



Top Power - Colour

USP's

- Made in Europe
- Unique co-extrusion technology (hollow chamber)
- IP40 (IP68 with liniLED® Top IP68 Kit)
- Very flexible (bend radius > 30 mm)
- Dimmable
- Effective heat dissipation
- Excellent lumen/ Watt ratio
- Available in long lengths
- UV, frost, seawater & chlorine vapour resistant
- Available in various colours
- Extensive range of accessories
- Plug & Play



See page 8 for explanation symbols

liniLED® LED strip Top Power - Colour





The liniLED® Top Power LED strip (IP40/IP68*) is a high quality, flexible LED strip with a unique co-extrusion technology. The combination of high quality and exceptional flexibility, allows for an endless range of indoor and outdoor applications. In addition to the colours Red, Green, Blue and Amber, the liniLED® Top Power LED strips is also available in: Ultra Warm White 2400K, Extra Warm White 2700K, Warm White 3000K, Natural White 4000K and Cold White 6500K.

* Connect the Top LED strips with the liniLED® Top Connector Sets (1 m 11200 or 5 m 11201). Use the liniLED® Top Extension Cord (11208) to extend. For waterproof (IP68) usage, combine with the liniLED® Top IP68 Kit (11506) and the liniLED® Top IP68 Extension Kit (11507).

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.

Available colours liniLED® Top Power - Colour

Colour	Description
	Red liniLED® Top Power Red
	Green liniLED® Top Power Green
	Blue liniLED® Top Power Blue
	Amber liniLED® Top Power Amber

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For the latest version of this datasheet, visit our website: www.liniLED.com

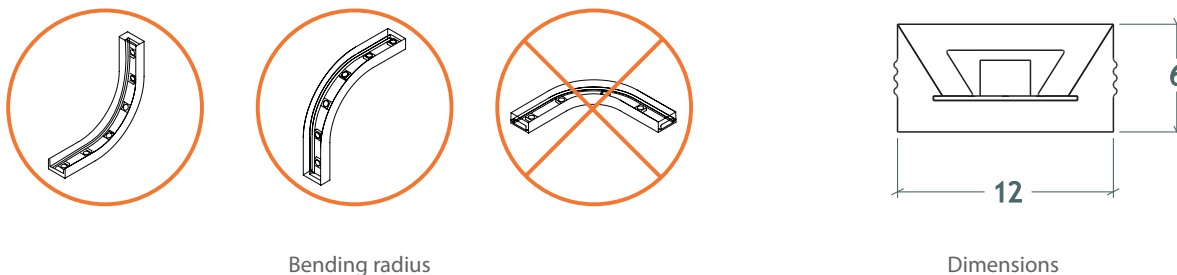
Product codes & characteristics

Ambient temperature = 25 °C

	Red	Green	Blue	Amber
Product code [m]	11860	11862	11861	11863
Product characteristics				
Spool length	max. 10 m			
Section length	10 cm			
LED	TopLED® long life			
Number of LEDs	5 per section / 50 per metre			
Max. connection length	10 m			
Power (24 V DC)	8.3 W/m	4.9 W/m	7.2 W/m	8.3 W/m
Power (25 V DC)	8.7 W/m	5.1 W/m	7.5 W/m	8.7 W/m
Luminous flux steady state	102 lm/m	153 lm/m	68 lm/m	94 lm/m
Luminous efficiency	12 lm/W	31 lm/W	9 lm/W	11 lm/W
Wavelength	467 nm	625 nm	525 nm	587 nm
Operation voltage	24 V DC			
Max. operation voltage	25 V DC			
Beam angle	110°			
Dimensions	12 x 6 mm			
Dimmable	PWM dimming, 24 V DC Common Anode			
Weight	70 gram per metre			
Material	PVC (for chemical resistance please visit our website www.liniLED.com)			
Expected lifetime	B50/L70 > 50,000 hours @ T _c = 40 °C			
Degree of protection (IP)	IP40 (IP68 with liniLED® Top IP68 Kit)			
Degree of protection (IK)	IK08			
Storage temperature	-20 °C .. 55 °C			
Operation temperature	-30 °C .. 55 °C ¹			
Minimal bending radius	30 mm			

¹ Max. connection length between -20 °C and -30 °C is 7 metres.

Product drawings



Bending radius

Dimensions

Drawings and dimensions are only to be used as indication, please contact Triolight B.V. for exact measurements and tolerances. Dimensions are displayed in mm.

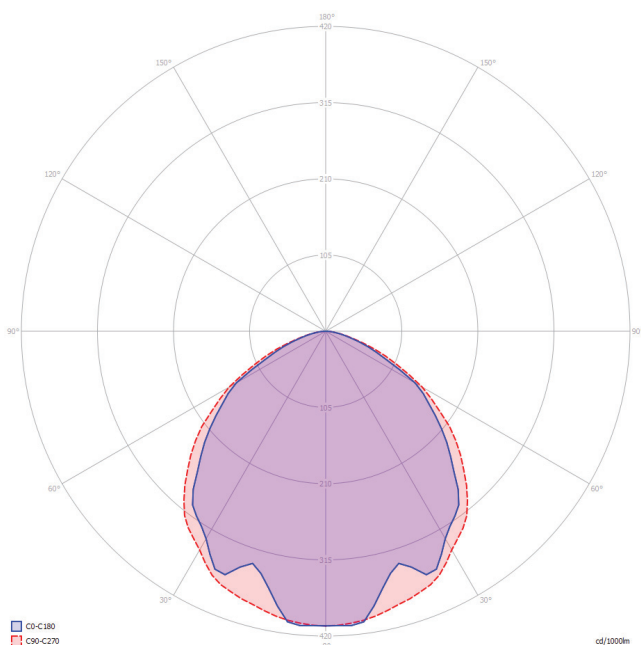
Photometric information

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. Therefore, a complete set of photometric information of the liniLED® LED strips is available on the liniLED® website (www.liniLED.com). The photometric information is available as download for each fixture, found under the downloads tab.

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

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

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.



Top Power Colour LED strips

This light diagram indicates the beam in the C0-C180 plane (perpendicular to the length direction of the LED strip) and in the plane perpendicular to that, the C90-C270 plane (along the length direction of the LED strip).

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.

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

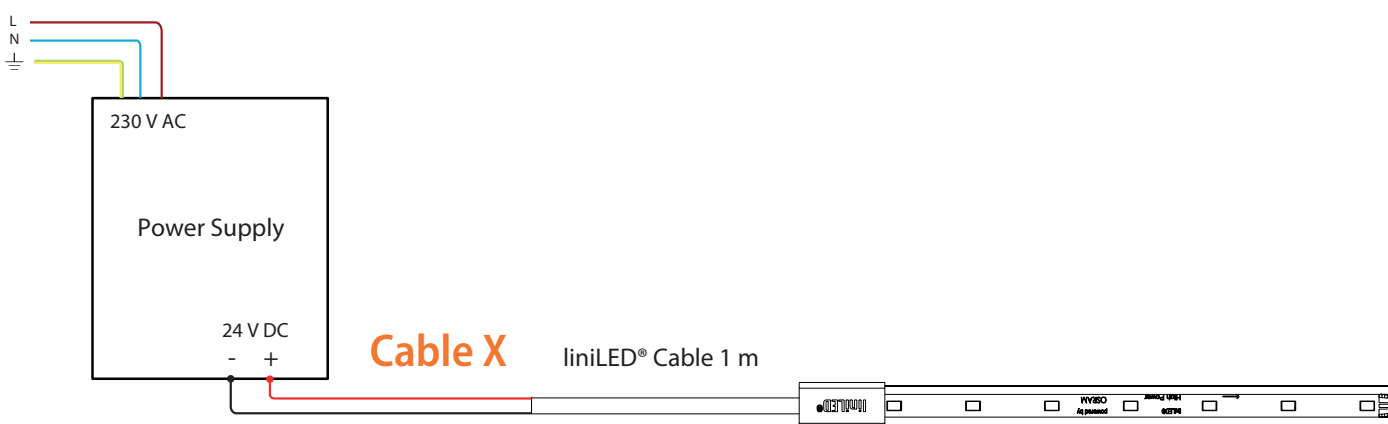
- P_{STRIP} Calculated power consumption of one LED strip in Watt
- $P_{PRODUCT}$ Typical power consumption in Watt per metre of the selected LED strip
This value can be found under 'Product characteristics' on page 2
- X_{LENGTH} Length of the connected LED strip in metres
- 110% Safety margin to buffer 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

Power supply

The liniLED® Power Supplies are available for different environments. For usage in normal dry environments (where the use of an open-frame supply is omitted) the standard liniLED® IP20 Power Supplies can be used. If the environment requires special protection against moisture or even protection against submersion, the selection of IP64, IP65 or IP67 power supplies can be used depending on the environment. All of the IP65 and IP67 Power Supplies are SELV equivalent and can be used if SELV equivalent power supplies are required.



Visualisation cable calculation

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® Top connector with a cable length of 1m (Product code: 11200).

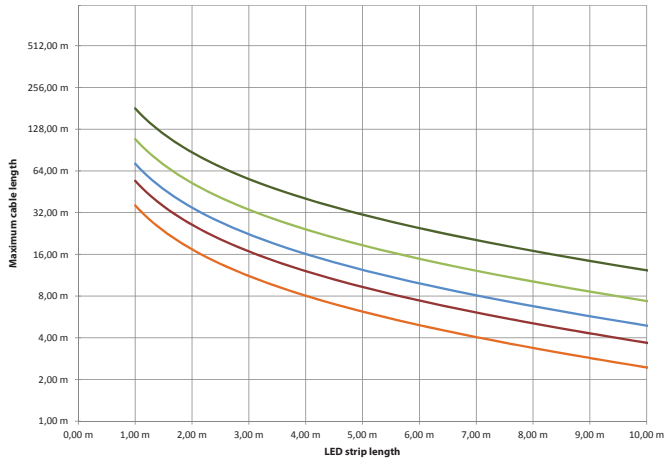
In case the required length is larger than the length mentioned in this table, the supply voltage is different or if a detailed wire plan with branches is planned, please contact your distributor for a detailed cable calculation.

Cable X information	LED strip length	Max. cable length Red & Amber		Max. cable length Green		Max. cable length Blue	
		@ 24 V DC	@ 25 V DC	@ 24 V DC	@ 25 V DC	@ 24 V DC	@ 25 V DC
liniLED® cable (2 x 0.50 mm ²) 0.035 Ω/m	1 m	36.05 m	70.40 m	61.96 m	120.15 m	41.75 m	81.36 m
	5 m	6.18 m	13.05 m	11.36 m	23.00 m	7.32 m	15.24 m
	10 m	2.44 m	5.88 m	5.04 m	10.85 m	3.02 m	6.98 m
2 x 0.75 mm² 0.023 Ω/m	1 m	54.23 m	105.91 m	93.21 m	180.74 m	62.81 m	122.38 m
	5 m	9.30 m	19.63 m	17.09 m	34.60 m	11.01 m	22.93 m
	10 m	3.68 m	8.85 m	7.58 m	16.33 m	4.54 m	10.50 m
2 x 1.00 mm² 0.018 Ω/m	1 m	72.11 m	140.81 m	123.92 m	240.30 m	83.51 m	162.72 m
	5 m	12.36 m	26.10 m	22.73 m	46.00 m	14.64 m	30.48 m
	10 m	4.89 m	11.77 m	10.08 m	21.71 m	6.04 m	13.96 m
2 x 1.50 mm² 0.012 Ω/m	1 m	108.47 m	211.82 m	186.42 m	361.48 m	125.63 m	244.77 m
	5 m	18.60 m	39.27 m	34.19 m	69.20 m	22.03 m	45.86 m
	10 m	7.37 m	17.70 m	15.16 m	32.67 m	9.08 m	21.00 m
2 x 2.50 mm² 0.007 Ω/m	1 m	180.53 m	352.53 m	310.26 m	601.61 m	209.09 m	407.38 m
	5 m	30.96 m	65.36 m	56.90 m	115.18 m	36.67 m	76.33 m
	10 m	12.26 m	29.46 m	25.23 m	54.37 m	15.12 m	34.95 m

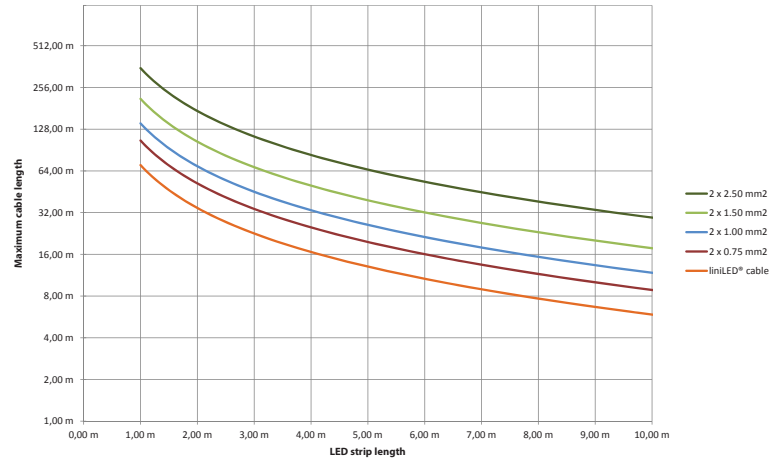
Maximum cable length

Red & Amber

Maximum cable length @ 24 V DC

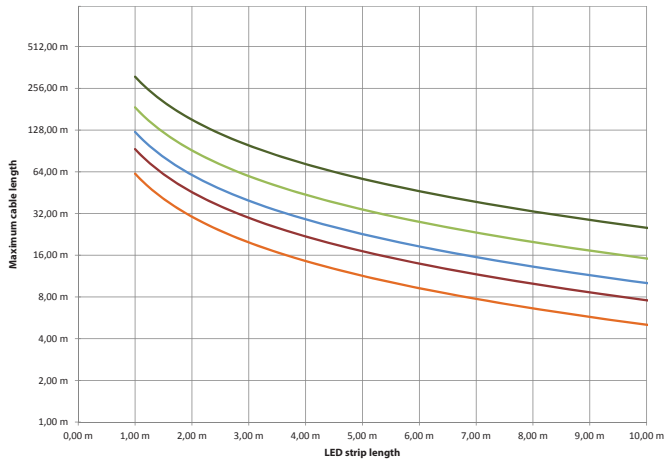


Maximum cable length @ 25 V DC

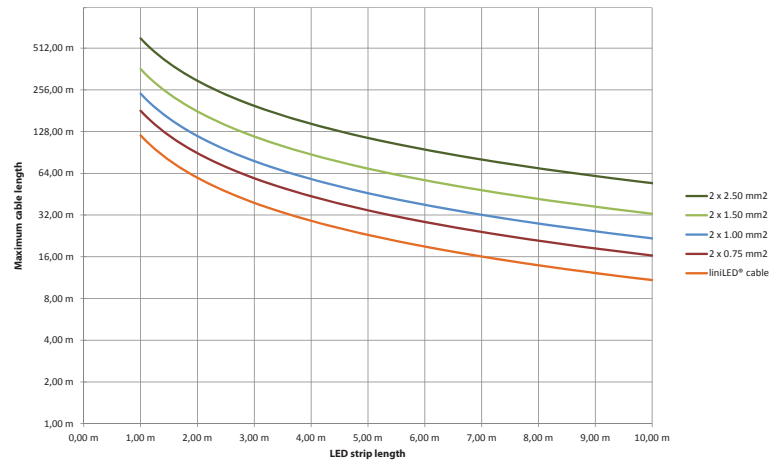


Green

Maximum cable length @ 24 V DC

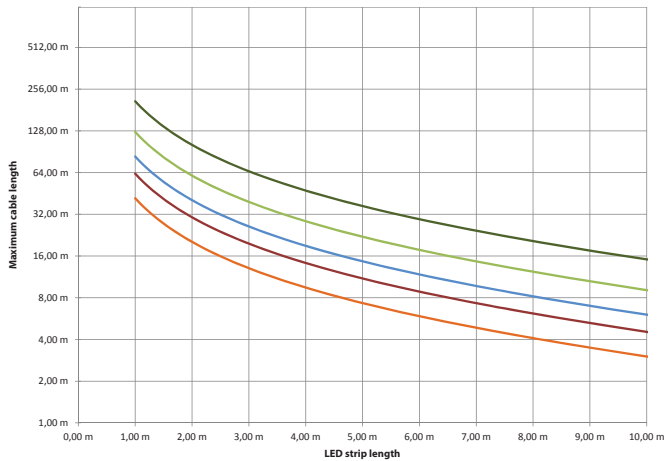


Maximum cable length @ 25 V DC

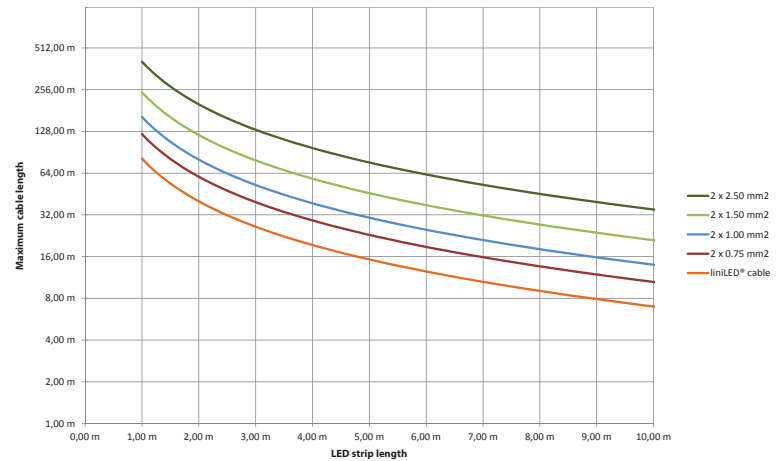


Blue

Maximum cable length @ 24 V DC

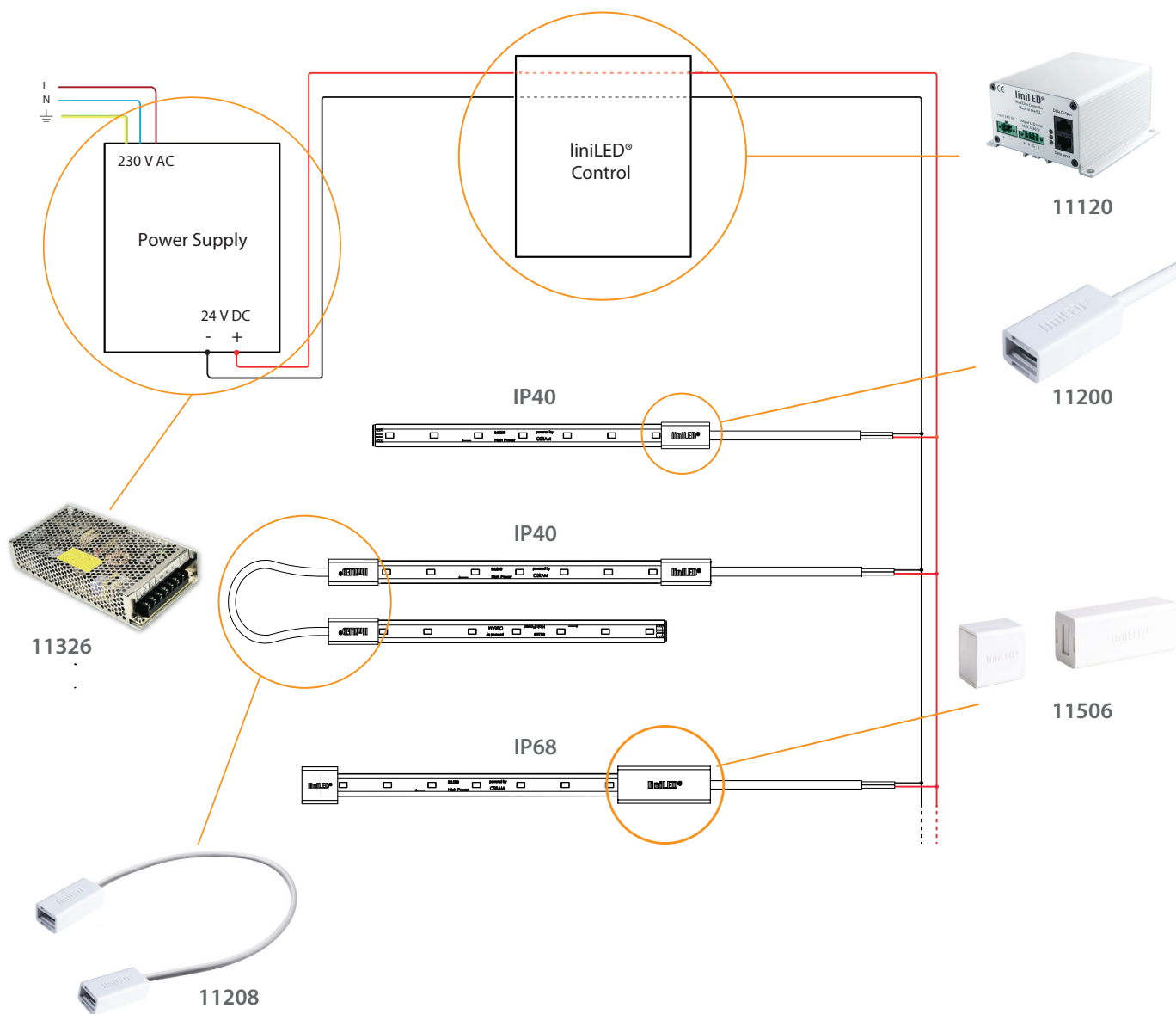


Maximum cable length @ 25 V DC



Connection diagram

The LED strip can be connected with a connector set as shown in the diagram.



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).



IP68 in combination with the liniLED® Top Connector Set and the liniLED® IP68 Kit, otherwise IP40.



Protected against impact energy of 5 joules.



Bending of the LED strip is possible with a radius of ≥ 30 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 under '*LED strip extrusion resistance*'.



This product can be stored and used below 0 degrees Celsius. Verify the minimum storage and operation temperature under '*Product characteristics*' 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 '*LED strip chemical resistance*'. Verify the IP rating for proper use.



This product can be applied inside swimming pools and their environment. Elements in the water -for water treatment- will have no harmful effect on the product. For chemical specifications of these elements '*LED strip chemical resistance*'. Verify the IP rating for proper use.



This product needs to be disposed or separated from normal household waste so it can be recycled.

Disclaimer

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