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Top High Power White G4

The liniLED® Top High Power LED strip (IP40) 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. Combine with either the IP40, IP67 or IP68 solution.

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 co-extrusion technology (hollow chamber)
- Up to IP68 with liniLED® Welded Connector
- 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
- Single piece reel-to-reel technology
- Made in Europe

Available colours

Colour	Description
 Warm White 3000K	liniLED® Top WW 3000K High Power G4



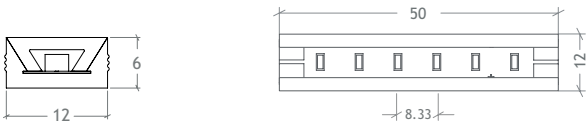
Technical specifications

Warm White 3000K HP G4

Product code [m]	12321
Power (24V DC)	7.0 W/m
Power (25V DC)	7.3 W/m
CCT ¹	3067 K
CRI	>80
Luminous flux ¹	713 lm/m
Luminous efficiency ¹	102 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
Beam angle	110°
Dimensions	6 x 12 mm
Dimmable	PWM dimming, 24V DC Common Anode
MacAdam Steps	3 steps
Weight	70 gram per metre
Expected lifetime	L80/B10 > 60,000 hrs @ Tc = 40°C
Ingress protection	IP40/IP67/IP68
Storage temperature	-30°C ... 55°C
Operating temperature ²	-30°C ... 55°C
Minimum bending radius	30 mm

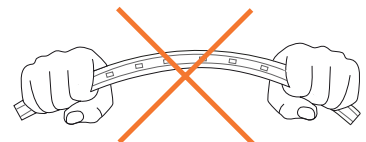
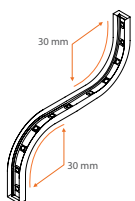
¹ Typical measured values are given, which due to tolerances in components and production process can vary up to 10%.

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



Bending radius

Maximum bending radius is 30 mm. Solely bend up or downward. Do not compress, stretch or bend the LED strip sideways.

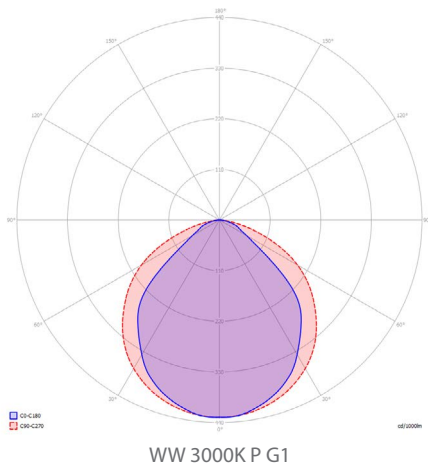


Photometric information

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)



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

Maximum cable length

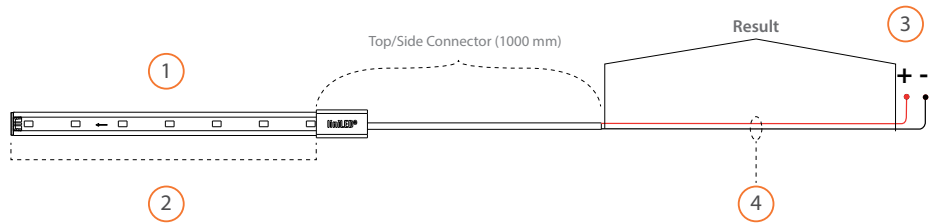
1 = Select colour temperature.

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.



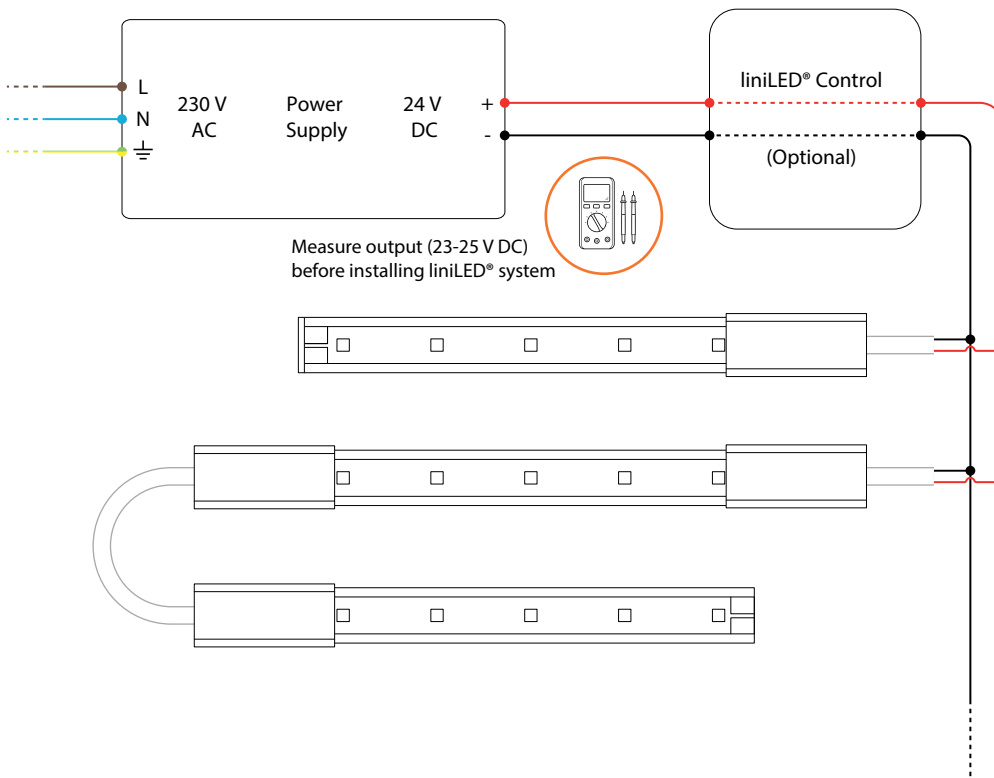
1. Colour temperature

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

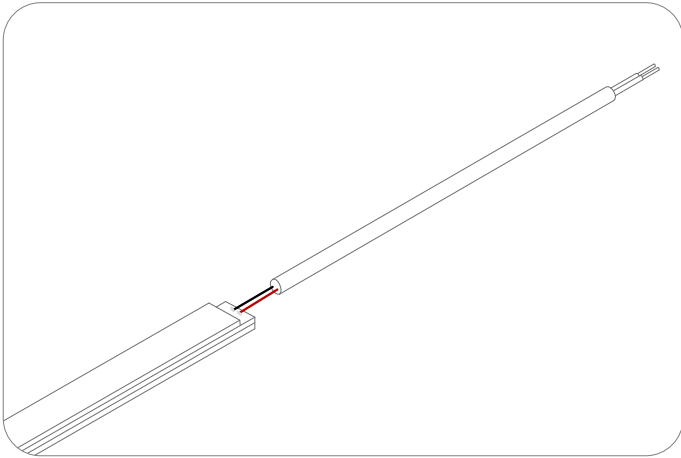
⚠ Note: Calculations are based on a standard connector with 1 metre cable (0.5 mm²).

Power and connection diagram

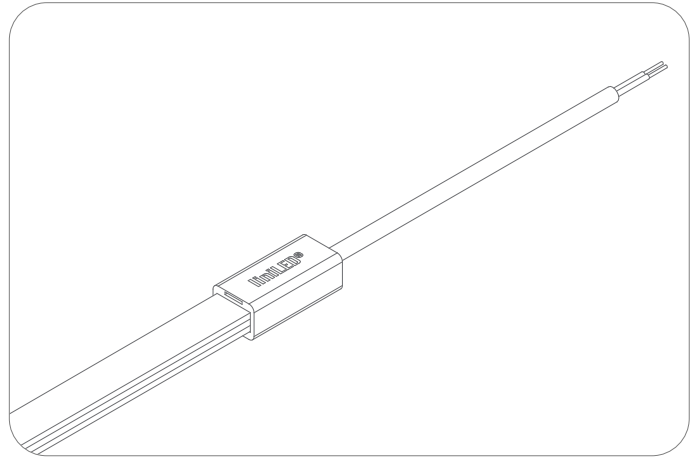


Area advice

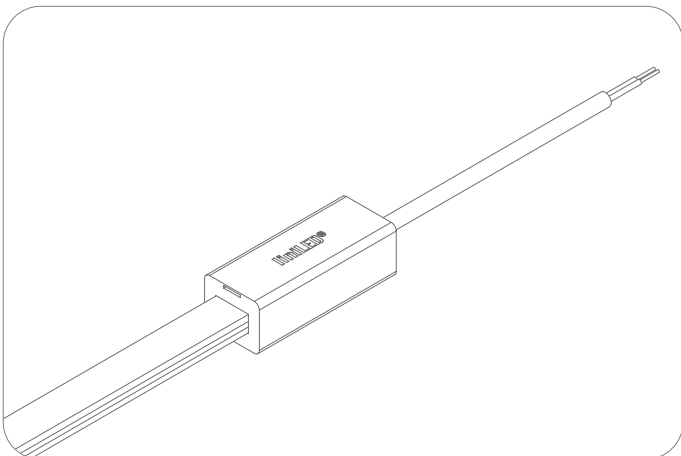
Depending on the installation area of the liniLED® LED strip we offer a range of IP40, IP67 and IP68 solutions to cope with external factors. Below the different connectors are displayed for use in different environments. See corresponding pages or individual product manual for further instructions.



Indoor environment | (IP20)
Solder

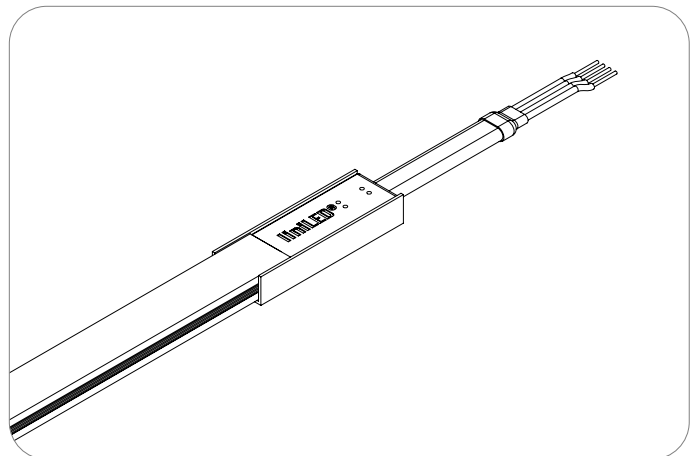


Indoor environment | (IP40) | liniLED® Top Connector set.
Product code: 11200 (1 m), 11201 (5 m)



Wet environment | (IP67) | liniLED® Top IP67 Kit
Product code: 11490

See Manual liniLED® Top IP67 Kit for installation instructions.



Submersible, chlorine resistant | (IP68) | Welded Connector
Product code: 12296 1m
12297 5m

The connector is pre-assembled to the LED strip.

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).



This product can be both IP40 and IP68 depending on the configuration and application. See the documentation for the exact IP rating.



Protected against impact energy of 5 joules.



Bending of the LED strip is possible with a radius of ≥ 30 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.



The CRI value of this product is 80 or higher.



White colour consistency up to 2 SDCM ellipse over an entire single strip length. LEDs used are single BIN 3 SDCM ellipse, but their careful combination in a LED strip during the production process, results in a mixed light through a diffusive material which is within a 2 SDCM ellipse (probability $>90\%$). Due to variability this is not legally binding. The guaranteed colour consistency can be found in the technical specifications.



This product needs to be disposed of separately from normal household waste so it can be recycled. Verify the 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.

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