

## LED strip manual

liniLED® Top Deco Colour





# liniLED®

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## liniLED® Top Deco Colour

Technical notes	4
Top Deco colour - Product drawings	5
Product information	5
Product specifications	5
Cable selection	6
Area advice	7
Product care and handling	8
Cutting instructions	9
Solder	11
Connect IP40	13
Uninstalling the connector	15
Power supply	16
Symbols	17

## Technical notes

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*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.
- 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.

### 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.
- The product does not function.
- Smoke or steam rises from the product.
- Crackling sounds are noticeable.
- The product is overheating.
- 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.

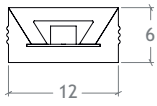
### Warranty

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

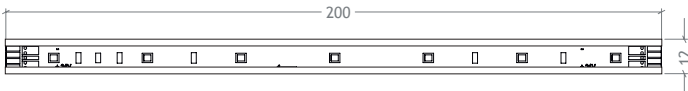
- The installation guide has not been consulted (installation mistake).
- The installation is not done by a certified installer.
- Local rules and guidelines are not respected.
- The invoice cannot be shown and/or has been altered.
- Damage is caused by negligence, abnormal use or improper handling,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

## Top Deco colour - Product drawings

LED strip front view



LED strip top view



## Product information

The liniLED® Top Deco 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.

\* For usage in wet environments, use the liniLED® IP68 Kit or mirror welded.

## Product specifications

Colour	LED/m	V DC	W/m	lm/m	Temp °C	Max. Length	B50/L70
Red	35	24	4.4	55	-30...55 <sup>1</sup>	20 m	> 50.000 h
Green	35	24	2.5	106	-30...55 <sup>1</sup>	20 m	> 50.000 h
Blue	35	24	1.7	23	-30...55 <sup>1</sup>	20 m	> 50.000 h
Amber	35	24	4.4	47	-30...55 <sup>1</sup>	20 m	> 50.000 h

<sup>1</sup>Max. connection length between -20 °C and -30 °C is 14 metres.

## Cable selection

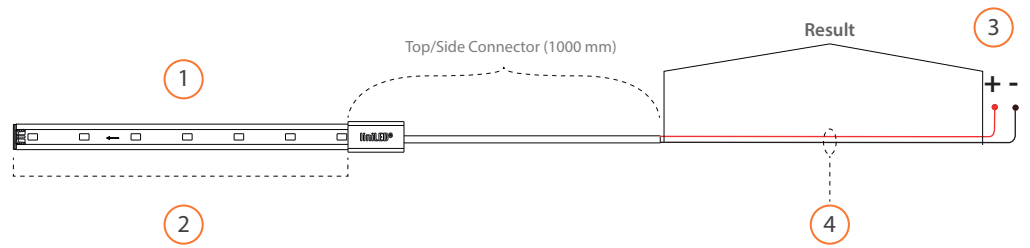
1 = Select colour temperature.

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	69.1 m	133.9 m	12.8 m	25.7 m	5.7 m	12.2 m	2.2 m	5.4 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	104.0 m	201.5 m	19.2 m	38.7 m	8.6 m	18.4 m	3.3 m	8.2 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	138.3 m	267.9 m	25.6 m	51.5 m	11.5 m	24.4 m	4.4 m	10.9 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	208.0 m	403.0 m	38.5 m	77.5 m	17.3 m	36.8 m	6.7 m	16.4 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	346.2 m	670.7 m	64.1 m	128.9 m	28.8 m	61.2 m	11.2 m	27.4 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	181.0 m	348.7 m	35.1 m	68.7 m	16.9 m	33.7 m	7.8 m	16.2 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	272.3 m	524.6 m	52.9 m	103.3 m	25.4 m	50.7 m	11.7 m	24.3 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	362.0 m	697.4 m	70.3 m	137.4 m	33.8 m	67.4 m	15.6 m	32.4 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	544.6 m	1049.2 m	105.8 m	206.7 m	50.9 m	101.4 m	23.5 m	48.7 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	906.3 m	1746.1 m	176.1 m	344.0 m	84.8 m	168.8 m	39.2 m	81.2 m

### 1. Colour temperature

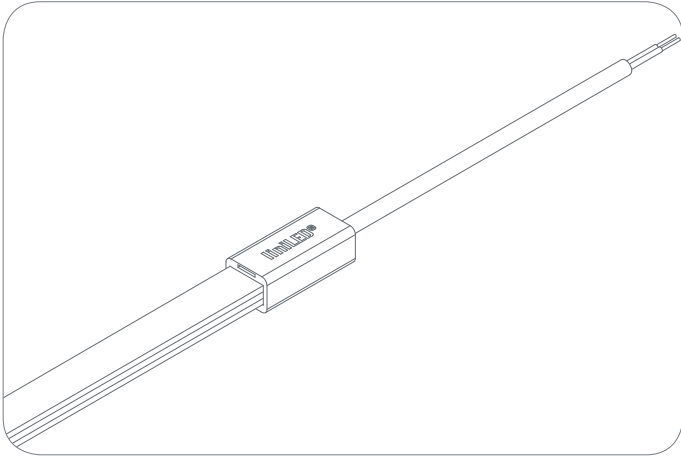
#### Green

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	122.6 m	236.7 m	23.5 m	46.3 m	11.1 m	22.5 m	4.9 m	10.6 m
	0.75 mm <sup>2</sup> - 0.023 Ω/m	184.5 m	356.1 m	35.3 m	69.6 m	16.7 m	33.8 m	7.3 m	15.9 m
	1.00 mm <sup>2</sup> - 0.018 Ω/m	245.3 m	473.4 m	47.0 m	92.6 m	22.2 m	45.0 m	9.8 m	21.2 m
	1.50 mm <sup>2</sup> - 0.012 Ω/m	369.0 m	712.2 m	70.7 m	139.3 m	33.4 m	67.7 m	14.7 m	31.9 m
	2.50 mm <sup>2</sup> - 0.007 Ω/m	614.2 m	1185.3 m	117.7 m	231.9 m	55.6 m	112.7 m	24.6 m	53.1 m

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

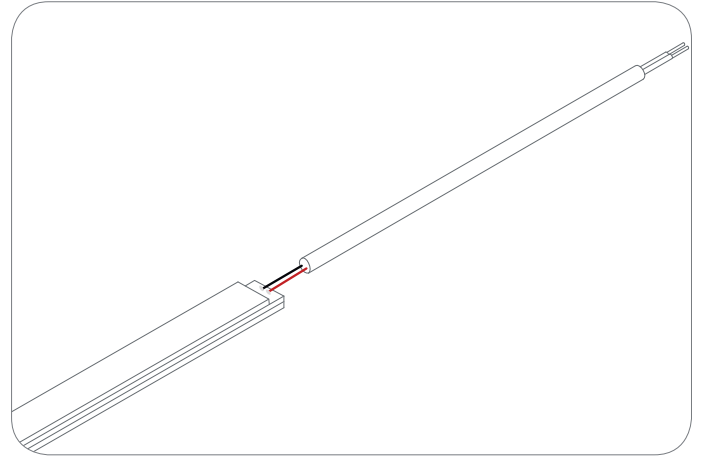
## Area advice

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 includes a range of IP40 and IP68 connectors. Below the different connectors are displayed for use in different environments.



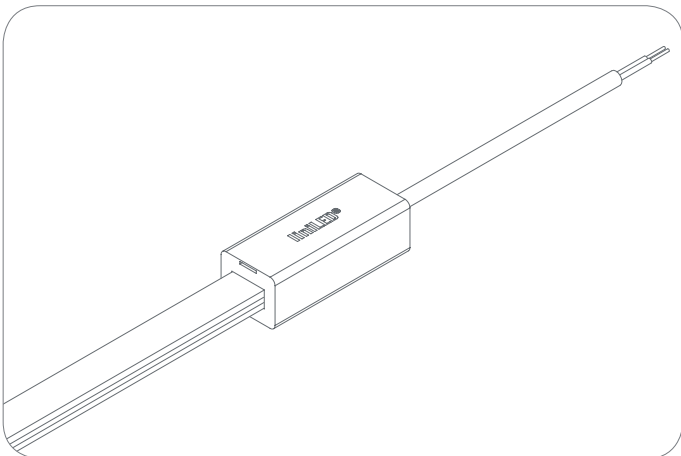
Indoor environment | (IP40) | liniLED® Top Connector set

Product code: 11200 (1m), 11201 (5m)



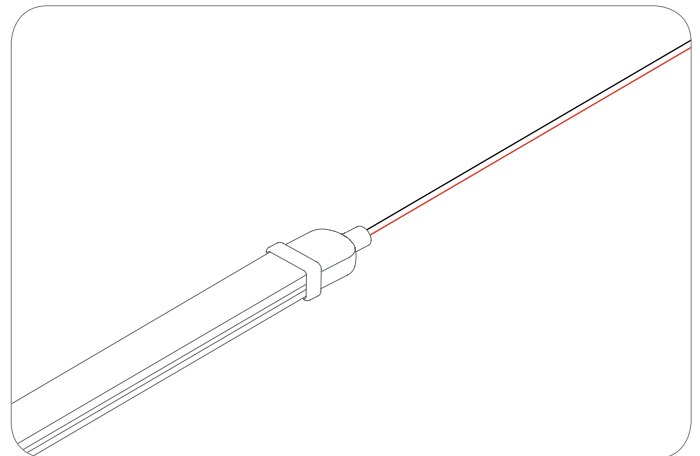
Indoor environment | (IP20)

Solder



Wet environment | (IP67) | liniLED® Top IP67 Kit

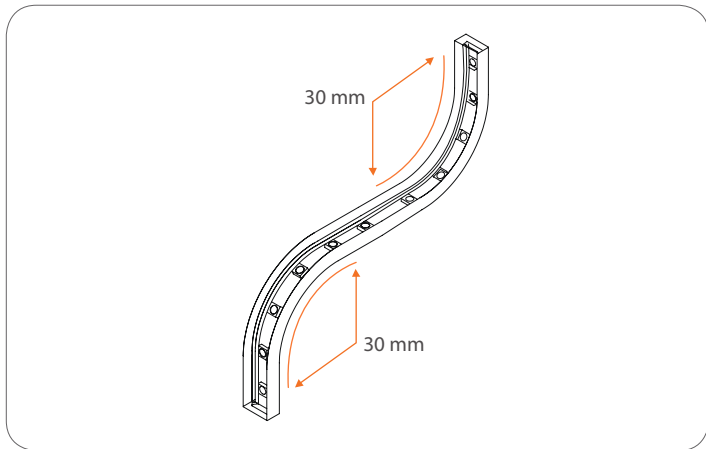
Product code: 11506



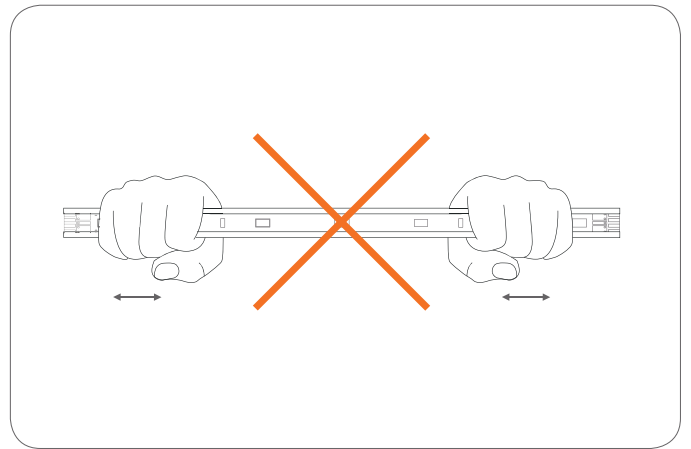
Submersible, chlorine resistant | (IP68) | Mirror Welded Connector

Product code: 11290

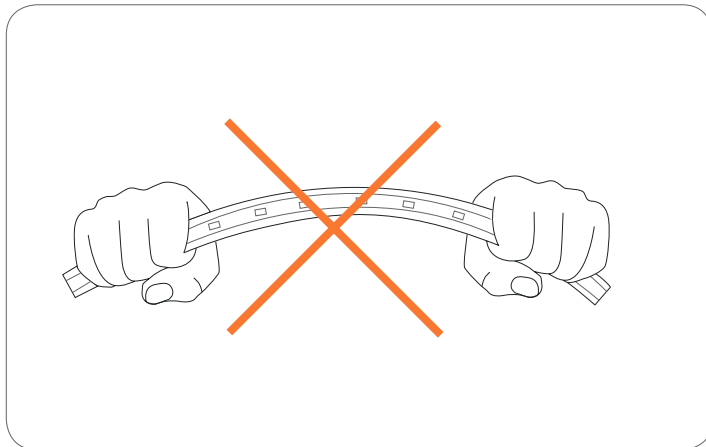
## Product care and handling



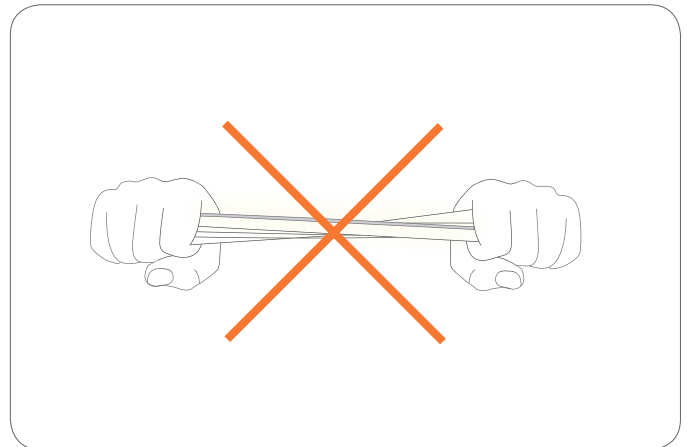
⚠ Maximum bending radius is 30 mm. Solely bend up or downward.



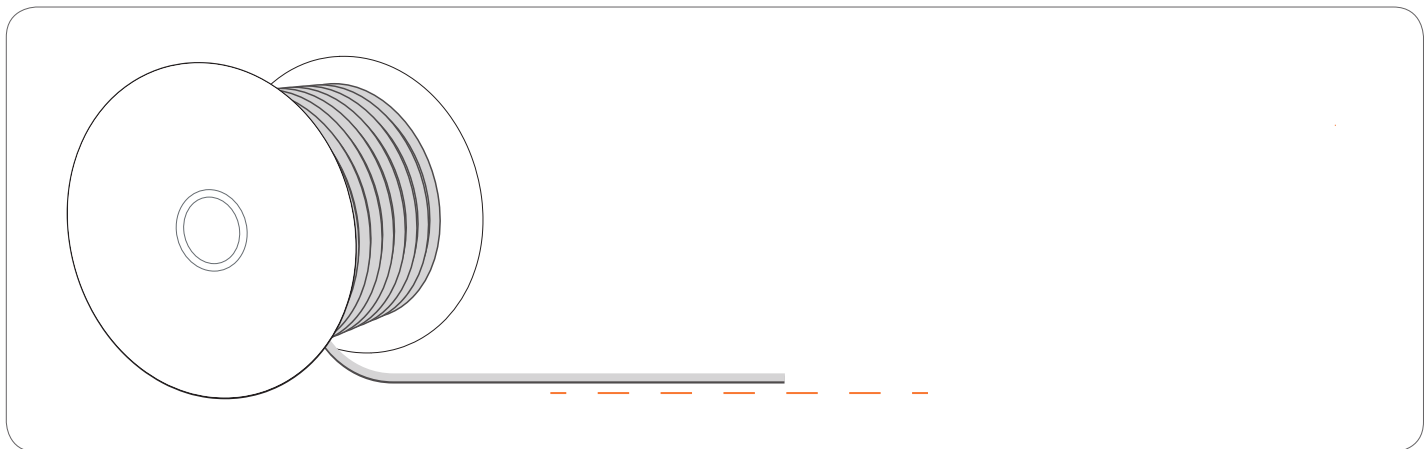
⚠ Do **not** compress or stretch the LED strip.



⚠ Do **not** bend the LED strip sideways.



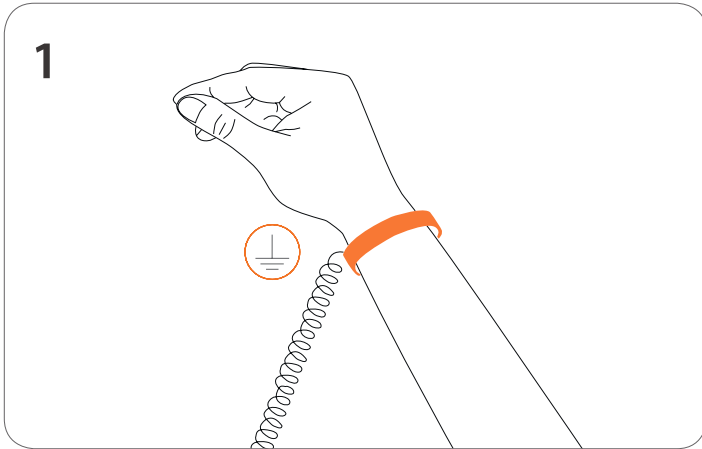
⚠ Do **not** twist the LED strip.



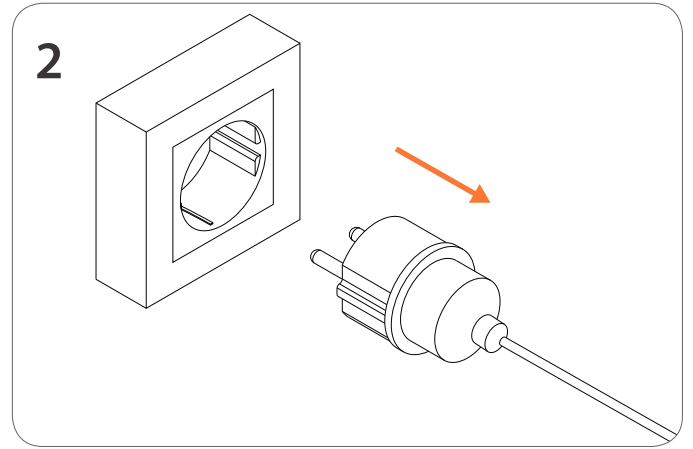
⚠ The LED strip has to be unreeled on a horizontal surface at the time of installation. Do not unroll the spool of LED strip before installation.



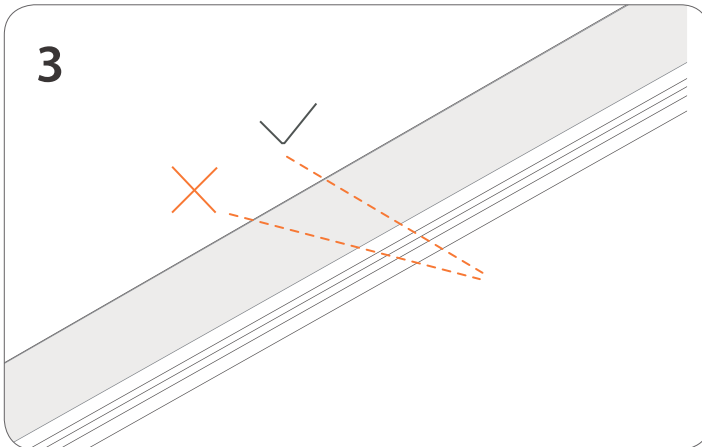
## Cutting instructions



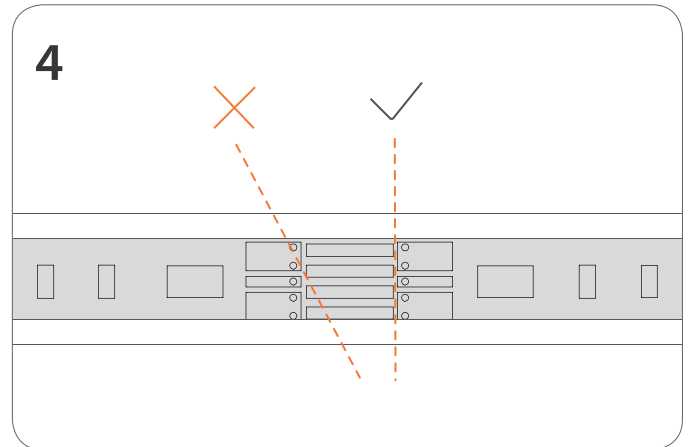
1 Work in an ESD protected environment. Make use of an anti-static strap.



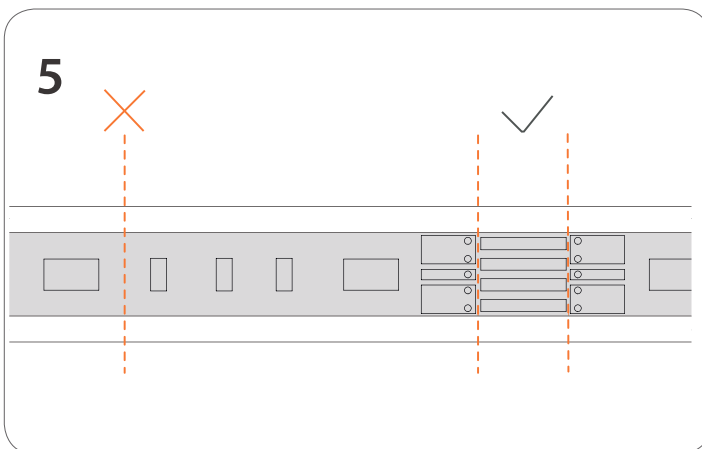
2 Turn off the power before cutting the LED strip.



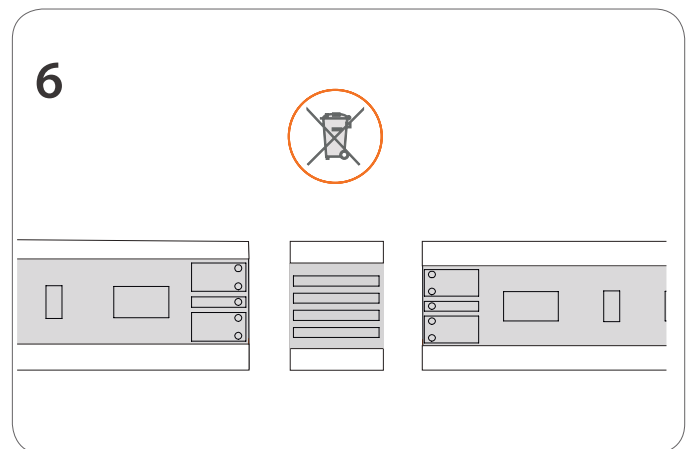
3 Side view | Make sure the cut is vertical as illustrated in the image above.



4 Top view | Make sure the cut is vertical as illustrated in the image above.

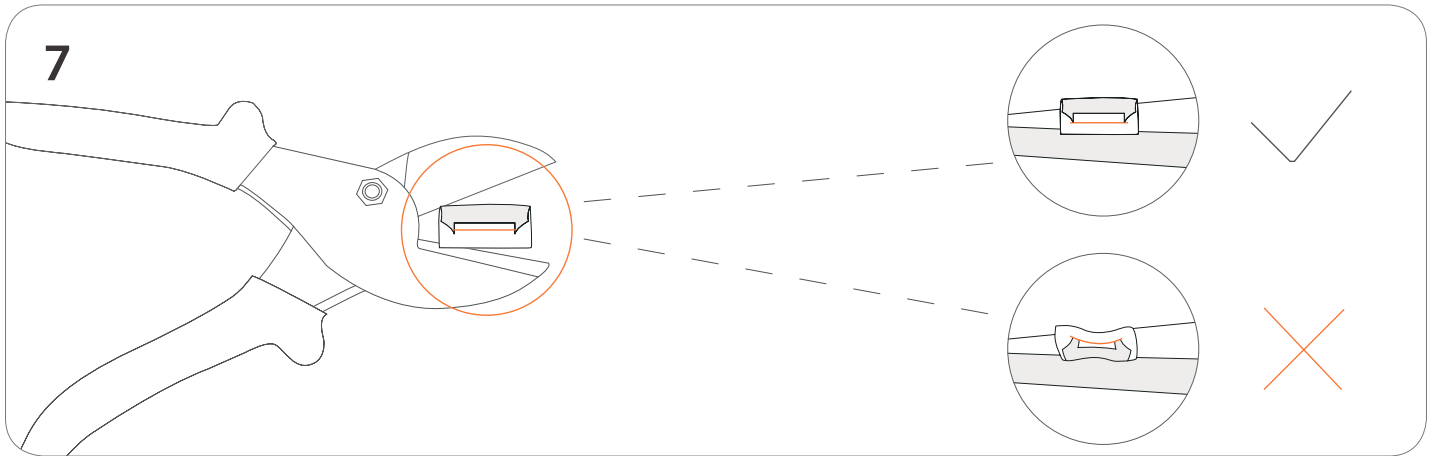


5 Top view | Only cut on the dotted lines to prevent damaging the LED strip.

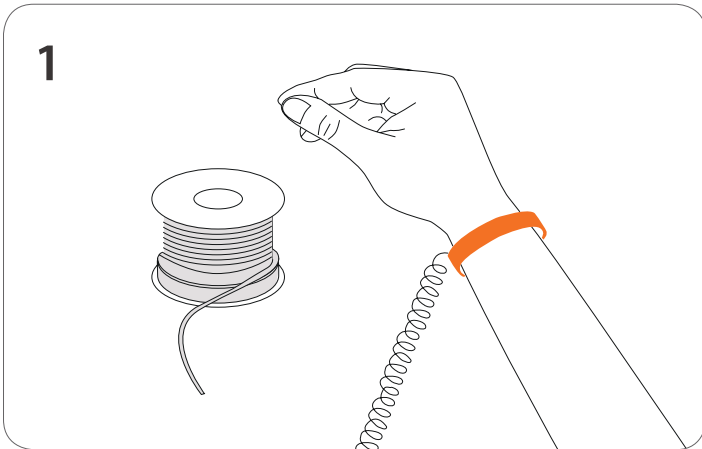


6 ⚠ Dispose of the unnecessary material through waste recycling of electrical and electronic equipment.

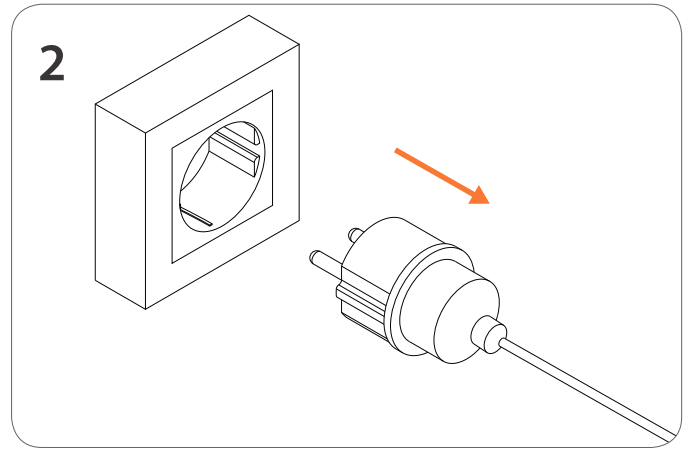
## Cutting instructions



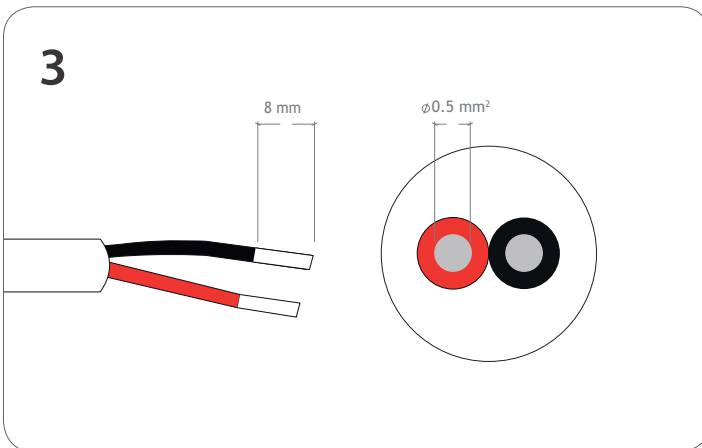
Place the liniLED® LED strip on the base of the cutting tool. Not doing so may result in a deformed LED strip.



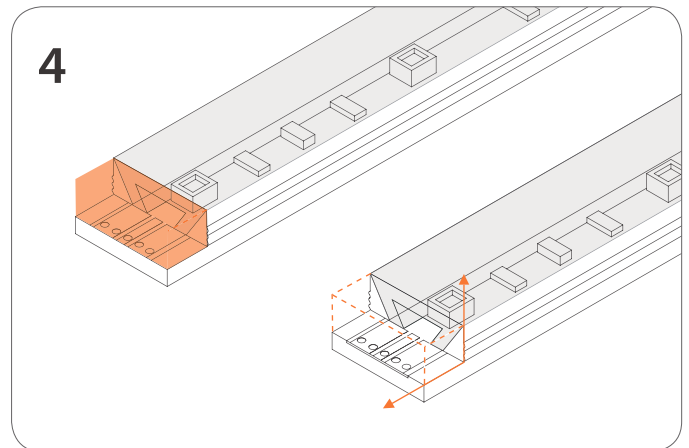
1  
Work in an ESD protected environment. Make use of an anti-static strap.



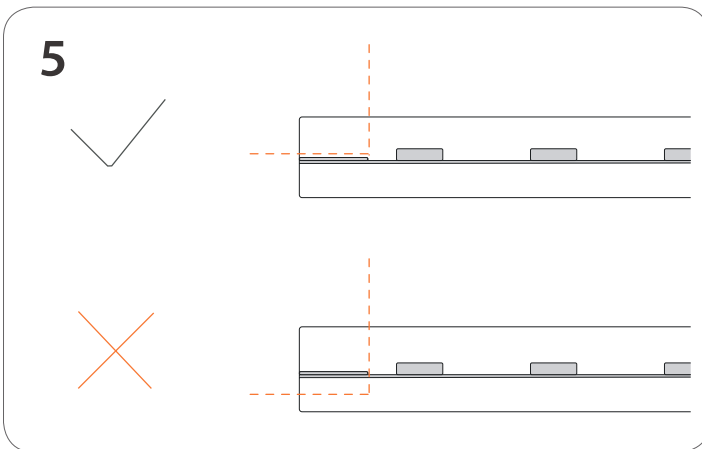
2  
⚠ Turn off the power. Make sure the wires are not under electric current.



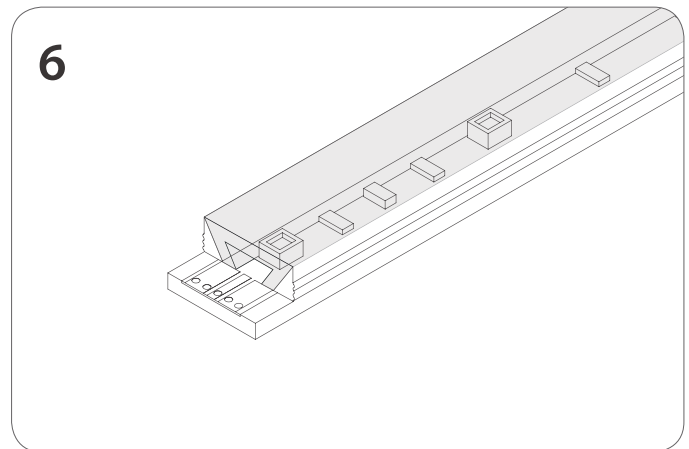
3  
Solder the wires to the PCB. We advise to use a cable with an area not higher than 0.5 mm<sup>2</sup>.



4  
Top view | Only cut the LED strip extrusion on the dotted line of the extrusion to prevent damaging the PCB. Carefully cut away this part of the extrusion.

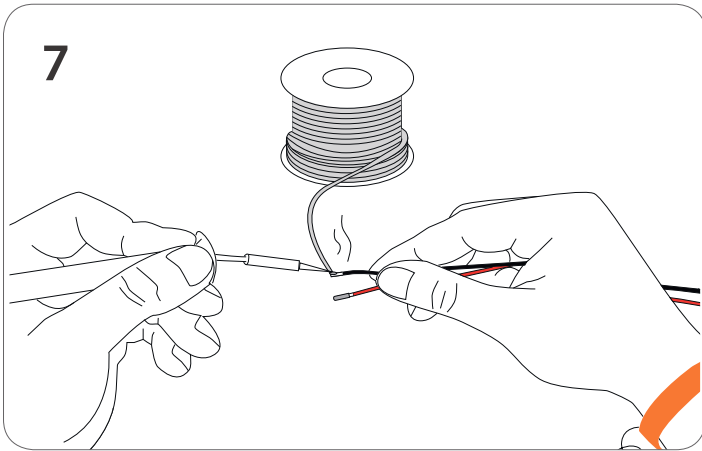


5  
Side view | Do not cut the PCB!



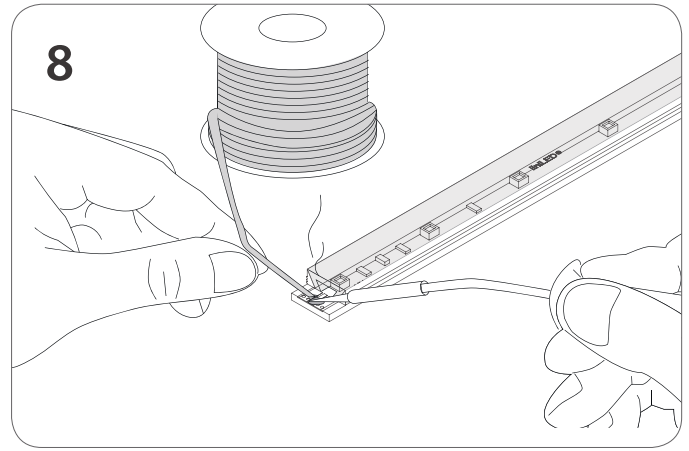
6  
The end result after cutting the LED strip extrusion should look similar to the image above.

## Solder



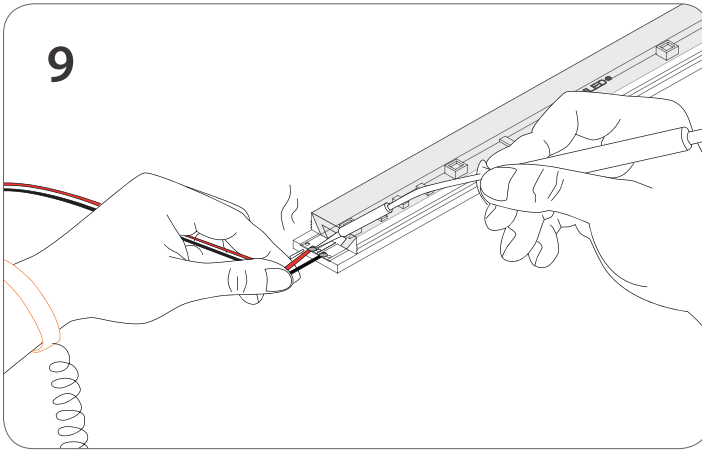
Pre-solder the connector pads.

350° C



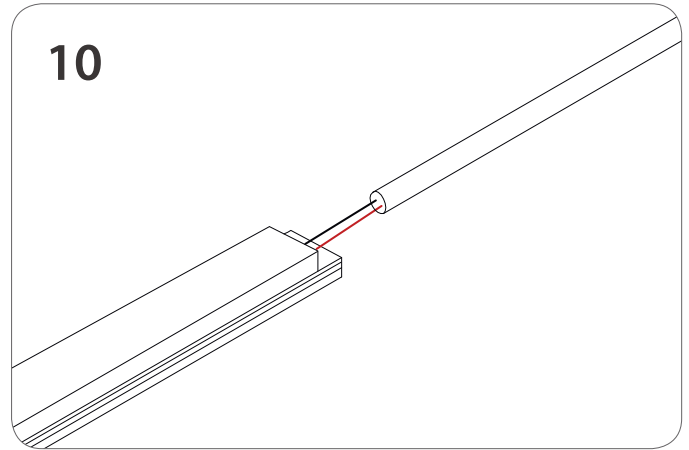
Pre-solder the wires.

350° C



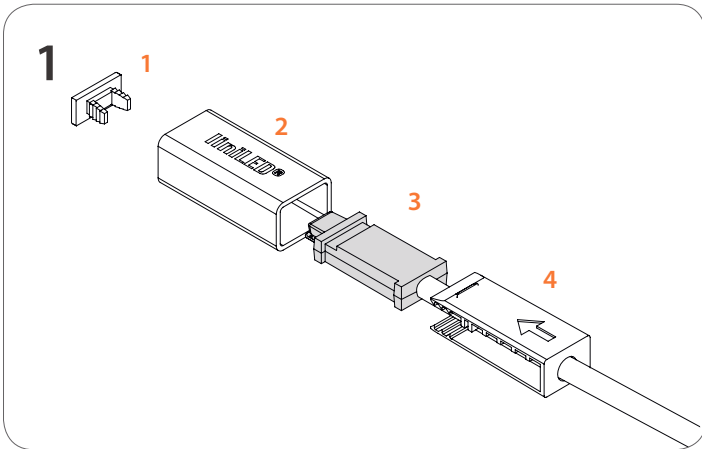
Solder the wires to the connector pads.

350° C

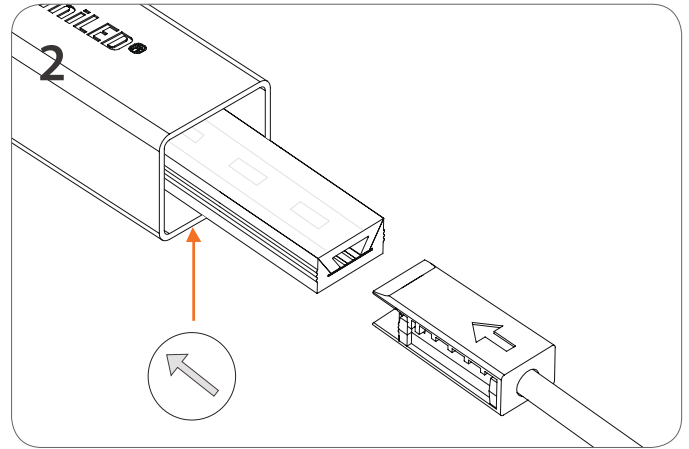


Connect the liniLED® LED strip to the power supply (24 V DC) constant voltage.

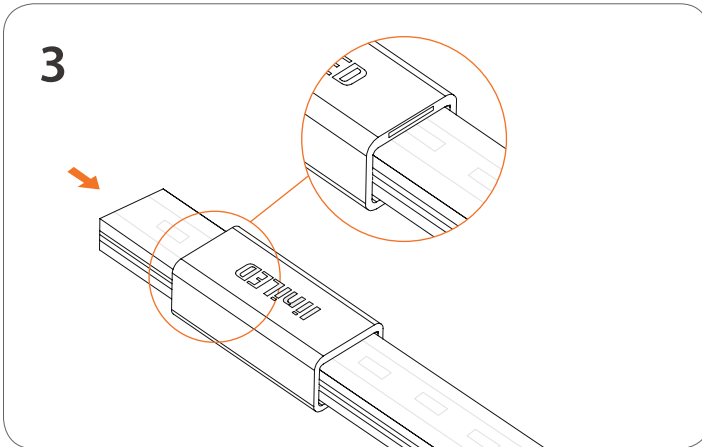
## Connect IP40



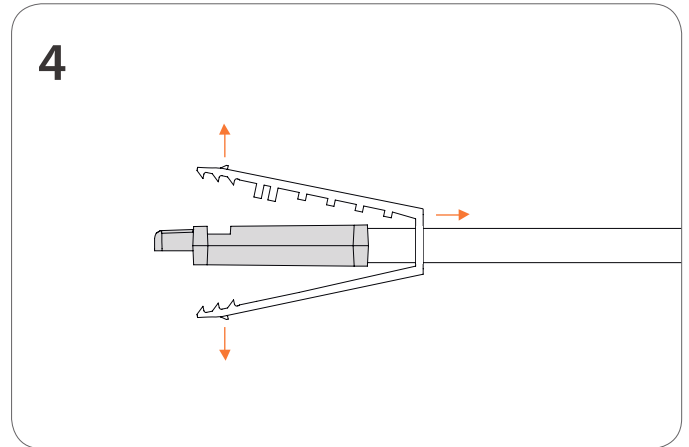
The liniLED® IP40 Connector consists of: End cap (1), Shell (2), Connector (3), Clamp (4).



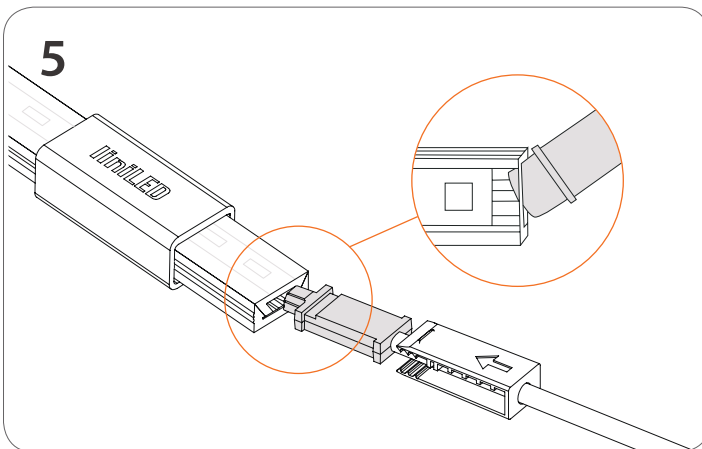
Take into account the direction of the arrow on the bottom of the liniLED® LED strip and align it with the arrow on the clamp (4).



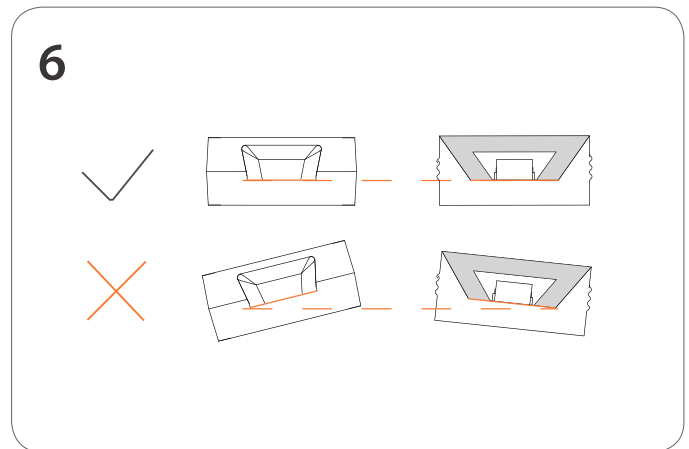
Place the shell (2) over the LED strip. Make sure the side with the smallest opening is put on first.



**Side view** | Slide the clamp (4) over the cable to reveal the connector (3).

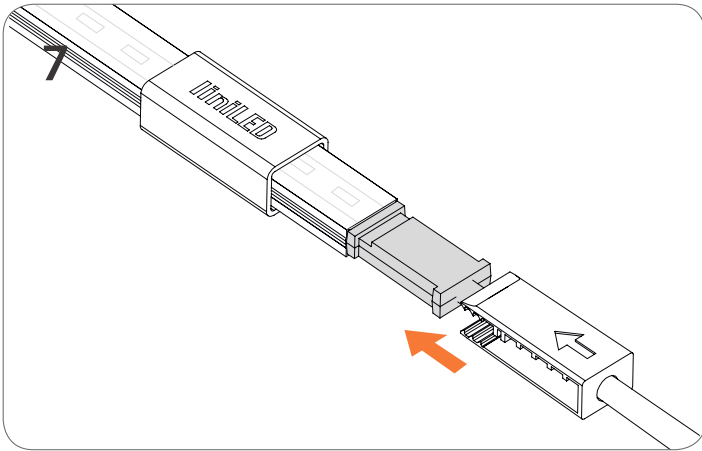


Slide the connector (3) sideways into the hollow chamber of the liniLED® LED strip. **Side view** | Do not cut the PCB!

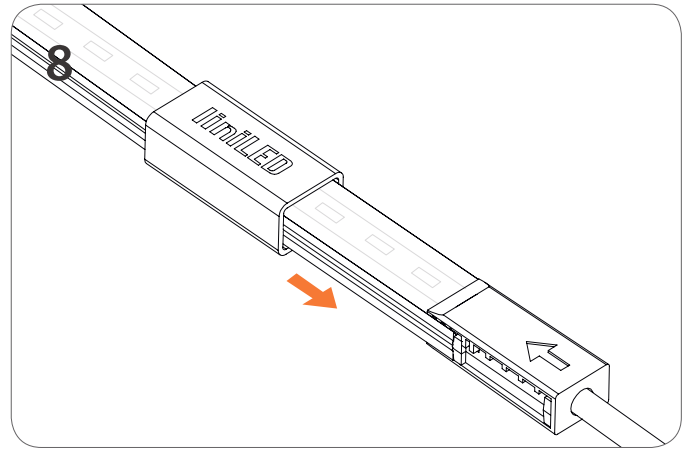


**Front view** | Make sure the connector and the PCB are perfectly horizontally aligned.

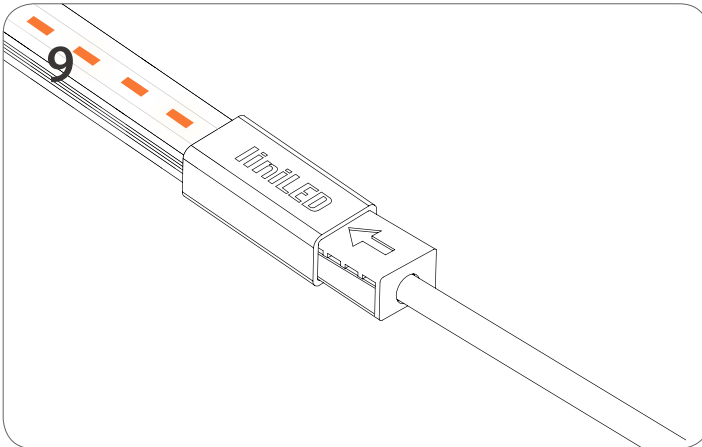
## Connect IP40



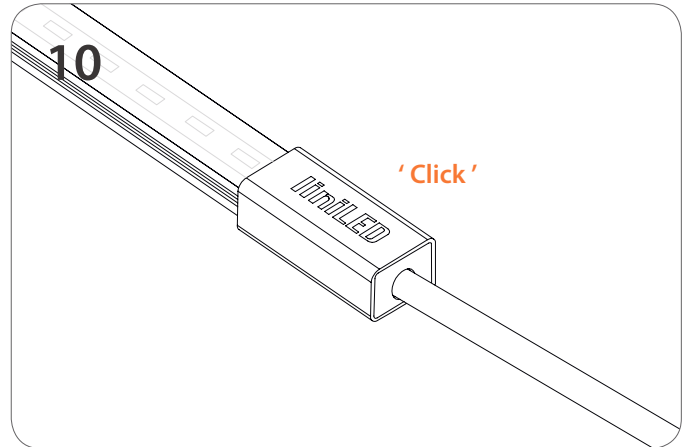
Slide the clamp (4) over the connector (3) and make sure that the arrow is on the upper side.



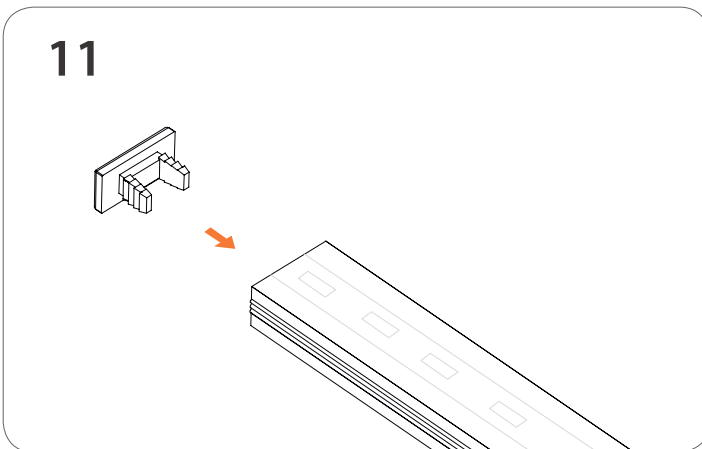
Slide the shell (2) partly over the clamp (4).



Test the liniLED® LED strip before you slide it fully over the clamp (4).

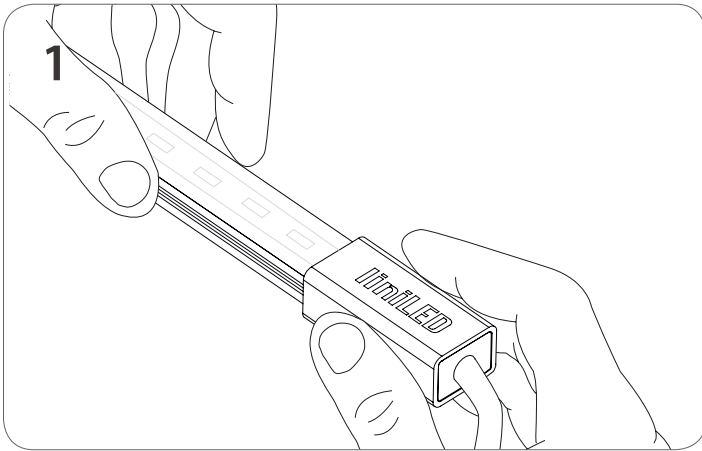


Slide the shell (2) entirely over the clamp (4) and push firmly until it 'clicks'.

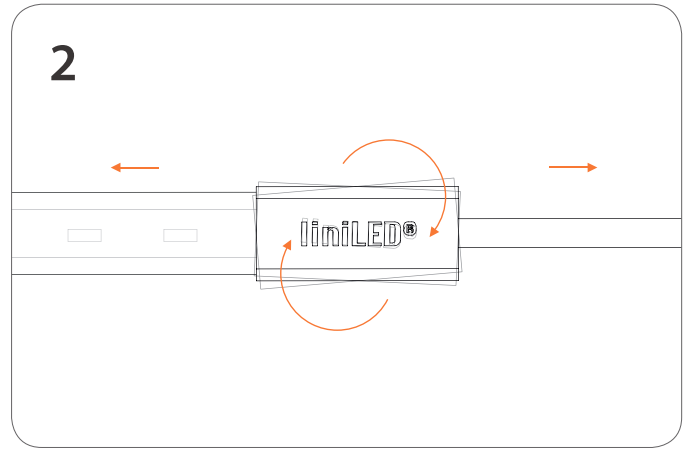


Finish the connection by inserting an end cap (1) in the hollow chamber on the end side of the liniLED® LED strip.

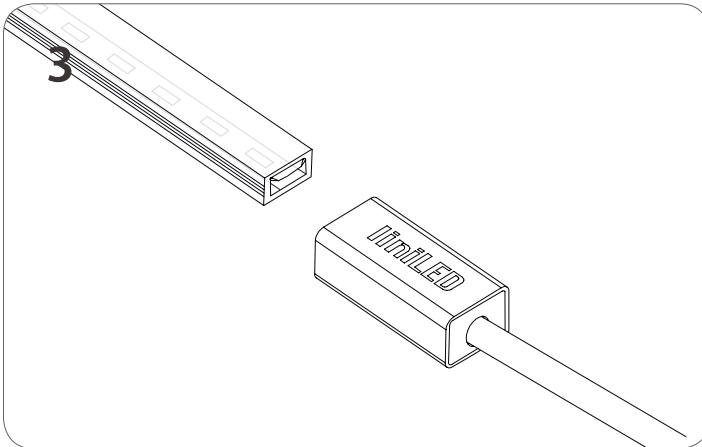
## Uninstalling the connector



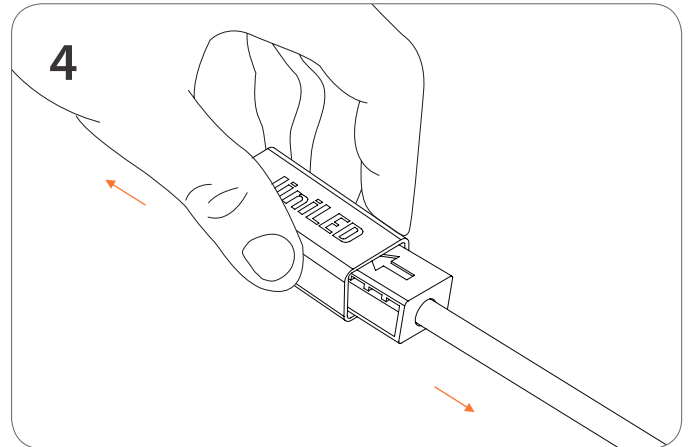
Firmly grab the outer shell and gently grab the liniLED® LED strip.



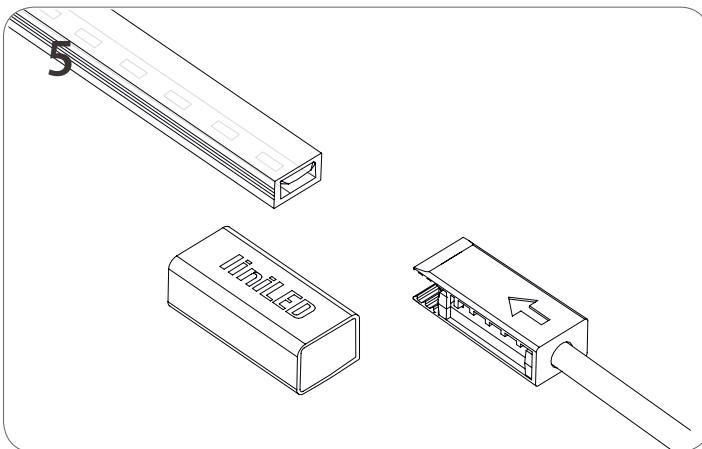
Gently wiggle the connector and pull in opposite direction.



The connector should look like this when it is removed.

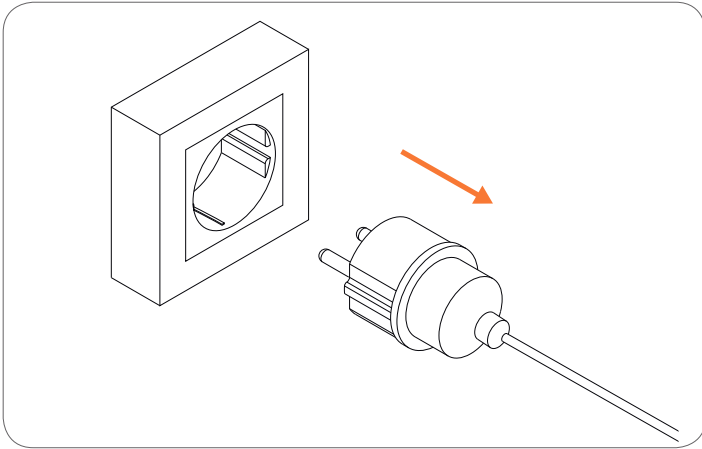


Firmly press the sides of the shell and pull gently while holding the cable to remove it.

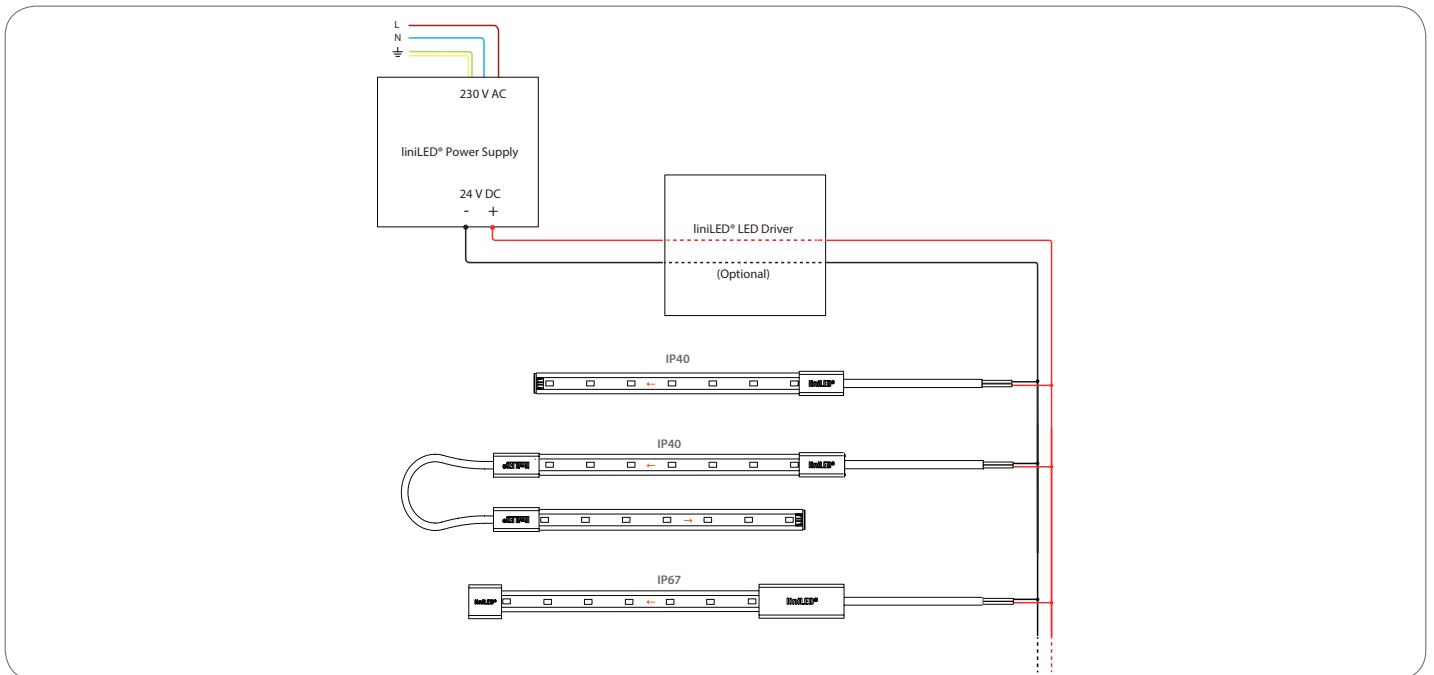


Article number	Description
11200	liniLED® Top Connector set 1 m
11201	liniLED® Top Connector set 5 m
11208	liniLED® Top Extension Cord

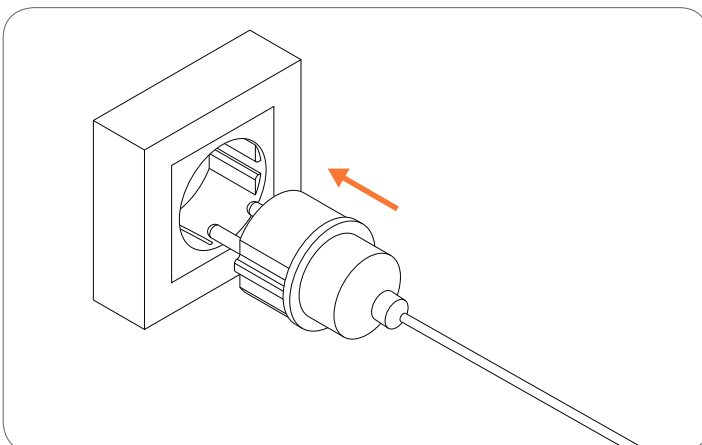
## Power supply



⚠ Turn off the power before connecting the LED strip to the power



Connect the LED strip as indicated in the figure above. The wires should be connected as follows: Red (+) and Black (-).



⚠ Insert the power plug.



## 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).



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  $\geq x$  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).



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 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.



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.



The CRI value of this product is 80 or higher.



The binning tolerance of this product is 2 MacAdam.

## Disclaimer

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