

**LED strip manual**  
liniLED® PCB Power Colour



# liniLED®

---

## LED strip PCB Power Colour

Technical notes	3
Technical specifications	4
Product drawings	4
Cable selection	5
Area advice	6
Product care and handling	7
Cutting instructions	8
Solder	9
Connect IP00	10
Power and connection diagram	11
Symbols	12

## 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 to the product. The same applies when 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. This 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 2 metres. This should absorb the stress of any difference in expansion.

### Operation and use

*Solely use the product when it's working correctly. If not, switch the power off immediately and ask an electrical specialist for advice 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:*

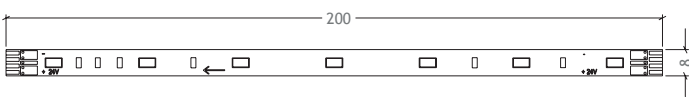
- The installation guide has not been consulted (installation mistake).
- The installation is not done by a certified installer.
- Local rules and guidelines are not respected.
- The invoice cannot be shown and/or has been altered.
- Damage is caused by negligence, abnormal use or improper handling,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

## Technical specifications

	Red	Green	Blue	Amber
Product code [m]	12176	12178	12177	12179
Power (24 V DC)	8.3 W/m	4.9 W/m	7.2 W/m	8.3 W/m
Power (25 V DC)	8.6 W/m	5.1 W/m	7.5 W/m	8.6 W/m
CRI	>80	>80	>80	>80
Luminous flux	140 lm/m	195 lm/m	67 lm/m	115 lm/m
Luminous efficiency	17 lm/W	40 lm/W	9 lm/W	14 lm/W
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			
Operation voltage	24 V DC			
Max. operation voltage	25 V DC			
Beam angle	120°			
Dimensions	8 x 2.2 mm			
Dimmable	PWM dimming, 24 V DC Common Anode			
Weight	9 gram per metre			
Expected lifetime	B50/L70 > 60,000 hours @ $T_c = 40\text{ °C}$			
Degree of protection (IP)	IP00			
Storage temperature	-20 °C .. 80 °C			
Operation temperature	-20 °C .. 75 °C <sup>1</sup>			
Minimal bending radius	20 mm			

<sup>1</sup> Max. connection length between -30 °C and -20 °C is 7 metres.

## Product drawings



Top view



Front view

## Cable selection

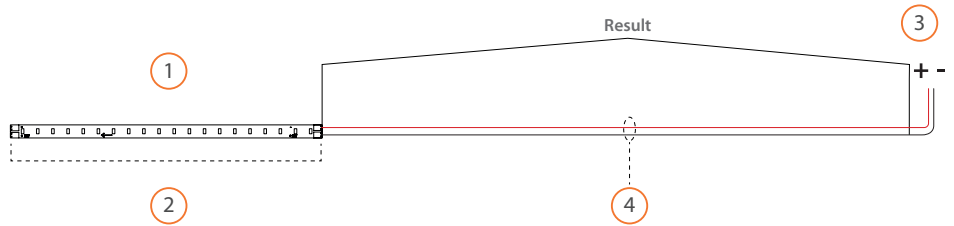
1 = Select colour temperature.

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

#### Red. Amber

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 <sup>2</sup> - 0.035 Ω/m	36.0 m	70.4 m	17.3 m	34.5 m	6.1 m	13.0 m	2.4 m	5.8 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	54.2 m	105.9 m	26.1 m	51.9 m	9.3 m	19.6 m	3.6 m	8.8 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	72.1 m	140.8 m	34.7 m	69.1 m	12.3 m	26.1 m	4.8 m	11.7 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	108.4 m	211.8 m	52.3 m	103.9 m	18.6 m	39.2 m	7.3 m	17.7 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	180.5 m	352.5 m	87.0 m	173.0 m	30.9 m	65.3 m	12.2 m	29.4 m

### 1. Colour temperature

#### Blue

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 <sup>2</sup> - 0.035 Ω/m	41.7 m	81.3 m	20.2 m	40.0 m	7.3 m	15.2 m	3.0 m	6.9 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	62.8 m	122.3 m	30.4 m	60.2 m	11.0 m	22.9 m	4.5 m	10.5 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	83.5 m	162.7 m	40.4 m	80.0 m	14.6 m	30.4 m	6.0 m	13.9 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	125.6 m	244.7 m	60.8 m	120.4 m	22.0 m	45.8 m	9.0 m	21.0 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	209.0 m	407.3 m	101.3 m	200.4 m	36.6 m	76.3 m	15.1 m	34.9 m

### 1. Colour temperature

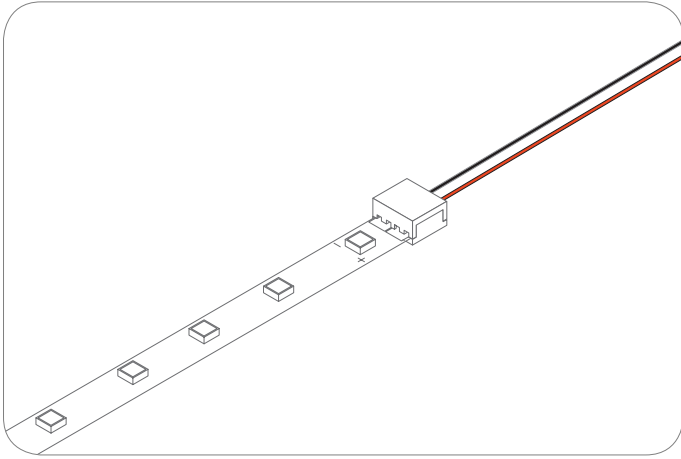
#### Green

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 <sup>2</sup> - 0.035 Ω/m	61.9 m	120.1 m	30.3 m	59.4 m	11.3 m	23.0 m	5.0 m	10.8 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	93.2 m	180.7 m	45.6 m	89.4 m	17.0 m	34.6 m	7.5 m	16.3 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	123.9 m	240.3 m	60.6 m	118.8 m	22.7 m	46.0 m	10.0 m	21.7 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	186.4 m	361.4 m	91.2 m	178.8 m	34.1 m	69.2 m	15.1 m	32.6 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	310.2 m	601.6 m	151.9 m	297.5 m	56.9 m	115.1 m	25.2 m	54.3 m

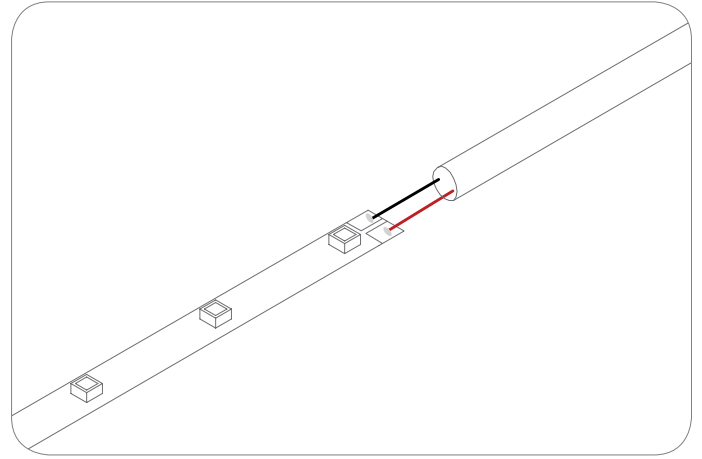
⚠ **Note:** Calculations are based on a standard connector with 1 metre cable (0.5 mm<sup>2</sup>).

## Area advice

Depending on the area where the liniLED® LED strip is installed we offer a range of solutions to cope with external factors. The product portfolio for the liniLED® PCB LED strip includes an IP00 connector.

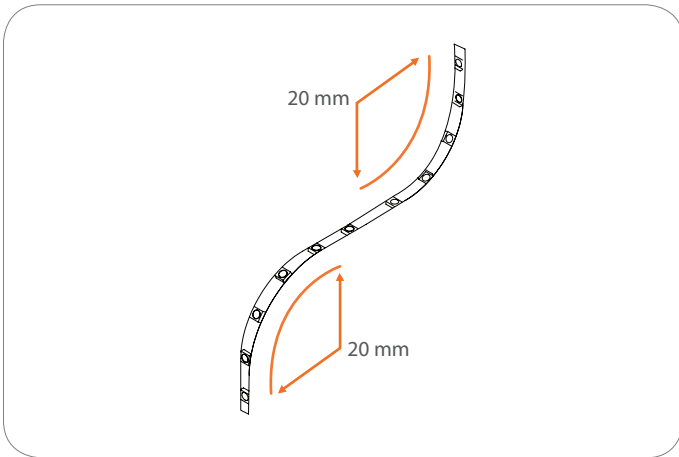


Indoor environment | (IP00) | liniLED® PCB Connector Set  
Product code: 11808

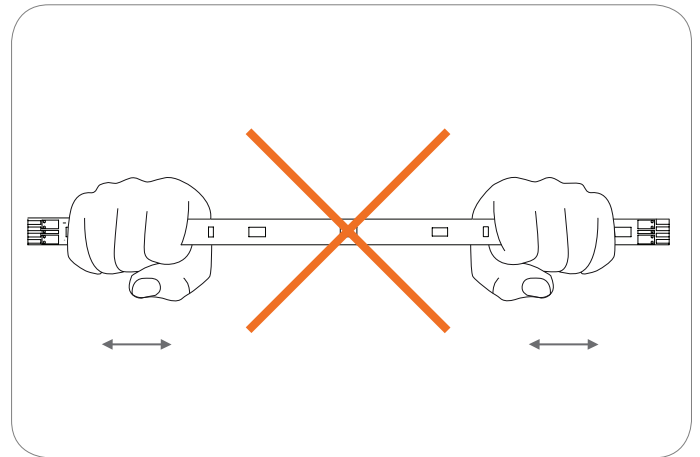


Indoor environment | (IP00)  
Solder

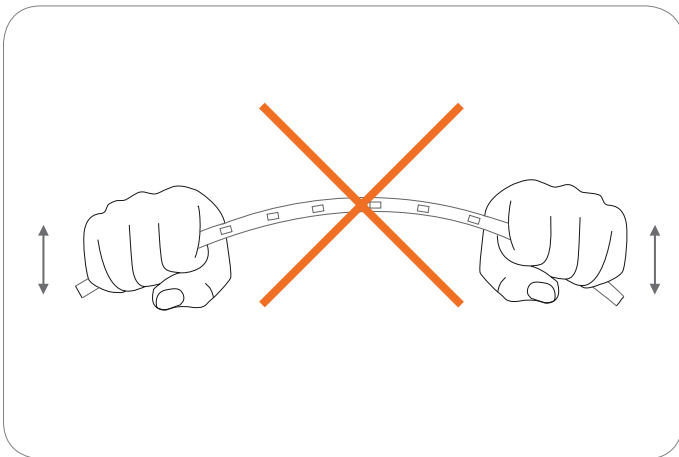
## Product care and handling



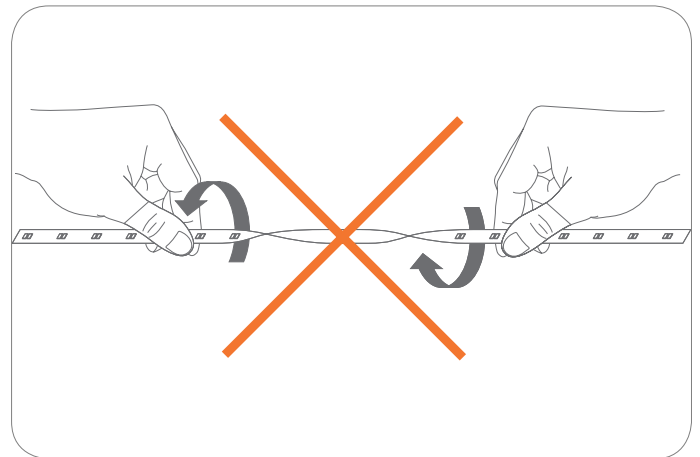
Maximum bending radius is 20 mm. Solely bend up or downward.



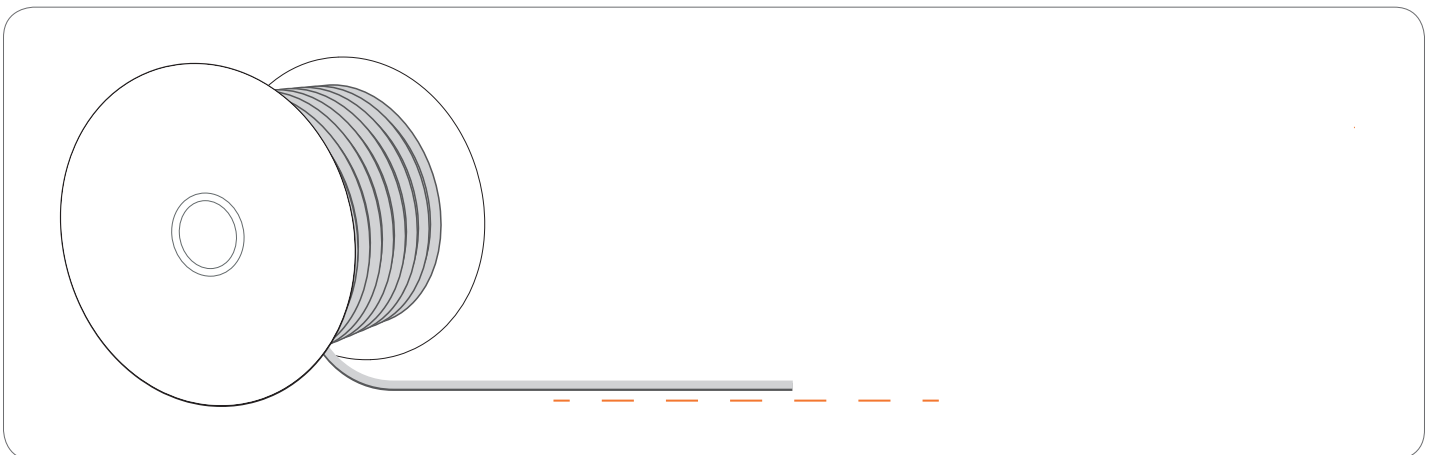
⚠ Do not compress or stretch the LED strip.



⚠ Do not bend the LED strip sideways.

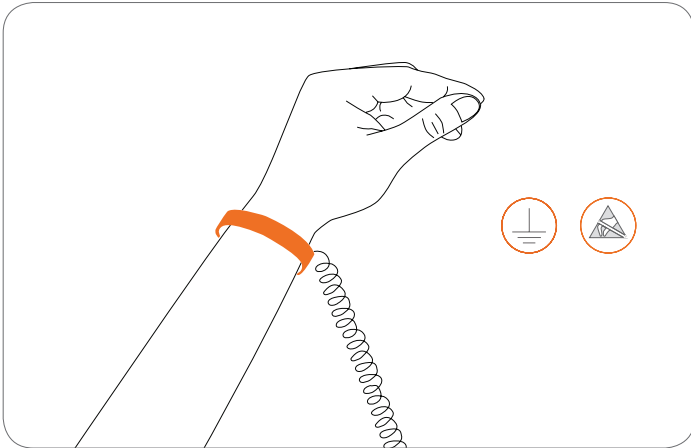


⚠ Do not twist the LED strip.

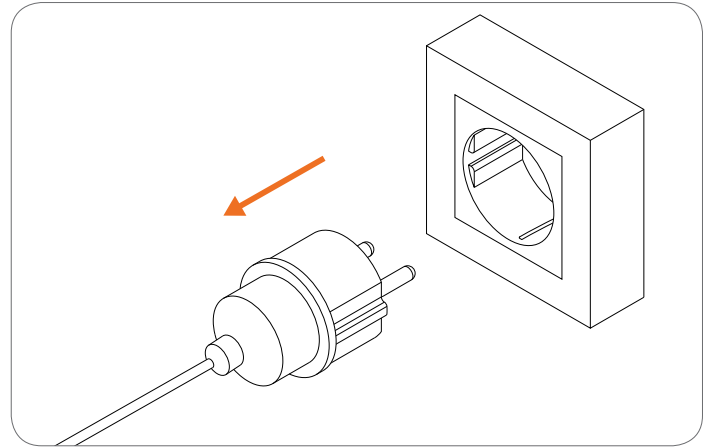


The LED strip has to be unreeled on a horizontal surface at the time of installation. Do not unreele the spool of LED strip before installation.

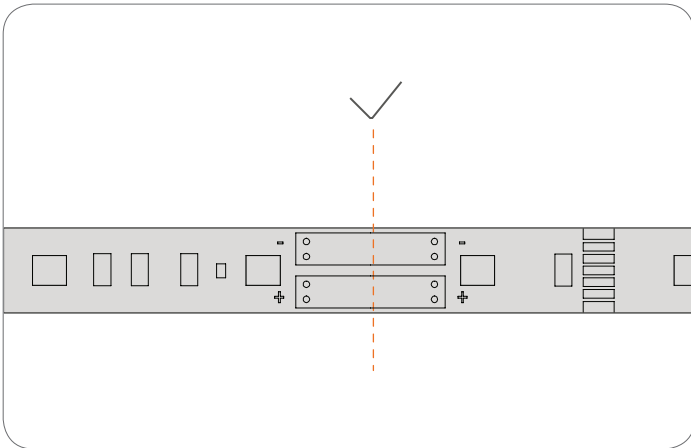
## Cutting instructions



Work in an ESD protected environment. Make use of an anti-static strap.



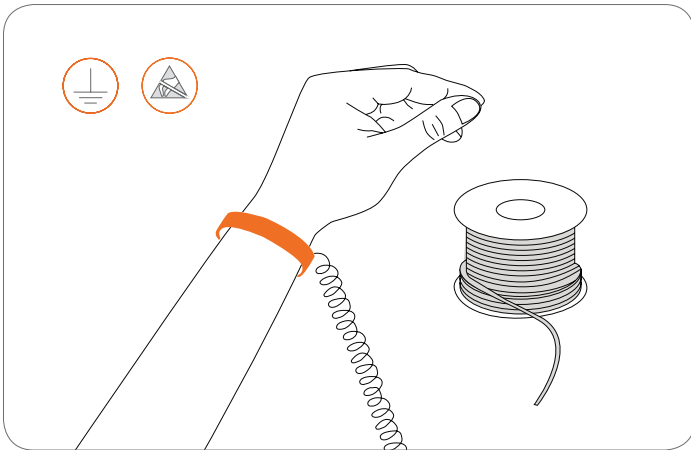
Turn off the power before cutting the LED strip.



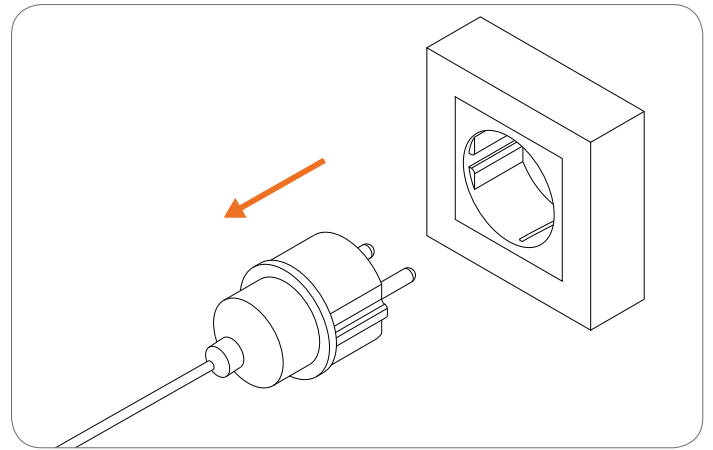
**Top view** | Only cut on the dotted lines to prevent damaging the LED strip.



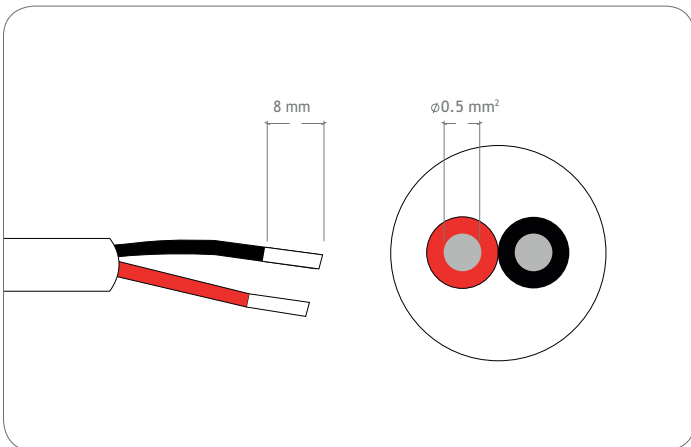
## Solder



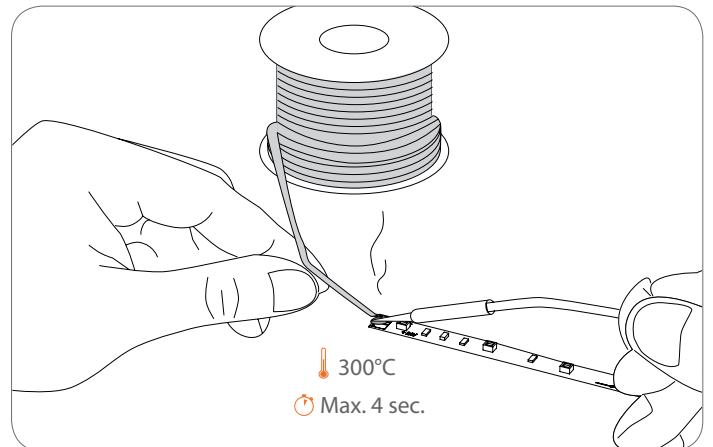
⚠ Work in an ESD protected environment. Make use of an anti-static strap and use lead-free solder.



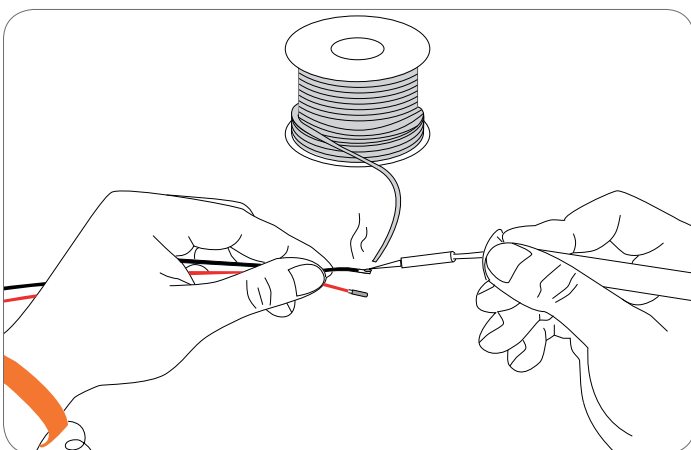
⚠ Turn off the power. Make sure the wires are not under electric current.



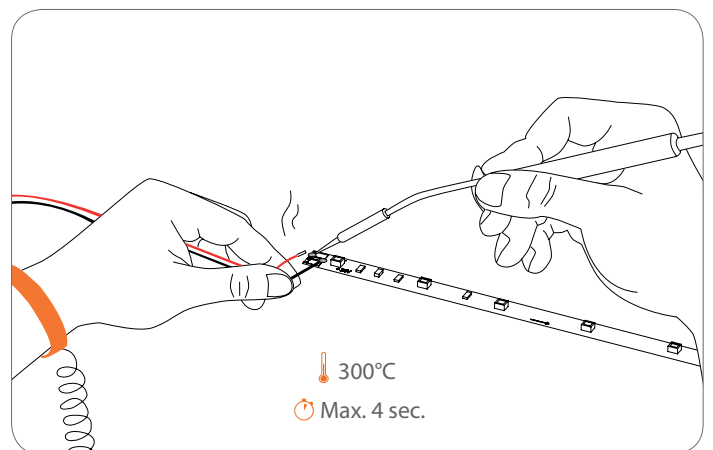
Solder the wires to the PCB. We advise to use a cable with an area not bigger than  $0.5 \text{ mm}^2$ .



Pre-solder the connector pads.

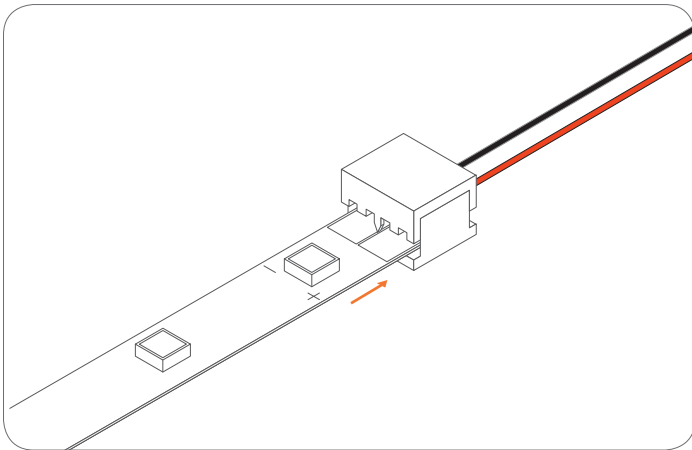


Pre-solder the wires.

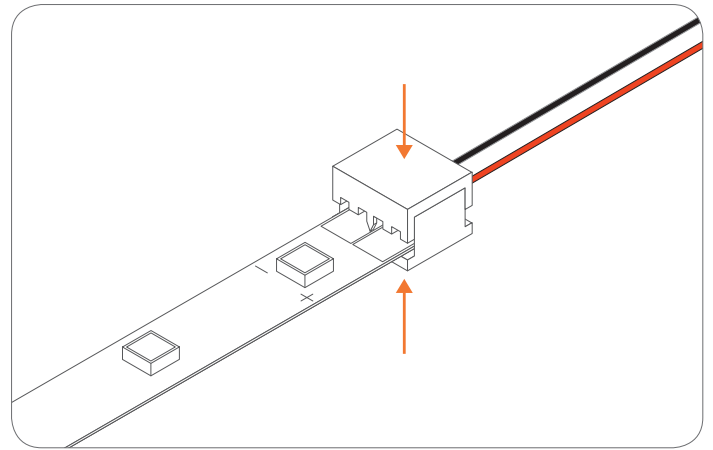


Solder the wires to the connector pads.

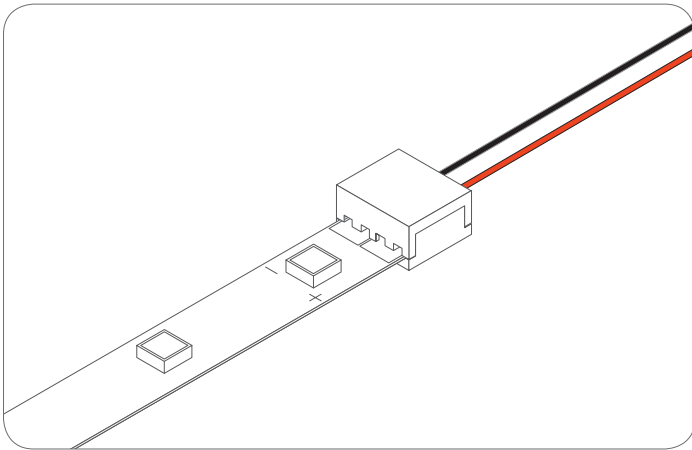
## Connect IP00



Open the PCB connector.

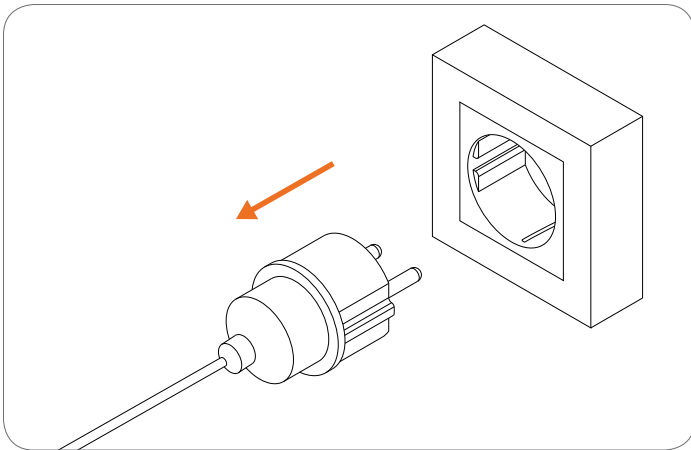


Push the liniLED® PCB LED strip into the connector. Make sure the polarity is correct and the connection pads are facing up.

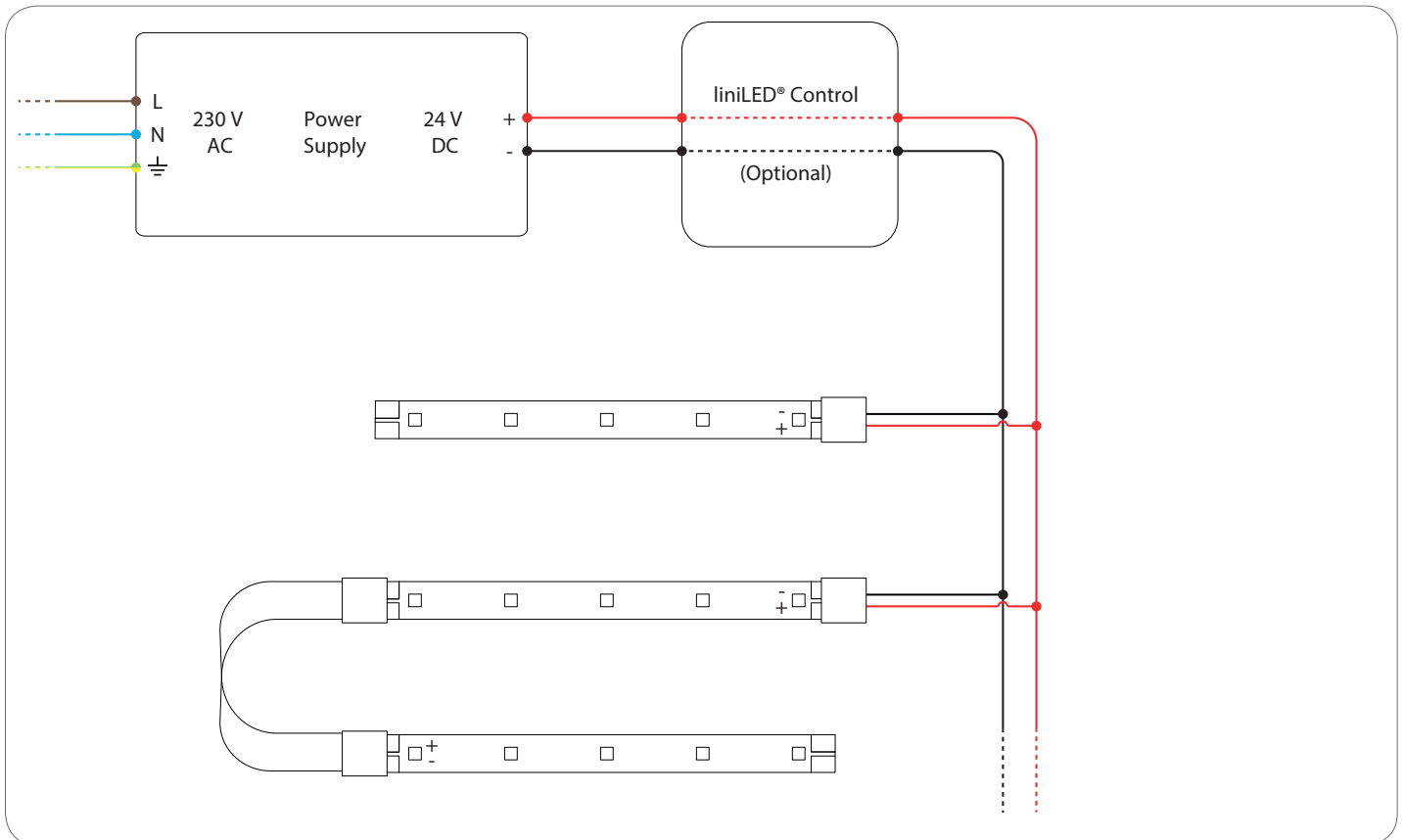


Close the PCB connector.

## Power and connection diagram



⚠ Turn off the power. Make sure the wires are not under electric current.



## Symbols

---



Electro Static Discharge (ESD) sensitive device, apply standard ESD precautions when handling the product.



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).



Not protected against ingress of solid foreign objects. Not-protected against ingress of water.



Bending of the LED strip is possible with a radius of  $\geq 20$  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 ( $\leq 60.0$  V DC or  $\leq 42.4$  V AC).



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

## 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 misprints, errors, modifications or outdated information. No legal rights can be derived from this document. Triolight B.V. reserves the right to modify the information without informing the customers. Please check for the latest version on [www.liniLED.com](http://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. liniLED® is a registered trademark of Triolight B.V.