

INSTRUCTIONS

Flexible LED strips





LED MODULES, STRIPS & EMS

THANK YOU FOR CHOOSING AKTO FLEXIBLE LED STRIPS!

These instructions contain the most important information on how to cut, install and mount flexible LED strips correctly.

PRODUCT DESCRIPTION

AKTO **flexible LED strips** are an ideal solution for a wide variety of architectural, retail, furniture and other accent lighting projects. Waterproof flexible LED strips are also available, thus it can be used both indoors and outdoors! Moreover, it is available in a full range of colors, RGB and RGB + white!

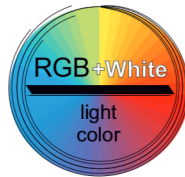


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PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. INCORRECT INSTALLATION CAN VOID YOUR WARRANTY!

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SAFETY REQUIREMENTS & PRECAUTIONS

CUTTING

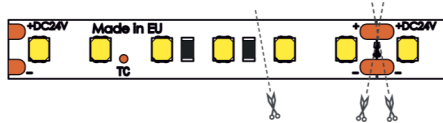
NOTE: YOU CAN ALSO ALWAYS ORDER FLEXIBLE LED STRIPS TO A SPECIFIC AVAILABLE LENGTHS AS WELL AS WIRE LENGTHS OF YOUR CHOICE AND WE WILL ARRANGE IT FOR YOU ALREADY FULLY PREPARED TO INSTALL!

- Flexible LED strips can be only cut in designated areas. They are marked with a black dashed line and a scissors symbol, shown in the example below.

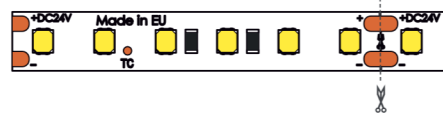


- Flexible LED strips should be cut precisely according to the specified cutting line, without detracting from the marked dashed cutting line. Correct and incorrect ways to cut flexible LED strips are shown below.

INCORRECT ✗



CORRECT ✓



- Flexible LED strips, depending on the technical parameters, are divided into segments of a certain length. Flexible LED strips cannot be cut inside the segment. Exact cutting steps can be found in the product specification sheet or in the table below.

LED QUANTITY, LED/m	VOLTAGE, V	CUTTING STEP, mm
60	12	50
	24	100
120	12	25
	24	50
162	12	37.04
168	24	35.71
30 (RGB)	12	100

- Do not cut while the flexible LED strip is connected with the power!
- The cutting of the waterproof (IP67) and non-waterproof (IP20) flexible LED strips differ from each other. In order to cut the IP67 class strip, you need to cut the clear silicone tube and the LED strip itself. Other cutting precautions remain the same as for IP20 class strips.
- After the cut is made make sure to solder the wires. Also, if the flexible LED strip supposed to be IP67 class, make sure to re-waterproof it (*read more on page 4*).

SAFETY REQUIREMENTS & PRECAUTIONS

WIRE SOLDERING

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- AKTO flexible LED strips are completed together with the plugs or in combination with wires from one end of the flexible LED strip. This information can be found on the packaging.
- If the flexible LED strip was cut, it can be installed by soldering the wires. The plates for soldering are shown in the example below. If you are trying to solder the wires for the IP67 class strip, make sure that the silicone coating exposes the internal flexible strip.



- In the process of soldering, it is important to spread the solder precisely on the alloys intended for that purpose and to cover them completely.
- Also, the cable tilt angle is important. The wires must be soldered along the flexible LED strip, with an angle of 180° with it. The correct and incorrect ways of soldering the wires are provided in the example below.



- When the wires are soldered, it is recommended to add support on the copper soldering plates area by using thermal insulated tubes.



WATERPROOFING (IP67 FLEXIBLE LED STRIPS)

NOTE: TO OBTAIN IP67 RATING, ALL FLEXIBLE LED STRIPS MUST BE ASSEMBLED PROPERLY ACCORDING TO THE INSTRUCTIONS!

IP67 flexible LED strip protection:

- Against any dust impact.
- Against the immersion in water to a depth of 1 meter. Testing time: 30 minutes.

IP20 flexible LED strip protection:

- Against solid objects that are over 12.5 mm (e.g. fingers).
- Unprotected from moisture.

- When the IP67 class flexible LED strip is cut, the property of moisture resistance is lost. In order to make it waterproof once again, you need to seal the cut-off end by applying non-acidic silicone adhesive into the inside and outside of the connected area. Then carefully put on a cap, if the end of the flexible LED strip supposed to have wires, put them through the cap (you may need to poke small holes for the wires). After that make sure to wipe out the extra adhesive and let it dry for at least 3 hours before installation.

SAFETY REQUIREMENTS & PRECAUTIONS

SELECTING POWER SUPPLY

- It is important to pay attention that flexible LED strips cannot be connected directly to the 220V AC network - it is necessary to use the power supply sources.
- The simple formula is used in order to calculate the power source capacity - the capacity of a flexible LED strip in one meter (W/m) is multiplied by the flexible LED strip length (m) and added by 20%. The formula is provided below.

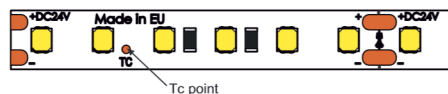
$$\boxed{\text{Power(W/m)}} \times \boxed{\text{Length (m)}} \times 1.2 = \boxed{\text{The minimal power supply resource capacity (W)}}$$

- When calculating the capacity of the power supply source, the flexible LED strip voltage (V) must be also estimated. Our flexible LED strips are 12V DC or 24V DC. This information can be found on the packaging or in the product specification sheet.
- Finally, if the LED strip is completed with the plug, the polarity of the plug should be also evaluated. It must match the polarity of the selected power source. The complete LED strip set is indicated on the packaging or in the product specification sheet.



INSTALLATION & MOUNTING

- Flexible LED strips do not have a self-cooling feature. For this reason, the surface on which the flexible LED strips will be mounted must be conductive to the heat. If the surface on which it is desired to install the flexible LED strips does not have this feature, it is recommended to use the additional heat-conducting materials. Working temperature (at Tc point) of AKTO flexible LED strips should range between -25°C and 65°C. The Tc dot of the flexible LED strip is shown in the example below.



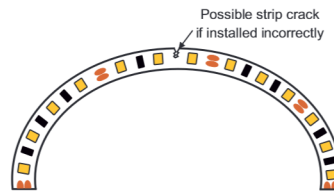
- The surface on which the flexible LED strip is attached must be thoroughly cleaned and dry. Flexible LED strips can not be installed on a surface that is dusty, greasy or covered with other impurities.
- Firstly, we recommend you to mark the exact area, where the flexible LED strip must be placed and then carefully remove the adhesive backing trying to limit contact with the skin to ensure a better result. After that, press the strip from one end to the other to prevent air pockets or raised sections. Also, do not apply excessive pressure to the surface of the strip and do not apply direct pressure to the light emitting diodes.

SAFETY REQUIREMENTS & PRECAUTIONS

INSTALLATION & MOUNTING

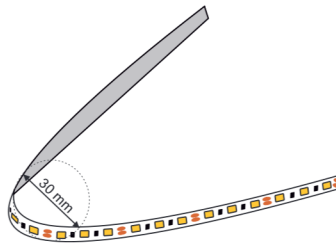
- When installing light surface must be always faced upwards. Do not install it in opposite directions and do not bend it on a horizontal plane. Doing so can damage the product.

INCORRECT ✗



- Do not bend it in a diameter of less than 30 mm. See the example below.

CORRECT ✓



- If installing with an aluminum profiles, make sure to choose the right sizes!
- Do not secure it with staples, nails, or other materials that might damage the product!
- Do not install flexible LED strips in spaces colder than 0°C or hotter than 40°C.

GENERAL USE

- Although flexible LED strips do not generate a great amount of heat, it is recommended that you do not cover it or conceal it with materials that are not intended for this purpose. Flexible LED strip profile covers can be used.
- It is also not recommended to use flexible LED strips in enclosed, non-ventilated, hot (> 50°C) spaces.

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