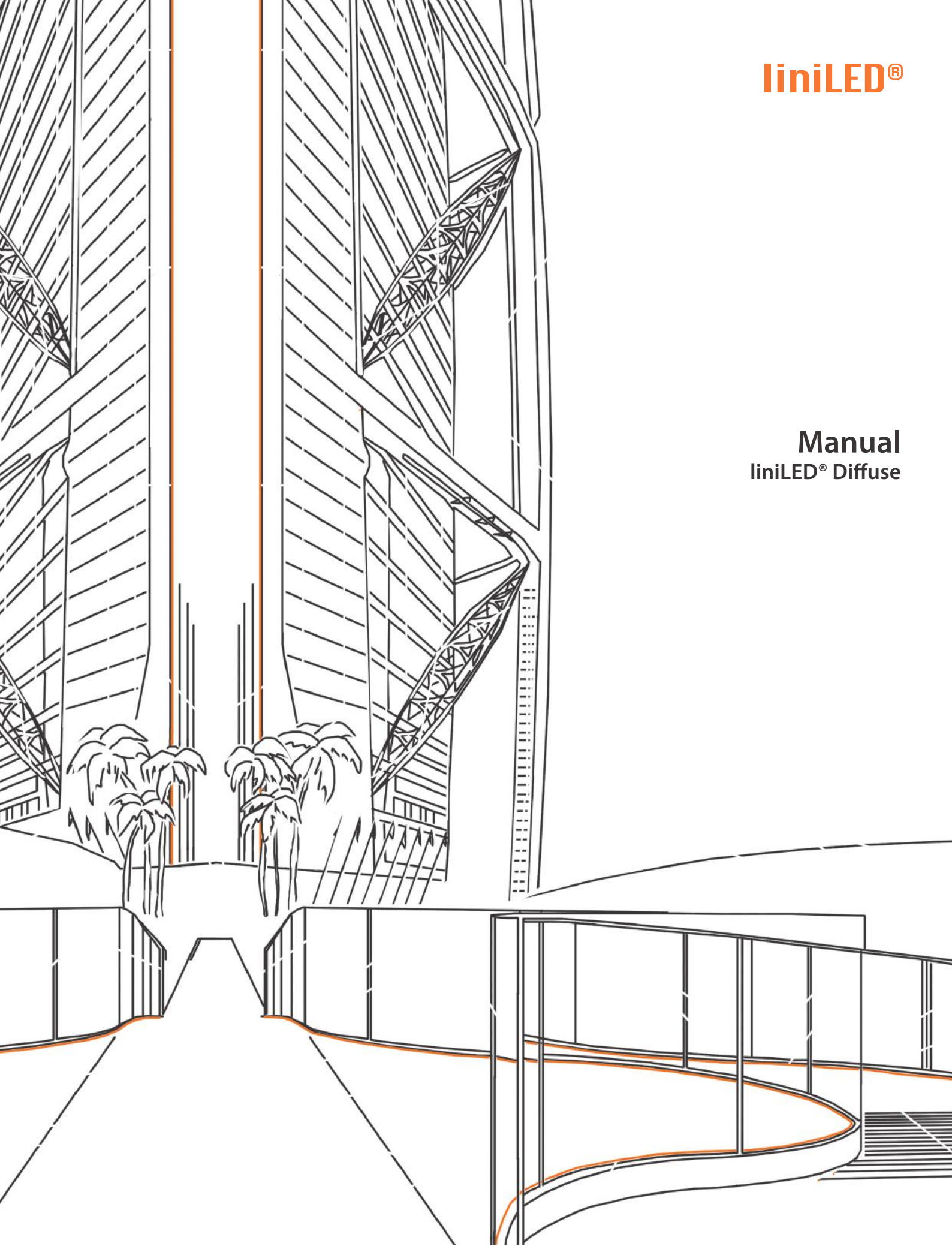


liniLED®

Manual liniLED® Diffuse



liniLED®

liniLED® Diffuse

Technical notes	4
Top Diffuse 12	5
<i>Product drawings</i>	
<i>Technical specifications</i>	
Top Diffuse 18	6
<i>Product drawings</i>	
<i>Technical specifications</i>	
Side Diffuse	7
<i>Product drawings</i>	
<i>Technical specifications</i>	
Product care and handling	8
Area advice	9
Connectors	10
Installation	11
Cable selection	13
Power supply	14
Symbols	15

Technical notes

Read the instructions and safety precautions before installation, usage and storage of the products to secure safety of the user and reliability of the product.

- Hand over the instructions to the end user and those responsible for installation and usage.
- Triolight B.V. cannot be held responsible for improper handling, product installation, usage or storage.

Handling

- Handle with care.
- The product may not be modified or converted otherwise than prescribed.
- Products are transported in proper packaging. Products should remain packed until installation.
- Take ESD (Electrostatic Discharge) protection measures when handling liniLED® products.
- The products and their components may not be exposed to mechanical, static loads and other tension/compression other than from the product itself.

Installation

- ⚠ Attention: The power has to be switched off the main power supply or the connection before installation. Not doing so may damage the product.
- Use a suitable LED power supply/driver: 24 V DC constant voltage. Do not drive the product on other voltages than described in their datasheet/products specifications.
- Installation has to be done by a certified professional with knowledge of electrical circuits or a specialised maintenance person known with valid directives.
- General and local construction-, safety- and installation regulations should be respected.
- Use only supplied parts, accessories and required tools as prescribed in the installation manual to guarantee a safe installation and use of the product.
- Products may solely be installed in the areas according to their prescribed IP-rating, IK-rating, temperature range and chemical resistances.
- The LED strip should be installed on an adequate cooling body for proper heat dissipation to ensure smooth operation and long lifetime.
- Do not fasten anything on the product, same applies for hanging.
- Do not install the product in the following cases:
 - Damage is visible on the product or its cables.
 - The inside of the product is moistened or dirty.
 - The product or its cables have been modified. It could lead to an electrical shock or a short circuit may occur.
- Children may not play unsupervised with electrical products as they cannot judge the dangers in dealing with electrical circuits correctly.
- Use proper mounting surfaces when installing in environments with large variations in temperature and operating lengths more than 2m. This should absorb the stress of any mismatch in expansion.

Operation and use

Solely use the product when its working correctly. If not, switch the power off immediately and advise an electrical specialist in the following cases:

- Damage is visible on the product and/or the product does not function.
- The product is overheating and/or smoke or steam rises from the product.
- Crackling sounds are noticeable.
- Repairs on the installation may only be performed by qualified electricians. Product repairs may solely be done by Triolight B.V.

Cleaning and maintenance

- ⚠ Attention: Disconnect the power before maintenance and cleaning.
- Dust and dirt accumulated over time should be removed from the light emitting surface to assure optimal functioning of the product.
- Paints, solvents and corrosive cleaning chemicals may not contact and thus affect the product.

Environment and waste

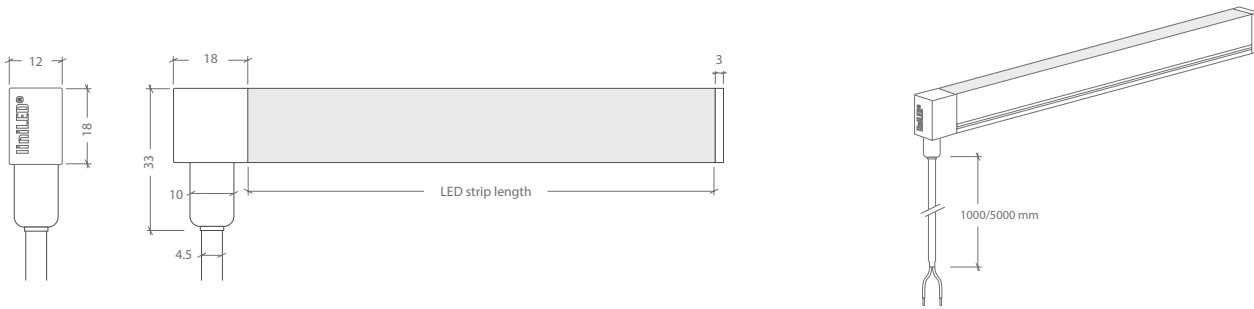
- Exterior decorative lighting should only be used after sunset.
- This product may not be treated as household waste. Dispose of the material through the waste recycling of electrical and electronic equipment.

Warranty

This product comes with a 2 year warranty. Warranty void if:

- The installation guide has not been consulted (installation mistake).
- The installation is not done by a certified installer.
- Local rules and guidelines are not respected.
- The invoice cannot be shown and/or has been altered.
- Damage is caused by negligence, abnormal use or improper handling, use, maintenance and/or cleaning of the product.

Top Diffuse 12 - Product drawings

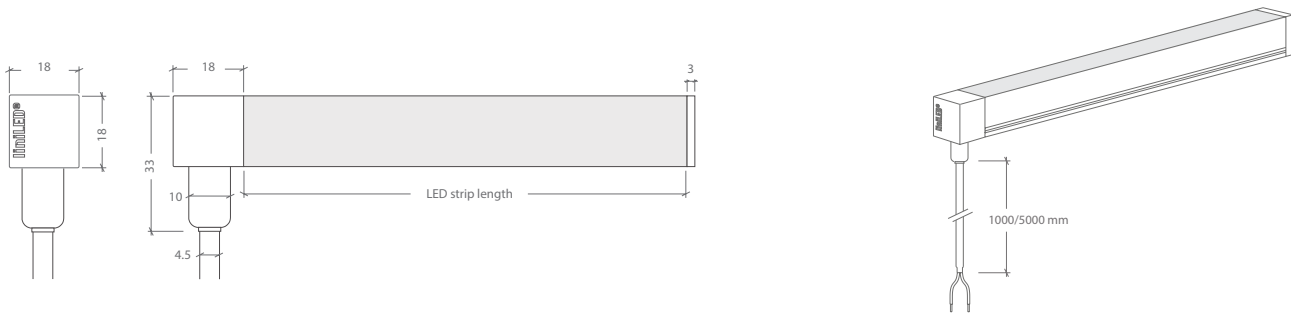


Top Diffuse 12 - Technical specifications

	Ultra Warm White	Extra Warm White	Warm White	Natural White	Cold White
Top Diffuse 12					
Product code	11829	11830	11831	11832	11833
Typical CCT	2309K	2534K	2828K	3700K	6201K
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	9.0 W/m	9.0 W/m
Luminous flux	167 lm/m	185 lm/m	169 lm/m	181 lm/m	184 lm/m
Luminous efficiency	19 lm/W	21 lm/W	20 lm/W	21 lm/W	21 lm/W
CRI	> 88	> 91	> 90	> 92	> 92
Binning	± 50K				
MacAdam	3 steps				
Output signal	PWM dimming, 24 V DC Common Anode				
LED	Duris® E3				
Number of LEDs	6 per section/120 per metre				
Operating voltage	24 V DC				
Max. operating voltage	25 V DC				
Spool length	Max. 10 m				
Section length	5 cm				
Max. connection length	10 m				
Expected lifetime	B50/L70 > 60,000 hours @ Tc = 40°C				
Ingress protection	IP68+ > 50 m/IP69K				
Storage temperature	-30°C ... 55°C				
Operating temperature	-30°C ... 55°C ¹				
Minimal bending radius	150 mm				
Dimensions	12x18 mm				
Weight	240 gram per metre				

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

Top Diffuse 18 - Product drawings

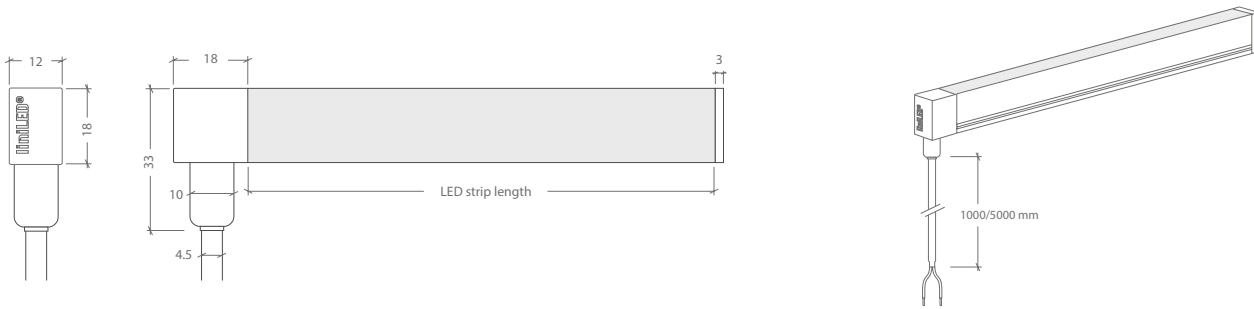


Top Diffuse 18 - Technical specifications

	Ultra Warm White 2400K	Extra Warm White 2700K	Warm White 3000K	Natural White 4000K	Cold White 6500K
Top Diffuse 18					
Product code	11799	11800	11801	11802	11803
Typical CCT	2309K	2610K	2873K	3787K	6370K
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	9.0 W/m	9.0 W/m
Luminous flux	200 lm/m	220 lm/m	196 lm/m	213 lm/m	226 lm/m
Luminous efficiency	22 lm/W	25 lm/W	24 lm/W	25 lm/W	26 lm/W
CRI	> 88	> 90	> 89	> 91	> 92
Binning	± 50K				
MacAdam	3 steps				
Output signal	PWM dimming, 24 V DC Common Anode				
LED	Duris® E3				
Number of LEDs	6 per section/120 per metre				
Operating voltage	24 V DC				
Max. operating voltage	25 V DC				
Spool length	Max. 10 m				
Section length	5 cm				
Max. connection length	10 m				
Expected lifetime	B50/L70 > 60,000 hours @ Tc = 40°C				
Ingress protection	IP68+ > 50 m/IP69K				
Storage temperature	-30°C ... 55°C				
Operating temperature	-30°C ... 55°C ¹				
Minimal bending radius	150 mm				
Dimensions	18x18 mm				
Weight	340 gram per metre				

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

Side Diffuse - Product drawings



Side Diffuse - Technical specifications

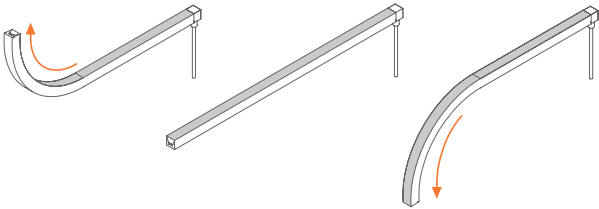
	Ultra Warm White 2400K	Extra Warm White 2700K	Warm White 3000K	Natural White 4000K	Cold White 6500K
Side Diffuse					
Product code	11819	11820	11821	11822	11823
Typical CCT	2243K	2533K	2866K	3724K	6091K
Power (24 V DC)	8.9 W/m	8.9 W/m	8.3 W/m	8.6 W/m	8.6 W/m
Power (25 V DC)	9.3 W/m	9.3 W/m	8.6 W/m	9.0 W/m	9.0 W/m
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
CRI	> 89	> 91	> 90	> 93	> 93
Binning	± 50K				
MacAdam	3 steps				
Output signal	PWM dimming, 24 V DC Common Anode				
LED	Duris® E3				
Number of LEDs	6 per section/120 per metre				
Operating voltage	24 V DC				
Max. operating voltage	25 V DC				
Spool length	Max. 10 m				
Section length	5 cm				
Max. connection length	10 m				
Expected lifetime	B50/L70 > 60,000 hours @ Tc = 40°C				
Ingress protection	IP68+ > 50 m/IP69K				
Storage temperature	-30°C ... 55°C				
Operating temperature	-30°C ... 55°C ¹				
Minimal bending radius	150 mm				
Dimensions	12x18 mm				
Weight	240 gram per metre				

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

Product care and handling

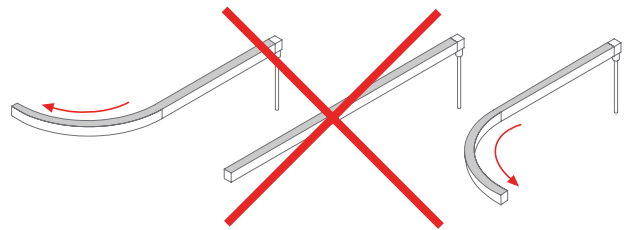
The direction of bending, the radius of the bend and general handling instructions are explained on this page.

Top Diffuse



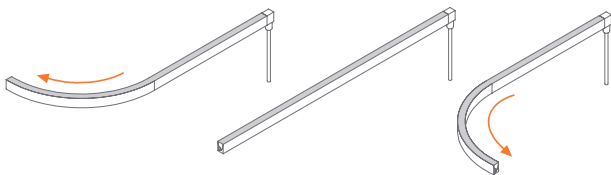
Solely bend the liniLED® Top Diffuse LED strip in up- and downward direction when the light surface is facing upwards.

Top Diffuse



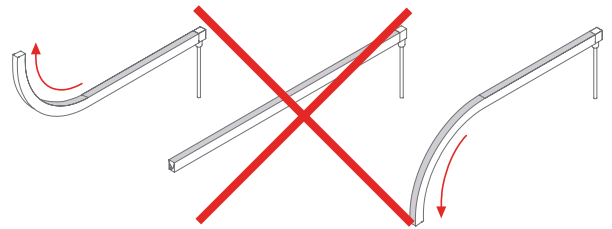
⚠ Do not bend the liniLED® Top Diffuse LED strip in sideward direction when the light surface is facing upwards.

Side Diffuse



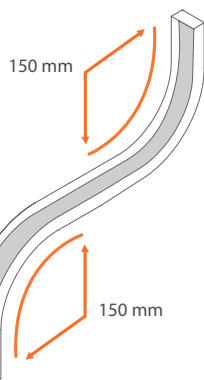
Solely bend the liniLED® Side Diffuse LED strip in sideward direction when the light surface is facing upwards.

Side Diffuse



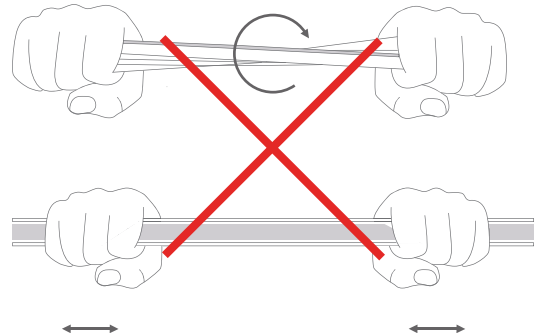
⚠ Do not bend the liniLED® Side Diffuse LED strip in up- and downward direction when the light surface is facing upwards.

Top/Side Diffuse



The minimum bending radius of the liniLED® Diffuse LED strips are 150 mm.

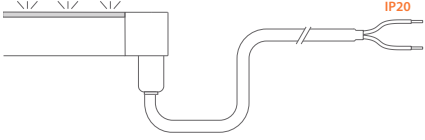
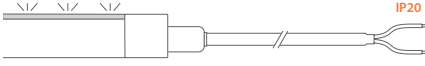
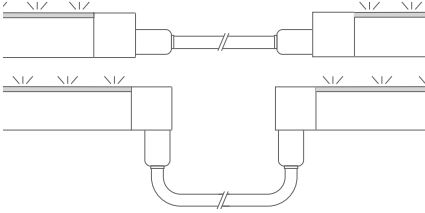
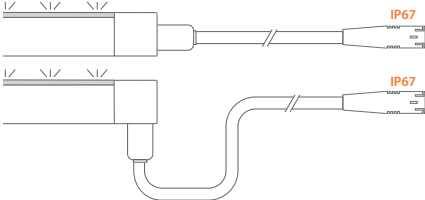
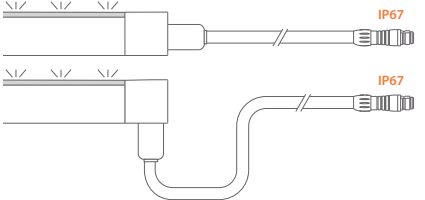

Top/Side Diffuse



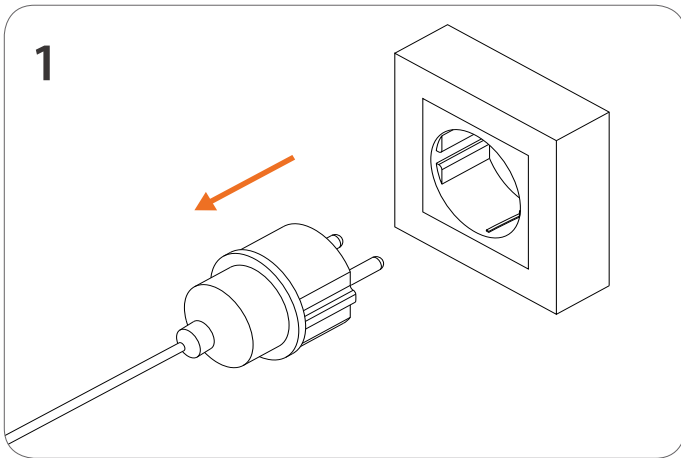
⚠ Do not twist, stretch or compress the liniLED® Diffuse LED strips.

Connectors

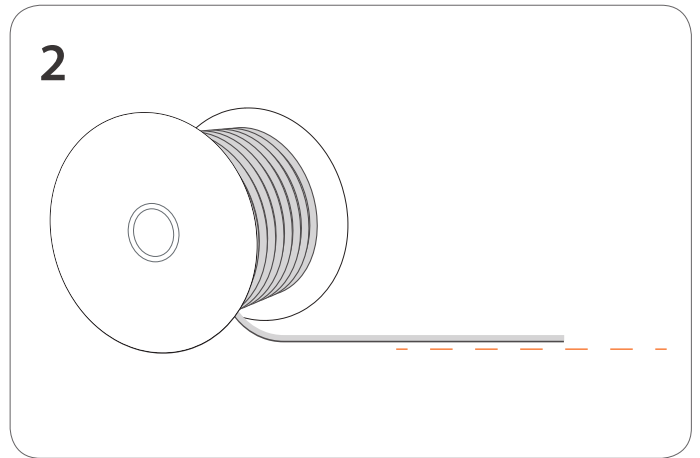
The liniLED® Diffuse LED strips come with a pre-assembled connector, available in different types. Extending LED strip can be achieved with the liniLED® Diffuse Extension Cord. Below is an overview of the available types with corresponding cable lengths and article numbers.

Product drawings (side view)	Product code	Cable length
	Diffuse Connector 90° Angle 11260 liniLED® Diffuse Connector 90° Angle 12 1 m 11261 liniLED® Diffuse Connector 90° Angle 12 5 m 11245 liniLED® Diffuse Connector 90° Angle 18 1 m 11246 liniLED® Diffuse Connector 90° Angle 18 5 m	1000 mm 5000 mm 1000 mm 5000 mm
	Diffuse Connector Straight 11270 liniLED® Diffuse Connector Straight 12 1 m 11271 liniLED® Diffuse Connector Straight 12 5 m 11250 liniLED® Diffuse Connector Straight 18 5 m 11251 liniLED® Diffuse Connector Straight 18 5 m	1000 mm 5000 mm 1000 mm 5000 mm
	Diffuse Extension Cord 11277 liniLED® Diffuse Extension Cord Angle 12 11279 liniLED® Diffuse Extension Cord Straight 12 11276 liniLED® Diffuse Extension Cord Angle 18 11278 liniLED® Diffuse Extension Cord Straight 18	300 mm 300 mm 300 mm 300 mm
	Diffuse Connector Male 11284 liniLED® Diffuse Connector Angle Male 12 11286 liniLED® Diffuse Connector Straight Male 12 11280 liniLED® Diffuse Connector Angle Male 18 11282 liniLED® Diffuse Connector Straight Male 18	300 mm 300 mm 300 mm 300 mm
	Diffuse Connector Female 11285 liniLED® Diffuse Connector Angle Female 12 11287 liniLED® Diffuse Connector Straight Female 12 11281 liniLED® Diffuse Connector Angle Female 18 11283 liniLED® Diffuse Connector Straight Female 18	300 mm 300 mm 300 mm 300 mm
	Connection Cable Female 11274 liniLED® Connection Cable Female 5 m	5000 mm

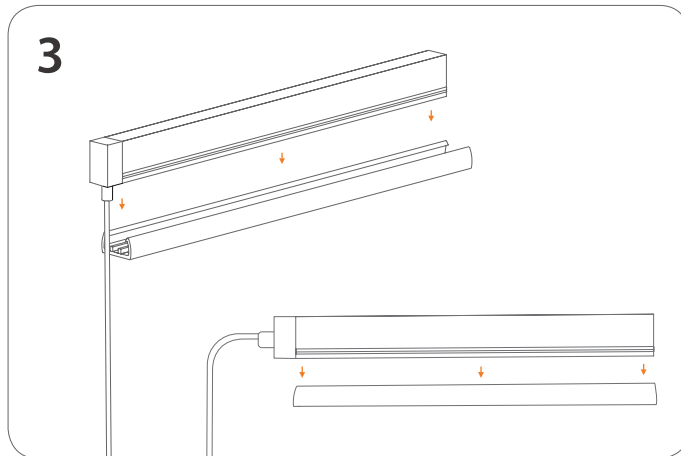
Installation



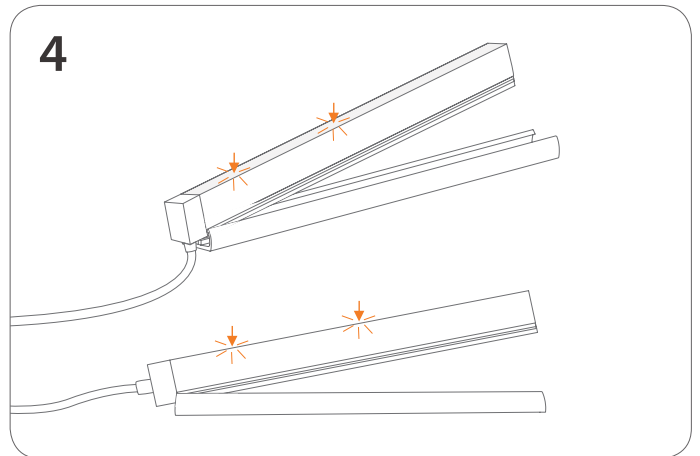
Make sure the power is OFF when you start the installation.



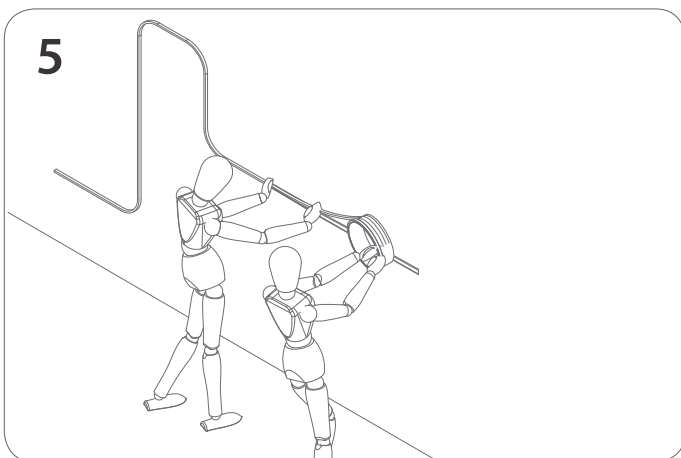
Unspool the LED strip on a horizontal surface.



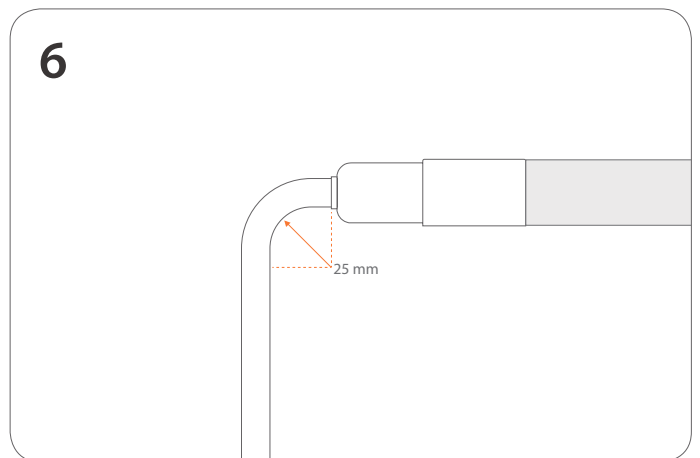
Make sure the liniLED® Diffuse LED strip and the U-Profile are aligned.



Gently push the liniLED® Diffuse LED strip into the U-Profile.



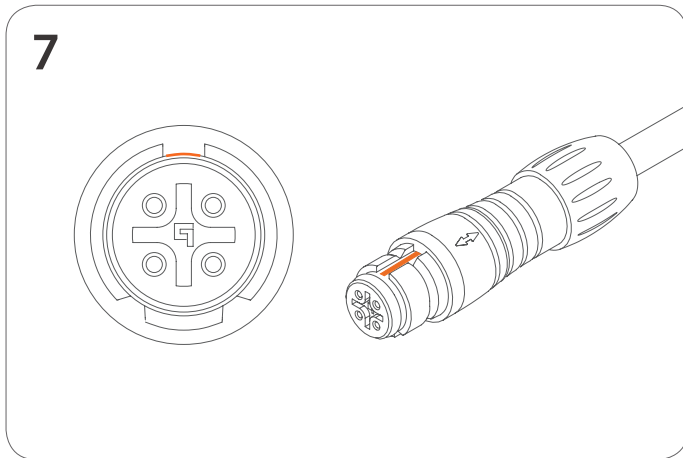
Long lengths should be installed by two installers to prevent the LED strip from twisting or bending.



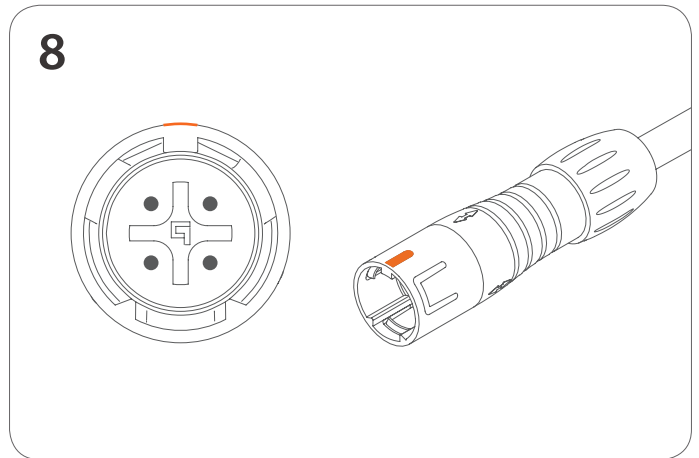
Minimum bending radius of the cable is 25 mm.

Installation

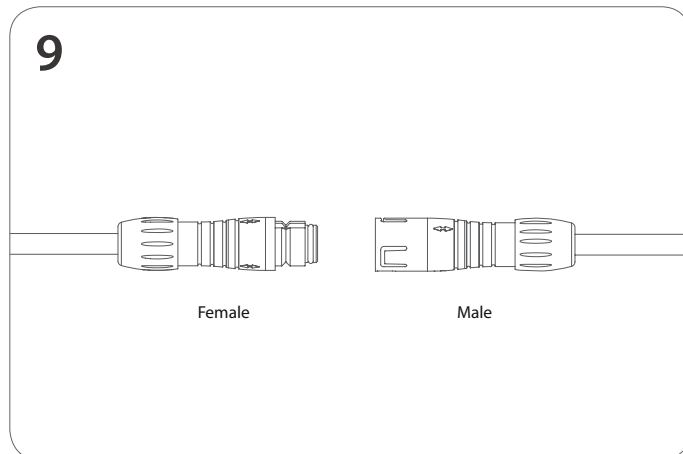
⚠ Step 7 till 10 are optional. Only if provided with IP67 connector.



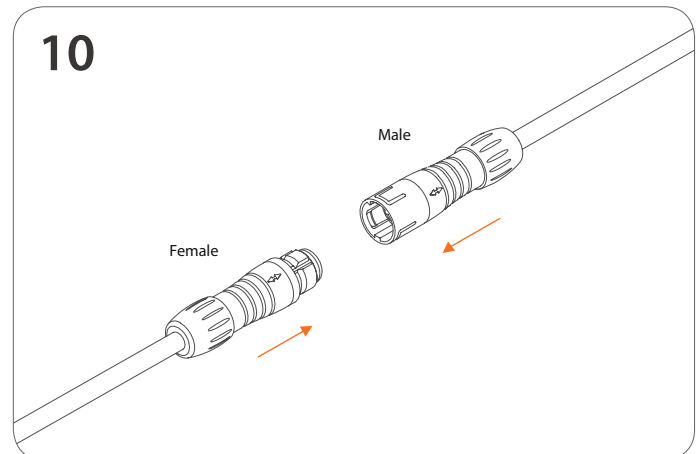
⚠ **Optional** Female connector front and isometric view, notice the white marker on top (highlighted in orange in the image above).



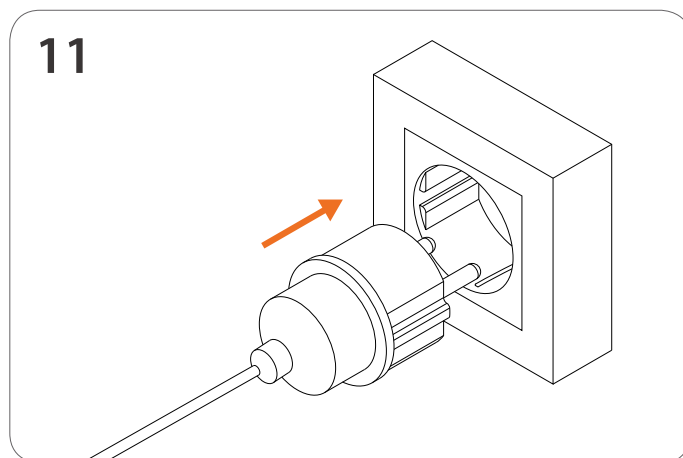
⚠ **Optional** Male connector front and isometric view, notice the white marker on top (highlighted in orange in the image above).



⚠ **Optional** Align the white marker of the Female and Male connector.



⚠ **Optional** - Snap the connector while keeping the white marker aligned.



Turn the power ON.

Cable selection

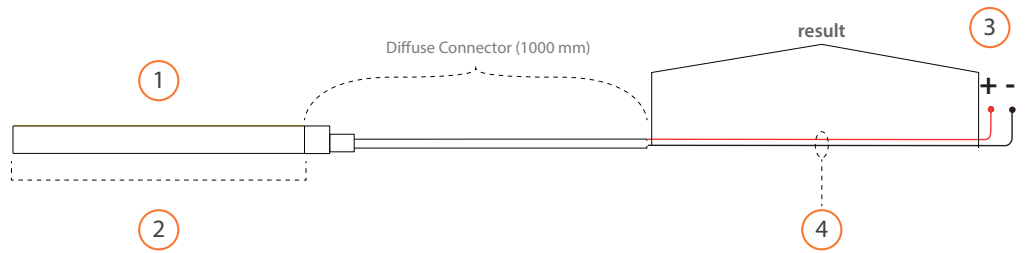
1 = Select colour temperature.

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

2400K, 2700K

2. LED strip length	1 m		2 m		5 m		10 m	
3. Output 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		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m	
	33.5 m	65.5 m	16.1 m	32.1 m	5.6 m	12.0 m	2.1 m	5.4 m
	0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m	
	50.4 m	98.6 m	24.2 m	48.3 m	8.5 m	18.1 m	3.3 m	8.1 m
	1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m	
	67.0 m	131.1 m	32.2 m	64.2 m	11.3 m	24.1 m	4.3 m	10.8 m
	1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m	
	100.9 m	197.2 m	48.5 m	96.7 m	17.0 m	36.3 m	6.6 m	16.2 m
	2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m	
	167.9 m	328.3 m	80.7 m	160.9 m	28.4 m	60.5 m	11.0 m	27.0 m

1. Colour temperature

3000K

2. LED strip length	1 m		2 m		5 m		10 m	
3. Output 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		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m	
	36.0 m	70.4 m	16.12 m	32.14 m	6.1 m	13.0 m	2.4 m	5.8 m
	0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m	
	54.2 m	105.9 m	24.25 m	48.35 m	9.3 m	19.6 m	3.6 m	8.8 m
	1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m	
	72.1 m	140.8 m	32.25 m	64.29 m	12.3 m	26.1 m	4.8 m	11.7 m
	1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m	
	108.4 m	211.8 m	48.51 m	96.71 m	18.6 m	39.2 m	7.3 m	17.7 m
	2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m	
	180.5 m	352.5 m	80.74 m	160.95 m	30.9 m	65.3 m	12.2 m	29.4 m

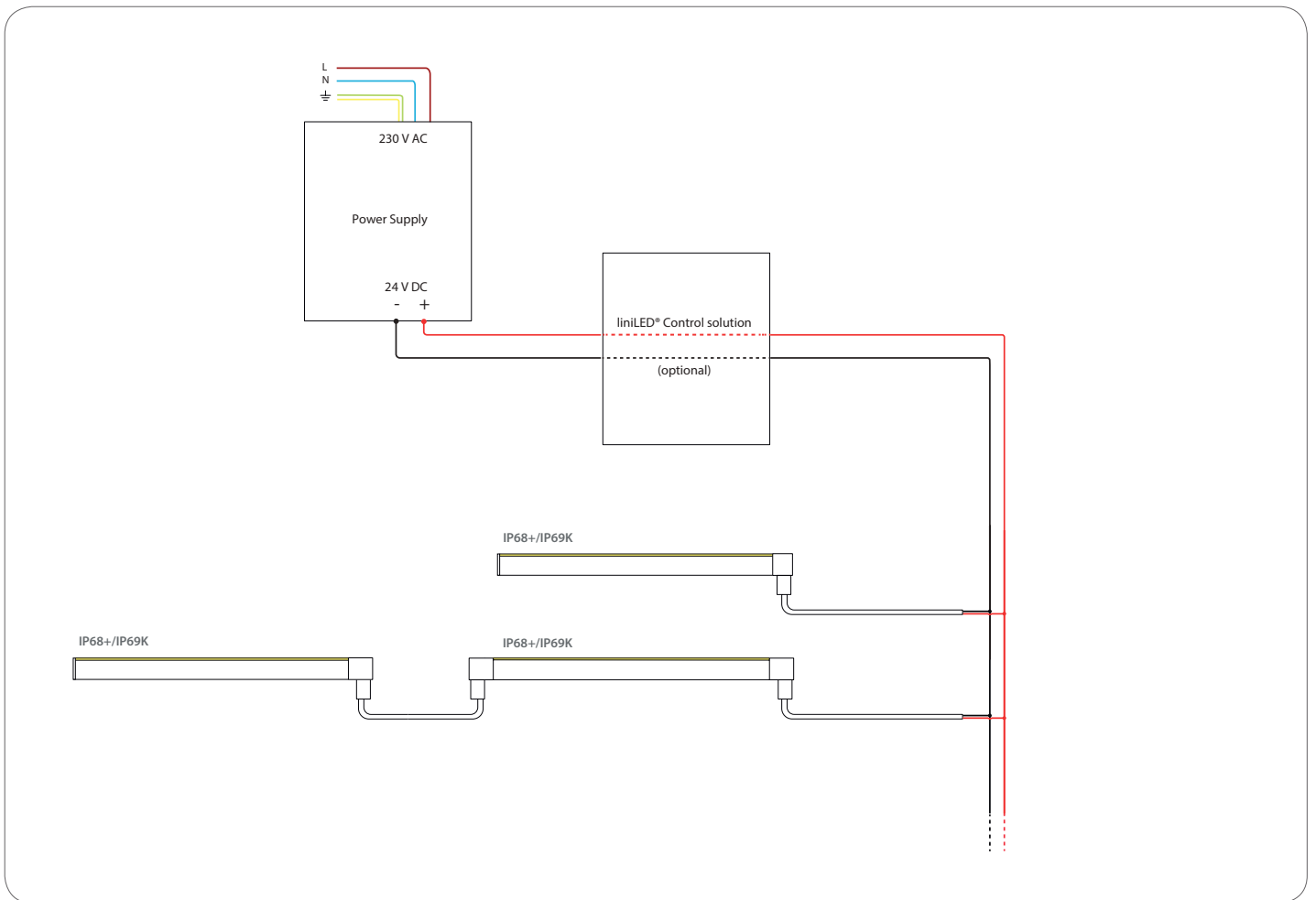
1. Colour temperature

4000K, 6500K

2. LED strip length	1 m		2 m		5 m		10 m	
3. Output 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		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m		0.50 mm ² - 0.035 Ω/m	
	34.7 m	67.9 m	16.7 m	33.3 m	5.9 m	12.5 m	2.3 m	5.6 m
	0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m		0.75 mm ² - 0.023 Ω/m	
	52.2 m	102.1 m	25.1 m	50.1 m	8.9 m	18.8 m	3.4 m	8.4 m
	1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m		1.00 mm ² - 0.018 Ω/m	
	69.5 m	135.8 m	33.4 m	66.6 m	11.8 m	25.1 m	4.6 m	11.2 m
	1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m		1.50 mm ² - 0.012 Ω/m	
	104.5 m	204.3 m	50.3 m	100.2 m	17.8 m	37.7 m	6.9 m	16.9 m
	2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m		2.50 mm ² - 0.007 Ω/m	
	174.0 m	340.0 m	83.7 m	166.7 m	29.6 m	62.8 m	11.6 m	28.2 m

⚠ Note: Calculations are based on a standard connector with 1 metre cable (0,5 mm²).

Power supply



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. 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 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 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 see datasheet. Verify the IP rating for proper use.

Symbols



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 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 IP rating for proper use.

Disclaimer

The published information is checked to be as accurate as possible, however Triolight B.V. or any reseller of liniLED® cannot be held liable for any damages resulting from errors or outdated information. Triolight B.V. reserves the right to modify the information without informing the customers. When this document is printed or downloaded, please check for the latest version on the internet, the most up to date information will be published on www.liniLED.com. This product should not be used in applications, devices or systems where incorrect operation of the product may result in personal injury (includes emergency lighting) without written permission from the board of Triolight B.V. If nevertheless used in such applications, devices or systems Triolight B.V. cannot be held liable for any resulting injury.

