Dimmer mini universal LED
Art. No. : 1724DM

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.

Danger of electric shock. Always disconnect before carrying out work on the devise or load.

Danger of electric shock. Device is not suitable for disconnection from supply voltage. The load is not electrically isolated from the mains even when the device is switched off.

Risk of destruction if the set operating mode and load type do not match. Set correct operating mode 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 may be used.

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

2 Function

Intended use

- Switching and dimming of incandescent lamps, HV halogen lamps, electronic transformers for halogen or LED lamps, dimmable inductive transformers for halogen or LED lamps, HV-LED or compact fluorescent lamps
- Mounting in appliance box according to DIN 49073 in combination with a suitable cover
- Operation takes place with a 2-wire extension with button cover or push-button with NO contact.

Product characteristics

- 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
- Display of the set operating mode by means LED
- Device can be operated without neutral conductor
- Switch-on via bulb-preserving soft start
- Switch on with last saved brightness or saved switch-on brightness
- Switch-on brightness can be saved permanently
- Minimum brightness can be saved permanently
- Electronic short-circuit protection with permanent switch-off after 7 seconds at the latest
- Electronic over-temperature protection

i Flickering of the connected lamps due to undershoot of the specified minimum load or through centralised pulses from the power stations. This does not represent any defect in the device.

i Brief flickering upon load detection possible. No operation is possible during load detection.

i Power extension possible by means of power boosters. Do not connect any LED lamps or compact fluorescent lamps in combination with power boosters.

3 Operation

Switch light

- Press the button cover or push-button for less than 0.4 seconds.

Adjust the brightness

Light is switched on.

- Press the button cover at the top or the push-button for longer than 0.4 seconds.
  The light gets brighter up to maximum brightness.
- Press the button cover at the bottom or the push-button for longer than 0.4 seconds.
  Light gets darker to minimum brightness.

i Push-button: The dimming direction is changed with each new long actuation.

Switch light on with minimum brightness

- Press the button cover at the bottom or the push-button for longer than 0.4 seconds.

Saving a fixed switch-on brightness

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

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

i An push-button cannot be used to save the switch-on brightness.

Deleting fixed switch-on brightness

- Press the button cover briefly: Light switches on at the saved switch-on brightness.
- Press the button cover over entire surface for longer than 4 seconds.
  The fixed switch-on brightness is deleted. On switching on, the dimmer switches to the last set brightness value. For confirmation, the light is switched off briefly and switched on again.

i A push-button cannot be used to delete the switch-on brightness.

4 Information for electrically skilled persons

4.1 Fitting and electrical connection

DANGER!
Mortal danger of electric shock.
Disconnect the device. Cover up live parts.

Fitting and electrical connection

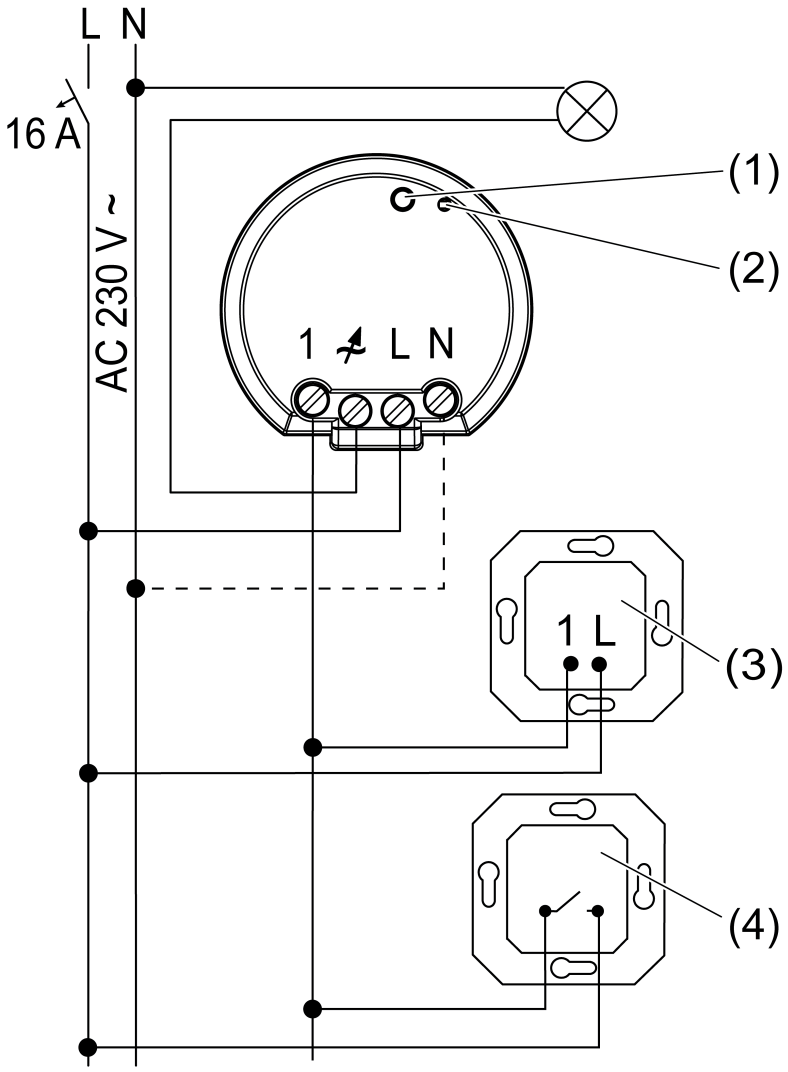

Figure 1: Connection diagram

(1) Button **Dimm-Mode**
(2) LED display
(3) Extension insert, 2-wire
(4) Push-button, NO contact

i Connect 600 Watt LED lamps or compact fluorescent lamps at most per 16 ampere circuit breaker.

i When connecting transformers, observe the data of the transformer manufacturer.

i The connected load and dimmer quality on LED lamps are dependent on the type of lamp and installation conditions. The connected load of the specified values could vary. We cannot assume any guarantee for proper function.

Operation without neutral conductor possible. There could be an increased likelihood of unsuitable combinations of dimmer and LED lamp.

Only connect illuminated push buttons if they have a separate N terminal.

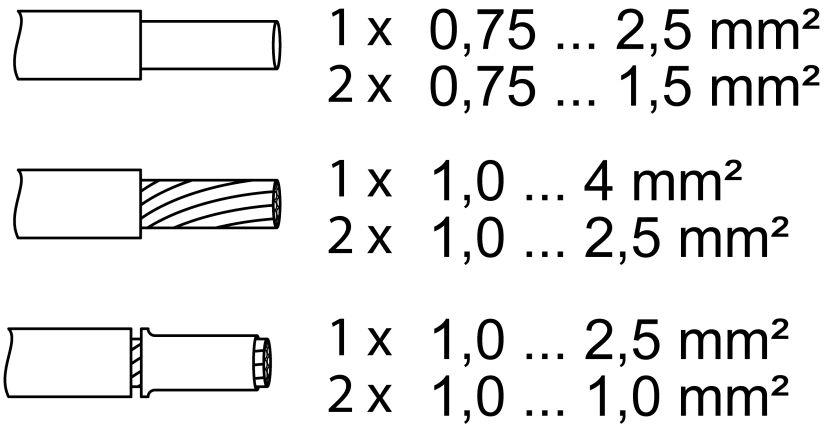

Figure 2: Clampable conductor cross-section

i The light can be switched by briefly pressing the **Dimm-Mode** button (1).

Reset the overheating protection / short-circuit protection

- Disconnect the dimmer from the mains supply.

Setting operating mode and minimum brightness

- Press the button **Dimm-Mode** (1) until LED (2) lights up.
- 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.
- Press the button **Dimm-Mode** (1) for longer than 4 seconds and keep it pressed.

  LED (2) flashes. Light switches on at the lowest brightness and slowly becomes brighter.

i When changing the operating mode to universal, the calibration to the load is first performed. Keep the **Dimm-Mode** button (1) pressed.

- Once the desired minimum brightness is reached, release the button **Dimm-Mode** (1).

  LED (2) lights up, operating mode and minimum brightness are set.

  If the button is not pressed after 30 seconds, the LED (2) goes out and the settings are saved.

i If the minimum brightness was set too brightly, press the button **Dimm-Mode** (1) for longer than 1 second. Light switches again to the lowest brightness and slowly becomes brighter.

4.2 Commissioning

Operating mode R,L,C,HV-LED, LED turns green

- Universal, preset at the factory
  Automatic calibration to the load, dimming principle, trailing edge phase control, leading edge phase control or LED leading edge phase control
- Incandescent lamps, HV halogen lamps, dimmable HV-LED or compact fluorescent lamps, dimmable electronic or inductive transformers for halogen or LED lamps.

HV-LED ⌒, LED turns red

i The connection of inductive transformers is not permitted.

- LED trailing edge phase control
  Incandescent lamps, HV halogen lamps, electronic transformers for halogen or LED lamps that can be dimmed according to the trailing edge phase control principle, dimmable HV-LED or compact fluorescent lamps that can be dimmed according to the trailing edge phase control principle.

HV-LED ⌓, LED turns blue

i The connection of inductive transformers is not permitted.

- LED leading edge phase control
  Incandescent lamps, electronic transformers for halogen or LED lamps that can be dimmed according to the leading edge phase control principle, HV halogen lamps or dimmable HV-LED or compact fluorescent lamps that can be dimmed according to the leading edge phase control principle.

Setting operating mode and minimum brightness

Precondition: Load is switched off.

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

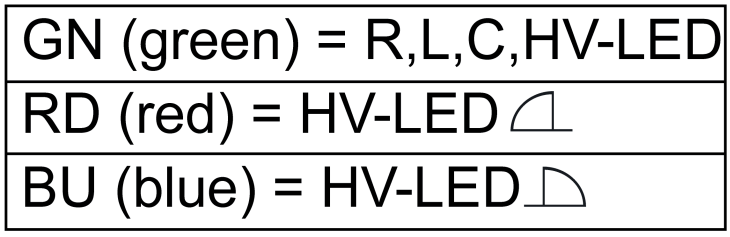

Figure 3: Assignment of LED colour to dimming principle

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

  LED (2) flashes. Light switches on at the lowest brightness and slowly becomes brighter.

i When changing the operating mode to universal, the calibration to the load is first performed. Keep the **Dimm-Mode** button (1) pressed.

- Once the desired minimum brightness is reached, release the button **Dimm-Mode** (1).

  LED (2) lights up, operating mode and minimum brightness are set.

i If the minimum brightness was set too brightly, press the button **Dimm-Mode** (1) for longer than 1 second. Light switches again to the lowest brightness and slowly becomes brighter.

- Save: Press the **Dimm-Mode** (1) button for less than 1 second or do not press for 30 seconds. The LED (2) goes out

Saving a fixed switch-on brightness

If operation occurs using the dimmer or push-button, then the fixed switch-on brightness is deleted or saved using the **Dimm-Mode** button (1). In the state as supplied, the fixed switch-on brightness is set to maximum brightness.

- Set light to the required brightness.
- Press the **Dimm-Mode** button (1) for longer than 4 seconds.

  Switch-on brightness is saved. For confirmation, the light is switched off briefly and switched on again.

Deleting fixed switch-on brightness

- Press the push-button briefly: Light switches on at the saved switch-on brightness.
- Press button **Dimm-Mode** (1) for longer than 4 seconds.

  The fixed switch-on brightness is deleted. On switching on, the dimmer switches to the last set brightness value. For confirmation, the light is switched off briefly and switched on again.

5 Appendix

5.1 Technical data

Rated voltage	AC 230 V ~
Mains frequency	50 / 60 Hz

Standby power	approx. 0.3 W
Power loss	approx. 2 W
Ambient temperature	-5 ... +45 °C

Connected load at 25 °C (figure 4)

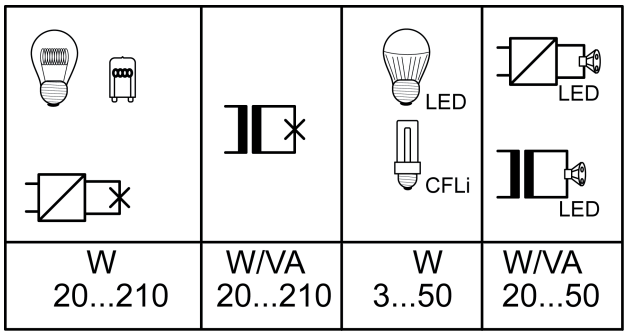

Figure 4

i Operating mode **HV-LED**⌐: Connection power for HV-LED lamps, typ. 3...100 W, electronic transformers with LV-LED typ. 20...100 W.

Mixed load

ohmic-capacitive	20 ... 210 W
capacitive-inductive	not permitted
ohmic-inductive	20 ... 210 VA
Ohmic and HV LED	typ. 3 ... 50 W
Ohmic and compact fl lamp.	typ. 3 ... 50 W

i Power specifications including transformer dissipation.

i Operate inductive transformers with at least 85% nominal load.

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

i 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	
Extension insert, 2-wire	unlimited
Unlit push-buttons	unlimited
Total length of extension unit cable	max. 100 m
Total length power cable	max. 100 m
Dimensions Ø×H	48×19.5 mm

5.2 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: Surge protection has triggered.

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 light bulb. For inductive transformers, check primary fuse.

LED lamp is dimly lit when dimmer is switched off

Cause: LED lamp is not suitable for this dimmer.

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

5.3 Warranty

The warranty follows about the specialty store in between the legal framework as provided for by law.

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