

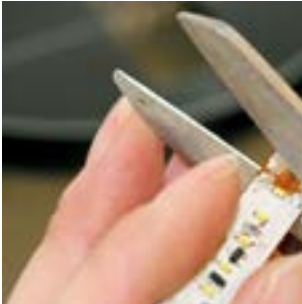
ASSEMBLY INFORMATION FOR VARIOLED™ FLEX

The entire LED Linear™ product portfolio is made for an easy and fast installation in rugged environments. To assure a high installation quality please study this page for the installation of LED Linear™ tapes carefully.

Our world wide located branches and distributors will be happy to assist you regarding your installation questions.

Easy installation:

Cut LED strip with a pair of scissors indicated at the location.



Self adhesive 3M tape on the rear side



Most reliable connection through soldered cables on solder pads.



SAFETY AND ASSEMBLY INFORMATION FOR VARIOLED™ FLEX

- Please read the safety and assembly information and the corresponding references in this catalogue carefully.
- Mechanical stress of VarioLED™ Flex and its components has to be absolutely avoided.
- Operation of VarioLED™ Flex in rolled-up condition is not allowed.
- Assembly must not lead to damage or interruption of the circuit paths.
- Power supply units used for operation should ensure the following basic protection and safety features:
 - Short-Circuit Protection
 - Overload Protection
 - Overheat Protection
 - SELV equivalent (Safety Extra Low Voltage)/Class 2
- Observe correct electrical polarity. Wrong polarity can destroy the modules. Please observe reverse voltage data in the data sheet.
- Pay attention to the maximum output of the power supply.
- Installation of LED modules (with power supplies) needs to be made with regards to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
- Only parallel drive circuits ensure a safe operation. A serial
- electrical connection of modules must be avoided. Asymmetric voltage drops can lead to a strong over current and damage of single modules.
- The maximum length of a single unit to be driven in series equals the maximum length according to the VarioLED™ Flex datasheet.
- Avoid Electro-Static-Discharge (ESD)
- The module, as manufactured, has no conformal coating and therefore offers no inherent protection against corrosion. The ability to customize the length of the module by cutting at specifically marked points is a key of the product and hence the reason for no factory installed conformal coating. For these reasons, it is recommended that the user complete all module modifications first (cutting, wiring) and then apply a conformal coating in the final stage of the installation.
- Damage by corrosion will not be honored as materials defect claim. It's user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
- Do not look directly into the bright light source (glare hazard!)
- VarioLED™ Flex is not protected against humidity and dust. For using VarioLED™ Flex in environments involving humidity or dust VarioLED™ Flex has to be protected by a fixture or housing with a suitable protection class.
- VarioLED™ Flex can be protected against condensation water by treatment with an appropriate circuit board grade conformal coating. The conformal coating should ensure the following features:

- Optical transparency
- UV-resistance
- Thermal expansion matching the thermal expansion of the module $15 - 30 \times 10^{-6} \text{ m/K}$
- Low permeability of steam for all climatic conditions
- Resistance against corrosive environment

The lacquer APL of the company Electrolube www.electrolube.com has fulfilled the conditions for VarioLED™ Flex in our tests.

- VarioLED™ Flex can be cut with a pair of scissors at marked locations according to the datasheet.
- Easy assembly and installation is facilitated by means of the double sided adhesive on the back-surface of VarioLED™ Flex. Pay attention to provide a clean and dry mounting surface, free of oils, silicones and dirt particles. The mounting surface must have sufficient structural integrity. LED Linear™ assumes no liability for the bonding of VarioLED™ Flex because of different applications, environmental conditions and surface properties. If necessary use additional fixing or installation.
- To ensure an optimal bonding VarioLED™ Flex should not be stored for longer than 12 months at 20°C (68°F) and up to 50% relative humidity (in packed condition)
- The conductors must be approved for the respective application.
- Avoid adhesive bonding overhead without additional fixing measures.
- Solder connections should only be performed manually on designated solder pads (marked with "24 V"). The maximum solder time of 3 seconds and the maximum soldering temperature of 350°C (662°F) must not be exceeded during soldering. The minimum bending radius is 3 cm (1.18"). VarioLED™ Flex may be bent over a smaller radius but only in areas containing no electronic components. Such bending should be made only once and fixed in position.
- In case of assembly on electric or other conductive surfaces, an electrical isolation between soldering points and mounting surface is necessary.
- VarioLED™ Flex shall only be mounted on surfaces that provide sufficient cooling.
- Ensure sufficient ventilation and heat transfer from the product to the ambient (convection).
- The thermal length expansion coefficient is $17 \times 10^{-6} \text{ m/K}$. When installing in environments with large variations in temperature (e. g. outdoor applications) and operating length of more than 2 m (6.56'), the use of metallic mounting surfaces is necessary. Otherwise it is advisable to use an additional thicker adhesive tape to absorb the stress of any mismatch in expansion coefficients.
- The maximum cable length from power supply to the VarioLED™ Flex product can be taken from the tables on page 460 ff.