

**Universal dimmer insert sys**
**5TC1 230**
**Product and Applications Description**


The universal dimmer insert sys 5TC1 230 is a flush-mounted device for switching and dimming various electrical loads. Incandescent lamps, high voltage halogen lamps and low voltage halogen lamps with intermediate conventional or electronic transformers can be controlled.

The universal dimmer insert sys is automatically adjusted to the connected load and uses phase control or phase alignment depending on the load. The electrical loads are switched on using a softstart function which protects the lamps.

The pushbutton sys or pushbutton wave UP 210 (radio control) routes the commands required for the switching and dimming operations via the specific physical external interface (230V-PEI) to the universal dimmer insert sys. An unlimited number of conventional pushbuttons can be connected via the extension unit input for further operations. Furthermore, the device can be switched on with an adjustable brightness value (memory value). When the device is supplied, the memory value corresponds to the maximum light intensity.

**Operation**

The operation of the pushbutton sys or wave UP 210 can be carried out at the TOP, BOTTOM or in the CENTRE (i.e. TOP and BOTTOM simultaneously). Switching, dimming and memory functions are available.

**Switching** (Actions shorter than 0.4s):

TOP	TOGGLE (i.e. OFF or ON with saved memory value)
BOTTOM	TOGGLE
CENTRE	TOGGLE

**Dimming** (Actions longer than 0.4s and shorter than 3s):

TOP	Dimming BRIGHTER up to max. light intensity
BOTTOM	Dimming DARKER down to min. light intensity
CENTRE	TOGGLE

**Memory function** (Actions longer than 3s and shorter than 10 s):

TOP	Dimming BRIGHTER up to max. light intensity
BOTTOM	Dimming DARKER down to min. light intensity
CENTRE	Storing of the current value of light intensity as a memory value; this is confirmed by the dimmer insert sys by switching the connected loads OFF briefly and then ON again.

**Radio control function** (Actions longer than 10s):

CENTRE	See the operating and mounting instructions for pushbutton wave UP 210.
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**Conventional pushbuttons at the extension unit input:**

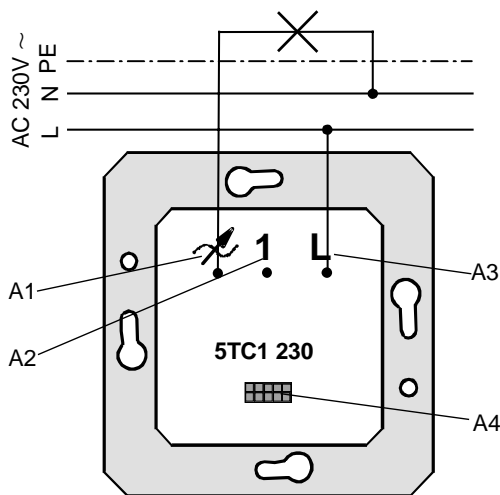
- After short pushbutton actions (shorter than 0.4s), the load is TOGGLED.
- After long pushbutton actions (longer than 0.4s), dimming BRIGHTER (up to max. light intensity) or DARKER (down to min. light intensity).

**Note:**

If the pushbutton sys or wave UP 210 is used, the detailed functions are taken from the relevant operating and mounting instructions.

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**Example of Operation**



- A1 Load connection
- A2 Extension unit input
- A3 Phase conductor terminal
- A4 Physical external interface (230V-PEI)

**Installation Instructions**

**Caution:**

The device may be used for permanent interior installations in dry rooms and for insertion in flush-type boxes.



**WARNING**

- The device must be mounted and commissioned by an authorised electrician.
- The device must not be opened.
- When connecting the device, a safety disconnection must be possible.
- No switching operations may be carried out at the load output.
- The device may be mounted in switch and socket combination box mounts provided that only VDE-certified devices are used.
- The prevailing safety and accident regulations must be observed.

**Technical Specifications**

**Power supply**

via 230V mains connection (2-conductor technology)  
 Rated voltage: AC 230V, 50Hz

**Short-circuit protection**

The universal dimmer is disconnected in the event of a short circuit. After clearing the short circuit (voltage recovery), the universal dimmer switches automatically to the light intensity value which was last set before the short circuit occurred.

**Overload protection**

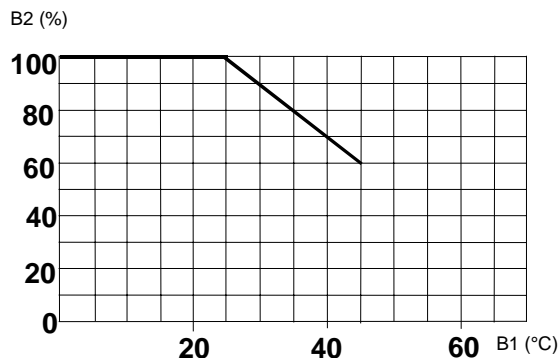
The universal dimmer is disconnected for at least 2 minutes in the event of an overload if the permitted maximum temperature is exceeded. The current setpoint is automatically enabled once the temperature has dropped.

**Load output**

- Number: 1
- Rated voltage: AC 230V, 50Hz
- Rated load (up to 25°C ambient temperature):
  - Incandescent lamp load: 50 – 420W
  - Conventional transformers: 50 – 420VA
  - Electronic transformers: 70 – 420VA

**Caution:**

- Conventional transformers may only be used if they are VDE-certified and have a thermal fuse.
- The operation of conventional, dimmable transformers in open circuit is not permitted during commissioning or normal operation, as it can otherwise lead to the device being damaged (even when the dimmer is switched off). Defect lamps must be replaced immediately.
- Only mixed loads between incandescent lamp loads and electrical transformers are allowed.
- The connection of energy saving lamps is not allowed.
- Maximum terminal power at ambient temperature:



- B1 Ambient temperature [°C]
- B2 Relative connected load [%]



**WARNING**

Depending on the conditions of use, the maximum connected load must be reduced:  
 - by 20% for insertion in wood, plaster or cavity walls  
 - by 20% for insertion in multiple combinations

**Universal dimmer insert sys****5TC1 230****Behaviour on mains voltage recovery**

In the event of mains voltage recovery, the universal dimmer switches to the dimming value which was selected prior to the mains voltage failure. During this period, the universal dimmer is automatically brought into the load. The adaptation process can be detected by a brief flickering.

**Connections**

The connections of the universal dimmer insert sys consist of three screw terminals.

Permissible conductor types/ cross- sections:

- 0.5 ... 2.5mm<sup>2</sup> single core
- 0.5 ... 1.5mm<sup>2</sup> flexible conductor with connector sleeve without an insulating collar (gas-tight connection)

**Caution:**

If the conductors need to be looped through, only conductors with max. 1.5mm<sup>2</sup> can be used.

**Mechanical specifications**

- Housing: plastic
- Dimensions:
  - Spacer units: 71 x 71mm
  - Mounting depth: 32mm
- Weight: approx. 70g (mounting hanger included)
- Fire load: approx. 1000 kJ
- Mounting: Mounting in box mounts 60 mm Ø, 40mm depth in accordance with DIN 49073-1

**Electrical safety**

- Pollution degree (according to IEC 60664-1): 2
- Protection (according to EN 60529): IP 20
- Overvoltage class (according to IEC 60664-1): III
- Device complies with EN 60669-2-1

**Electromagnetic compatibility**

complies with EN 60669-2-1, EN 61000-6-3, EN 61000-6-1

**Environmental specifications**

- Climatic conditions: EN 50090-2-2
- Ambient operating temperature: - 5 ... + 45°C
- Storage temperature: - 25 ... + 70°C
- Relative humidity (non-condensing): 5% to 93%

**Certification**

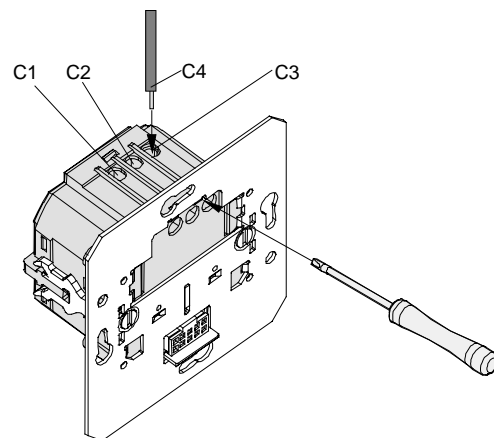
VDE certificate in preparation

**CE norm**

complies with the EMC regulations (residential buildings), low voltage regulations

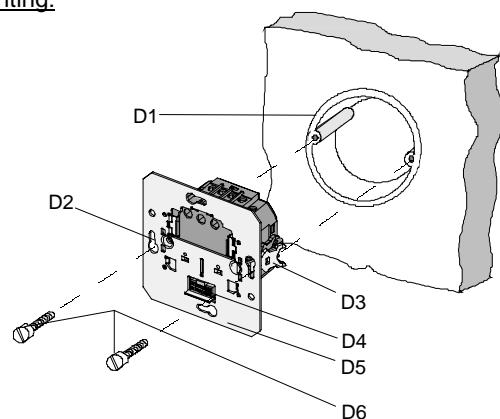
**Mounting and Wiring**

Remove approx. 6...7mm of insulation from the conductors and secure in place in the relevant screw terminals.

**Wiring:**

- C1 Load connection
- C2 Extension unit input
- C3 Phase conductor terminal
- C4 Conductor

The universal dimmer insert sys is designed to be mounted in switch boxes with Ø 60 mm and 40 mm depth using screw or claw fixing.

**Mounting:**

- D1 Switch box (60 mm Ø, in accordance with DIN 49073-1)
- D2 Long mounting slots
- D3 Mounting claws
- D4 Physical external interface (230 V - PEI)
- D5 Universal dimmer insert sys
- D6 Mounting screws

The user interfaces (e.g. DELTA pushbuttons sys) are attached to the universal dimmer insert sys by means of guiding and mounting springs.

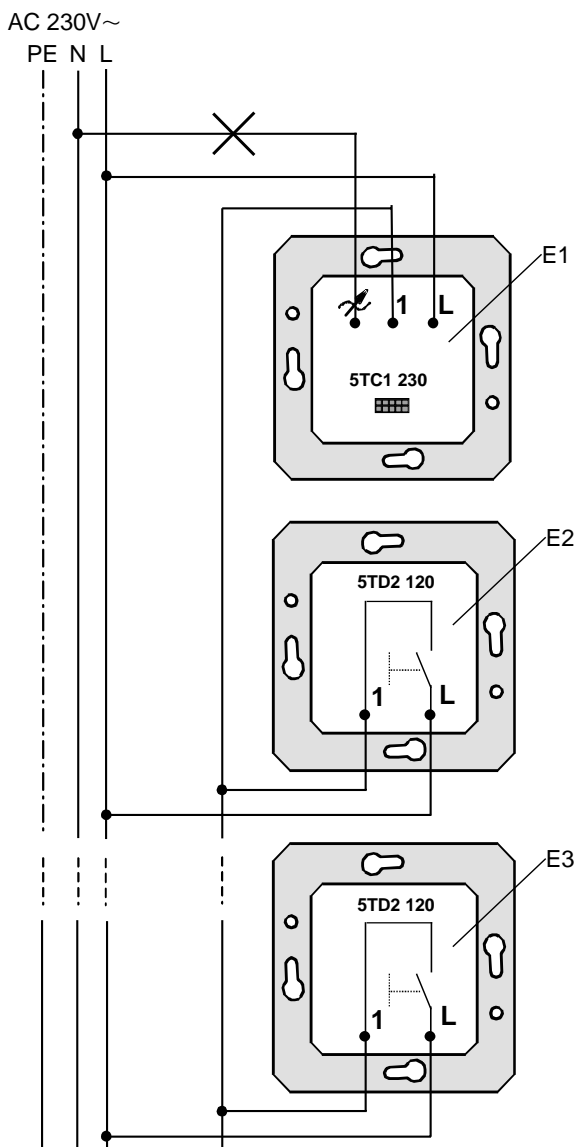
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**Caution:**

- The universal dimmer insert sys must be mounted with the correct orientation of the user interfaces in accordance with mounting.
- At the extension unit input of the universal dimmer a maximum wire length of 50 meters can be connected.

**Examples of applications**

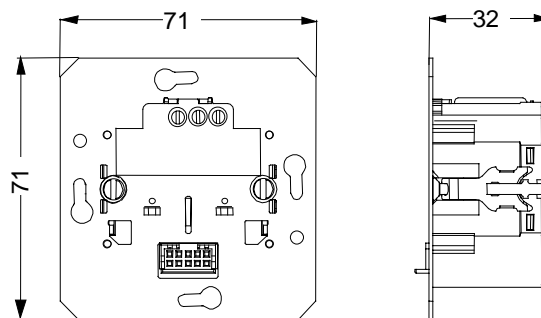
Universal dimmer with conventional extension units:



- E1 Universal dimmer insert sys
- E2 Conventional extension unit
- E3 Further conventional extension unit

**Dimensions Diagram**

Dimensions in mm



**General notes**

- Any faulty devices should be returned to the local Siemens office.
- If you have further questions concerning the product please contact our technical support:

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 📞 +49 (0) 180 50 50-223  
 ✉ [adsupport@siemens.com](mailto:adsupport@siemens.com)