

## instalight Control

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**Basic device**  
Art. no. V2 GR 001

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Operating instructions

## 1 Safety instructions



Electrical devices may only be mounted and connected by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully.

Fire hazard. Only use the plug-in power supply "V2 SNT 001" listed under accessories for the power supply of the basic unit.

Malfunction through operation with incorrect accessory. Only connect the devices listed under "Accessories" to the USB connection.

Only use indoors.

These instructions are an integral part of the product, and must remain with the end customer.

## 2 Battery safety instructions

This device or its accessories are supplied with batteries in the form of button cells.

**DANGER! Batteries can be swallowed. This can lead directly to death by suffocation. Dangerous substances may cause severe internal burns leading to death within 2 hours.**

Keep new and used batteries away from children.

Do not use devices if the battery compartment does not close securely and keep away from children.

If you suspect that a battery has been swallowed or is in any orifice of the body, seek immediate medical attention.

**WARNING! Improper handling of batteries can result in explosion, fire or chemical burn due to leakage.**

Do not heat or throw batteries into fire.

Do not reverse polarity, short-circuit or recharge batteries.

Do not deform or disassemble batteries.

Replace batteries only with an identical or equivalent type.

Remove empty batteries immediately and dispose of in an environmentally friendly manner.

### 3 Device components

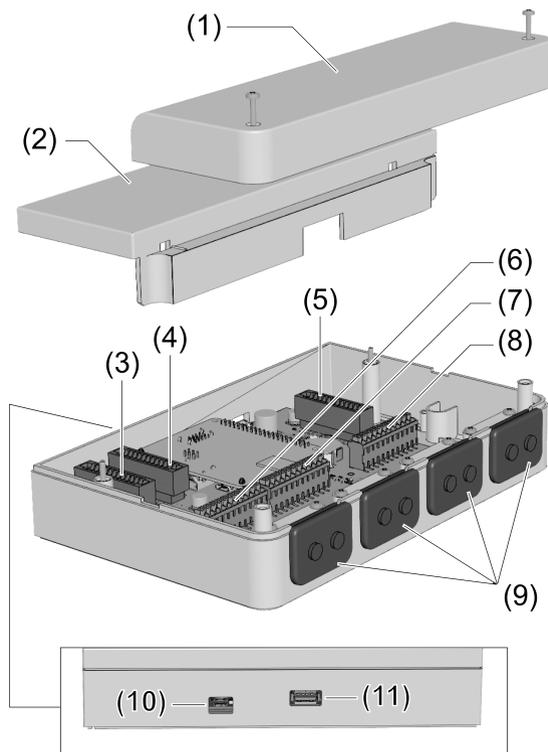


Figure 1

- (1) Connection compartment cover
- (2) Housing cover
- (3) Slot, Interface module 1 (F1)
- (4) Slot, communication module 1 (C1)
- (5) Slot, Interface module 2 (F2)
- (6) Device connection terminal, Interface module 1 (F1)
- (7) Device connection terminal, communication 1 (C1)
- (8) Device connection terminal, Interface module 2 (F2)
- (9) Cable gland
- (10) Power supply unit connection (Micro-USB B)
- (11) USB connection (USB A)

### 4 Function

"instalight Vario" is a light control system with a modular structure with the following properties:

- Intuitive operation via WiFi using iPhone and free app
- Simple commissioning via WiFi through selection of prefabricated profiles via iPhone and free Setup app
- Adaptation to various light installations via three modes: RGBW, RGB or Tunable White
- Variable data interface selection through universal basic device and plug-in interface modules

- Integration of push-buttons as an extension via "binary" communication module

## 5 Operation

The "instalight Vario" is operated either via WiFi and iPhone or using simple push-buttons.

Operation via WiFi and iPhone is carried out using the app **Vario**, which can be downloaded free of charge from the App Store.

- i** Either an existing or a separate WiFi network can be used for communication between "instalight Vario" and the iPhone (see "Commissioning").
- i** The "binary" communication module is required for operation using simple push-buttons (see operation manual **Interface modules**).



Figure 2: QR code for Vario app in the App Store

- i** The app can also be found in the App Store by searching for "Insta vario".

## 6 Information for electrically skilled persons



Comply with the ESD handling regulations for electrostatic-sensitive components. Electrostatic discharges could destroy the device.

### 6.1 Fitting and electrical connection

#### General connection instructions

- Run all the connection cables (exception: USB connection cables) into the connection compartment as shown (Figure 3).
- Always fix connecting cables with the strain relief.

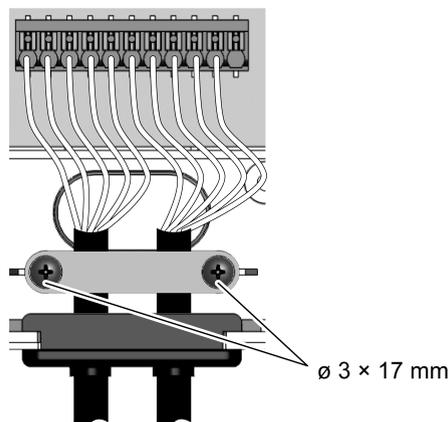


Figure 3: Example of cable routing

**Mounting/dismantling the connection compartment cover**

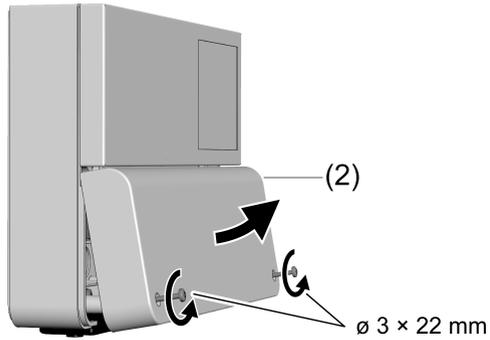


Figure 4

**Mounting/dismantling the housing compartment cover**

The connection compartment cover has been dismantled

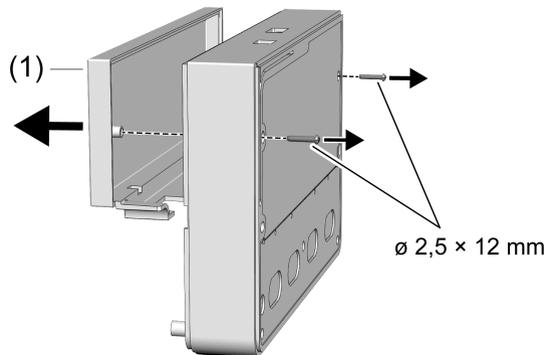


Figure 5

**Inserting/removing the battery**

**i** Obey the battery safety instructions.

Use the battery supplied.

The housing cover has been dismantled.

As a replacement for an empty battery, use a lithium battery of type **CR2032**.

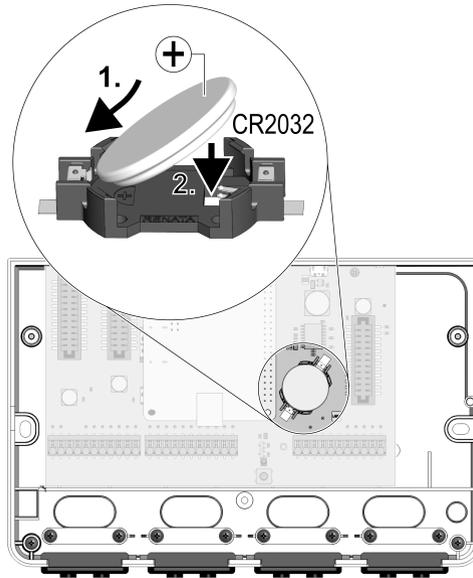


Figure 6

- Insert the battery into the battery holder as shown. To remove the battery, proceed in the reverse order.
- Mount the housing cover.

## 6.2 Commissioning

Commissioning is done using the app Vario Setup, that can be downloaded from the Apple App Store. In the app, you can select light colours and profiles for the connected push-buttons in line with the connected interfaces. Details on the profile can be recalled in the app using the magnifying glass icon.



Figure 7: QR code for Vario Setup app in the App Store

- i** The app can also be found in the App Store by searching for "Insta vario".

### Commissioning the device

- i** At least one interface module must be installed for commissioning.
- i** With regard to the connection of the interface modules, please refer to the supplied operating manual of the interface modules.
- i** Commissioning takes place using an iPhone and installed app **Vario Setup**. The app is available free of charge in the App Store.

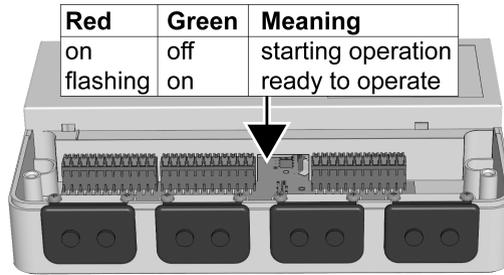


Figure 8: Meaning of the status LED

### Commissioning via existing WiFi network

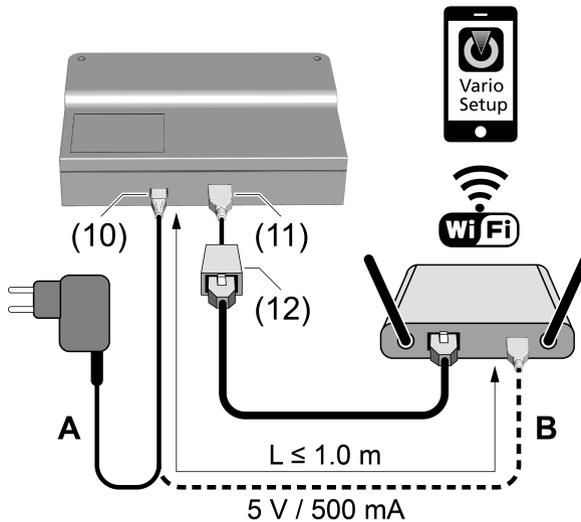


Figure 9

- Connect the USB-LAN adapter (12, see accessories) to the USB connection (11).
- Connect the USB-LAN adapter to the router of the internal WiFi network.
- Create the power supply in one of the two following manners:
  - A:** Connect the plug-in power supply (see accessories) to the Micro-USB connection (10) of the basic device.
  - B:** Connect the Micro-USB connection (10) of the basic device to a USB connection of the router using a suitable adapter cable (max. 1 metre, not supplied in scope of delivery).
- Wait for the starting operation to run through (Figure 8).
- Connect the iPhone to the WiFi network of the router.
- Start the **Vario Setup** app and follow the instructions on the screen.

### Commissioning via separate WiFi network

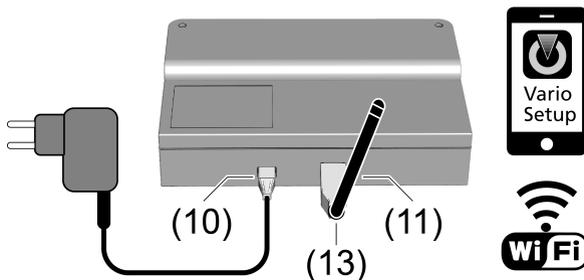


Figure 10

- Connect the USB-WiFi adapter (13, see accessories) to the USB connection (11).
- Connect the plug-in power supply (see accessories) to the Micro-USB connection (10) of the basic device.
- Wait for the starting operation to run through (Figure 8).
- Connect the iPhone to the WiFi network of the **instalight Vario**.

For the WiFi access data, refer to the sticker on the inner side of the connection compartment cover:



Figure 11

- Start the **Vario Setup** app and follow the instructions on the screen.

## 7 Appendix

 Remove empty batteries immediately and dispose of in an environmentally friendly manner. Do not throw batteries into household waste. Consult your local authorities about environmentally friendly disposal. According to statutory provisions, the end consumer is obligated to return used batteries.

### 7.1 Technical data

|   |                    |
|---|--------------------|
| Rated voltage                               | DC 5 V             |
| Power consumption                           | max. 1.7 W         |
| Power consumption (basic device + USB WiFi) | approx. 1.3 W      |
| Power consumption (basic device + USB LAN)  | approx. 1.4 W      |
| Degree of protection                        | IP20               |
| Ambient temperature                         | +5 ... +35 °C      |
| Connection of USB power supply              | Micro-USB (type B) |

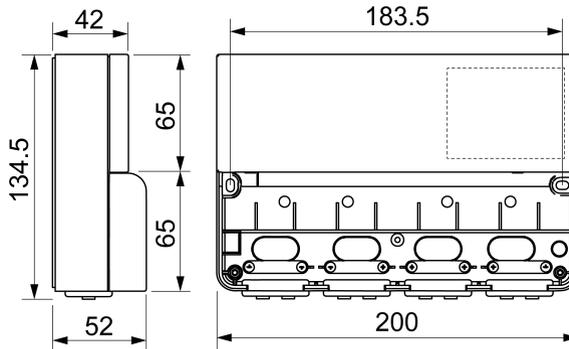


Figure 12: Dimensioned drawing (mm)

## 7.2 Accessories

Interface module DMX  
 Interface module LEDTRIX  
 Interface module PWM  
 Interface module DALI dt6  
 Interface DALI dt8  
 Communication module binary  
 Communication module WiFi USB  
 Communication module LAN USB  
 Plug-in power supply  
 Set DIN rail mounting  
 Adapter cable 3pol 0,3m SNT  
 DMX adapter cabel 3pin socket

Art. no. V2 FM DX 001  
 Art. no. V2 FM LX 001  
 Art. no. V2 FM PW 001  
 Art. no. V2 FM DA6 001  
 Art. no. V2 FM DA8 001  
 Art. no. V2 KM 8F 001  
 Art. no. V2 KM WL 001  
 Art. no. V2 KM LN 001  
 Art. no. V2 SNT 001  
 Art. no. V2 ME 001  
 Art. no. 58924030  
 Art. no. 59200080

## 7.3 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

**Insta GmbH**  
 Service Center  
 Hohe Steinert 10  
 58509 Lüdenscheid  
 Germany













# INSTA

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**instalight Vario**

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**Interface modules**

Art. no. V2 FM .. 001

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Operating instructions

## 1 Safety instructions



Electrical devices may only be mounted and connected by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully. These instructions are an integral part of the product, and must remain with the end customer.

## 2 Note on the operation manual

Various combinable interfaces are available for the light control system "instalight Vario". For this, two slots are available in the basic device (see the operating manual for the basic device). This operating manual describes the mounting and electrical connection of the different interfaces and the communication module for operation using push-buttons.

## 3 Commissioning via app

Commissioning is done using the app Vario Setup, that can be downloaded from the Apple App Store. In the app, you can select light colours and profiles for the connected push-buttons in line with the connected interfaces. Details on the profile can be recalled in the app using the magnifying glass icon.



Figure 1: QR code for Vario Setup app in the App Store

**i** The app can also be found in the App Store by searching for "Insta vario".

## 4 Operation via app

The "instalight Vario" is operated either via WiFi and iPhone or using simple push-buttons. Operation via WiFi and iPhone is carried out using the app **Vario**, which can be downloaded free of charge from the App Store.

**i** The "binary" communication module is required for operation using simple push-buttons (see operation with "binary" communication module).



Figure 2: QR code for Vario app in the App Store

**i** The app can also be found in the App Store by searching for "Insta vario".

## 5 Fitting and electrical connection

### Operation with "DMX" interface

The interface **DMX** allows the activation of RGBW, RGB or Tunable White luminaires using the DMX512-A standard.

### Inserting the interface

The power supply is switched off.

The housing cover has been dismantled.

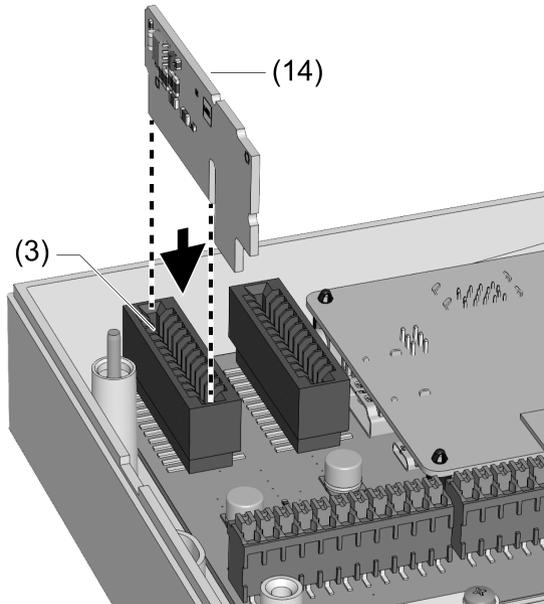


Figure 3: Inserting the interface **DMX**

- Insert the interface **DMX** (14) into slot **F1** (3) as shown (Figure 3).

## Connecting the DMX bus

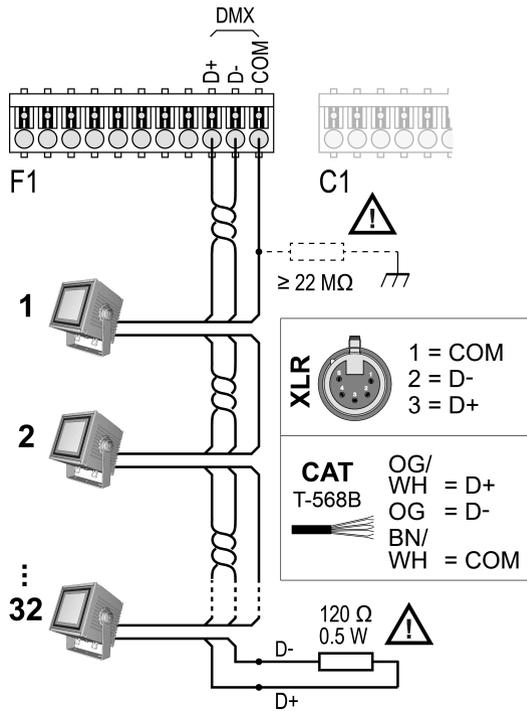


Figure 4: Connecting the DMX bus

- Connect the DMX bus as shown (Figure 4).

- i** Insulate DMX ground (**COM**) to protective conductor potential (transition resistance at least 22 MOhm).
- i** The DMX output is limited to the connection of 32 subscribers. Use a DMX splitter or booster to expand the number of subscribers.
- i** Only use a data cable specified for DMX512-A (e.g. Twisted Pair / 120 Ohm characteristic impedance). Always attach a terminating resistor to the DMX output of the last subscriber.

### DMX patching

The instalight Vario possesses fixed DMX patching, which is designed to activate luminaires with RGBW, RGB or Tunable White, according to the selected mode. In so doing, all the parameters are always activated in 8-bit mode (=1 DMX channel per parameter).

### DMX channel mapping (RGBW)

| Subscriber no. | DMX channel | Parameters        |
|----------------|-------------|-------------------|
| 1              | 1...4       | R/G/B/W (0...255) |
| 2              | 5...8       | R/G/B/W (0...255) |
| ...128         | 509...512   | R/G/B/W (0...255) |

**DMX channel mapping (RGB)**

| Subscriber no. | DMX channel | Parameters      |
|----------------|-------------|-----------------|
| 1              | 1...3       | R/G/B (0...255) |
| 2              | 4...6       | R/G/B (0...255) |
| ...170         | 508...510   | R/G/B (0...255) |

**DMX channel mapping  
(Tunable White: Warm white/cold white)**

| Subscriber no. | DMX channel | Parameters                        |
|----------------|-------------|-----------------------------------|
| 1              | 1...2       | Warm white / cold white (0...255) |
| 2              | 3...4       | Warm white / cold white (0...255) |
| ...100         | 199...200   | Warm white / cold white (0...255) |

**DMX channel mapping  
(Tunable White: Colour temperature/brightness)**

| Subscriber no. | DMX channel | Parameters                                  |
|----------------|-------------|---|
| 1              | 201...203   | Colour temp. / Brightness / Free* (0...255) |
| 2              | 204...206   | Colour temp. / Brightness / Free* (0...255) |
| ...104         | 510...512   | Colour temp. / Brightness / Free* (0...255) |

\*) Activation of Tunable White using the parameters Colour temperature and Brightness, whereby the subscribers are always addressed with an offset of 3.

**Operation with "LEDTRIX" interface**

The interface **LEDTRIX** allows the activation of RGBW, RGB or Tunable White luminaires of the LEDTRIX system. Two separate LEDTRIX lines, each with 60 channels, can be activated using the terminals **LX1** and **LX2**.

**Inserting the interface**

The power supply is switched off.

The housing cover has been dismantled.

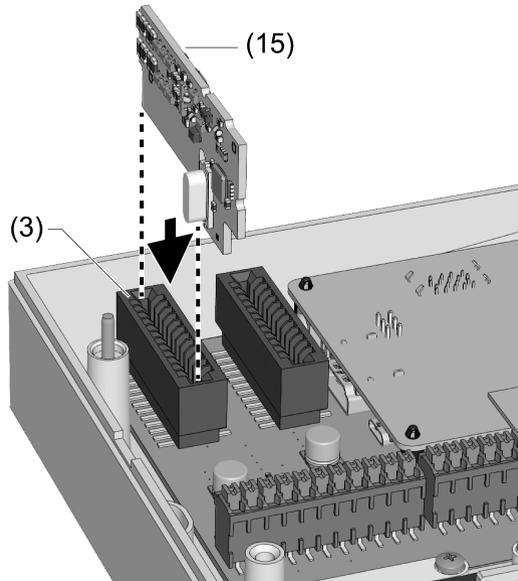


Figure 5: Inserting the interface **LEDTRIX**

- Insert the interface **LEDTRIX** (15) into slot **F1** (3) as shown (Figure 5).

## Connecting LEDTRIX

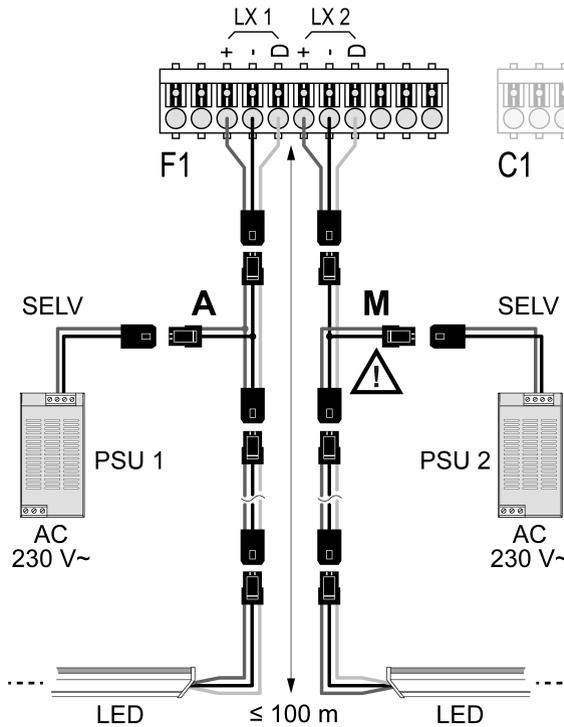


Figure 6: Connecting LEDTRIX bus 1 and 2

- Connect the LEDTRIX bus 1 and 2 as shown (Figure 6):
- i** The terminals for **LX1+** and **LX2+** are electrically connected in parallel. For this reason, if using two separate power supplies for LEDTRIX bus 1 and 2, a type **A** separating filter may only be used on one bus.
- i** The dimensioning rules of the LEDTRIX system apply. These are described in the documentations of the LEDTRIX actuators used (e.g. LEDLUX LX linear/plane).

### LEDTRIX patching

The instalight Vario possesses fixed LEDTRIX patching, which is designed to activate luminaires with RGBW, RGB or Tunable White, according to the selected mode.

- i** The channel assignments shown in the tables apply separately to the outputs **LX1** and **LX2**.

### LEDTRIX channel mapping (RGBW)

| Subscriber no. | LX channel | Parameters        |
|----------------|------------|-------------------|
| 1              | 1...4      | R/G/B/W (0...255) |
| 2              | 5...8      | R/G/B/W (0...255) |
| ...15          | 57...60    | R/G/B/W (0...255) |

**LEDTRIX channel mapping (RGB)**

| Subscriber no. | LX channel | Parameters      |
|----------------|------------|-----------------|
| 1              | 1...3      | R/G/B (0...255) |
| 2              | 4...6      | R/G/B (0...255) |
| ...20          | 58...60    | R/G/B (0...255) |

**LEDTRIX channel mapping (Tunable White)**

| Subscriber no. | LX channel | Parameters   |
|----------------|------------|--------------|
| 1              | 1...3      | TW (0...255) |
| 2              | 4...6      | TW (0...255) |
| ...20          | 58...60    | TW (0...255) |

**DALI device type 6 and device type 8****DANGER!**

**Mortal danger of electric shock.**

**Disconnect the device. Cover up live parts.**

- i** To generate the DALI voltage, a power supply is required which meets the DALI specifications (DIN EN 62386). When selecting the DALI power supply, the number of DALI subscribers and the DALI controller must be taken into account.
- i** The DALI system voltage is a functional extra-low voltage (FELV). For this reason, the DALI interface should be treated as a cable able to carry voltage, in accordance with the installation instructions. Carry out the installation work so that, when a DALI area is disconnected, all the mains voltages of the connected DALI operating devices are switched off.
- i** The control cable and load cable can be run in a shared cable, e.g. NYM J 5×1.5.
- i** Ensure that the control cable with regards type, cross-section and routing complies with the VDE specifications for 250 V cables, DALI interfaces have basic insulation.

**Operating with DALI Device Type 6 (DT6)**

The interface DALI DT6 allows the activation of DALI operating devices of DALI Device Type 6. Using the DALI 1 and DALI 2 terminals, it is possible to connect two separate DALI lines, each with 64 operating devices, to control monochrome luminaires and Tunable White luminaires.

**Inserting the interface**

The power supply is switched off.

The housing cover has been dismantled.

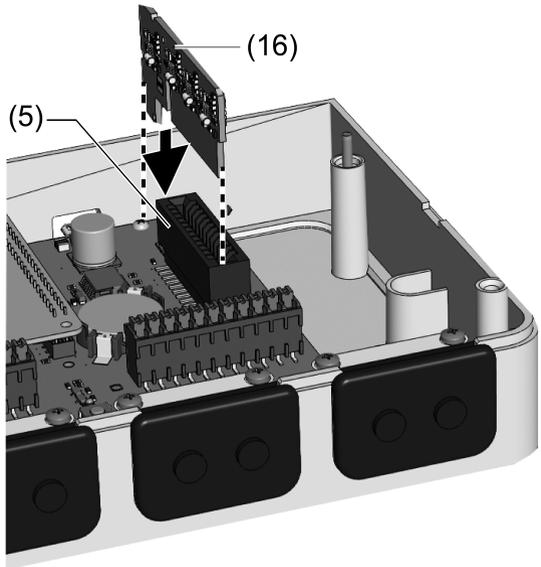


Figure 7: Inserting the interface **DALI DT6** or **DT8**

- Insert the interface **DALI DT6** (16) into slot **F2** as shown (Figure 7).

**Connecting the DALI DT6 bus for monochrome luminaires**

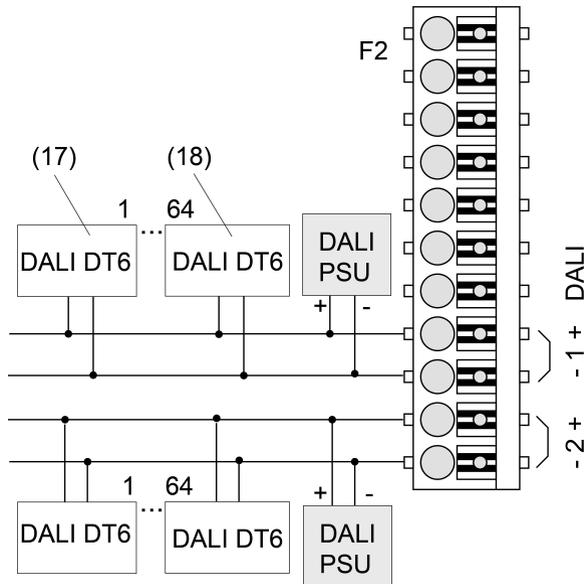


Figure 8: Connecting the interface **DALI DT6** for monochrome luminaires

- (17) DALI-DT6 operating device 1
- (18) DALI-DT6 operating device 64

- i** A total of 128 DALI luminaires can be connected to the interface DALI DT6. The 128 DALI luminaires are divided into two separately controllable DALI lines.
- i** No addressing is required with monochrome luminaires.

**Connecting the DALI DT6 bus for Tunable White luminaires**

For operation with DALI DT6 Tunable White luminaires are operated via DALI group control. A total of 64 operating devices (corresponds to 32 luminaires) can be connected to one DALI line.

**DALI-DT6 group assignment  
(Tunable White: Warm white/cold white)**

| DALI DT6 group | Parameters |
|----------------|------------|
| 1              | warm white |
| 2              | Cold white |

- i** The group assignment is predefined by the interface DALI DT6 and cannot be changed. The connected operating devices must be assigned to control groups 1 and 2 by way of a suitable DALI parameterisation device.

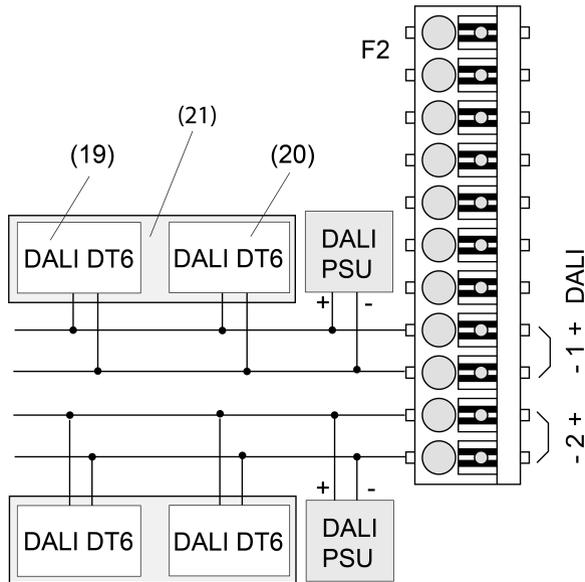


Figure 9: Connecting the interface DALI DT6 for Tunable White luminaires

- (19) Operating device "Warm white"
- (20) Operating device "Cold white"
- (21) Luminaire 1

**Operating with DALI Device Type 8 (DT8)**

The interface DALI DT8 allows the activation of DALI operating devices of the device type "Colour Control" (DALI Device Type 8). Using the DALI 1 and DALI 2 terminals, it is possible to connect two separate DALI lines, each with 64 operating devices, to control monochrome luminaires and Tunable White luminaires.

- i** No addressing is required with the interface DALI DT8.

### Inserting the interface

The power supply is switched off.

The housing cover has been dismantled.

- Connect the interface **DALI DT8** to the **F2** slot (Figure 7).

### Connecting the DALI DT8 bus

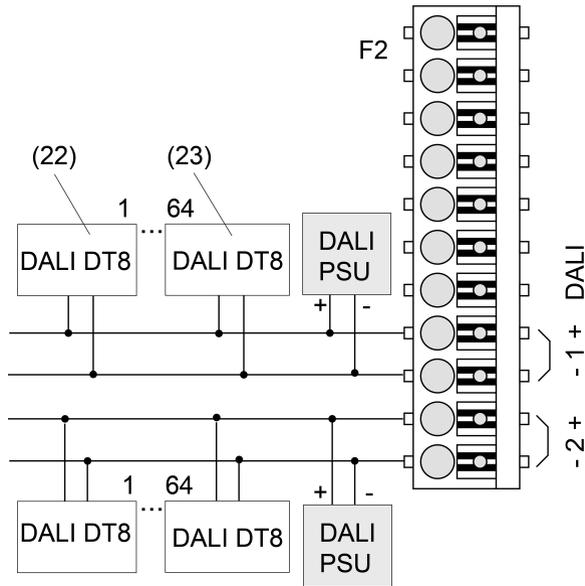


Figure 10: Connecting the DALI DT8 interface

- (22) DALI-DT8 operating device 1
- (23) DALI-DT8 operating device 64

**i** A total of 128 luminaires can be connected to the interface DALI DT8.

### Operation with "PWM" interface

The interface **PWM** allows the activation of RGBW, RGB, Tunable White luminaires or monochrome luminaires.

The interface PWM has the following properties:

- Automatic detection of overloads
- Independent processing of errors
- Automatic restart of the circuit after error elimination
- No thermal overload in running operation

### Inserting the interface

The power supply is switched off.

The housing cover has been dismantled.

**i** The Fieldbus module **PWM** is inserted in the same **F2** slot as the DALI DT6/DT8 module.

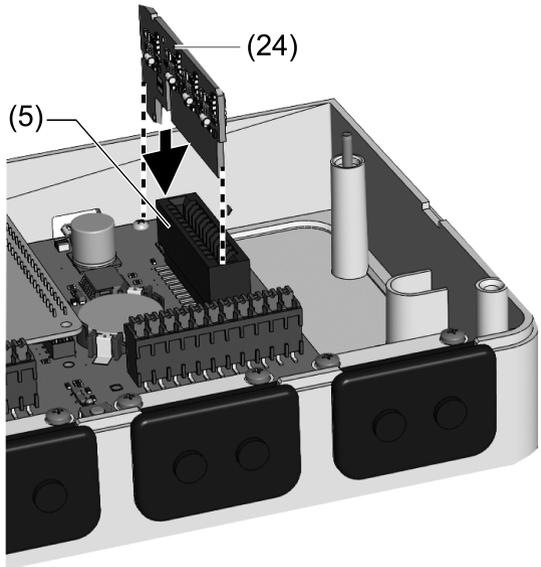


Figure 11: Inserting the interface PWM

- Insert the interface PWM (24) into slot F2 as shown (Figure 11).

**Connecting the PWM interface**

There are various connection options for the PWM interface, shown in the following examples.

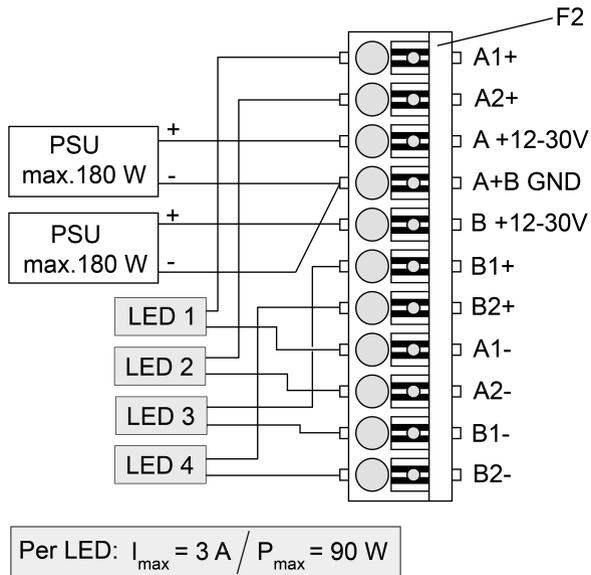


Figure 12: Connection with 2 power supply units

**i** The current is limited to 3 A per channel and the power to 90 W per channel.

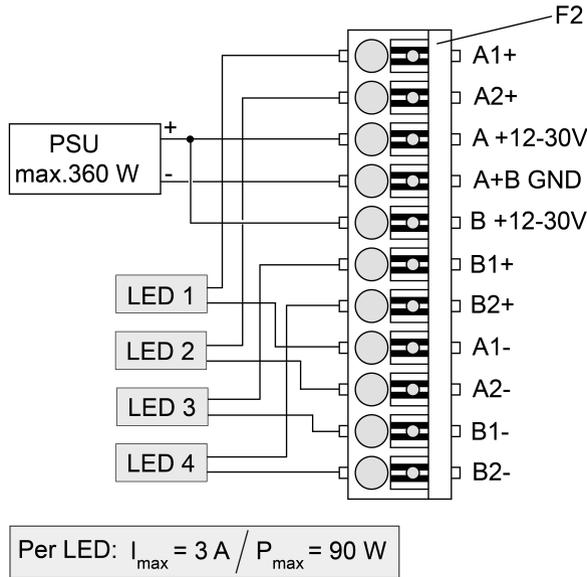


Figure 13: Connection with one power supply unit

**i** The current is limited to 3 A per channel and the power to 90 W per channel.

■ Connect the PWM bus as shown in the examples.

**PWM channel assignment (RGBW)**

| Subscriber no. | PWM channel | Parameters |
|----------------|-------------|------------|
| 1              | A1/A2/B1/B2 | R/G/B/W    |

**PWM channel assignment (RGB)**

| Subscriber no. | PWM channel | Parameters |
|----------------|-------------|------------|
| 1              | A1/A2/B1    | R/G/B/free |

**PWM channel assignment (Tunable White: Warm white/cold white)**

| Subscriber no. | PWM channel | Parameters              |
|----------------|-------------|-------------------------|
| 1              | A1/A2       | Warm white / cold white |
| 2              | B1/B2       | Warm white / cold white |

**PWM channel assignment (Unicolour)**

| Subscriber no. | PWM channel | Parameters |
|----------------|-------------|------------|
| 1              | A1          | Brightness |
| 2              | A2          | Brightness |
| 3              | B1          | Brightness |
| 4              | B2          | Brightness |

**i** The PWM channels 1 and 2 and the PWM channels 3 and 4 are each controlled jointly.

### Operation with "binary" communication module

The "binary" communication module possesses eight switching inputs, to which external operating elements (e.g. push-buttons) can be connected. During commissioning, specific functions are assigned to the switching inputs of the communication module. This allows, for example, light scenes can be started and stopped using simple push-buttons, or the brightness of the connected luminaires can be dimmed.

### Inserting a communication module

The power supply is switched off.

The housing cover has been dismantled.

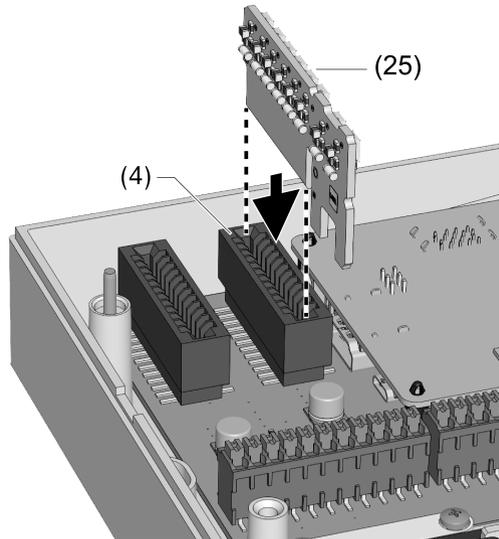


Figure 14: Inserting a "binary" communication module

- Insert a "binary" communication module (25) in slot **C1** (4) as shown.

## Connecting push-buttons

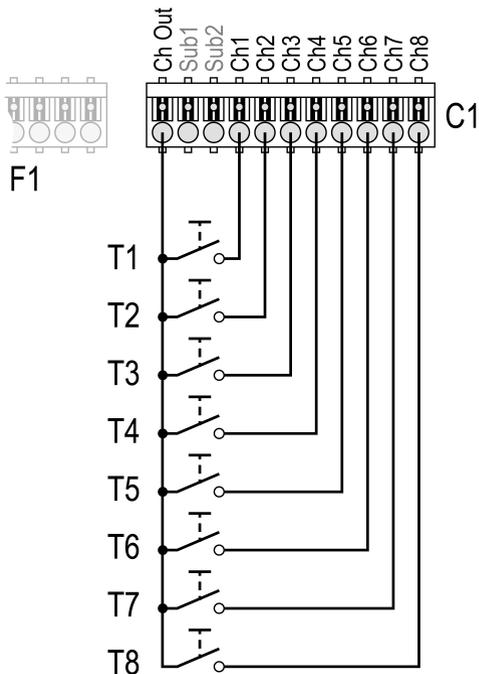


Figure 15: Connecting push-buttons

- Connect push-buttons **T1...T8** as shown (Figure 15).

### Profiles for push-button assignment

In the profiles of the push-buttons various functions for operating the luminaires are stored. Different profiles can be selected in the app **Vario Setup**. The following figure shows an example of a push-button profile.

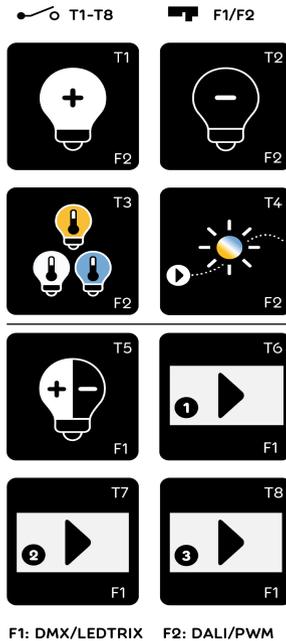


Figure 16: Button allocation profile **Universal** (TW [F2] - RGB(W) [F1])

The functions of a profile are assigned to the push-buttons **T1** to **T8**. The push-buttons are marked accordingly in the profile, e. g. **T1**, **T2** (Figure 16). When using Fieldbus modules, the designation of the connected Fieldbus modules **F1** (DMX or LEDTRIX) or **F2** (DALI or PWM) is displayed in addition.

### Functions of the profiles

- i The range of functions is constantly being extended so that the following overview does not claim to be complete.



Figure 17: Explanation of functions

## 6 Technical data

### Interface and communication

Connection mode  
 single stranded  
 Finely stranded without conductor sleeve

Screwless terminal  
 0.2 ... 1.5 mm<sup>2</sup>  
 0.2 ... 1.5 mm<sup>2</sup>

### Data DMX interface

Rated voltage (module)  
 Power consumption (5 V)  
 Protocol  
 Topology  
 Transmission rate  
 Frame rate  
 channels

DC 5 V (internal)  
 approx. 240 mW  
 USITT DMX512-A  
 FLOATING  
 250 kBit/s  
 40 f/s  
 512

### Data LEDTRIX interface

Rated voltage (module)  
 Power consumption (5 V)  
 Rated voltage (LX-Bus)  
 Protocol  
 channels

DC 5 V (internal)  
 approx. 105 mW  
 DC 28 V (external)  
 LEDTRIX  
 2 x 60

|                          |                       |
|--------------------------|-----------------------|
| Frame rate               | 40 f/s                |
| Data PWM interface       |                       |
| Rated voltage (module)   | DC 12-30 V (external) |
| Load current per channel | max. 3 A              |
| Power consumption A      | 180 - 660 mW          |
| Power consumption B      | 180 - 660 mW          |
| channels                 | 2 x A                 |
|                          | 2 x B                 |
| Modulation               | PWM                   |
| Modulation frequency     | 1000 Hz               |

**i** Only use power supply units that supply secure extra low voltage SELV for supplying power to the PWM module.

|                                     |                          |
|-------------------------------------|--------------------------|
| Data of DALI interfaces DT6 and DT8 |                          |
| Rated voltage (module)              | DC 9.5-22.5 V (external) |
| Current consumption                 | < 2 mA                   |
| Data transfer                       | 1200 Baud                |
| Number of operating devices         | max. 64                  |

## 7 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

**Insta GmbH**  
 Service Center  
 Hohe Steinert 10  
 58509 Lüdenscheid  
 Germany











# INSTA

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