

Manual
liniLED® PCB RGBW



liniLED®

LED strip RGBW

Technical notes	3
Technical specifications	4
Product drawing	4
Product care and handling	5
Cutting instructions	6
Solder	7
Installation	8
Connection diagram	9
Cable selection	10
Symbols	11

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

	RGBW 700	RGBW 1300
Product code [m]	12171	12172
Power (24 V DC)	9.8 W/m	17.9 W/m
Power (25 V DC)	10.2 W/m	18.6 W/m
Luminous flux	697 lm/m (R 80, G 196, B 21, W 400 lm/m)	1293 lm/m (R 132, G 328, B 33, W 800 lm/m)
Luminous efficiency	71 lm/W	70 lm/W
Max. connection length	6 m	3.9 m
Expected lifetime	L70/B50 > 60,000 hours @ Tc = 40°C	
Spool length	Max. 6 m	Max. 3.9 m
Section length ¹	15 cm	10 cm
Number of LEDs	12 (6 RGB/6 White) per section/80 per metre	12 (6 RGB/6 White) per section/120 per metre
Operating voltage	24 V DC	
Max. operating voltage	25 V DC	
Beam angle	120°	
Dimensions	10 x 2 mm	
Dimmable	Pulse width modulation (PWM)	
Binning	Full single bin both RGB and White (< 3 SDCM)	
Weight	10.6 gram per metre	18.7 gram per metre
Degree of protection (IP)	IP00	
Storage temperature	-40°C ... 85°C	
Operating temperature	-30°C ... 85°C ²	
Minimal bending radius	20 mm	

	RGBW 700	RGBW 1300
Power per colour incl. tape		
Red (24 V DC)	2.8 W/m	4.7 W/m
Green (24 V DC)	2.6 W/m	4.6 W/m
Blue (24 V DC)	1.1 W/m	1.7 W/m
White (24 V DC)	3.3 W/m	6.9 W/m

¹ Full spool lengths come with factory assembled wires on both ends.

² Max. connection length between -30°C and -20°C is RGBW 700 4.2 metres and RGBW 1300 is 2.7 metres

Product drawing



Area advice

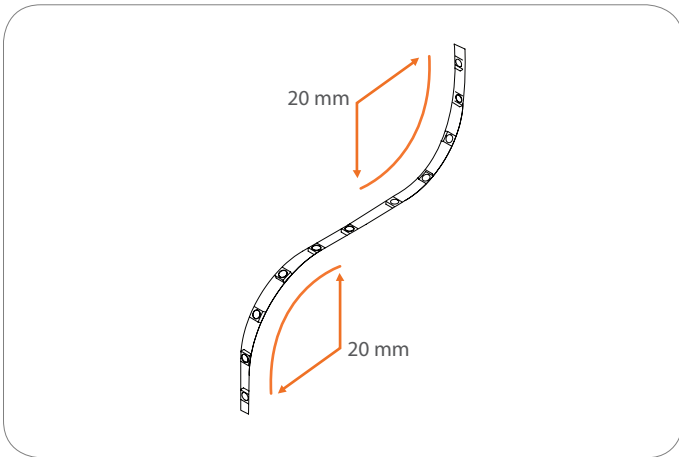
The RGBW LED strip can solely be used indoor and connected by soldering (IP00).



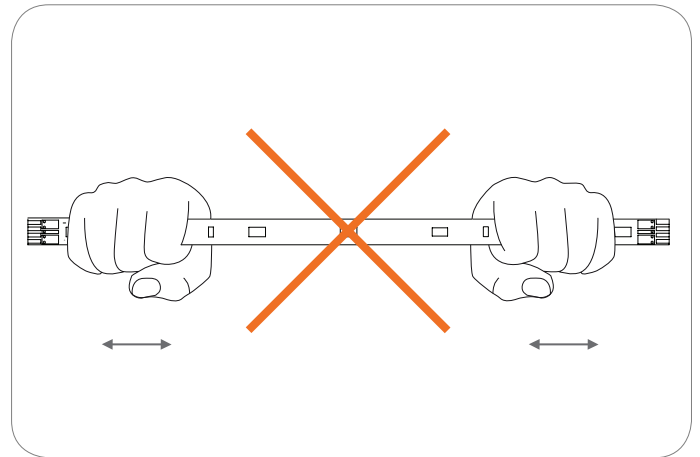
Indoor environment | (IP00)

Solder

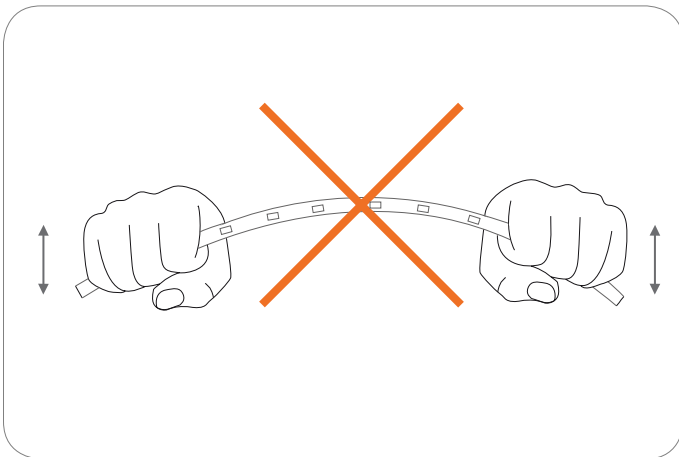
Product care and handling



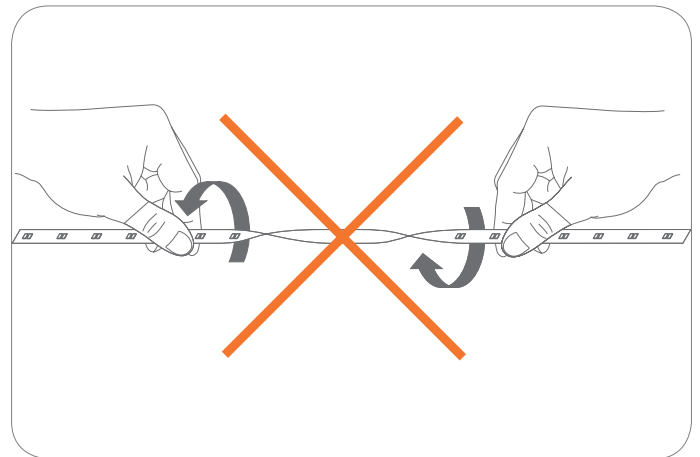
Maximum bending radius is 20 mm. Solely bend up or downward.



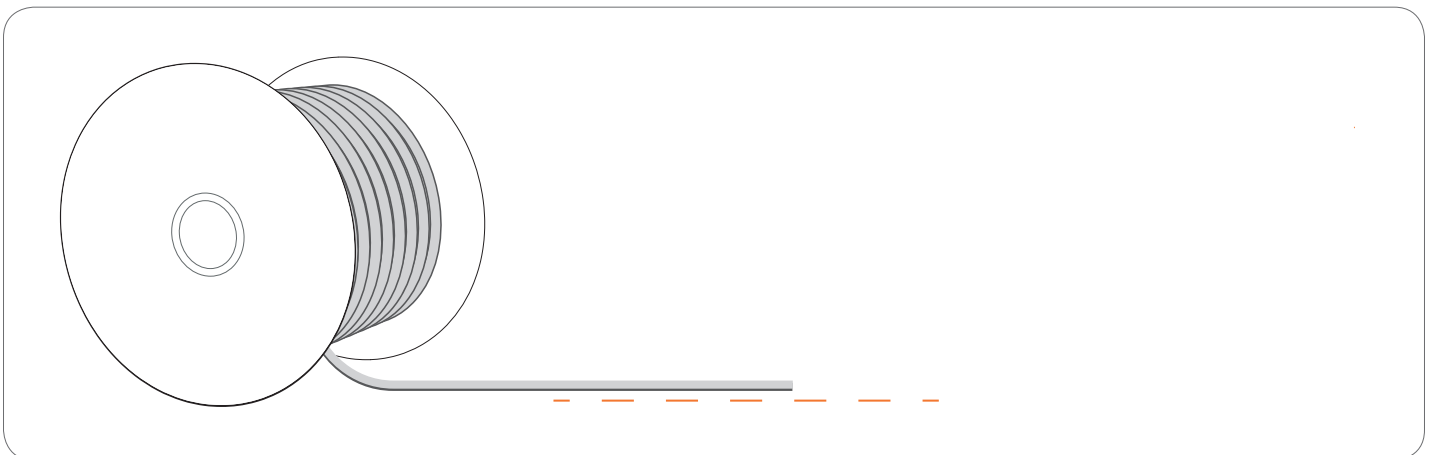
⚠ Do not compress or stretch the LED strip.



⚠ Do not bend the LED strip sideways.

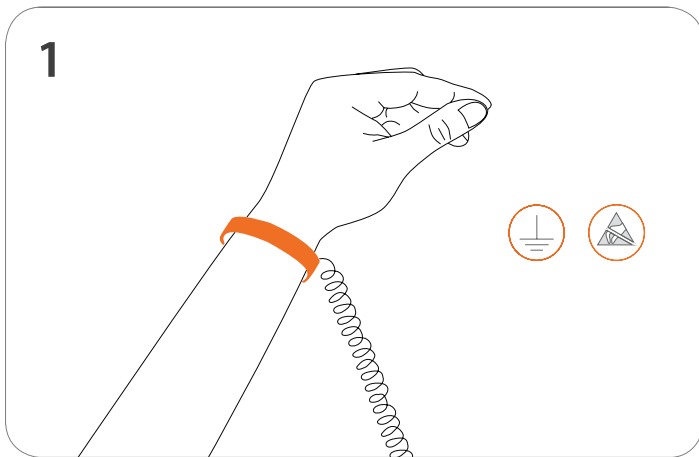


⚠ Do not twist the LED strip.

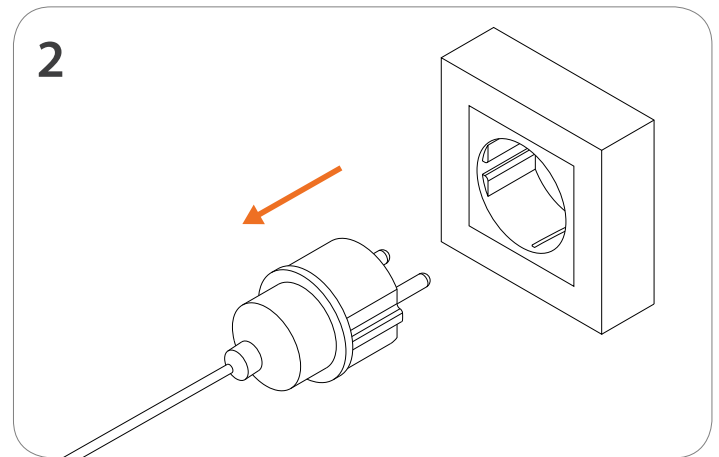


The LED strip has to be unreeled on a horizontal surface at the time of installation. Do not unroll the spool of LED strip before installation.

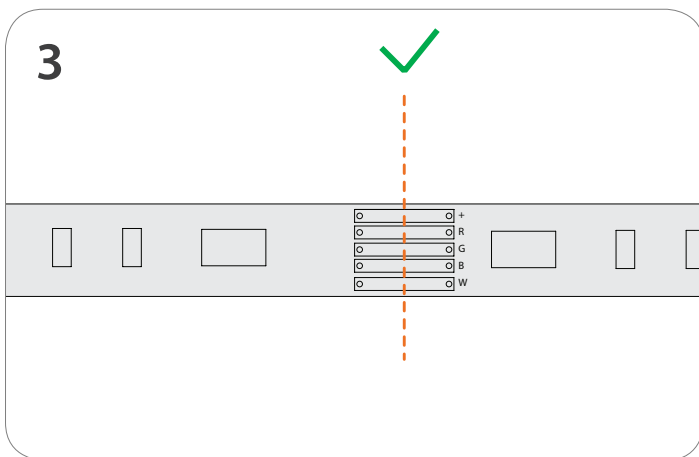
Cutting instructions



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



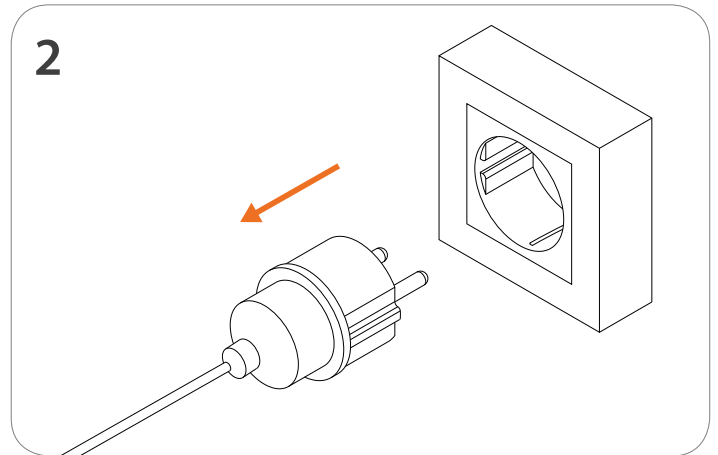
Turn off the power before cutting the LED strip.



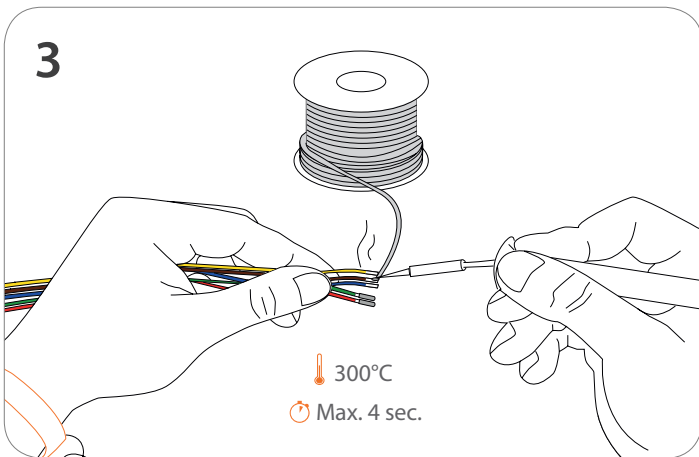
Top view | Only cut vertical on the dotted line to prevent damaging the LED strip.



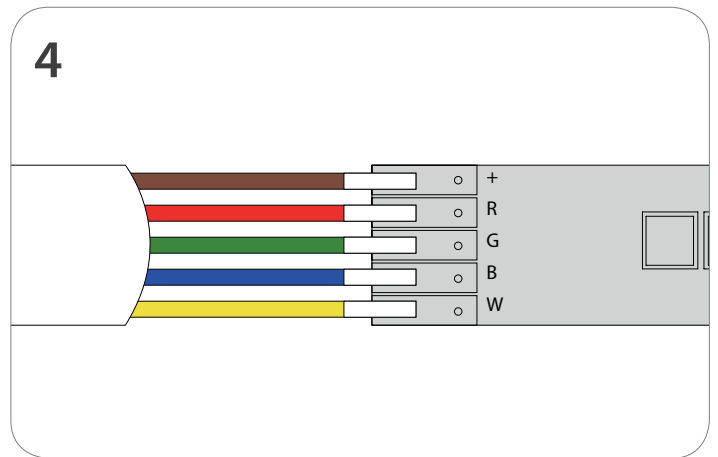
⚠ Work in an ESD protected environment. Make use of an antistatic strap and use lead-free solder.



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



Pre-solder the wires.



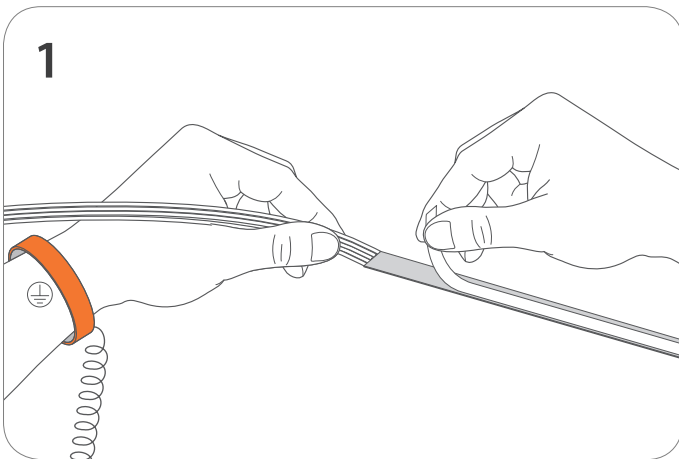
Solder the wires to the connector pads.

🔥 Max. 4 sec at 300°C

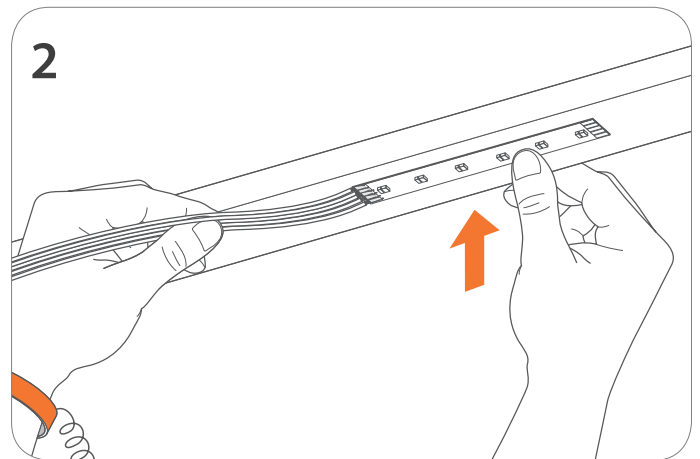
Installation

Note before installation

- Surface must be free of dirt particles, oils or coatings and should be clean and dry.
- Due to the high lumen output, heat dissipation is important to ensure smooth operation and long lifetime. Adequate cooling body (thickness, shape, fins) will support this. Confirm that operation conditions are met in individual installations.
- Mounting on metallic or other conductive surfaces require the use of electrical isolation between the module and the surface at beginning and ending of the LED strip.
- Large variations in temperature in the environment can cause expansion and stress to the LED strip. Therefore appropriate mounting surfaces are required to absorb the stress of occurring expansion. General and local construction-, safety- and installation regulations should be respected.



Remove the protective layer of the self-adhesive tape.



Position the LED strip properly and press on the LED strip with max 20 N/cm².

It is recommended to apply a conformal coating after final stages of installation to offer protection against corrosion.

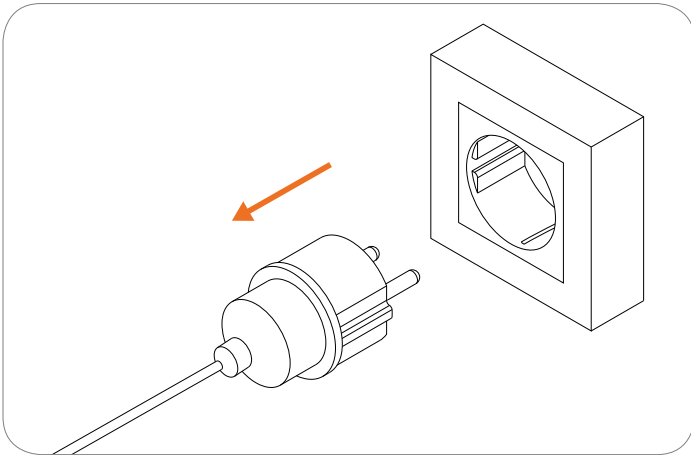
Note: The coating should have the following features:

- Optical transparency.
- UV-resistance.
- Thermal expansion matching the thermal expansion of the module.
- Low permeability of steam for all climatic conditions.
- Resistance against corrosive environment.

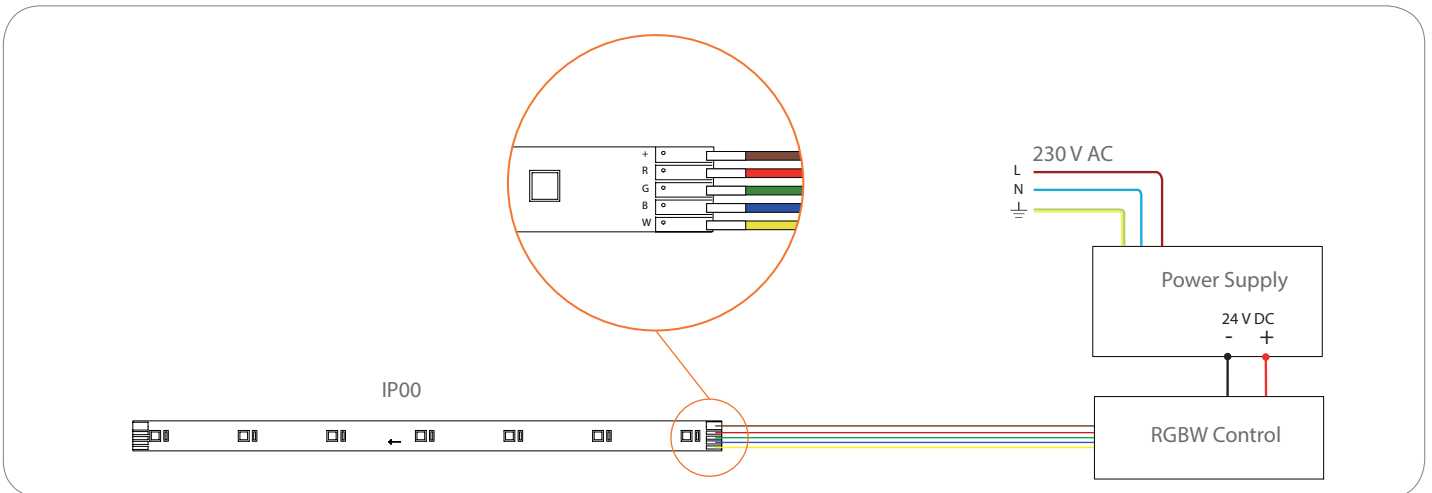
Removal

Removing the LED strip may cause damage to the surface, due to the features of the self-adhesive tape.

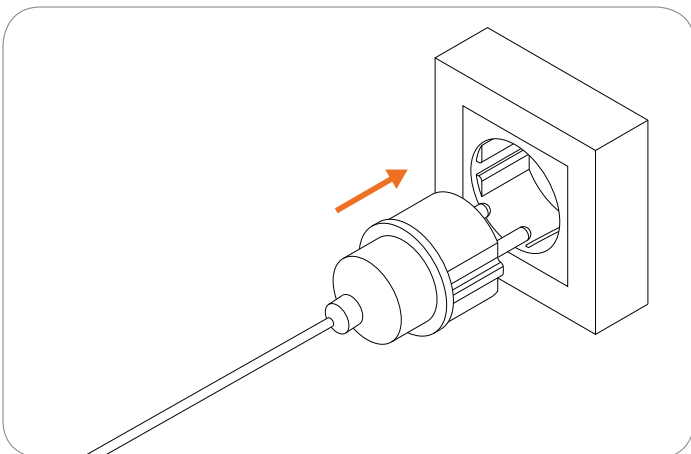
Connection diagram



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



Connect the LED strip as indicated in the figure above on 24 V DC and do not exceed the maximum voltage and operable length ratings to prevent hazardous overload and destruction of the LED strip. Observe correct polarity, reversed polarity can destroy the module. The wires should be connected as follows: Brown (+), Red (R), Green (G), Blue (B) and Yellow (W). It is highly recommended to use parallel connection as safe electrical operation mode instead of serial connection. Unbalanced voltage drop can cause overload and damage the LED module.



⚠ Insert the power plug.

Cable selection

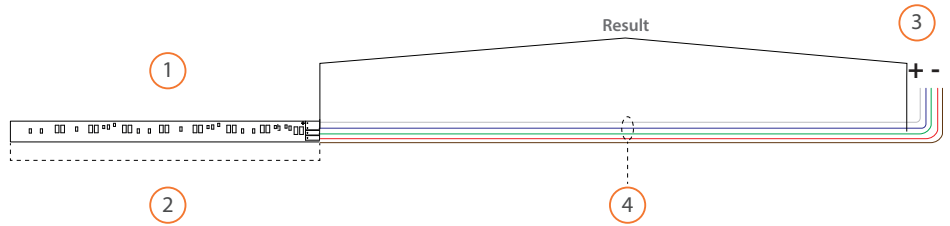
1 = Select colour temperature.

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

RGBW 700

2. LED strip length		1 m		2 m		4 m		6 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	45.7 m	89.2 m	22.0 m	43.8 m	10.2 m	21.1 m	6.2 m	13.5 m
	0.75 mm ² - 0.023 Ω/m	68.7 m	134.2 m	33.1 m	65.9 m	15.3 m	31.7 m	9.4 m	20.3 m
	1.00 mm ² - 0.018 Ω/m	91.3 m	178.4 m	44.0 m	87.6 m	20.4 m	42.1 m	12.5 m	27.0 m
	1.50 mm ² - 0.012 Ω/m	137.4 m	268.4 m	66.2 m	131.7 m	30.6 m	63.4 m	18.8 m	40.6 m
	2.50 mm ² - 0.007 Ω/m	228.7 m	446.6 m	110.2 m	219.2 m	51.0 m	105.5 m	31.2 m	67.6 m

1. Colour temperature

RGBW 1300

2. LED strip length		1 m		2 m		3 m		3.9 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	23.3 m	46.3 m	10.8 m	22.3 m	6.6 m	14.3 m	4.7 m	10.6 m
	0.75 mm ² - 0.023 Ω/m	35.1 m	69.7 m	16.3 m	33.6 m	10.0 m	21.5 m	7.1 m	16.0 m
	1.00 mm ² - 0.018 Ω/m	46.6 m	92.6 m	21.6 m	44.6 m	13.3 m	28.6 m	9.4 m	21.2 m
	1.50 mm ² - 0.012 Ω/m	70.1 m	139.3 m	32.5 m	67.1 m	20.0 m	43.1 m	14.2 m	31.9 m
	2.50 mm ² - 0.007 Ω/m	116.7 m	231.8 m	54.1 m	111.7 m	33.3 m	71.7 m	23.7 m	53.2 m

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.



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 ≥ 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 (≤ 60.0 V DC or ≤ 42.4 V AC).



The CRI value of this product is 85 or higher.



The binning tolerance of this product is 3 MacAdam.

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. 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.

