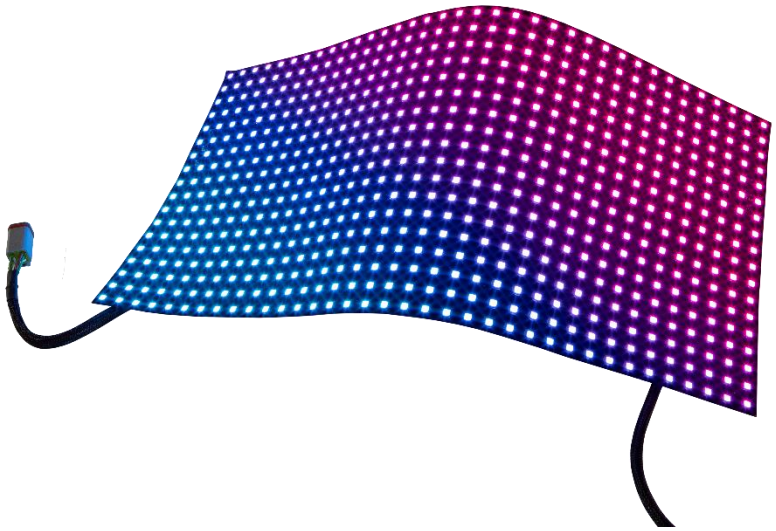
ledTec.flex | banner | P16 | 4000



User and assembly instructions
and safety guide
V 1.3 EN

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Agenda

INTRODUCTION

The **ledTec.flex banner P16 4000** is a thin and flexible LED based foil designed for banner and display applications. The foil is light weight and cuttable. It offers outdoor-ruggedness according to IP66, making it a suitable choice for both indoor and outdoor applications.

The ledTec.flex banner P16 4000 has the following features:

- Pixel pitch 16mm
- 576mm x 288mm foil containing 36 x 18 pixels
- 5.4mm x 5.0mm x 1.6mm SMD RGB LEDs
- Controllable through **ledTec.flex | converter | advanced** and **ledTec.flex | converter | hdmi-artnet**
- Individually controllable pixels
- Adjustable brightness level and maximum brightness up to 4000NIT
- Brightness dimming option available for nighttime which offers energy saving
- Operating voltage is 12V and the maximum power consumption is limited to 80W per foil

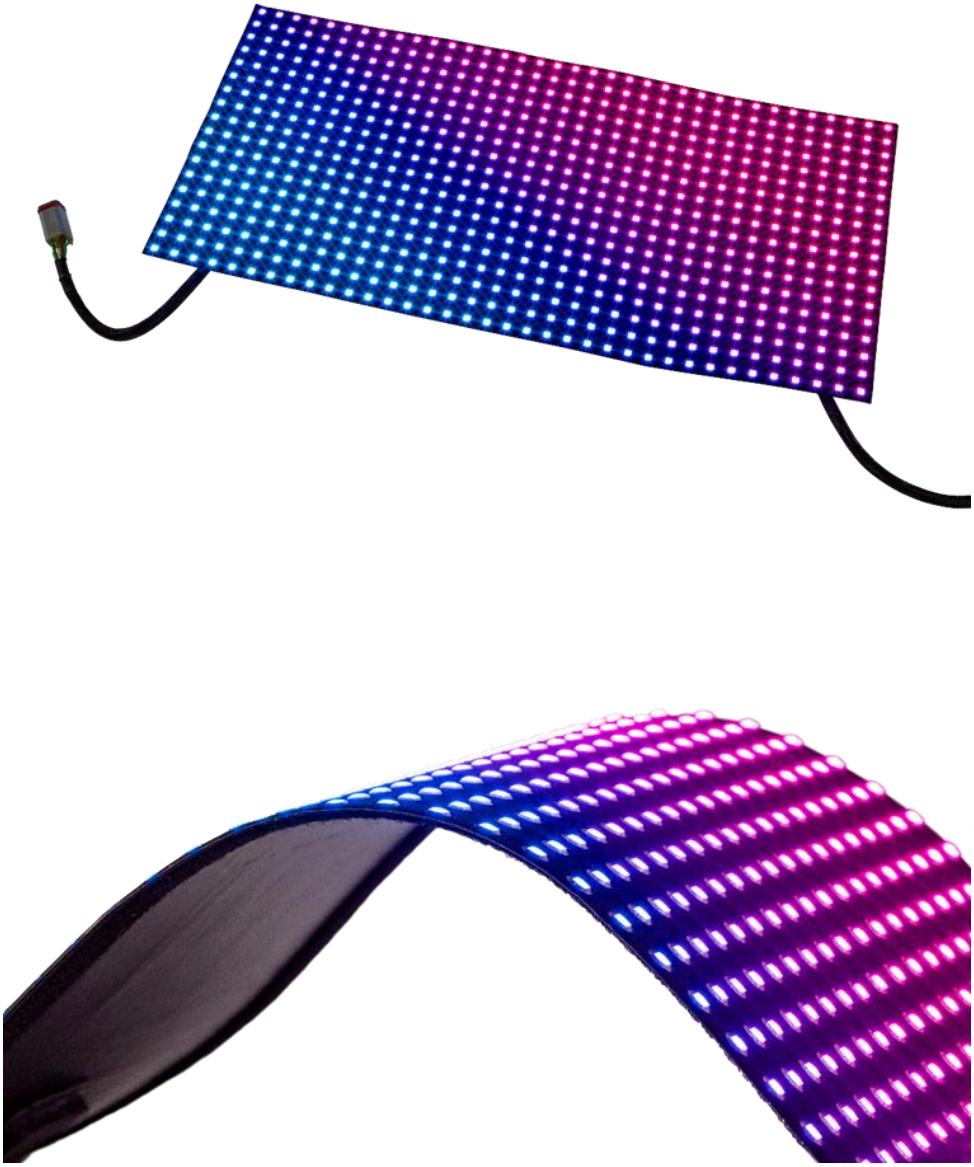


Figure 1: ledTec.flex banner P16 4000

INSTALLATION

WARNING!

- The LED foil does not contain a fuse. A suitable fuse must be applied between the power supply and each connected LED foil. If several LED foils are cascaded, a suitable fuse must be applied between the power supply and the first foil of each cascade. Without a suitable power-supply protection device, dust or any partial circuit failure may cause overheating and/or burning, which may lead to injury. The fuse should fulfill the following criteria:
    - Current rating higher - but as low as possible above - the maximum operating current of the foil or the foil cascade protected by it
    - Suitable fuse types: Littlefuse ATO Silver Fuse, e.g.
        - 15A type (part number 0287015) for 2 units of ledTec.flex banner P16 4000 cascaded
        - 20A type (part number 0287020) for 3 units of ledTec.flex banner P16 4000 cascaded
- An all-pole supply circuit breaker must be used in the building's electrical system which supplies the electrical power for the installed system.
- Power supplies should always be turned off during the assembly process. Do not connect or disconnect the power cables and connectors with power applied to module. This may cause damage to the module circuit.
- The power cord plug of the installed device must be easy to access at the site of installation, if needed to disconnect the device.
- This product is not suitable for use in locations where children can be present.
- This product is not suitable for use in locations which are easily accessible to the public. Access to the components must be restricted to trained personnel only.
- Do not expose the module to non-atmospheric gases because may cause mis-operation or defects.

HANDLING THE DISPLAY

- To avoid damage to the foil/module, it must not be bent below a bending radius of 800mm. Furthermore, do not bend the foil at the cable input and outputs.
- Bending beyond the maximum allowed value may lead to kinking of the foil which can also result in poor viewing experience. See Figure 2 for reference.

Figure 2: Excessive bending of ledTec.flex banner must be avoided

SYSTEM DIAGRAM OF AN OUTDOOR SYSTEM

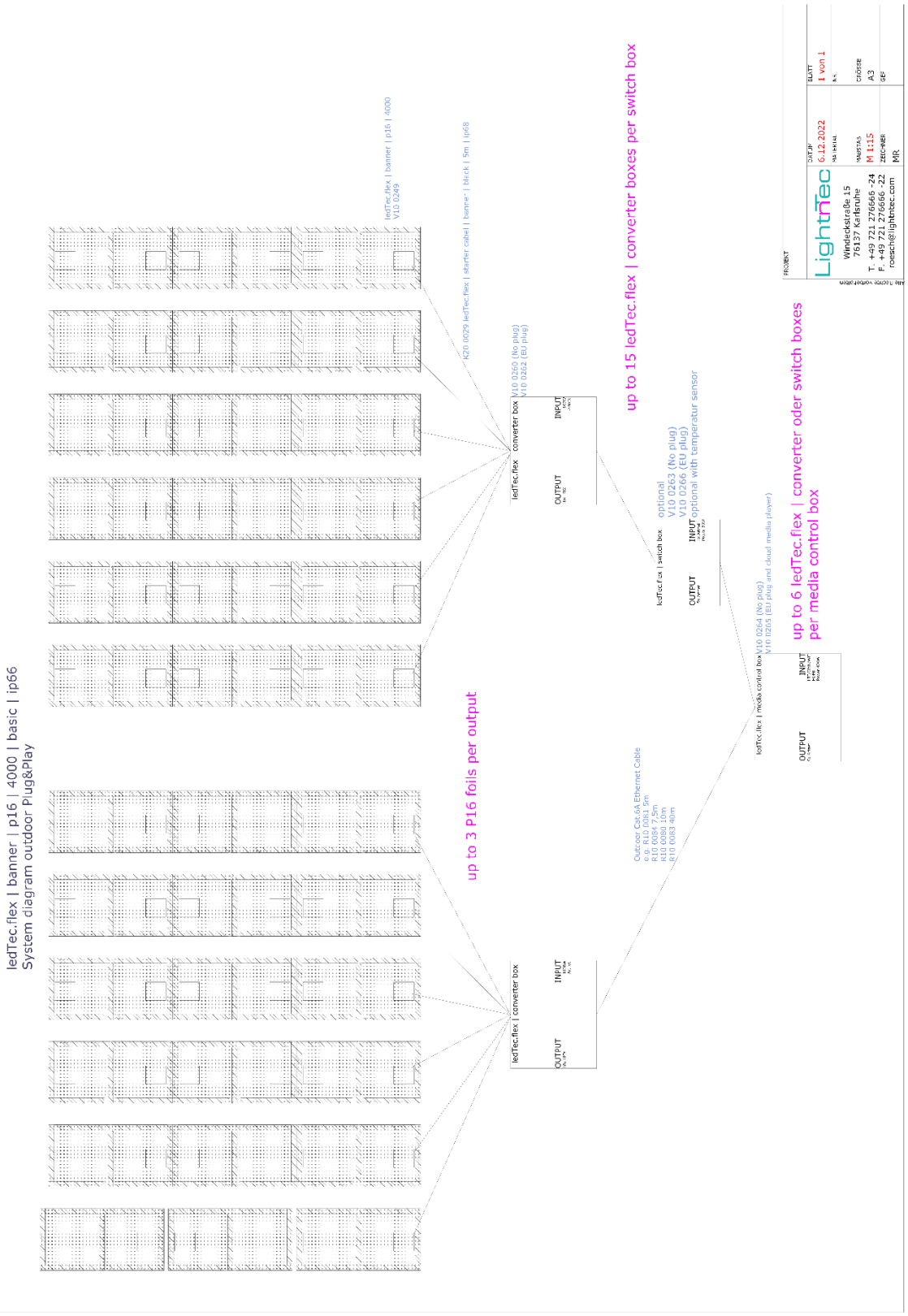


Figure 3: Example configuration of an outdoor system

MOUNTING

The ledTec.flex banners are typically mounted on a “sub-banner” or on an aluminum dibond surface using hook and loop tape, where the hook side is fastened on the mounting surface and the loop side is attached on the rear side of the foils. In case a sub-banner is used, it must be installed on the mounting surface with sufficient tension to make it very stable.

To prepare the aluminium dibond plate for installation, follow the steps in Figure 4.

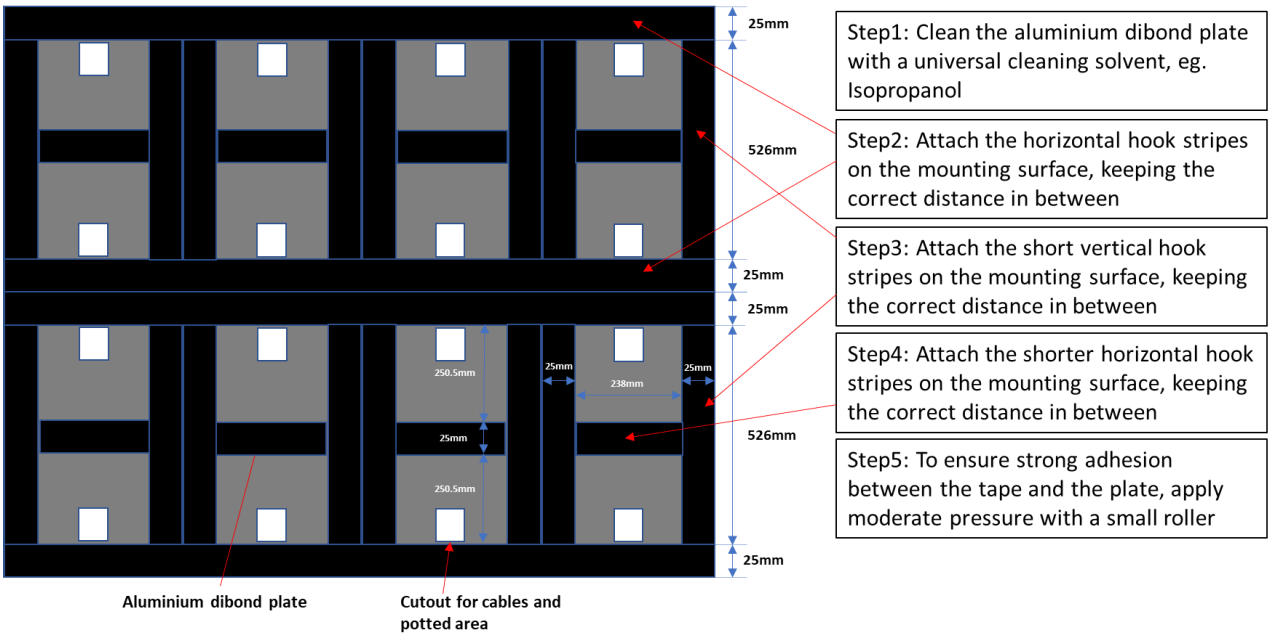


Figure 4: Installation of self-adhesive hook tape on aluminium dibond plate for mounting ledTec.flex banner

To install the ledTec.flex banner to the sub-banner or aluminum dibond surface, follow the steps below:

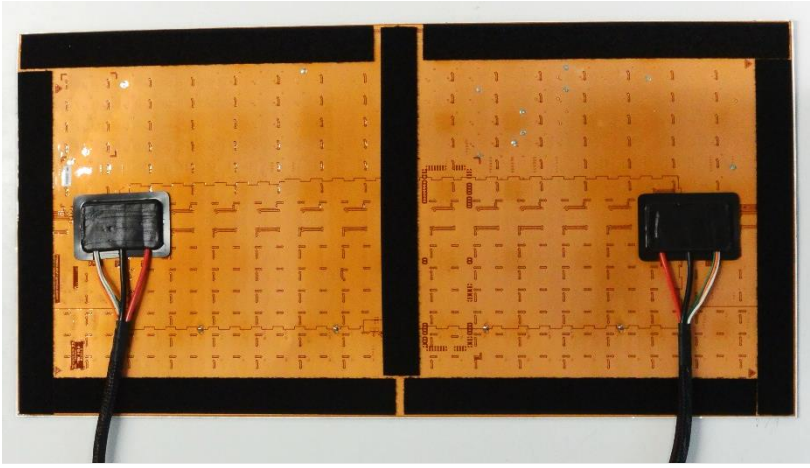


Figure 5: Self adhesive loop tape on the rear side of ledTec.flex banner P16 4000

- While mounting the foil units, start installing from the top row.
- Attach the loop side on foil to the hook side on sub-banner. Make sure after mounting each foil, there is 25mm width on the hook tape where the next foil will be installed as shown in Figure 6.

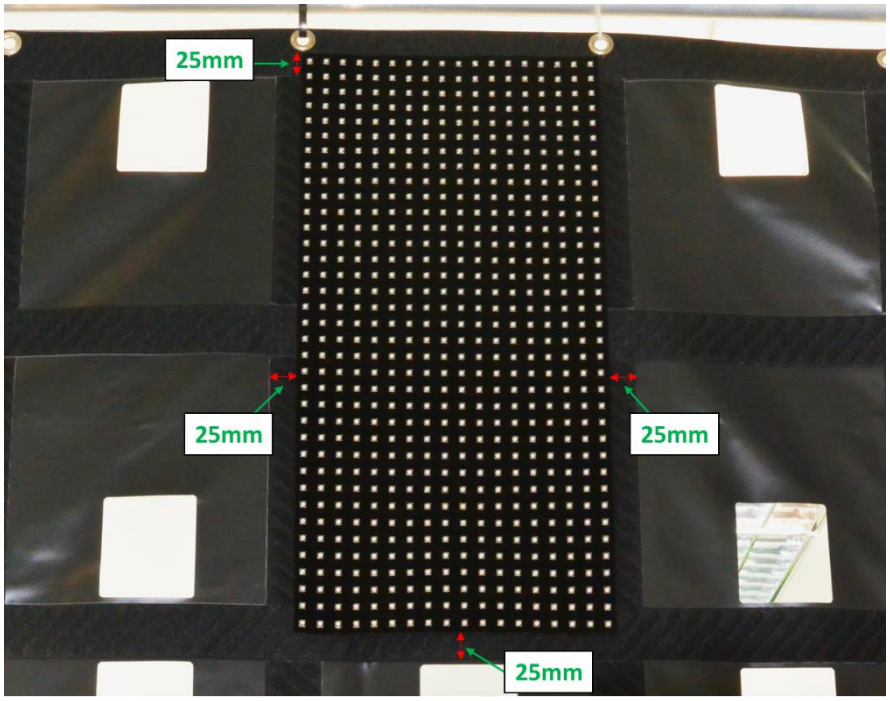


Figure 6: Mounting ledTec.flex to sub-banner

- Make sure that there is no overlapping between individual foils. This will ensure proper viewing experience of the module and prevent undefined operation conditions which might lead to failures of the product (e.g. overheating due to insufficient airflow, or short circuits in case of externally imposed damage to the protective coating of the foils).

- Proper alignment of the foils on the sub-banner can be achieved by using the LED alignment tool as shown in Figure 7. Once the correct positioning is confirmed, apply gentle pressure along the edges of the foil to ensure reliable mechanical connection between the hook and loop.

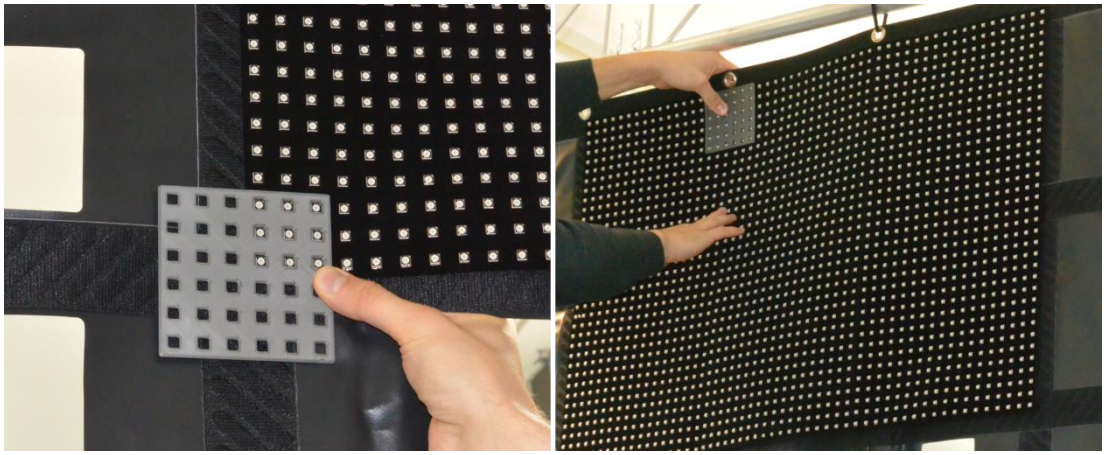


Figure 7: Proper Alignment of ledTec.flex with LED alignment tool

- Connect the output connector of foil 1 to input connector of foil 2 and repeat, if applicable (based on starter cable length). See Figure 8 for reference. Ensure that the connectors are properly locked with their corresponding counterparts, e.g. by trying to pull them apart. If they are properly connected, it is not possible to pull them apart without releasing the lock.
- Add suitable strain reliefs for all foils cables, to prevent the weight of the cables from putting excess stress on the cable inlets on the foils.

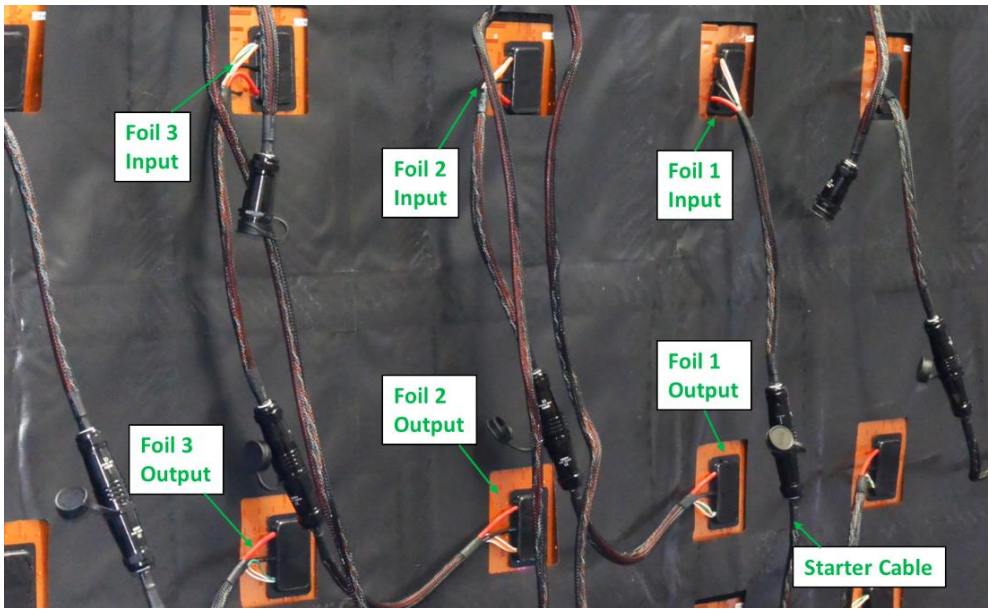


Figure 8: Cable connection and cascading multiple foils

- The output connector cap of the last foil in a cascade should be closed with the attached end cap. This will prevent humidity or water droplets during rainfall from going into the connector and thus prevent any corrosion and electrical failure issues.
- The installation of ledTec.flex should involve at least 2 people.
- During mounting or unmounting the ledTec.flex, handle with care in order to avoid kinking of the foil.

SYSTEM SETUP

For a complete overview of the system setup, please refer to Figure 3.

- Connect the media control box to the computer via HDMI. The box has 6 Art-Net output ports.

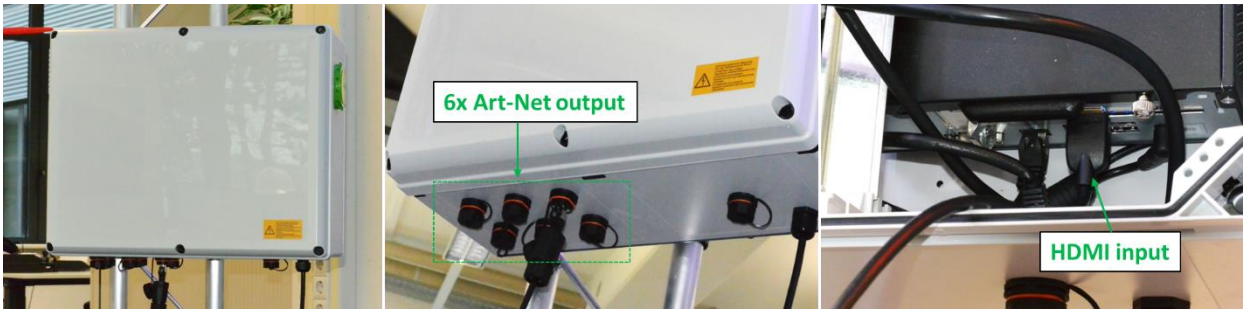


Figure 9: Media control box

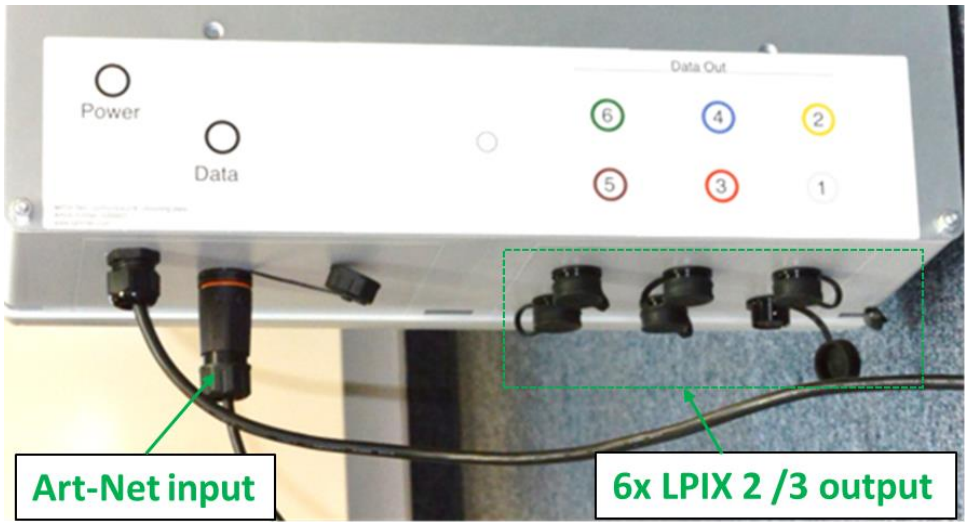


Figure 10: Converter Box

- Connect the output of the media control box to the converter box with an ethernet cable, where each LPIX2/LPIX3 output of the latter can be connected to a cascade of 3 foils with a starter cable of up to 12,5m length or a cascade of 2 foils with a starter cable of up to 20m length.

SAFETY INFORMATION

PROTECTION FROM ELECTRIC SHOCK

- Read and follow the directions given in the user manuals of all the devices that you intend to connect to the ledTec.flex banner, particularly the instructions, warnings and limits that apply to:
    - system layout
    - connections to other devices
    - specified cables
    - maximum cable lengths
    - maximum number of devices that can be connected.
- Use only cables specified by LightnTec GmbH for the devices concerned to interconnect them. If the specified cables are not long enough for an intended cable run, consult LightnTec GmbH for assistance in finding or creating a safe alternative solution.
- Do not allow the total length of the cables to exceed 20m (for 2 foils) and 10m (for 3 foils) from the 12 VDC power source.

PROTECTION FROM BURNS AND FIRE

- The ledTec.flex is cooled by convection. Ensure that there is enough airflow on the front side of the module (eg. no enclosure) to prevent overheating of the LEDs and consequently avoid any damage to the product.
- Do not operate the ledTec.flex banner at full brightness if the ambient temperature (T_a) exceeds 30°C (86°F). For operation at temperatures above 30°C (86°C F), a derating needs to be applied to ensure that component temperature limits are not exceeded.
- Do not modify the ledTec.flex banner in any way or install anything other than original parts.
- A suitable fuse and fuse holder must be installed between the power supplies and connected ledTec.flex modules.

PROTECTION FROM INJURY

- When installing the ledTec.flex banner above ground level, ensure that the installation hardware and supporting structure can hold at least 10 times the weight of all the devices they support.
- In an overhead installation or where the device may cause injury if it falls, block access below the work area and work from a stable platform whenever installing, servicing or moving the ledTec.flex. As soon as work is completed, check that all hardware and components are securely in place and fastened to supporting structures.

CARE AND MAINTENANCE

LightnTec GmbH products are of superior design and quality and should be treated with care. The recommendations below will help fulfill any warranty obligations and gain good use and longevity from the products.

- Do not attempt or use the product(s) until you read and understand the installation instructions. Failure to adhere to these instructions could result in serious injury or property damage.
- Only use cable types as specified by LightnTec GmbH.
- Do not exceed the maximum power rating of the power supplies.
- The maximum number of foils to be cascaded is limited to:
  - 2 foils by a starter cable up to 20m
  - 3 foils by a starter cable up to 12,5~~0~~m
- Do not use the product if the ambient temperature exceeds the maximum temperature as specified in the datasheet. Ensure there is sufficient airflow and use cool air circulation if required.
- Do not use product(s) if cables are damaged.
- Do not connect cables and connectors when wet or in wet areas. Moisture on bare connectors can cause electric shock and damage to product(s).
- Do not install the product in a location where it can be exposed to water for a long period of time, e.g. any frame structure around the ledTec.flex banner that can collect rainwater or laying the cables in an area easily exposed to rainwater is not recommended.
- Exposure to humidity and dust for the ledTec.flex banner and cables must be limited to levels compliant with IP66. Exposure of the cables to direct sunlight must be avoided as well.
- Exposure to humidity and dust for the ledTec.flex | converter box, ledTec.flex | media control box and ledTec.flex | switch box must be limited to levels compliant with IP65. Exposure of the cables to direct sunlight must be avoided as well.
- The ledTec.flex | converter box, ledTec.flex | media control box and ledTec.flex | switch box must not be operated if dew water has condensed inside their housing boxes.
- Do not drop, knock or shake the product(s). Rough handling can damage the electronics and void the warranty.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean products. Wipe with a damp cloth on housings and a dry cloth on electronics to remove dirt or dust.
- Do not attempt to service or repair the product(s) unless done by an authorized service personnel. If the product is not working as specified, please contact your nearest authorized service center or LightnTec GmbH office for assistance.
- Lightntec GmbH bears no liability for damage caused by inappropriate handling or application of the product.
- If the LED foils are stored temporarily, they must be dried extensively. Drain the foils well for drying and allow them to dry out at least 20°C (better 23°C) for at least 3 full days. Ensure

sufficient air circulation so that the moist air is kept away from the product. The air humidity should not be higher than 40%. Horizontal drying takes significantly longer.

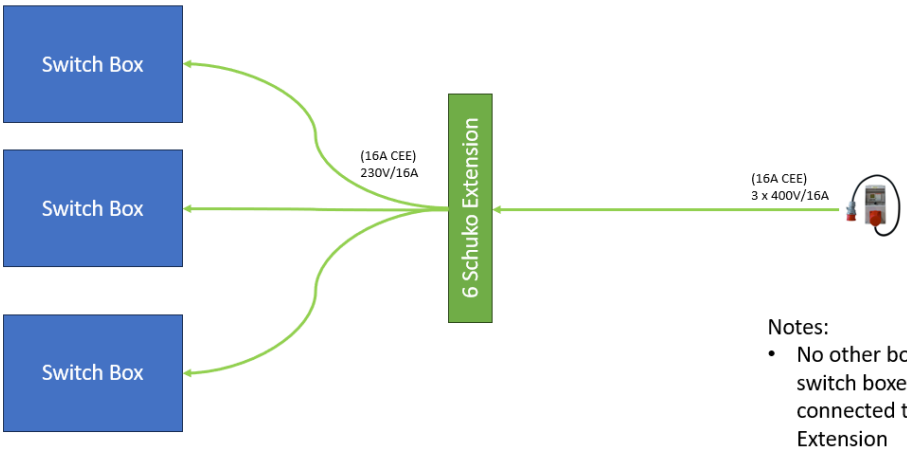
- To avoid the formation of spores, carefully brush the LED foils with a soft brush (clothes brush) without pressure after they have dried completely.

POWER MANAGEMENT SYSTEM

- The below diagram explains the power management system for the required setup
- The Media Control Box should always be the first component to turn on in order to establish the network within the required time
- After 5 minutes of turning on the Media Control Box the switch boxes can then be switched on
- The last step would be the converter boxes, and these should be turned on 3 minutes after the switch boxes

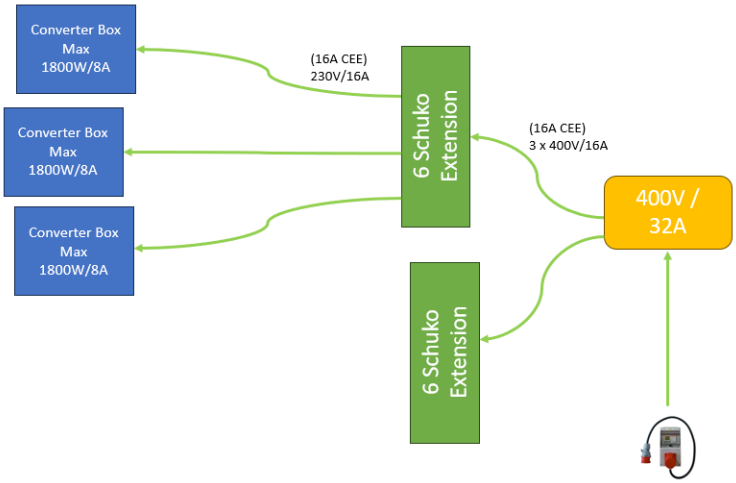
Level 1
Media Control Box (Instant Power on)

Level 2
Network Establishment (5 mins delay)



Notes:
- No other boxes (other than switch boxes) should be connected to the Schuko Extension

Level 3
System Power (8 mins delay)



Notes:
- Each Shuko Extension can be connected to up to 6 Converter Boxes
- Each 400V/32 Power Distributor can be connected to max. 2 extensions

SAFETY SYMBOLS ON DEVICE

Symbol	Explanation
	ATTENTION! High Voltage! Must be handled by qualified personnel only!
CE	The product has been assessed to meet high safety, health, and environmental protection requirements according to the European Economic Area (EEA).
	The product does not contain certain hazardous substances typically found in electrical and electronic products, according to RoHS regulations.
	The product must not be disposed in unsorted municipal waste at the end of life and should be taken to a designated waste collection points for electrical and electronic products.
	The manufacturing process of the product is free of hazardous chemicals specified by the REACH regulations.