

**Shutter control insert sys**
**5TC1 231**
**Product and Applications Description**


The shutter control insert sys 5TC1 231 is a flush-mounted device for controlling shutter and blind motors with mechanical or electronic limit switches.

It is composed of two relays which are electrically interlocked and protect the shutter motor from being damaged by implementing both directions of movement (UP and DOWN) simultaneously. Via the two extension unit inputs, both conventional shutter pushbuttons or shutter switches and additional shutter control inserts sys for group and master control can be integrated into the shutter control system. Furthermore, the "Wind alarm" function can be enabled via the extension unit input "UP". The design of the shutter control insert allows multi-phase mode operation (i.e. different phases for master and extension unit) whenever you require.

The pushbutton sys shutter and pushbutton wave shutter UP 211 (radio control) route the commands required for operating the shutters and blinds to the shutter control insert via the specific 230 V physical external interface (230V-PEI).

**Operation**

The pushbutton actions of the pushbutton sys shutter or wave shutter UP 211 can be carried out at the TOP or BOTTOM. The commands UP, DOWN and STEP (i.e. stop or stepwise movement of the louvres OPEN/CLOSED) are available.

STEP command (Actions shorter than 0.4 s):

TOP	STOP / louvres OPEN
BOTTOM	STOP / louvres CLOSED

UP/DOWN command (Action longer than 0.4 s):

TOP	UP movement command
BOTTOM	DOWN movement command

Conventional pushbuttons at the extension unit input in connection with wave shutter/blind pushbutton:

- After short pushbutton actions (shorter than 0.4 s), the STEP command is executed i.e. STOP / louvre OPEN/ CLOSED.
- After long pushbutton actions (longer than 0.4 s), the UP/ DOWN movement command is carried out.

Conventional pushbutton at secondary input in connection with shutter/blind sys pushbutton:

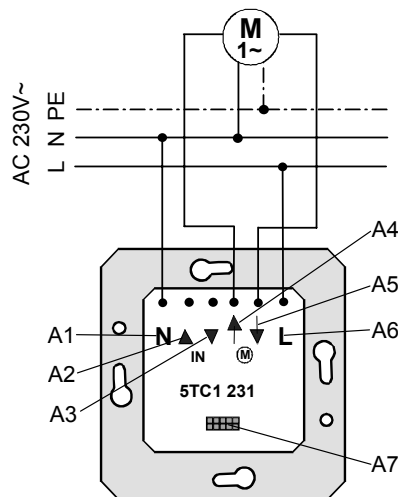
- The duration of the actuation is forwarded directly to the relay. This does not trigger a maintained function for the travel command.

**Operational priorities:**

- (1) Extension unit UP
- (2) Local UP/DOWN
- (3) Time automatic
- (4) Extension unit DOWN

**Note:**

If the pushbuttons sys shutter or wave shutter UP 211 are used, the detailed functions are taken from the relevant operating and mounting instructions.

**Example of Operation**


- A1 Neutral conductor
- A2 Extension unit input UP
- A3 Extension unit input DOWN
- A4 Motor UP
- A5 Motor DOWN
- A6 Phase conductor terminal
- A7 Physical external interface (230V-PEI)

## Installation Instructions

### Caution:

- The device may be used for interior installations, in dry rooms and for insertion in flush-type boxes.
- When connecting the device, the connecting cables of the extension units must not be laid in parallel to the motor cables.
- The device does not work without the attachment unit.



### 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.
- The extension units of a device must be operated via the same outer conductor.
- The device may be mounted in switch and socket combination box mounts provided that only VDE-certified devices are used.
- The device is to be protected by a miniature circuit-breaker of characteristic A or B with a max. rated current of 10 A.
- The prevailing safety and accident regulations must be observed.

## Technical Specifications

### Power supply

via the 230 V mains connection

Rated voltage: AC 230 V, 50 Hz

Miniature circuit-breaker: max. 10 A,  
characteristic A or B

### Outputs

- Number: 1 output channel (UP/DOWN)
- Rated voltage: AC 230 V, 50 Hz
- Switching power: 1 motor, 1000 VA
- Max. operating time of the relay: 120 s
- Switching delay between UP and DOWN movement: 1 s
- Operating time for relay for STEP commands: 100 ms
- Mains interruptions which are shorter than 0.2 s are bridged

### Connections

The connections of the shutter control insert sys consist of six screw terminals.

Permissible conductor types / cross-sections:

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

### Caution:

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

### Mechanical specifications

- Housing: plastic
- Dimensions:  
Spacer units: 71 x 71 mm, mounting depth: 3 mm
- Weight: approx. 75 g
- Fire load: approx. 1000 kJ
- Mounting: insertion in switch boxes with Ø 60 mm, 40 mm depth according to DIN 49073-1

### Electrical safety

- Pollution degree (according to IEC 60664-1): 2
- Protection (according to EN 60529): IP 20
- Overvoltage category (according to IEC 60664-1): III
- Relay with  $\mu$  contact
- The 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

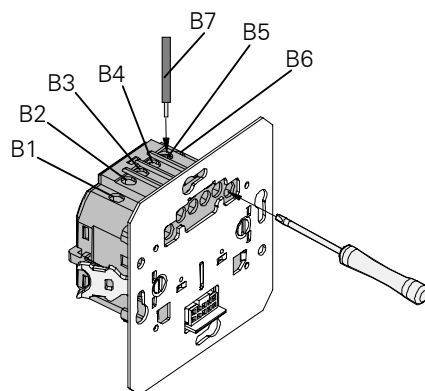
VDE certificate has been applied for

### CE norm

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

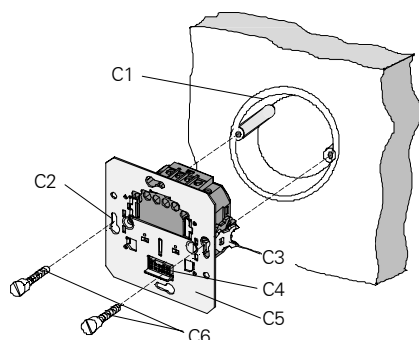
**Shutter control insert sys****5TC1 231****Mounting and Wiring**

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

Wiring:

- B1 Neutral conductor
- B2 Extension unit connection UP
- B3 Extension unit connection DOWN
- B4 Motor UP
- B5 Motor DOWN
- B6 Phase conductor terminal
- B7 Conductor

The shutter control insert sys is designed to be mounted in switch boxes with  $\varnothing$  60 mm and minimum depth 40 mm using screws or claw fixing.

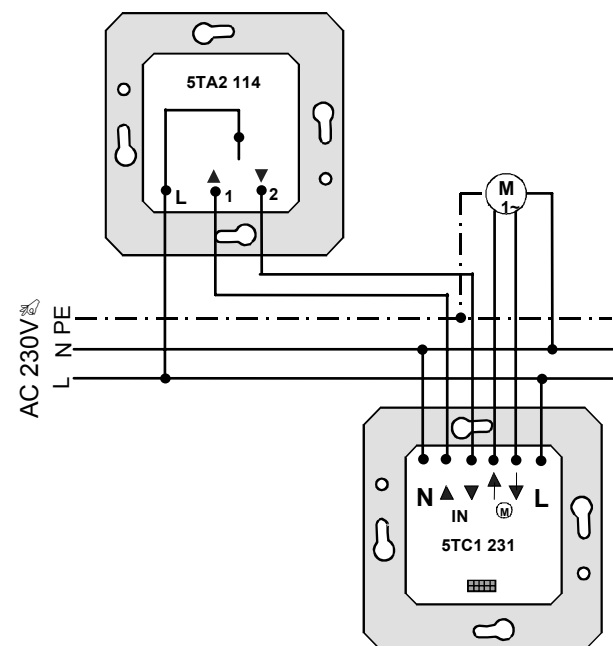
Mounting:

- C1 Switch box (60 mm  $\varnothing$ , in accordance with DIN 49073-1)
- C2 Long mounting slots
- C3 Mounting claws
- C4 Physical external interface (230V-PEI)
- C5 shutter control insert sys
- C6 Mounting screws

The user interfaces (e.g. DELTA pushbuttons sys shutter) are attached to the shutter control insert using guiding and mounting springs.

**Caution:**

The shutter control insert sys must be mounted with the correct orientation of the user interfaces in accordance with diagram mounting.

**Examples of Applications**Shutter control with conventional extension units:

If the shutter pushbutton (5TA2 114) is used, the shutter can be controlled manually (UP/DOWN or STEP command) to move it to the desired position. An unlimited number of conventional extension units can be connected.

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Group control with two motors and master unit

The shutter control insert sys (E1) is used together with the pushbutton wave shutter UP 211 as a master unit. The inserts (E2) and (E3) are used for controlling the shutter motors M1 and M2 individually. It is possible to move all connected actuators up or down based on the time values (e.g. 8:00 o'clock UP and 20:00 o'clock DOWN command) stored via the pushbutton wave shutter UP 211.

**Caution:**

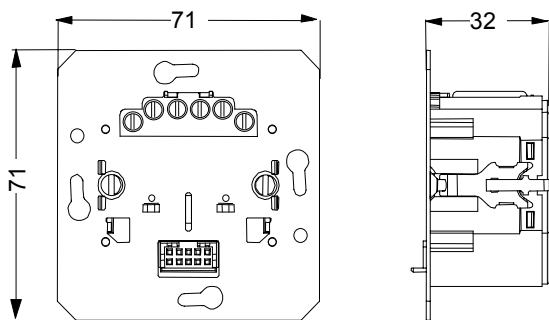
If the central operating unit is fused via a separate fault-current protective switch (FI), the two circuits must be isolated to avoid triggering the fault-current protective switch accidentally.

Integration of the wind alarm system

The detector (E4) of the wind alarm is integrated into the shutter control system via the extension unit input UP. If a wind alarm is reported, the shutters are moved upwards and remain blocked until the wind alarm is reset via the detector. The shutter cannot be operated manually or automatically when the locking function is active.

**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:
  - ☎ +49 (0) 180 50 50-222
  - ☎ +49 (0) 180 50 50-223
  - ✉ [adsupport@siemens.com](mailto:adsupport@siemens.com)

