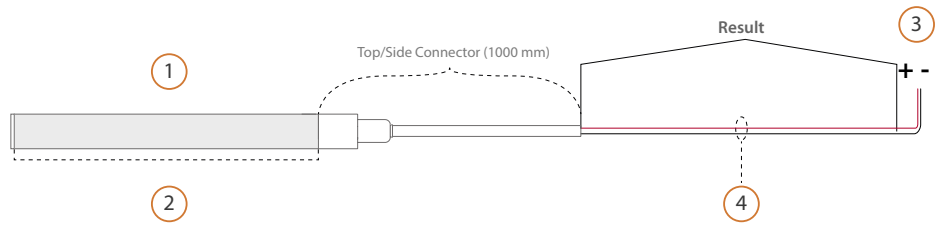
1 = Select colour temperature.

2 = Select LED strip length.

3 = Select output voltage.

4 = Select cable cross section.

Result = Maximum cable length based on the cable thickness and power supply voltage.



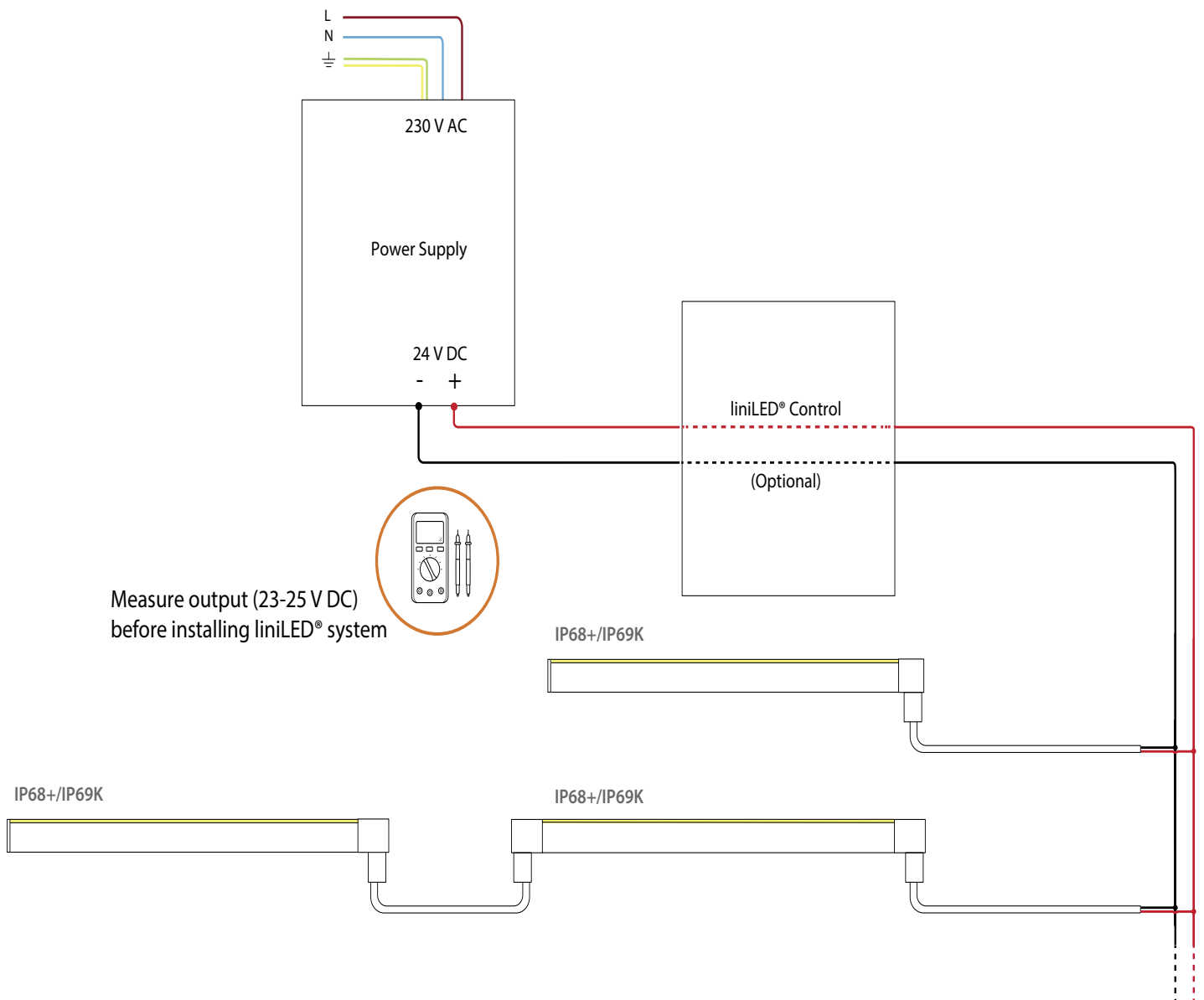
1. Colour temperature

3000K

2. LED strip length		1 m		2 m		5 m		10 m	
3. Voltage		24 VDC	25 VDC	24 VDC	25 VDC	24 VDC	25 VDC	24 VDC	25 VDC
4. Cable cross section	0.50 mm ² - 0.035 Ω/m	42.9 m	83.7 m	20.8 m	41.2 m	7.5 m	15.7 m	3.1 m	7.2 m
	0.75 mm ² - 0.023 Ω/m	64.6 m	125.9 m	31.3 m	62.0 m	11.3 m	23.6 m	4.7 m	10.8 m
	1.00 mm ² - 0.018 Ω/m	85.9 m	167.4 m	41.7 m	82.4 m	15.1 m	31.4 m	6.2 m	14.4 m
	1.50 mm ² - 0.012 Ω/m	129.3 m	251.8 m	62.7 m	124.0 m	22.7 m	47.2 m	9.4 m	21.7 m
	2.50 mm ² - 0.007 Ω/m	215.2 m	419.2 m	104.4 m	206.3 m	37.9 m	78.6 m	15.7 m	36.1 m

⚠ **Note:** Calculations are based on a standard connector with 1 metre cable (0.5 mm²).

Power and 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.



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. Only in combination with the liniLED® Mirror welded connector.



The CRI value of this product is 80 or higher.



The binning tolerance of this product is 3 MacAdam.



Protected against impact energy of 5 joules.



Bending of the LED strip is possible with a radius of ≥ 150 millimetres in the specified direction.



Operating voltage of 24 V DC.



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 discolour fast when exposed to UV light.



Product can be cleaned with normal cleaning agents.



This product can be stored and used below 0 degrees Celsius. Verify the minimum storage and operating temperature in the datasheet or manual 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 of these elements see the liniLED® material sheet. 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 the liniLED® material sheet. Verify 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 the liniLED® material sheet. Verify IP rating for proper use.



System guarantee of 5 years when the complete system consist of liniLED® products with the 5 years system warranty logo. Terms & conditions apply.