

Operating instructions

Universal LED dimming insert Komfort  
Art. no. 5401 00



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## 1 Safety instructions



Installation only by persons with relevant knowledge and experience in the following areas:

- Five safety regulations and standards for the installation of electrical systems
- Selection of suitable tools, measuring devices, installation materials and, if necessary, personal protective equipment
- Installation of the installation material
- Connection of devices to the building installation under consideration of local connection conditions

Improper installation will endanger your life and the lives of people using the electrical system, and there is a risk of serious damage to property, e.g. through fire. You are at risk of personal liability for personal injury and damage to property.

**Consult an electrically skilled person.**

**Danger of electric shock.** The device is not suitable for disconnection from the supply voltage because the mains potential is applied on the load even when the device is switched off. Before carrying out work on the device or load, switch off all corresponding circuit breakers.

**Risk of destruction of the dimmer and load if the set operating mode and load type do not match.** Set the correct dimming principle before connecting or exchanging the load.

**Fire hazard.** For operation with inductive transformers, each transformer must be fused on the primary side in accordance with the manufacturer's instructions. Only safety transformers according to EN 61558-2-6 (VDE 0570 parts 2-6) must be used.

Instructions are part of the product. So keep them in a safe place.

## 2 Intended use

- Switching and dimming of lighting
- Operation with suitable cover
- Mounting in appliance box with dimensions according to DIN 49073

## 3 Product characteristics

- The device works according to the leading edge phase control or trailing edge phase control principle
- Automatic or manual setting of the dimming principle suitable for the load
- Indication of the set operating mode by means of LED
- Operation without neutral conductor possible
- Switch-on by bulb-preserving soft start
- Switch on with last brightness set or switch-on brightness saved
- Switch-on brightness can be saved permanently

- Minimum brightness can be saved permanently
- Maximum brightness can be saved permanently
- Connection of extension units possible
- Electronic short-circuit protection with permanent switch-off after 7 seconds at the latest
- Electronic over-temperature protection
- Hotel card function

Power extension possible by means of power boosters.

## 4 Operation

These instructions describe operation with a push-button cover. Operation with a different cover is described in the instructions for the cover in question. Operation using a 2-wire or 3-wire extension unit with push-button cover or push-button essentially corresponds to operation on the main unit.

### Switching the light

- Press the push-button cover briefly: Light switches on or off.
- i** 3-wire extension unit: Press top to switch on, press bottom to switch off.

### Setting the brightness

Light is switched on.

- Press and hold the push-button cover at the top.  
The light gets brighter up to maximum brightness.
- Press and hold the push-button cover at the bottom.  
The light gets darker to minimum brightness.

### Switching the light on with minimum brightness

- Press and hold the push-button cover at the bottom.  
The light switches on at minimum brightness.
- Press and hold the push-button cover at the top or the push-button.  
The light switches on at minimum brightness and gets brighter.

### Saving the switch-on brightness

In the state as supplied, the switch-on brightness is set to maximum brightness.

- Set the brightness.
- Press the push-button cover over the entire surface for longer than 4 seconds.  
The switch-on brightness is saved. For confirmation, the light is switched off briefly and switched on again.


### Switching on with the last brightness saved

To switch on with last the brightness saved, the switch-on brightness must be deleted. In the state as supplied, the switch-on brightness is set to maximum brightness.

### Deleting the switch-on brightness

- Press the push-button cover briefly: Light switches on at the saved switch-on brightness.
- Press the push-button cover over the entire surface for longer than 4 seconds. The switch-on brightness is deleted. Switching on takes place with the last brightness value set. For confirmation, the light is switched off briefly and switched on again.

### Operation by push-button as extension unit

- Press the push-button briefly: Light switches on or off.
  - Press and hold the push-button: Set the brightness. The dimming direction is changed each time it is pressed and held.
-  Saving or deleting the switch-on brightness is not possible.

## 5 Information for electrically skilled persons

### 5.1 Mounting and electrical connection

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#### **DANGER!**

Electric shock when live parts are touched.

Electric shocks can be fatal.

Always disconnect before carrying out work on the device or load. To do so, switch off all corresponding circuit breakers, secure them against being switched on again and check that there is no voltage. Cover up any adjacent live parts.

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**Mounting and electrical connection**

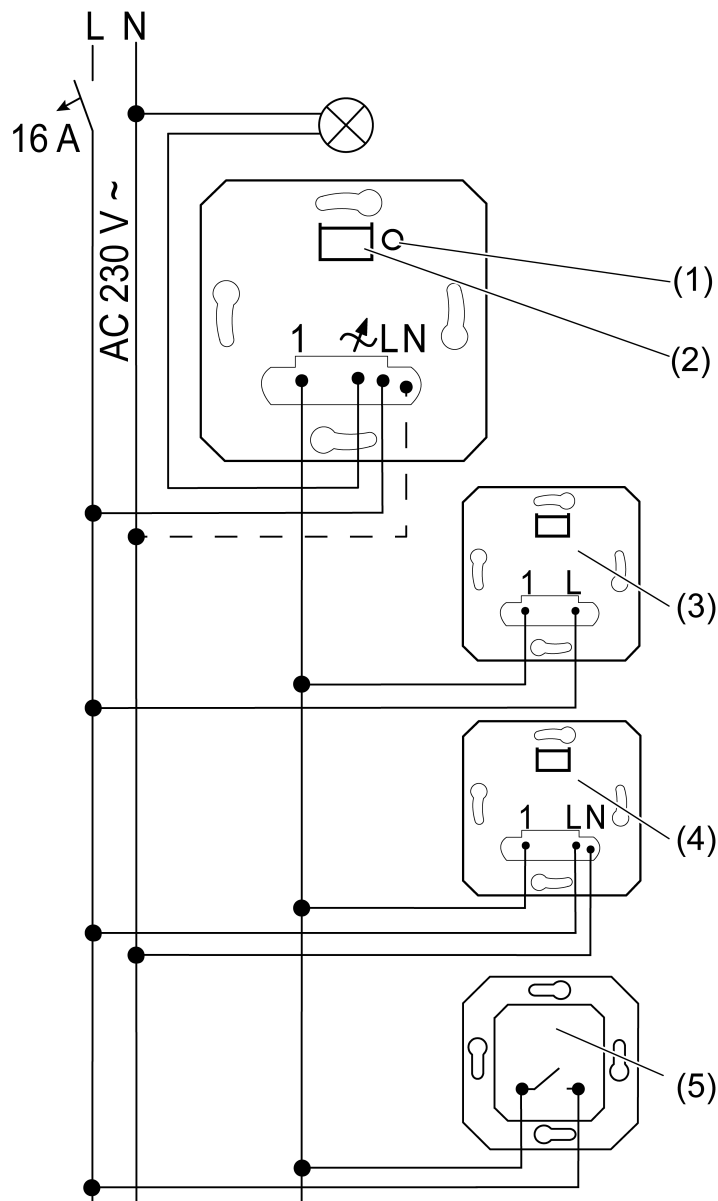


Figure 1: Connection diagram with optional extension units

- (1) Button **Dimm-Mode**
- (2) Indication LED and connection socket for cover
- (3) 2-wire extension unit
- (4) 3-wire extension unit, rotary extension unit
- (5) Push-button, NO contact

Connect the 600 W LED lamps or compact fluorescent lamps at most for each 16 A circuit breaker. When connecting transformers, observe the data of the transformer manufacturer.

Operation without neutral conductor possible.

Observe the conductor cross-sections (see technical data).

Lit push-buttons must have a separate N connection terminal.

The light can be switched by briefly pressing the **Dimm-Mode** button.

The dimmer takes into account the different electronic characteristics of most dimmable LED lamps on the market. However, it cannot be guaranteed that in individual cases the desired results may not be achieved.

**Resetting the overheating protection / short-circuit protection**

If the electronic overheating or short-circuit protection has been activated, separate the dimmer from the grid.

**5.2 Commissioning**

**Operating mode: Universal, R,L,C,LED (factory setting)**

- Automatic calibration to the load, dimming principle, trailing edge phase control, leading edge phase control or LED leading edge phase control

**Operating mode: LED trailing edge phase control, LED  $\triangleleft$**

- Loads can be dimmed according to the trailing edge phase control principle.

The connection of inductive transformers is not permitted.

**Operating mode: LED leading edge phase control, LED  $\triangle$**

- Loads can be dimmed according to the leading edge phase control principle.

The connection of inductive transformers is not permitted.

**Setting the operating mode and minimum brightness**

Prerequisite: Light is switched off.

- Press the button **Dimm-Mode** (1) until LED (2) lights up.

LED	Dimm-Mode
GN (grün, green)	R,L,C,LED
RD (rot, red)	LED $\triangleleft$
BU (blau, blue)	LED $\triangle$

Figure 2: Assignment of LED colour to dimming principle

- Keep briefly pressing button **Dimm-Mode** (1) until the necessary operating mode is selected.

The LED (2) lights up in the colour of the selected operating mode (see figure 2).

- Press the button **Dimm-Mode** (1) for longer than 1 second and keep it pressed.

LED (2) flashes. The light switches on at half brightness and slowly dims.

- i** On changing the operating mode to Universal, the first task is the calibration to the load. Keep the Dimming mode (1) button pressed.
- i** Set the minimum brightness so that the lamp lights up visibly in the lowest dimming position and when switched on at minimum brightness.
  - Once the desired minimum brightness is reached, release the Dimming mode button (1).  
LED (2) lights up in the colour of the set operating mode, operating mode and minimum brightness are set.
  - Optionally change the minimum brightness again: Press the button **Dimm-Mode** (1) for longer than 1 second again.
  - Save the settings: Press the button **Dimm-Mode** (1) for less than 1 second or do not press for 30 seconds. The LED (2) goes out.

### Setting the maximum brightness

Precondition: Light is switched on.

- Press the **dimming mode** button (1) for longer than 4 seconds and keep it pressed.  
LED (2) flashes. The light switches on at maximum brightness and slowly dims.
- As soon as the desired maximum brightness is reached, release the **dimming mode** button (1).
- Optionally change the maximum brightness again: Press the **dimming mode** button (1) again for longer than 1 second.
- Save the setting: Press the **dimming mode** button (1) for less than 1 second or do not press it for 30 seconds. The LED (2) goes out.

### Switching the hotel card function on or off

The hotel card function is only possible if the dimmer is operated with a 1-channel push-button cover. After mains voltage return the dimmer switches on the light with the saved switch-on brightness. Only the operating modes LED trailing edge phase control or LED leading edge phase control are available.


Precondition: Load is switched off.

- Press the button **Dimm-Mode** (1) for more than 10 seconds until the LED (2) flashes.
- Press the button **Dimm-Mode** briefly to switch the function on or off.  
LED (2) flashes red: The function is switched on. LED (2) flashes green: The function is switched off.
- Save the settings: Press the button **Dimm-Mode** (1) for more than 1 second or do not press for 30 seconds.  
For confirmation, the light is briefly switched on and switched off again. The LED (2) goes out.

- i** If the Universal operating mode was set before the function was switched on, the system automatically switches to LED trailing edge phase control or LED leading edge phase control. If the LED trailing edge phase control or LED leading edge phase control operating mode was set, it is retained. When switching off, the last set operating mode is retained.

## 6 Technical data

Rated voltage	AC 230 V ~
Mains frequency	50/60 Hz
Standby load depending on the cover	approx. 0.1 ... 0.5 W
Power loss	approx. 4 W
Ambient temperature	-5 ... +45 °C
Connected load at 25 °C	See table 1

Operating mode **LED** : max. connected load for HV-LED lamps typ. 3 ... 400 W, electronic transformers with LV-LED typ. 20 ... 200 W.

Mixed load	
ohmic-capacitive	20 ... 420 W
capacitive-inductive	not permitted
ohmic-inductive	20 ... 400 VA
ohmic and HV LED	typ. 3 ... 100 W
ohmic and compact fl lamp.	typ. 3 ... 100 W

Power specifications including transformer dissipation.

Operate inductive transformers with at least 85% nominal load.

Ohmic-inductive mixed load: max. 50% proportion of ohmic load. Otherwise, an incorrect measurement is possible.

Operation without neutral conductor: Minimum load 50 W. Does not apply to loads with HV-LED and compact fluorescent lamps.

Power reduction	
per 5 °C in excess of 25 °C	-10%
when installed in wooden or dry construction walls	-15%
when installed in multiple combinations	-20%
Power boosters	see power booster instructions

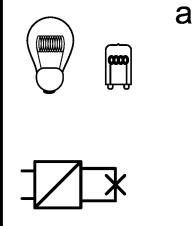
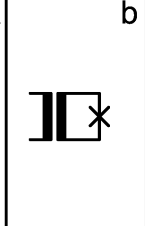
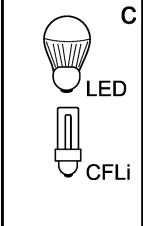
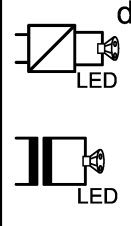
Number of extension units	
2-wire, push-button	unlimited
3-wire extension, rotary extension	10
Total line length	
– Extension unit	Max. 100 m
– Power cable	Max. 100 m

Clampable conductor cross-section

(see figure 3)

Installation depth

24 mm

			
<p>W 20...420</p>	<p>W/VA 20...420</p>	<p>W 3...100</p>	<p>W/VA 20...100</p>

- a Incandescent lamps, HV halogen lamps, electronic transformer with LV halogen lamps
- b Inductive transformer with LV halogen lamps
- c HV-LED lamps, compact fluorescent lamps
- d Electronic LED ballast with LED lamps; Inductive transformer with LED lamps

Table 1: lamp loads

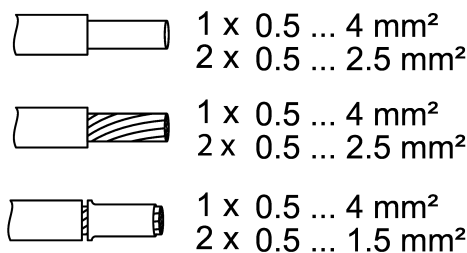


Figure 3: Clampable conductor cross-section

## 7 Troubleshooting

**Connected LED lamps or compact fluorescent lamps switch off in the lowest dimming position or flicker**

Cause: The set minimum brightness is too low.

Increase minimum brightness.

**Connected lamps do not switch on in the lowest dimming position or only after a delay**

Cause: The set minimum brightness is too low.

Increase minimum brightness.

**Connected LED lamps or compact fluorescent lamps flicker or buzz, no correct dimming possible, device buzzes**

Cause 1: Lamps are not dimmable.

Check manufacturer's instructions.

Exchange lamps for another type.

Cause 2: Operating mode (dimming principle) and lamps do not optimally match.

Check operation in another operating mode, reduce connected load as well if necessary.

Set the operating mode manually.

Exchange lamps for another type.

Cause 3: Dimmer is connected without neutral conductor.

Connect neutral conductor if possible, otherwise exchange lamp for another type.

### **Connected LED lamps or compact fluorescent lamps in the lowest dimming position are too bright; dimming range is too small**

Cause 1: The set minimum brightness is too high.

Reduce minimum brightness.

Cause 2: Operating mode (dimming principle) does not optimally match the connected HV-LED lamps.

Check operation in another operating mode, reduce connected load as well if necessary.

Set the operating mode manually.

Exchange HV-LED lamps for another type.

### **The dimmer switches the load off briefly and then on again.**

Cause: Short-circuit protection has tripped but now there is no longer a fault.

### **The dimmer has switched off and the load cannot be switched on again**

Cause 1: Overheating protection has tripped.

Disconnect dimmer from mains by switching off circuit breaker.

LED trailing edge phase control: Reduce the connected load. Exchange lamps for another type.

LED leading edge phase control: Reduce the connected load. Check operation in the LED trailing edge phase control setting. Exchange lamps for another type.

Let dimmer cool down for at least 15 minutes.

Switch circuit breakers and dimmer on again.

Cause 2: Overvoltage protection has tripped.

LED trailing edge phase control: Check operation in the LED leading edge phase control setting, reduce connected load as well if necessary.

Exchange lamps for another type.

Cause 3: Short-circuit protection has tripped.

Disconnect dimmer from mains by switching off circuit breaker.

Eliminate short-circuit.

Switch circuit breakers and dimmer on again.

- i Short-circuit protection is not based on a conventional fuse, no metallic separation of the operational current.

Cause 4: load failure.

Check load, replace lamp. For inductive transformers, check primary fuse.

**LED lamp is dimly lit when dimmer is switched off**

Cause: LED lamp is not optimally suited for this dimmer.

Use a compensation module, see accessories.

Use another type of LED lamp or an LED lamp of another manufacturer.

**Hotel card function is deactivated after changing cover**

Cause: A different cover than the 1-gang push-button cover was attached. Thereby, the hotel card function is automatically deactivated.

Attach the 1-gang push-button cover.

Activate the hotel card function again.

**8 Accessories**

Compensation module LED

Order no. 2375 00

**9 Warranty**

The warranty is provided by the specialist trade in accordance with statutory requirements. Please submit or send faulty devices postage paid together with a fault description to your responsible salesperson (specialist trade / installation company / electrical specialist trade). They will forward the devices to the Gira Service Center.

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