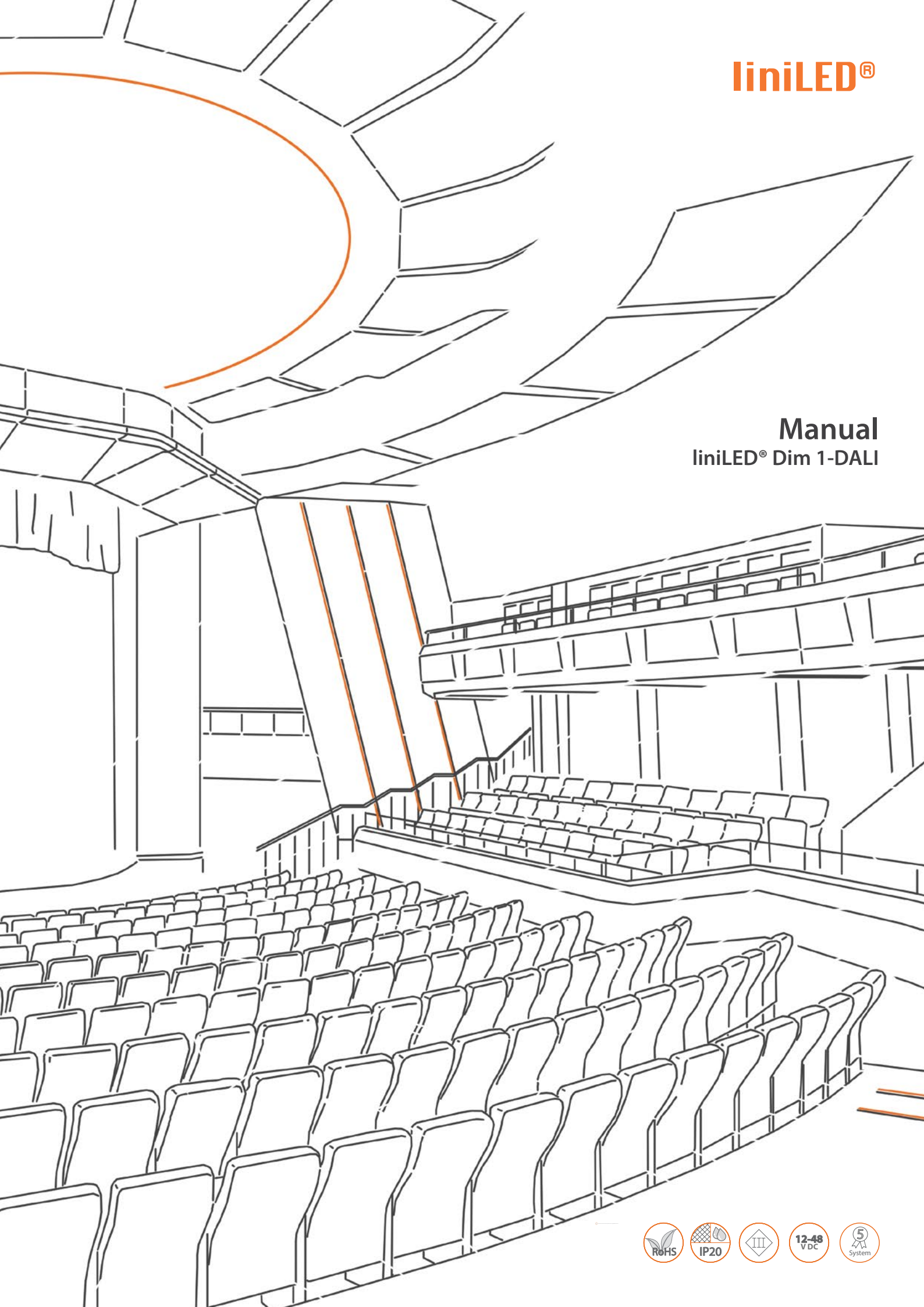
liniLED®

# Manual

## liniLED® Dim 1-DALI



RoHS IP20 III 12-48 V DC 5 System

# liniLED®

**Dim 1-DALI**

## 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**
- The product may not be modified or converted otherwise than described in this manual.
- Products are to be transported in proper packaging. Products should remain packed until installation.
- Take ESD (Electro Static 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 main power has to be switched off before installation. Not doing so may damage the product or cause injury.
- Installation has to be done by a professional with knowledge of electrical circuits or a certificated maintenance person known with valid directives.
- General and local construction-, safety- and installation regulations must be followed.
- 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 product must be installed inside an electrical housing protected against overvoltages.
- The product must be installed in a vertical or horizontal position with the cover/ label upwards or vertically; other positions are not permitted.
- It is not permitted to bottom-up position (with the cover/label down).
- 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.

**Cables**
- All cables used in the setup must be dimensioned properly and should be isolated from any other wiring or electronic conductive parts. It is suggested to use double insulated and if applicable shielded and twisted cables.
- The length of the data cables at the BUS input/output (DALI or other) should be as per specification of the respective protocols and regulations.
- The length of the connecting cables between the product and the LED module must be less than 10m.
- The length of the connecting cables between the control inputs (pushbutton, 0-10 V/1-10 V, potentiometer or other) and the product must be less than 10m.

**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.

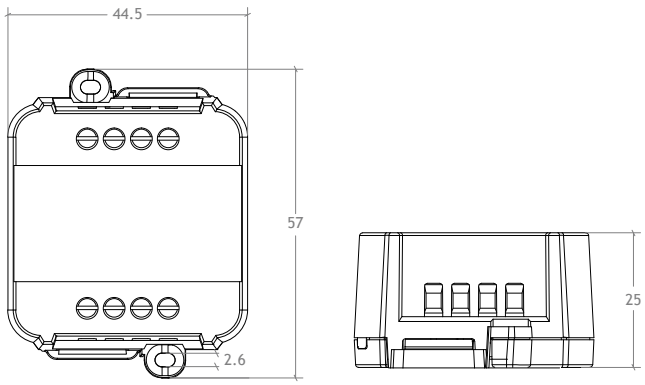
- Repairs on the installation may only be performed by qualified electricians.
- Product repairs may solely be done by Triolight B.V.
- Use a suitable power supply.
- Do not drive the product on other voltages than described in their datasheet/product specifications.
- Do not fasten anything on the product, same applies for hanging.
- Children may not play unsupervised with electrical products as they cannot judge the dangers in dealing with electrical circuits correctly.

**Cleaning and maintenance**
- *Attention:* Disconnect the power before maintenance and cleaning.
- Paints, solvents and corrosive cleaning chemicals may not contact and thus affect the product.

**Environment and waste**
- This product may not be treated as household waste. Dispose of the material through the waste recycling of electrical and electronic equipment.

**Documentation**
- For an updated version of the device manual visit our website: www.liniled.com.

## Product drawing




## Technical specifications

| | Dim 1-DALI |
|---|---|
| Product code | 11131 |
| Input signal | DALI/N.O. Push dimming |
| Input voltage ($V_{in}$) | 10.8 ... 52.8 V DC |
| Input current ($I_{in}$) [1] | Max. 8 A (peak) |
| Max. load @ 24 V DC | 156 W |
| Output channels | 1 |
| Output current per channel [1] | Max. 8 A (peak) Max. 7.5 A @ 20°C Max. 6.5 A @ 40°C |
| Output signal | D-PWM, 16 bit resolution |
| Output type | Constant voltage, common anode |
| Output voltage ($V_{out}$) | = $V_{in}$ |
| Typical efficiency | > 95% |
| Standby power @ 24 V DC | Max. 180 mW |
| Dimming range | 0.1 ... 100% |
| Dimming frequency | 250 Hz |
| IP rating | IP20 |
| Storage temperature | -40 ... 60°C |
| Ambient operating temperature ($T_a$) | -10 ... 40°C |
| Dimensions | 45 x 57 x 25 mm |
| Packaging dimensions | 68 x 56 x 35 mm |
| Weight | 40 g |
| Housing material | Self-extinguishing PC/ABS |
| Thermal shutdown [2] | 150°C |
| Wiring | 2.5mm² solid - 1.5mm² stranded - 30/12 AWG |

[1] Maximum value, dependent on ventilation conditions.
[2] Provided by MOSFET internal shut down.

## Protection circuits

| | |
|---|---|
| **OTP** | Over temperature protection[2] |
| **OVP** | Over voltage protection[3] |
| **UVP** | Under voltage protection[3] |
| **RVP** | Reverse polarity protection[3] |
| **IFP** | Input fuse protection[3] |
| **SCP** | Short circuit protection |
| **CLP** | Current limit protection |

[2] Provided by MOSFET internal shut down.
[3] Only control logic protection.

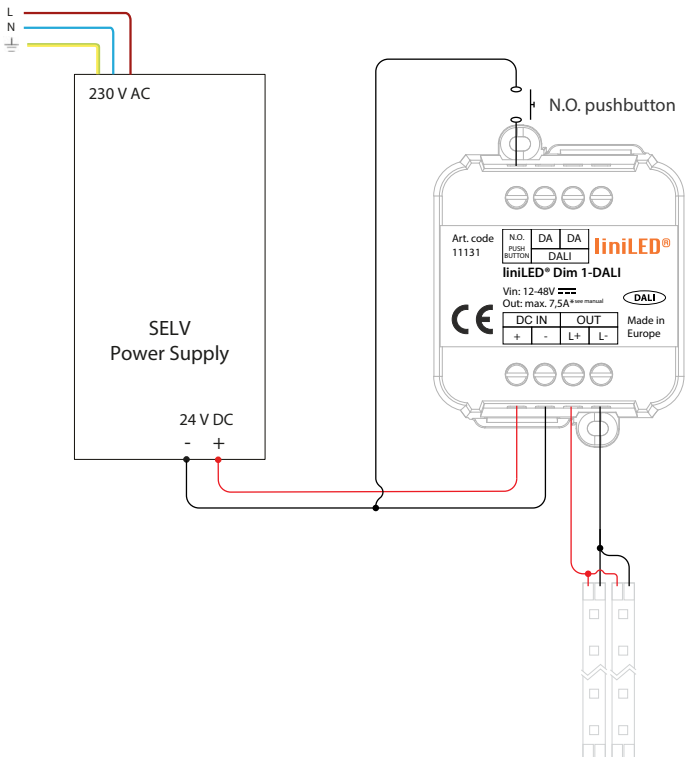
## Reference standards

This product is designed and produced according to following standards.

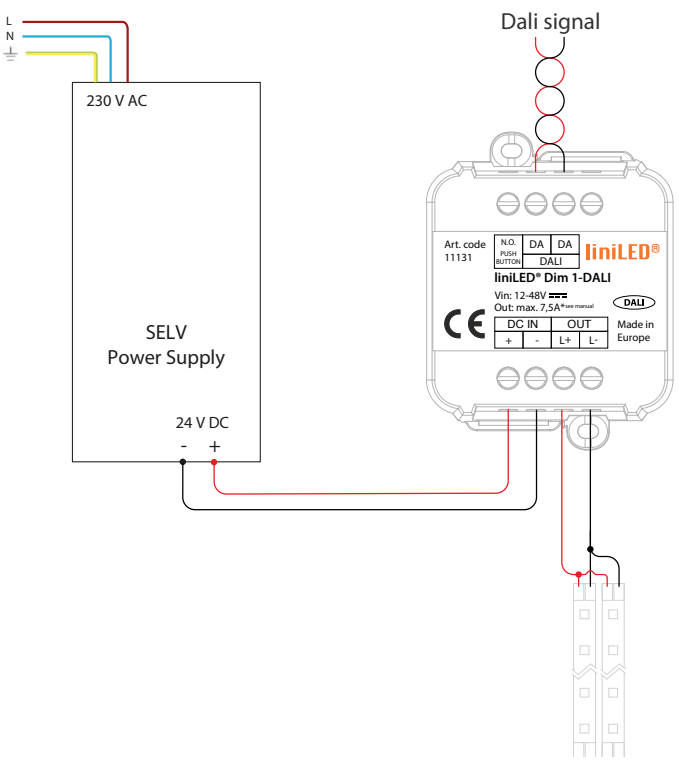
| | |
|---|---|
| EN 61347-1:2008 + A1:2011 + A2:2013 | Lamp control gear - Part 1: General and safety requirements |
| EN 55015:2013+A1:2015 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment |
| EN 61547:2009 | Equipment for general lighting purposes - EMC immunity requirements |
| EN 50581:2012 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances |
| IEC/EN 62386-101 | Digital addressable lighting interface - Part 101: General requirements - System |
| IEC/EN 62386-102 | Digital addressable lighting interface - Part 102: General requirements - Control gear |
| IEC/EN 62386-207 | Digital addressable lighting interface - Part 207: Particular requirements for control gear LED modules (device type 6) |

## Wiring schemes

### N.O. pushbutton




### DALI signal




## Push dimming

The intensity and the status change (ON/OFF) are controlled by the N.O. pushbutton.

| | |
|---|---|
| **Click** | On/Off |
| **Double click** | Maximum intensity |
| **Long pressure (>1s) from OFF** | Turn on at 1% (then dim up/down) |
| **Long pressure (>1s) from ON** | Dim up/down |

## Functions

### Relation with control inputs

At first power-up, in case of absence of connection to the BUS, push dimming is active. When the DALI signal is detected, the BUS will become active. In the absence of the DALI signal the control passes to push dimming in the event of the push button closure. The control mode is memorised on a non-volatile memory.

### Addressing

- Simplified method (one ballast connected at a time)
- Random address allocation

### Channel map

| Channel | Function | Value |
|---|---|---|
| 1 | Dimmer | Intensity [0 ... 254] |

## Commands

### Standard DALI commands

| | |
|---|---|
| Direct art power | √ |
| Off | √ |
| Up | √ |
| Down | √ |
| Step up | √ |
| Step down | √ |
| Recall max. level | √ |
| Recall min. level | √ |
| Step down and off | √ |
| On and step up | √ |
| Goto scene (0 to 15) | √ |
| Reset | √ |
| Store actual level in the DTR | √ |
| Store the DTR as max. level | √ |
| Store the DTR as min. level | √ |
| Store the DTR as system failure level | √ |
| Store the DTR as power on level | √ |
| Store the DTR as fade time | √ |
| Store the DTR as fade rate | √ |
| Store the DTR as scene (0 to 15) | √ |
| Remove from scene (0 to 15) | √ |
| Add to group (0 to 15) | √ |
| Remove from group (0 to 15) | √ |
| Store DTR as short address | √ |
| Enable write memory | X |
| Query status | see note[1] |
| Query ballast | √ |
| Query lamp failure | see note[1] |
| Query lamp power on | √ |
| Query limit error | √ |
| Query reset state | √ |
| Query missing short address | √ |
| Query version number | √ |
| Query content DTR | √ |
| Query device type | see note[2] |
| Query physical minimum level | √ |
| Query power failure | √ |

| | |
|---|---|
| Query content DTR1 | √ |
| Query content DTR2 | √ |
| Query actual | √ |
| Query max. level | √ |
| Query min. level | √ |
| Query power on level | √ |
| Query system failure level | √ |
| Query fade time/ fade rate | √ |
| Query scene level (0 to 15) | √ |
| Query groups 0-7 | √ |
| Query groups 8-15 | √ |
| Query random address H | √ |
| Query random address M | √ |
| Query random address L | √ |
| Read memory location | X |
| Query extended version | X |

### Special commands

| | |
|---|---|
| Terminate | √ |
| Data transfer register | √ |
| Initialise | √ |
| Randomise | √ |
| Compare | √ |
| Withdraw | √ |
| Searchaddr H | √ |
| Searchaddr M | √ |
| Searchaddr L | √ |
| Program short address | √ |
| Verify short address | √ |
| Query short address | √ |
| Physical selection | X |
| Enable device type | X |
| Data transfer register 1 | √ |
| Data transfer register 2 | √ |
| Write memory location | X |

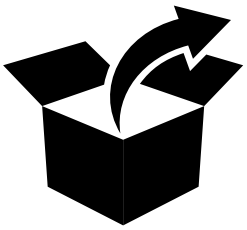
[1] Lamp failure returns always No.
[2] Query device type returns DT6, but "enable device type" is not enabled.

## Installation

Tools required for installation:
1 x Phillips screwdriver
2 x Screw (e.g. ø2.9 x 6.5 mm screw)
1 x Flat screwdriver 2-3.5 mm
1 x Power meter (optional for checking driver input voltage)

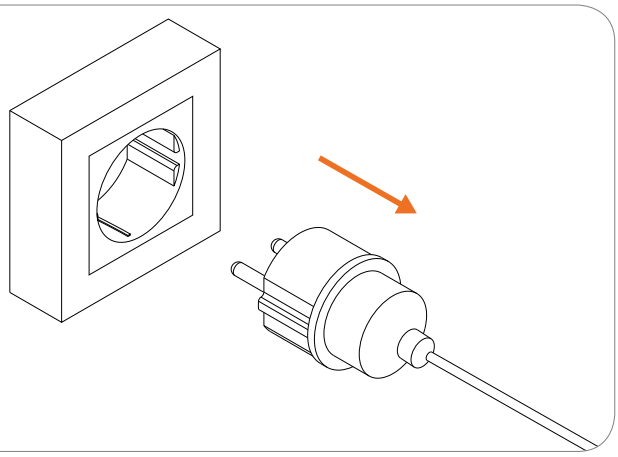
⚠ **Danger!** Turn off the power before starting the installation!

This chapter is described in the correct installation order, we advise you to follow this order.

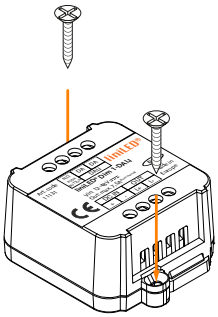


**1.** Unpack the driver and check for any damages. **Note:** Never install a damaged driver and report any defects immediately to your supplier.

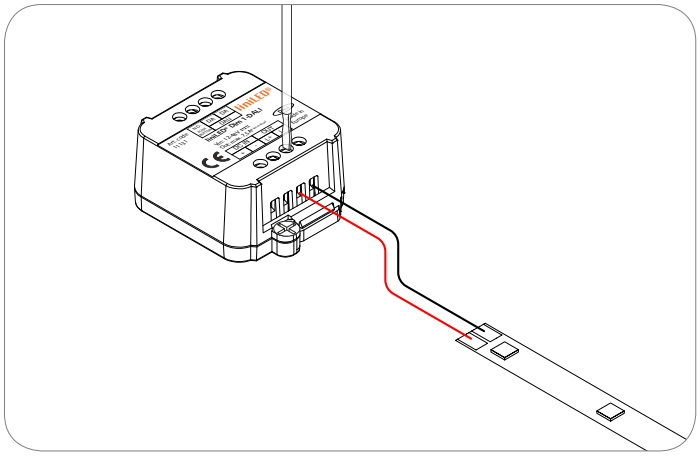
**2.** Make sure that a proper SELV driver suitable to drive LED strips is installed and ensure that the output voltage is within limits of the LED strip specifications. For LED strip operating voltages, please check respective product datasheet.



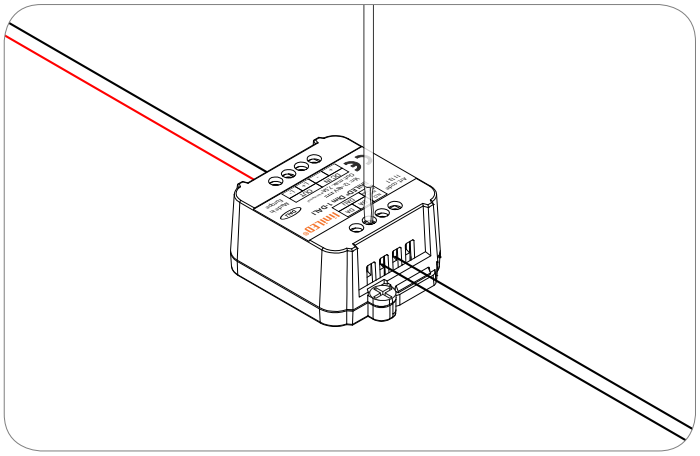
**3.** Disconnect the power supply from the mains voltage.



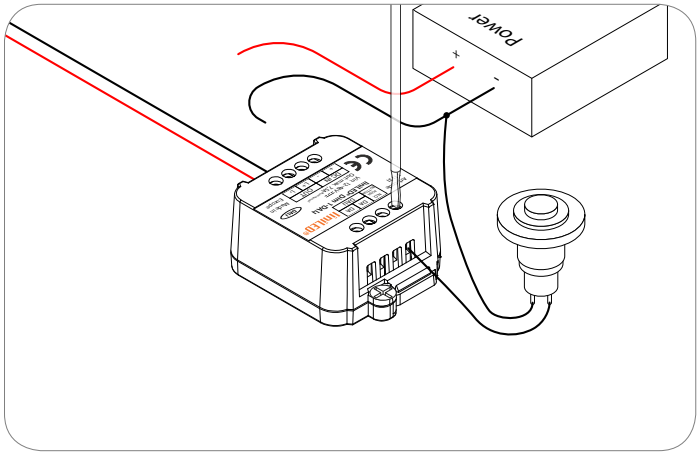
**4.** Install the driver on a suitable surface by screwing it in place using the screwholes.



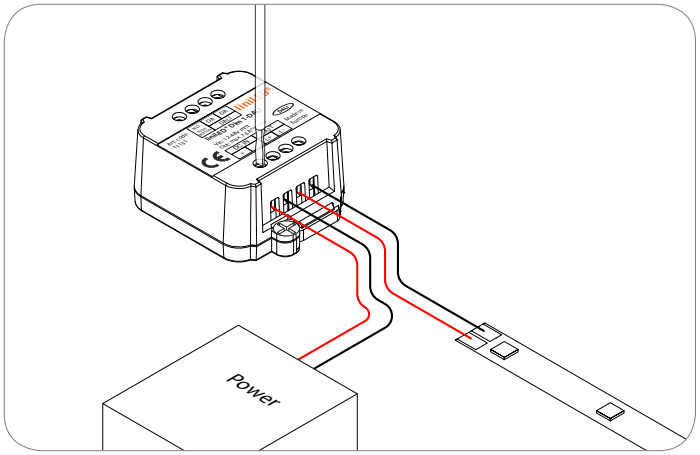
**5.** Connect the LED strip wires to the outputs according to the wiring scheme on page 6.



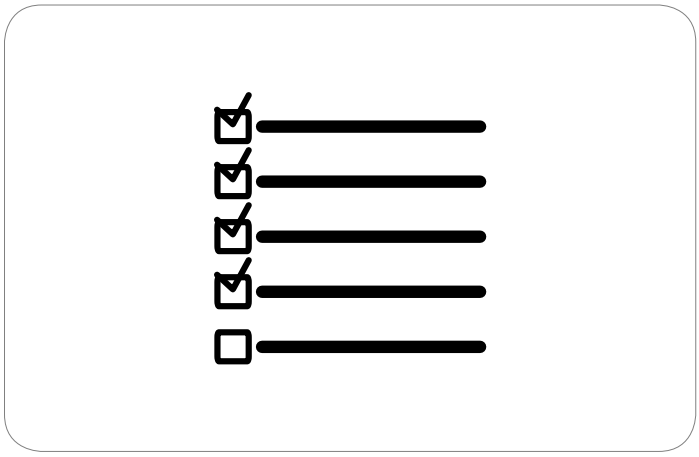
**6.** Connect the DALI BUS signal (optional).



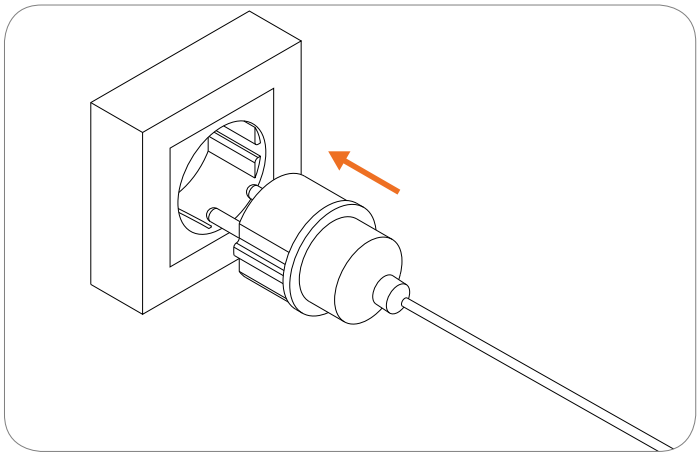

**7.** Connect the N.O. pushbutton. Connect one cable to the '-' between the power and control unit (optional).




**8.** Connect the power supply.



**9.** Double check the wiring and connections.



**10.** Connect the power supply to the mains voltage and power up the driver. The driver is now ready for use.

## Symbols

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).


Protected against ingress of solid foreign objects ≥ 12.5 millimetres. Not-protected against ingress of water.


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).


Operating voltage of 12-48 V DC (please check of refer to LED product specification).


System guarantee of 5 years when the complete system consist of liniLED® products with the 5 years system warranty logo.
Terms & conditions apply.

## Disclaimer

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