19/2 General
19/4 Switches and Pushbuttons
19/11 Socket Outlets
19/13 Dimmers
19/28 Motion Detectors
19/43 Shutter/Blind Controls
19/57 Room Temperature Controllers
19/60 Communication
19/63 TV/RF/SAT
19/64 International Plug-and-Socket Devices
19/64 Remote Controls
Overview

**IP degrees of protection according to DIN VDE 0470 Part 1, EN 60529, IEC 529**

The degree of protection is indicated by the two code letters IP (International Protection) followed by two code numbers, which denote the degree of protection according to the two tables shown below.

If only one code number for the degree of protection is specified after the IP (often the case on installation material), an X replaces the omitted code number, e.g. IPX4 or IP6X. The term for the complete identification symbol (code letter and protection level code number) is “degree of protection”.

<table>
<thead>
<tr>
<th>First code number</th>
<th>Brief description</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not protected</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>Protected against contact with dangerous parts with the back of a hand</td>
<td>The access probe, ball 50 mm diameter, must have sufficient distance from dangerous parts</td>
</tr>
<tr>
<td></td>
<td>Protected against hard foreign objects more than 50 mm in diameter</td>
<td>Limited ingress of object probe, ball 50 mm diameter</td>
</tr>
<tr>
<td>2</td>
<td>Protected against contact with dangerous parts with fingers</td>
<td>The jointed test finger, 12 mm diameter, 80 mm in length, must have sufficient distance from dangerous parts</td>
</tr>
<tr>
<td></td>
<td>Protected against hard foreign objects more than 12.5 mm in diameter</td>
<td>Limited ingress of object probe, ball 12.5 mm diameter</td>
</tr>
<tr>
<td>3</td>
<td>Protected against contact with dangerous parts with tools</td>
<td>No ingress at all of access probe, 2.5 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Protected against hard foreign objects more than 2.5 mm in diameter</td>
<td>No ingress at all of object probe, 2.5 mm diameter</td>
</tr>
<tr>
<td>4</td>
<td>Protected against contact with dangerous parts with a wire</td>
<td>No ingress at all of access probe, 1.0 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Protected against hard foreign objects more than 1.0 mm in diameter</td>
<td>No ingress at all of object probe, 1.0 mm diameter</td>
</tr>
<tr>
<td>5</td>
<td>Protected against contact with dangerous parts with a wire</td>
<td>No ingress at all of access probe, 1.0 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Dust-protected</td>
<td>The ingress of dust cannot be completely prevented, but limited ingress that will not affect reliable operation of the device or interfere with safety</td>
</tr>
<tr>
<td>6</td>
<td>Protected against contact with dangerous parts with a wire</td>
<td>No ingress at all of access probe, 1.0 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Dust-proof</td>
<td>No ingress of dust</td>
</tr>
</tbody>
</table>

1) The full diameter of the object probe must not pass through an opening of the enclosure.

The second code number (see table) specifies the degree of protection offered by the enclosure with regard to damage to equipment due to the ingress of water.

<table>
<thead>
<tr>
<th>Second code number</th>
<th>Brief description</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not protected</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>Drip-proof</td>
<td>Vertically falling drops must not have any damaging effects</td>
</tr>
<tr>
<td>2</td>
<td>Drip-proof, if the enclosure is inclined up to 15° from normal position</td>
<td>Vertically falling drops must not have any damaging effect if the enclosure is tilted at an angle of up to 15° either side of the vertical</td>
</tr>
<tr>
<td>3</td>
<td>Protected against splashwater</td>
<td>Sprays up to 60° on both sides of the vertical must not cause any damage</td>
</tr>
<tr>
<td>4</td>
<td>Protected against splashwater</td>
<td>Water sprayed against the enclosure from all direction must not cause any damage</td>
</tr>
<tr>
<td>5</td>
<td>Protected against jet-water</td>
<td>Low pressure jets of water against the enclosure from all direction must not cause any damage</td>
</tr>
<tr>
<td>6</td>
<td>Protected against heavy jet-water</td>
<td>Strong jets of water against the enclosure from all direction must not cause any damage</td>
</tr>
<tr>
<td>7</td>
<td>Protected against the effects of temporary immersion in water</td>
<td>Water must not ingress to a degree that damage is caused when the enclosure is immersed in water under standardized pressure and timed periods under conditions to be agreed between the manufacturer and user.</td>
</tr>
</tbody>
</table>
| 8                  | Protected against the effects of continual submersion in water | Water must not ingress to a degree that damage is caused when the enclosure is immersed in water under conditions to be agreed between the manufacturer and user. However, the conditions must be more difficult than for the code number 7.
## Overview

| Approval mark for Germany (Verband Deutscher Elektrotechniker - Association of German Electrical Engineers) |
| Approval mark for Switzerland |
| Approval mark for the Netherlands |
| Approval mark for Canada |
| Approval mark for USA |
| Total insulation, Safety Class II |
| IP44 | Protection against foreign bodies and splashwater |
| IP55 | Dust-protected, protection against foreign objects and jet-water |
| IP66 | Dust-proof, protection against foreign objects and strong jet-water |
| Suitable for harsh operating conditions according to DIN 49441 |
| Incandescent lamps |
| Low-voltage halogen lamps |
| High-voltage halogen lamps |
| Fluorescent lamps |
| Conventional transformers |
| Electronic transformers |
| SV (AEV) | Safety power supply (diesel generator set DIN VDE 0107) |
| ZSV (BEV) | Additional safety power supply (battery-supported DIN VDE 0107) |
| WSV (BEV) | Other safety power supply |
| Registered trademark of the SCHUKO-Warenzeichensverband e. V. |
| Fire-retarding according to DIN VDE 0606, corresponds to the guidelines of the Verband der Sachversicherer (Association of Property Insurers) for mounting on wood |
| Can be installed in cavity walls |
| Can be installed in furniture |
| EIB | Registered trademark of the European Installation Bus Association, Brussels |
Technical Information

Switches and Pushbuttons

Overview

Maximum permissible lamp loads for switch inserts

Number of operations: 50,000

<table>
<thead>
<tr>
<th>Type of lamp</th>
<th>Connection method</th>
<th>Power per lamp</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incandescent lamps</td>
<td></td>
<td>100 W</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>58 W</td>
<td></td>
</tr>
<tr>
<td>Fluorescent lamps 1)</td>
<td>Uncorrected</td>
<td>36 W</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Parallel p.f. corrected</td>
<td>36 W</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>DUO circuit</td>
<td>36 W</td>
<td>21 x 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>58 W</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>ECG 2)</td>
<td>36 W</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>58 W</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 x 36 W</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 x 58 W</td>
<td>9</td>
</tr>
</tbody>
</table>

1) Incandescent lamps were cooled during the test.

Universal switches (5TA2 156)

Schematics

Glow lamps/LED light inserts for orientation

Order No. of insert: 5TA2 156
Order No. of glow lamp: STG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)
Glow lamps/LED light inserts for orientation

Order No. of inserts:
5TA2 156/STA2 117/STA2 156
Order No. of glow lamps: 5TG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)

ON/OFF switches, 1-pole, (5TA2 151)

Glow lamps/LED light inserts for orientation

Order No. of inserts: 5TA2 151
Order No. of glow lamps: 5TG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)

ON/OFF switches, 2-pole

Glow lamps/LED light inserts for orientation

Order No. of inserts: 5TA2 112, 10 A and 5TA2 162, 16 A
Order No. of glow lamps: 5TG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)
Switches and Pushbuttons

Switches with pilot lamp for ON/OFF switching (5TA2 150)

Order No. of inserts, complete with lighting:
- 5TA2 150

Switches with pilot lamp for two-way switching (5TA2 108)

Order No. of inserts:
- 5TA2 156 (two-way switch)
- 5TA2 108 (control two-way switches)

5TA2 108 inserts, complete with lighting

Order No. of inserts:
- 5TA2 108 (control two-way switch)

5TA2 108 inserts, complete with lighting
### Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational voltage</td>
<td>230 V AC ±10 %</td>
</tr>
<tr>
<td>Rated current</td>
<td>6 A</td>
</tr>
<tr>
<td>Mains frequency</td>
<td>40 ... 60 Hz</td>
</tr>
<tr>
<td>Main circuit</td>
<td>See section Switches/Maximum permissible lamp load for switch inserts (see page 19/4)</td>
</tr>
<tr>
<td>Delay circuit</td>
<td></td>
</tr>
<tr>
<td>• Fan</td>
<td>200 VA</td>
</tr>
<tr>
<td>• Delay time</td>
<td>0.5 ... 15 min</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>–10 ... +45 °C</td>
</tr>
<tr>
<td>Spare fuse</td>
<td>T 1.6 A, 250 V</td>
</tr>
</tbody>
</table>

### Schematics

#### Function of delay timer

The lighting and fan are switched on simultaneously. Once the lighting is switched off, the fan continues running for the time set at the delay timer after which it switches off automatically.

#### Installation in flush-mounting switch boxes

**Basic circuit**

![Basic circuit diagram](image1)

Order No. of inserts: 5TT1 210
Order No. of spare fuses: 5TG8 302

**Installation in flush-mounting branching boxes**

![Installation diagram](image2)

Two-way switching
Order No. of inserts: 5TT1 211
Order No. of spare fuses: 5TG8 302
ON/OFF switch or two-way switch required
Technical Information

Switches and Pushbuttons

Timers (5TT1 200)

Overview

The electric flush-mounting timer can be used to replace an ON/OFF switch. Control with parallel pushbuttons not possible. The connections can be reversed without influencing the function of the switch. No connection required for neutral conductor (N). Can be reset to full time setting.

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational voltage</td>
<td>230 V AC ±10 %</td>
</tr>
<tr>
<td>Mains frequency</td>
<td>40 … 60 Hz</td>
</tr>
<tr>
<td>Time setting</td>
<td>1 … 6 min</td>
</tr>
<tr>
<td>Incandescent lamp rating</td>
<td>200 W</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>–10 … +45 °C</td>
</tr>
<tr>
<td>Spare fuse</td>
<td></td>
</tr>
<tr>
<td>Order number</td>
<td>5TG8 302</td>
</tr>
<tr>
<td>Type</td>
<td>T 1.6 A, 250 V</td>
</tr>
</tbody>
</table>

Schematics

Basic circuit

Application parallel to an ON/OFF switch

Application in an existing two-way circuit

Dusk switches (5TT3 303)

Dimensional drawings
**Double two-way switches (5TA2 118)**

**Schematics**

**Double two-way circuit**

Order No. of inserts: 5TA2 156/5TA2 118/5TA2 156

**Double two-way circuit with two double two-way switches**

Order No. of inserts: 5TA2 118/5TA2 118

**Two-circuit switches (5TA2 155)**

**Schematics**

Order No. of inserts: 5TA2 155

Order No. of glow lamps: 5TG7 332

Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and Spare Parts (Page 11/19)

**Pushbuttons, 1 NO contact (5TD2 120)**

**Schematics**

Order No. of inserts: 5TD2 120

Order No. of glow lamps: 5TG7 332

Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)
**Technical Information**

**Switches and Pushbuttons**

**Pushbuttons, 1 CO contact, with separate neutral terminal (5TD2 117)**

**Schematics**

Order No. of inserts: STD2 117
Order No. of glow lamps: 5TG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)

**Pushbuttons, separate check-back indication (STD2 114)**

**Schematics**

Order No. of inserts: STD2 114
Order No. of glow lamps: 5TG7 332
Order No. of LED light inserts: see section Switching/Pushbutton Control/Dimming/Accessories and spare parts (Page 11/19)

**Pushbuttons, double, 1 NO contact, 1 CO contact (STD2 115)**

**Schematics**

Order No. of inserts: STD2 115
Technical Information
Switches and Pushbuttons

Pushbuttons, double, 2 NO contacts (5TD2 111)

Schematics

Order No. of inserts: 5TD2 111

Socket Outlets

SCHUKO socket outlets with status display

Schematics
Overview
For the protection of electronic devices against overvoltages (in overvoltage category II according to DIN VDE 0110-1).
Surge arresters of requirement category D according to DIN VDE 0675-6 and 0675-6/A1:1996-03.
Features:
- Overvoltage protection with monitoring device and disconnector
- Visual function indicator (glow lamp, green)
- Visual fault display (glow lamp red, no disconnection)
- With retaining ring for installation in switch boxes (60 mm Ø, 40 mm deep)

Technical specifications

<table>
<thead>
<tr>
<th>Tested</th>
<th>E DIN VDE 0675-6; EN 61643-11 and IEC 61643-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage $U_N$</td>
<td>230 V/50 Hz</td>
</tr>
<tr>
<td>Surge arrester rated voltage $U_C$</td>
<td>255 V/50 Hz</td>
</tr>
<tr>
<td>Rated discharge current (8/20) $I_{IN}$</td>
<td>L (N) -&gt; PE, L 3 kA, L + N -&gt; PE 5 kA</td>
</tr>
<tr>
<td>Combined surge $U_{DC}$</td>
<td>L (N) -&gt; PE, L 6 kV, L + N -&gt; PE 10 kV</td>
</tr>
<tr>
<td>Protection level $U_p$</td>
<td>L -&gt; N ≤ 1.5 kV, L(N) -&gt; PE ≤ 1.5 kV</td>
</tr>
<tr>
<td>Response time $t_A$</td>
<td>L -&gt; N 25 ns, L(N) -&gt; PE 100 ns</td>
</tr>
<tr>
<td>Series fuse</td>
<td>16 A gL/gG or B 16 A</td>
</tr>
<tr>
<td>Temperature range $J$</td>
<td>–25 … +40 °C</td>
</tr>
<tr>
<td>Terminals</td>
<td>3 double terminals, each up to 2.5 mm², also suitable for through-wiring</td>
</tr>
</tbody>
</table>

SCHUKO socket outlets with residual-current protection

Schematics
Overview

Leading-edge phase principle
Conventional dimmers operate using the leading-edge phase principle. At the beginning of each sinusoidal half-wave, the dimmer blocks the current to the lamp, it is non-conducting. The TRIAC (the electronic switch in the dimmer) is only connected after startup of a user-definable delay time $t_z$, which energizes the connected loads. In this way, the brightness of the connected lighting medium can be infinitely adjusted. The interference voltages produced by the switching operation are dampened by means of suitable filtering measures.

Trailing-edge phase principle
For this purpose, the load is switched on during the zero crossing of each sinusoidal half-wave and switched off again on expiration of the time $t_z$. This allows changes to the r.m.s. value of the lamp voltage, and thus the brightness. No interference voltages are produced when switching on because the voltage has the value zero. When turning off, any resonance points are dampened, as the full load of the transformers is effective at this point.

No need for additional systems for noise suppression. There is no occurrence of the dreaded resonance points with their unpleasant humming or flickering.

Schematics

Rotary dimmers for ON/OFF and two-way switching (leading-edge or trailing-edge phase), 50 to 600 W, 50/60 Hz, 230 V AC, incandescent lamps

Sensor dimmers for ON/OFF, two-circuit and two-way switching with and without memory function, 20 to 400 W, 50/60 Hz, 230 V AC incandescent lamps, leading-edge phase
**Technical Information**

**Dimmers**

**General**

*Sensor dimmers for ON/OFF, two-circuit and two-way switching with and without memory function, 20 to 300 VA, 50/60 Hz, 230 V AC, low-voltage halogen lamp with conventional transformer*

![Diagram](image1)

Application in ON/OFF circuit (ON/OFF switching and dimmer control from one point)

*Rotary dimmers for low-voltage halogen lamps with magnetic transformer, for two-way switching (5TC8 283)*

![Diagram](image2)

For the protection of transformers, we recommend a miniature fuse (corresponding to the transformer rating)

*Rotary dimmers for ON/OFF and two-way switching, 20 to 525 W, 50 Hz, 230 V AC, low-voltage halogen lamp for electronic transformer, trailing-edge phase*

![Diagram](image3)

All dimmers with ON/OFF and pushbutton two-way switching can be used

![Diagram](image4)

Only dimmers with pushbutton two-way switching can be used
**Technical Information**

**Dimmers**

**sys pushbuttons**

---

### Technical specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Over 230-V-user interface (230 V PEI) of the switch or sys dimmer insert</td>
</tr>
<tr>
<td><strong>Terminals</strong></td>
<td>10-pole pin connector (230 V PEI) for connection to the switch or sys dimmer insert</td>
</tr>
<tr>
<td><strong>Mechanical specifications</strong></td>
<td></td>
</tr>
<tr>
<td>• <strong>Enclosure</strong></td>
<td>Plastic</td>
</tr>
<tr>
<td>• <strong>Dimensions (L x W x D)</strong></td>
<td>DELTA line/vita/miro 55 x 55 x 24 mm (incl. spring)</td>
</tr>
<tr>
<td></td>
<td>DELTA profil 65 x 65 x 25 mm (incl. spring)</td>
</tr>
<tr>
<td></td>
<td>DELTA style 68 x 68 x 27 mm (incl. spring)</td>
</tr>
<tr>
<td>• <strong>Weight</strong></td>
<td>Approx. 30 g</td>
</tr>
<tr>
<td>• <strong>Fire load</strong></td>
<td>Approx. 950 kJ</td>
</tr>
<tr>
<td>• <strong>Mounting</strong></td>
<td>Mounted on the switch or sys dimmer insert</td>
</tr>
<tr>
<td><strong>Electrical safety</strong></td>
<td></td>
</tr>
<tr>
<td>• <strong>Pollution degree (acc. to IEC 60664-1)</strong></td>
<td>2</td>
</tr>
<tr>
<td>• <strong>Degree of protection (acc. to EN 60529)</strong></td>
<td>IP20</td>
</tr>
<tr>
<td>• <strong>Overvoltage category (acc. to IEC 60664-1)</strong></td>
<td>III</td>
</tr>
<tr>
<td><strong>EMC requirements</strong></td>
<td>According to EN 50090-2-2 and IEC 60664-1</td>
</tr>
<tr>
<td><strong>Environmental specifications</strong></td>
<td></td>
</tr>
<tr>
<td>• <strong>Resistance to climate</strong></td>
<td>EN 50090-2-2</td>
</tr>
<tr>
<td>• <strong>Ambient operating temperature</strong></td>
<td>–5 … +45 °C</td>
</tr>
<tr>
<td>• <strong>Storage temperature</strong></td>
<td>–25 … +70 °C</td>
</tr>
<tr>
<td>• <strong>Relative humidity (non-condensing)</strong></td>
<td>5 … 93 %</td>
</tr>
<tr>
<td><strong>CE marking</strong></td>
<td>According to EMC Directive (residential buildings), Low Voltage Directive</td>
</tr>
</tbody>
</table>

---

### Dimensional drawings

- **DELTA i-system**
  - A: 55
  - B: 55
  - C: 24
  - D: 13
- **DELTA profil**
  - A: 65
  - B: 65
  - C: 25
  - D: 14
- **DELTA style**
  - A: 68
  - B: 68
  - C: 27
  - D: 16.5
Technical Information

Dimmers

Universal dimmer sys inserts (5TC1 230)

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50 Hz</td>
</tr>
<tr>
<td>Protection against short-circuits</td>
<td>In the event of a short-circuit, the universal dimmer switches off. As soon as the short-circuit is eliminated (voltage recovery), the universal dimmer automatically switches back on at the brightness value last set prior to the short-circuit.</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>In the event of an overload, and if the maximum permissible temperature is exceeded, the universal dimmer switches off for at least two minutes. As soon as the device has cooled down, it is automatically switched to the current setpoint value</td>
</tr>
</tbody>
</table>

Load output

- Number: 1
- Rated voltage: 230 V AC, 50 Hz
- Rated load (up to 25 °C ambient temperature)
  - Incandescent lamp rating: 50 ... 420 W
  - Conventional transformers: 50 ... 420 VA
  - Electronic transformers: 70 ... 420 VA
  - Mixed loads: Only permissible between incandescent lamp ratings and electronic transformers

- Maximum connected load at ambient temperature

Behavior on system voltage recovery

After system voltage recovery, the DELTA universal dimmer sys insert switches to the same dimming value set prior to mains failure, hereby the DELTA universal dimmer sys insert automatically learns the load. A brief flickering indicates that the learning procedure is running.

Terminals

The terminals for the DELTA universal dimmer sys insert comprise three screw terminals, the following conductor/cross-sections are permissible:

- 0.5 ... 2.5 mm² solid
- 0.5 ... 1.5 mm² finely stranded with end sleeve without insulating collar (gas-tight crimp connection)

Caution: if the conductors need to be looped through, only conductors with max. 1.5 mm² can be used.

Mechanical specifications

- Enclosure: Plastic
- Dimensions: Modular width: 71 mm x 71 mm, Mounting depth: 32 mm
- Weight: Approx. 70 g
- Fire load: Approx. 1000 kJ
- Mounting: Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1

Electrical safety

- Pollution degree (acc. to IEC 60664-1): 2
- Degree of protection (acc. to EN 60529): IP20
- Overvoltage category (acc. to IEC 60664-1): III
- Standard: According to EN 50090-2-2 and EN 60669-2-1

EMC requirements

According to EN 50090-2-2, EN 60669-2-1, EN 61000-6-3, EN 61000-6-1

Environmental specifications

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

Approvals

VDE certification

Warning:
The connected load must be reduced by 20 %, depending on operating conditions.
- For mounting on wood, Rigips, gas concrete or cavity walls
- For installation in multiple combinations or surface-mounting enclosures
Universal dimmer sys inserts (5TC1 230)

**Dimensional drawings**

![Dimensional drawings](image1)

**Schematics**

**Sample connection**

![Sample connection](image2)

1. Load connection
2. Secondary input
3. Outer conductor connection
4. User interface
(230-V PEI)

**Application options**

**Example: Universal dimmer with conventional extension units**

![Application options](image3)

1. DELTA Universal dimmer sys insert
2. Conventional extension unit
3. Other conventional extension unit
## Technical Information

### Dimmers

**Incandescent lamp dimmers, 50 to 400 W**
*(5TC8 256)*

### Technical specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td><strong>Protection against short-circuits</strong></td>
<td>With fuse (the fuse holder contains a spare fuse)</td>
</tr>
<tr>
<td><strong>Load output</strong></td>
<td></td>
</tr>
<tr>
<td>- Number</td>
<td>One with two terminals</td>
</tr>
<tr>
<td>- Rated voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>- Rated load (up to 35 °C ambient temperature)</td>
<td></td>
</tr>
<tr>
<td>- Incandescent lamps</td>
<td>50 ... 400 W</td>
</tr>
<tr>
<td>- HV halogen lamps</td>
<td>50 ... 400 W</td>
</tr>
<tr>
<td>- Note</td>
<td>Only incandescent lamps and/or HV halogen lamps may be connected</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Relative connected load [%]</strong></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td><strong>Ambient temperature [°C]</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Terminals</strong></td>
<td>Four screw terminals with anti-slip terminal body, of which two terminals have the same potential, the following conductor/cross-sections are permissible:</td>
</tr>
<tr>
<td>- 0.5 ... 4.0 mm² solid</td>
<td></td>
</tr>
<tr>
<td>- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve</td>
<td>(without insulating collar, gas-tight crimp connection)</td>
</tr>
<tr>
<td><strong>Mechanical specifications</strong></td>
<td></td>
</tr>
<tr>
<td>- Enclosure</td>
<td>Plastic</td>
</tr>
<tr>
<td>- Dimensions</td>
<td>Modular width: 71 mm x 71 mm, mounting depth: 32 mm</td>
</tr>
<tr>
<td>- Weight</td>
<td>Approx. 95 g</td>
</tr>
<tr>
<td>- Fire load</td>
<td>Approx. 1000 kJ</td>
</tr>
<tr>
<td>- Mounting</td>
<td>Installation in device boxes 80 mm Ø, 40 mm deep according to DIN 49073-1</td>
</tr>
<tr>
<td><strong>Electrical safety</strong></td>
<td></td>
</tr>
<tr>
<td>- Pollution degree (acc. to IEC 60664-1)</td>
<td>2</td>
</tr>
<tr>
<td>- Degree of protection (acc. to EN 60529)</td>
<td>IP20</td>
</tr>
<tr>
<td>- Overvoltage category (acc. to IEC 60664-1)</td>
<td>III</td>
</tr>
<tr>
<td>- Standard</td>
<td>According to EN 60669-2-1</td>
</tr>
<tr>
<td><strong>EMC requirements</strong></td>
<td>According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1</td>
</tr>
<tr>
<td><strong>Environmental specifications</strong></td>
<td></td>
</tr>
<tr>
<td>- Ambient operating temperature</td>
<td>-5 ... +45 °C</td>
</tr>
<tr>
<td>- Storage temperature</td>
<td>-25 ... +70 °C</td>
</tr>
<tr>
<td>- Relative humidity (non-condensing)</td>
<td>5 ... 93 %</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>VDE certification and KEMA certification</td>
</tr>
</tbody>
</table>

### Schematics

![Schematic Diagram](image)

1. T 1.6 H 250 V fuse holder
2. Outer conductor connection
3. Load connection
## Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against short-circuits</td>
<td>Fuse A1 (the fuse holder contains a spare fuse)</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>With additional temperature cutout, which permanently shuts down the dimmer in the event of an overload</td>
</tr>
<tr>
<td>Load output</td>
<td></td>
</tr>
<tr>
<td>• Number</td>
<td>Two terminals for two-way switching (1) and (2)</td>
</tr>
<tr>
<td>• Rated voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>• Rated load (up to 35 °C ambient temperature)</td>
<td></td>
</tr>
<tr>
<td>- Incandescent lamps</td>
<td>50 ... 600 W</td>
</tr>
<tr>
<td>- HV halogen lamps</td>
<td>50 ... 600 W</td>
</tr>
<tr>
<td>- Note</td>
<td>Only incandescent lamps and/or HV halogen lamps may be connected</td>
</tr>
<tr>
<td>- Maximum connected load at ambient temperature</td>
<td><img src="image" alt="Graph" /></td>
</tr>
</tbody>
</table>

### Terminals

Four screw terminals with anti-slip body. The two L-connection terminals are internally bridged (same potential), the following conductor/cross-sections are permissible:
- 0.5 ... 4.0 mm² solid
- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve (without insulating collar, gas-tight crimp connection)

### Mechanical specifications

- **Enclosure**: Plastic
- **Dimensions**: Modular width: 71 mm x 71 mm, mounting depth: 32 mm
- **Weight**: Approx. 95 g
- **Fire load**: Approx. 1000 kJ
- **Mounting**: Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1

### Electrical safety

- **Pollution degree (acc. to IEC 60664-1)**: 2
- **Degree of protection (acc. to EN 60529)**: IP20
- **Overvoltage category (acc. to IEC 60664-1)**: III
- **Standard**: According to EN 60669-2-1
- **EMC requirements**: According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1

### Environmental specifications

- **Ambient operating temperature**: –5 ... +45 °C
- **Storage temperature**: –25 ... +70 °C
- **Relative humidity (non-condensing)**: 5 ... 93 %

### Approvals

- VDE certification and KEMA certification

## Schematics

![Schematic](image)
Technical Information

Dimmers

Low-voltage dimmers, for magn. transf., 50 ... 600 W, 25 ... 500 VA, for two-way switching (5TC8 283)

Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against short-circuits</td>
<td>Fuse A1 (the fuse holder contains a spare fuse)</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>With additional temperature cutout, which permanently shuts down the dimmer in the event of an overload</td>
</tr>
<tr>
<td>Load output</td>
<td></td>
</tr>
<tr>
<td>• Number</td>
<td>Two terminals for two-way switching (⁄ and ⁄)</td>
</tr>
<tr>
<td>• Rated voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>• Rated load (up to 35 °C ambient temperature)</td>
<td></td>
</tr>
<tr>
<td>- Incandescent lamps</td>
<td>50 ... 600 W</td>
</tr>
<tr>
<td>- HV halogen lamps</td>
<td>50 ... 600 W</td>
</tr>
<tr>
<td>- Low-voltage halogen lamps, magnetic transformer</td>
<td>25 ... 500 VA</td>
</tr>
<tr>
<td>• Note</td>
<td>Does not support connection of:</td>
</tr>
<tr>
<td></td>
<td>• Energy-saving lamps</td>
</tr>
<tr>
<td></td>
<td>• Electronic transformers</td>
</tr>
<tr>
<td></td>
<td>• Power boosters</td>
</tr>
<tr>
<td>- Maximum connected load at ambient temperature</td>
<td></td>
</tr>
</tbody>
</table>

Terminals

4 screw terminals with anti-slip terminal body, the following conductor/cross-sections are permissible:
- 0.5 ... 4.0 mm² solid
- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve
(without insulating collar, gas-tight crimp connection)

Mechanical specifications

• Enclosure: Plastic
• Dimensions: Modular width: 71 mm x 71 mm, mounting depth: 32 mm
• Weight: Approx. 105 g
• Fire load: Approx. 1000 kJ
• Mounting: Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1

Electrical safety

• Pollution degree (acc. to IEC 60664-1): 2
• Degree of protection (acc. to EN 60529): IP20
• Overvoltage category (acc. to IEC 60664-1): III
• Standard: According to EN 60669-2-1

EMC requirements

According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1

Environmental specifications

• Ambient operating temperature: −5 ... +45 °C
• Storage temperature: −25 ... +70 °C
• Relative humidity (non-condensing): 5 ... 93 %

Approvals

VDE certification and KEMA certification

Schematics

- Fuse holder with fuse T 4 H 250 V
- Outer conductor connection
- Load connection/corresponding conductor
- Load connection/corresponding conductor
- Trimpotentiometer for background brightness
Technical Information
Dimmers

Low-voltage dimmers, for electr. transf., 20 ... 600 W, 20 ... 525 VA, for two-way switching (5TC8 284)

### Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against short-circuits</td>
<td>Reversible operating electronic fuse</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>With additional temperature cutout, which shuts down the dimmer in the event of an overload and only resupplies it automatically with power when the overload is eliminated after the device has sufficiently cooled down</td>
</tr>
</tbody>
</table>

#### Load output

- **Number**: Two terminals for two-way switching (2 and 3)
- **Rated voltage**: 230 V AC, 50 Hz
- **Rated load (up to 35 °C ambient temperature)**
  - Incandescent lamps: 20 ... 600 W
  - HV halogen lamps: 20 ... 600 W
  - Low-voltage halogen lamps with electronic transformer: 20 ... 525 W
- **Note**: Does not support connection of:
  - Energy-saving lamps
  - Magnetic transformers

#### Maximum connected load at ambient temperature

![Chart showing the relationship between ambient temperature and connected load percentage.]

- **Warning**: The connected load must be reduced by 25%, depending on operating conditions
  - For mounting on wood, Rigips, gas concrete or cavity walls
  - For installation in multiple combinations or surface-mounting enclosures
  - If using highly thermally insulating materials (e.g. glass wool), it may be necessary to reduce the connected load even further

#### Terminals

4 screw terminals with anti-slip terminal body, the following conductor/cross-sections are permissible:
- 0.5 ... 4.0 mm² solid
- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve (without insulating collar, gas-tight crimp connection)

#### Mechanical specifications

- **Enclosure**: Plastic
- **Dimensions**: Modular width: 71 mm x 71 mm, mounting depth: 32 mm
- **Weight**: Approx. 95 g
- **Fire load**: Approx. 1000 kJ
- **Mounting**: Installation in device boxes 60 mm Ø, .40 mm deep according to DIN 49073-1

#### Electrical safety

- **Pollution degree (acc. to IEC 60664-1)**: 2
- **Degree of protection (acc. to EN 60529)**: IP20
- **Overvoltage category (acc. to IEC 60664-1)**: III
- **Standard**: According to EN 60669-2-1
- **EMC requirements**: According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1

#### Environmental specifications

- **Ambient operating temperature**: −5 ... +45 °C
- **Storage temperature**: −25 ... +70 °C
- **Relative humidity (non-condensing)**: 5 ... 93 %

#### Approvals

- **VDE certification**

### Schematics

![Diagram showing the circuitry of the dimmer with labels for:
- 1. Outer conductor connection
- 2. Load connection / corresponding conductor
- 3. Load connection / corresponding conductor
- 4. Trimpotentiometer for load balancing]
Dimmers

Dimmers, for electronic transf., 60 ... 800 W, 60 ... 800 VA, for two-way switching (5TC8 258)

Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against short-circuits</td>
<td>Reversible operating electronic fuse</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>With additional temperature cutout, which shuts down the dimmer in the event of an overload and only resupplies it automatically with power when the overload is eliminated after the device has sufficiently cooled down</td>
</tr>
<tr>
<td>Load output</td>
<td></td>
</tr>
<tr>
<td>• Number</td>
<td>Two terminals for two-way switching (① and ②)</td>
</tr>
<tr>
<td>• Rated voltage</td>
<td>230 V AC, 50 Hz</td>
</tr>
<tr>
<td>• Rated load (up to 35 °C ambient temperature)</td>
<td>60 ... 800 W</td>
</tr>
<tr>
<td>• Low-voltage halogen lamps</td>
<td>60 ... 800 W</td>
</tr>
<tr>
<td>• Note</td>
<td>Does not support connection of:</td>
</tr>
<tr>
<td>• Maximum connected load at ambient temperature</td>
<td>Reduction depending on operating conditions:</td>
</tr>
<tr>
<td>• Note</td>
<td>Mounting:</td>
</tr>
<tr>
<td>• Terminals</td>
<td>4 screw terminals with anti-slip terminal body, the following conductor/cross-sections are permissible:</td>
</tr>
<tr>
<td>• Mechanical specifications</td>
<td></td>
</tr>
<tr>
<td>• Enclosure</td>
<td>Plastic</td>
</tr>
<tr>
<td>• Dimensions</td>
<td>Modular width: 71 mm x 71 mm, mounting depth: 32 mm</td>
</tr>
<tr>
<td>• Weight</td>
<td>Approx. 120 g</td>
</tr>
<tr>
<td>• Fire load</td>
<td>Approx. 1000 kJ</td>
</tr>
<tr>
<td>• Mounting</td>
<td>Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1</td>
</tr>
<tr>
<td>• Pollution degree (acc. to IEC 60664-1)</td>
<td>2</td>
</tr>
<tr>
<td>• Degree of protection (acc. to EN 60529)</td>
<td>IP20</td>
</tr>
<tr>
<td>• Overvoltage category (acc. to IEC 60664-1)</td>
<td>III</td>
</tr>
<tr>
<td>• Standard</td>
<td>According to EN 60669-2-1</td>
</tr>
<tr>
<td>• EMC requirements</td>
<td>According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1</td>
</tr>
<tr>
<td>• Environmental specifications</td>
<td></td>
</tr>
<tr>
<td>• Ambient operating temperature</td>
<td>–5 ... +45 °C</td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>–25 ... +70 °C</td>
</tr>
<tr>
<td>• Relative humidity (non-condensing)</td>
<td>5 ... 93 %</td>
</tr>
<tr>
<td>• Approvals</td>
<td>VDE certification</td>
</tr>
</tbody>
</table>

Schematics

230 V AC ~ PE

① Outer conductor connection
② Load connection / corresponding conductor
③ Load connection / corresponding conductor
④ Trimpotentiometer for load balancing

© Siemens AG 2008
Overview

Economy and comfort

Modern lighting concepts are particularly cost-effective and user-friendly. The success of the Siemens fully electronic primary switching device (ECG) has played a key role in this: consistent lighting, 25% less energy requirements and power-constant operation (in the case of power fluctuations) with minimum noise generation are just some of the advantages, which have even led to the ECG being used in music and film studios.

The ECG dynamic is a consistent and logical further development of this millionfold tried and tested device.

The wide dimming range – of 100% to 1% luminous flux – and the wattless dimmer control using low-voltage control signals opens up a whole new range of application options for ECG dynamic in the world of lighting technology.

High energy saving

If fluorescent lamps are operated on conventional primary switching devices, the system consumption is approx. 25% higher than with ECG operation.

Conventional dimming "burns up" additional energy. Furthermore, it is also necessary to take into account the high losses of the chokes, the constant power requirements of the auxiliary electronics and heater transformers for the coil heating, the power loss of the leading-edge phase dimmer and the required base load.

This increases the system output for the operation of a lamp L58W to up to 80 W (at maximum modulation, leading-edge phase dimmer and base load not taken into account).

The ECG dynamic heats the lamp coil in accordance with the dimmer setting using no more intensity than necessary for reliable lamp operation; dimmer control is wattless and does not require a base load.

System wattage during full modulation of a L58W lamp is only 56 W. This is 30% less than for conventional dimming, with practically the same luminous flux.
Technical Information

Dimmers

Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Control voltage</td>
<td>1 ... 10 V</td>
</tr>
<tr>
<td>• Maximum control current</td>
<td>50 mA</td>
</tr>
<tr>
<td>• Load connection</td>
<td>4 A</td>
</tr>
<tr>
<td>Protection against short-circuits</td>
<td>With miniature fuse (the fuse holder contains a spare fuse)</td>
</tr>
</tbody>
</table>

Switching capacity

<table>
<thead>
<tr>
<th>Number of ECGs load output</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• OSRAM Quicktronik, dimmable, 1 x 58 W LL</td>
<td>Max. 6</td>
</tr>
<tr>
<td>• OSRAM Quicktronik, dimmable, 1 x 36 W LL</td>
<td>Max. 9</td>
</tr>
<tr>
<td>• OSRAM Quicktronik, dimmable, 2 x 58 W LL</td>
<td>Max. 3</td>
</tr>
<tr>
<td>• OSRAM Quicktronik, dimmable, 2 x 36 W LL</td>
<td>Max. 4</td>
</tr>
</tbody>
</table>

Number of ECGs control output

| Osram DIMM-ECG | Max. 50 |

Notes

- ECGs have high starting currents: if more than six ECGs are to be switched, a power relay must be used
- Always ensure that ECGs and fluorescent lamps are from the same manufacturer

Terminals

4 screw terminals with anti-slip terminal body, the following conductor/cross-sections are permissible:

- 0.5 ... 4.0 mm² solid
- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve (without insulating collar, gas-tight crimp connection)

Mechanical specifications

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Modular width: 71 mm x 71 mm, mounting depth: 32 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 55 g</td>
</tr>
<tr>
<td>Fire load</td>
<td>Approx. 1000 kJ</td>
</tr>
<tr>
<td>Mounting</td>
<td>Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1</td>
</tr>
</tbody>
</table>

Electrical safety

| Pollution degree (acc. to IEC 60664-1) | 2 |
| Degree of protection (acc. to EN 60529) | IP20 |
| Overvoltage category (acc. to IEC 60664-1) | III |
| Standard | According to EN 60669-2-1 |

EMC requirements

According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1

Environmental specifications

| Ambient operating temperature | −5 ... +45 °C |
| Storage temperature           | −25 ... +70 °C |
| Relative humidity (non-condensing) | 5 ... 93 % |

Approvals

VDE certification and KEMA certification

Schematics

[Diagram of dimmer connections]
Technical Information

Dimmers

Electronic potentiometers, switch (5TC8 424)

Electronic potentiometers for dimmer control

Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Control voltage</td>
</tr>
<tr>
<td>1 ... 10 V</td>
</tr>
<tr>
<td>• Maximum control current</td>
</tr>
<tr>
<td>50 mA</td>
</tr>
<tr>
<td>• Load connection</td>
</tr>
<tr>
<td>2 A</td>
</tr>
</tbody>
</table>

Protection against short-circuits
With miniature fuse (the fuse holder contains a spare fuse)

Switching capacity

• Number of ECGs load output
Depending on the remote control switch or installation contactor selected

• Number of ECGs control output
Max. 50

Terminals
4 screw terminals with anti-slip terminal body, the following conductor/cross-sections are permissible:
• 0.5 ... 4.0 mm² solid
• 0.5 ... 2.5 mm² finely stranded, with or without end sleeve
(without insulating collar, gas-tight crimp connection)

Mechanical specifications

• Enclosure
Plastic

• Dimensions
Modular width: 71 mm x 71 mm, mounting depth: 32 mm

• Weight
Approx. 55 g

• Fire load
Approx. 1000 kJ

• Mounting
Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1

Electrical safety

• Pollution degree (acc. to IEC 60664-1)
2

• Degree of protection (acc. to EN 60529)
IP20

• Overvoltage category (acc. to IEC 60664-1)
III

• Standard
According to EN 60669-2-1

EMC requirements
According to EN 60669-2-1

Environmental specifications

• Ambient operating temperature
−5 ... +45 °C

• Storage temperature
−25 ... +70 °C

• Relative humidity (non-condensing)
5 ... 93 %

Approvals
VDE certification and KEMA certification

Electronic potentiometers, pushbutton (5TC8 425)

© Siemens AG 2008

19/25

Siemens ET D1 - 10/2008
Electronic potentiometers, pushbutton (STC8 425)

Schematics

Electronic potentiometer with pushbutton control for dimmer control, 1-phase

Electronic potentiometer with pushbutton control for dimmer control, 3-phase
### Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Mains connection 230 V (2-wire method), rated voltage: 230 V AC, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against short-circuits</td>
<td>With fuse (the fuse holder contains a spare fuse)</td>
</tr>
<tr>
<td>Protection against overloads</td>
<td>With additional temperature cutout, which permanently shuts down the speed regulating rheostat in the event of an overload</td>
</tr>
<tr>
<td>Load output</td>
<td>Number: 1 (Q)</td>
</tr>
<tr>
<td></td>
<td>Rated voltage: 230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>Rated load (up to 35 °C ambient temperature): 25 ... 600 VA/0.1 ... 2.6 A</td>
</tr>
<tr>
<td></td>
<td>Note: The outer conductor must be connected to the L terminal as the device may otherwise be permanently damaged</td>
</tr>
</tbody>
</table>

**Warning:** The connected load must be reduced by 20%, depending on operating conditions:
- For mounting on wood, Rigips, gas concrete or cavity walls
- For installation in multiple combinations or surface-mounting enclosures

<table>
<thead>
<tr>
<th>Terminals</th>
<th>4 screw terminal with anti-slip terminal body</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The following conductor/cross-sections are permissible:</td>
</tr>
<tr>
<td></td>
<td>- 0.5 ... 4.0 mm² solid</td>
</tr>
<tr>
<td></td>
<td>- 0.5 ... 2.5 mm² finely stranded, with or without end sleeve (without insulating collar, gas-tight crimp connection)</td>
</tr>
</tbody>
</table>

### Mechanical specifications

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Modular width: 71 mm x 71 mm, mounting depth: 32 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 105 g</td>
</tr>
<tr>
<td>Fire load</td>
<td>Approx. 1000 kJ</td>
</tr>
<tr>
<td>Mounting</td>
<td>Installation in device boxes 60 mm Ø, 40 mm deep according to DIN 49073-1</td>
</tr>
</tbody>
</table>

### Electrical safety

| Pollution degree (acc. to IEC 60664-1) | 2 |
| Degree of protection (acc. to EN 60529) | IP20 |
| Overvoltage category (acc. to IEC 60664-1) | III |
| Standard              | According to EN 60669-2-1 |
| EMC requirements      | According to EN 60669-2-1, EN 61000-6-3 and EN 61000-6-1 |

### Environmental specifications

| Ambient operating temperature | -5 ... +45 °C |
| Storage temperature           | -25 ... +70 °C |
| Relative humidity (non-condensing) | 5 ... 93 % |

### Approvals

- VDE certification and KEMA certification

### Schematics

- **230 V ~ AC** (speed limiting potentiometer)
- **T 4 H 250 V fuse**
- **Outer conductor connection**
- **230 V~ switched output**
- **Motor connection (output)**
- **Trimpotentiometer for minimum speed**
Overview
The IP55 motion detector is a surface-mounted device, which passively registers the thermal radiation of bodies moving within its sensing range. It automatically switches the connected loads on and off. The motion detection is indicated by a flashing red LED integrated in the sensor.

No thermal radiation is detected through obstacles, such as walls or glass panes, so there is no switching.

The brightness switching threshold and the delay time are infinitely adjustable.

The device is also designed for installation in existing staircase light timer systems.

It cannot be guaranteed suitable for use in other applications.

Note: Further remote controls are available as optional extras for the 290° IR version.

Design
The motion detector is suitable for wall or ceiling mounting.

Positioning of the motion detector
The optimum mounting height is 2.50 m.

When mounting a light in the sensing range of the motion detector, there must be a clearance of at least 0.5 m.

Do not mount motion detectors directly above a light. Wherever possible, it should be mounted underneath.

In order to avoid unintended switching operations, potential sources of interference should be taken into consideration when selecting the mounting location (e.g. flows of warm air, moving bushes or branches). Areas that you do not want to monitor can be blocked out by mounting the cover plates included in delivery.

If using the optionally available special base (5TC7 900 or 5TC7 901), it can also be mounted on an 90° inside or outside angle.

For optimum motion detection, the motion detector should be mounted laterally to the direction of walking.
**Function**

**Commissioning**

The first time the rated voltage is applied, or after each system interruption of more than 3 s, the initialization phase of the motion detector is restarted.

**Initialization phase**

When the initialization phase is started, the connected loads are switched on for approx. 2 s. The red LED in the inside of the lens flashes approx. 3 times a second for approx. 45 s until the device automatically switches to test mode.

**Test mode**

Users can manually check the sensing range in this brightness-independent mode with a switch-on time of 1 s and a delay time of 2 s. During this check, it is possible to change the direction and sensing angle of the lens. On expiry of the time span of 10 min set for test mode, the motion detector automatically switches to the factory setting (brightness switching threshold: 7 lux/delay time 2 min) or to the individual settings.

If you wish to reactivate test mode, this can be triggered by simultaneously pressing the S1 and S2 pushbuttons for a minimum of 3 s (max. 5 s). The LED flashes rapidly for 3 s and then remains on. When the pushbuttons are released, test mode is confirmed by the LED flashing twice. You can cancel test mode by briefly pressing the S1 or S2 pushbutton. After a maximum of 10 min, the motion detector automatically reverts to the previously selected setting (factory setting or individual setting).

**Sensing range**

The sensing range can be changed by turning the lens +/- 30° to the left or right.

If you need to limit the range, you need to cut out the supplied transparent cover plate in accordance with your required sensing range.

The range can be changed by adjusting the swivel arm through up to 120°.

**Reset**

Simultaneously press the S1 and S2 pushbuttons for a minimum of 6 s. The motion detector is then reset to its factory setting (brightness switching threshold: 7 lux/duty ratio: 2 min). This setting is suitable for the majority of applications. Once the reset is successfully completed, this is confirmed by the red LED in the lens flashing twice.

**Individual setting**

You can use the S1 and S2 pushbuttons to individually set the brightness switching threshold and delay time.

**Brightness-independent mode**

In this operating mode, the load is switched on for the set delay time at each movement, irrespective of the current brightness.

**Brightness-dependent mode**

In this operating mode, the load is only switched on for the set delay time when it detects movement and if the brightness falls below the current brightness switching threshold. If you require a brightness switching threshold that differs from the factory setting, you can store the current light conditions as the operating point in the memory of the motion detector by pressing the S1 pushbutton for less than 3 s.
Technical Information

Motion Detectors

DELTA reflex motion detectors, IP55

Pulse mode

The pulse mode is activated/deactivated by pressing the S2 pushbutton for longer than 3 s. In this operating mode, the load is switched on for one second when it detects movement if the brightness falls below the current brightness switching threshold. There is then no further reaction to any movement for 9 s.

Note: By pressing the pushbutton for longer than 3 s, you can switch between pulse mode and delay time mode.

The pulse mode is primarily used for controlling staircase light timers.

Select individual delay time

The required delay time is started by pressing the S2 pushbutton for less than 3 s. By repressing the S2 pushbutton for less than 3 s, you can store the time between the first and second press of the pushbutton as an individual delay time. The shortest programmable individual delay time is 5 s.

Comfort function

Comfort function through the use of optional switches or pushbuttons (requirement: device is in delay time mode - not in pulse mode)

A general distinction is made between a long (> 2 s) and a short (0.2 to 2 s) system interruption.

Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rated voltage</td>
<td>230 V AC +/-10 %, 50/60 Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Solid conductors</td>
<td>1 mm² ... 4 mm², max. 2 x 2.5 mm²</td>
</tr>
<tr>
<td>• Stranded conductors (only with end sleeve)</td>
<td>1 mm² ... 2.5 mm², max. 1 x 2.5 mm²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Power loss</td>
<td>Approx. 1 W</td>
</tr>
<tr>
<td>• Twilight sensor</td>
<td>From approx. 0.5 lux brightness-independent mode</td>
</tr>
<tr>
<td>• Delay time</td>
<td>5 s ... 30 min</td>
</tr>
<tr>
<td>• Pulse mode</td>
<td>1 s ON/9 s OFF</td>
</tr>
<tr>
<td>• Test mode</td>
<td>2 s brightness-independent mode</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. switching capacity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 120° version</td>
<td></td>
</tr>
<tr>
<td>- Incandescent lamps</td>
<td>1000 W</td>
</tr>
<tr>
<td>- Fluorescent lamps (KVG)</td>
<td>8 x 58 W (uncorrected)</td>
</tr>
<tr>
<td>- Energy-saving lamps</td>
<td>4 units</td>
</tr>
<tr>
<td>- Series fuse</td>
<td>Max. 10 A</td>
</tr>
<tr>
<td>• 290° and 290° IR version</td>
<td></td>
</tr>
<tr>
<td>- Incandescent lamps</td>
<td>2500 W</td>
</tr>
<tr>
<td>- Fluorescent lamps (KVG)</td>
<td>20 x 58 W (uncorrected)</td>
</tr>
<tr>
<td>- Energy-saving lamps</td>
<td>8 units</td>
</tr>
<tr>
<td>- Series fuse</td>
<td>Max. 10 A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enclosure</td>
<td>Plastic (PC, ABS)</td>
</tr>
<tr>
<td>• Adjustment range of swivel arm</td>
<td>Max. 120°</td>
</tr>
<tr>
<td>• Dimensions (L x W x D)</td>
<td>180 x 86 x 74 mm</td>
</tr>
<tr>
<td>• Weight</td>
<td>235 g</td>
</tr>
<tr>
<td>• Degree of protection</td>
<td>IP55</td>
</tr>
<tr>
<td>• Range (mounting height 2.5 m/ +22 °C)</td>
<td></td>
</tr>
<tr>
<td>- Version 120</td>
<td>Approx. 10 m</td>
</tr>
<tr>
<td>- 290° and 290° IR version</td>
<td>Approx. 16 m</td>
</tr>
<tr>
<td>• Mounting height</td>
<td>2 ... 4 m, ideally 2.50 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical safety</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Degree of protection (acc. to EN 60529)</td>
<td>IP55</td>
</tr>
<tr>
<td>• Overvoltage category (acc. to IEC 60664-1)</td>
<td>III</td>
</tr>
<tr>
<td>• Device complies with</td>
<td>EN 60669-1 and EN 60669-2-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Storage temperature</td>
<td>-30 ° ... +70 °</td>
</tr>
<tr>
<td>• Rel. humidity (non-condensing)</td>
<td>5 % ... 93 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approvals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• VDE certification</td>
<td>Yes</td>
</tr>
<tr>
<td>• CE marking</td>
<td>Yes</td>
</tr>
<tr>
<td>• Compliance with EMC Directive, Low Voltage Directive</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Design**

The motion detector insert ① is mounted in a DIN 49073-compliant device box.

The terminals of the insert must be directed downwards (wall mounting). Failure to do so may cause malfunctions.

Together with the motion detector top ③, the frame ② is plugged onto the insert.

An optimum detection is achieved by mounting the top laterally to the walking direction. Otherwise, a delayed detection must be taken into account.

---

**The 1.10 m lens**

The mounting height is generally 1.10 m.

The lens has a sensing range with an opening angle of 180° in two levels.

The sensing range is approx. 10 x 12 m for a mounting height of 1.10 m. The detection radius may vary for other mounting heights.

As a result of the right-angled adjustment of the upper lens level, the sensing range is not subject to spatial limitations. Therefore, even motions outside the defined sensing range may initiate switching operations under certain circumstances (overreach).

Note: Due to the almost horizontal adjustment of the upper sensing level, the motion detector tops equipped with the 1.10 m lens are generally only suitable for indoor use. If mounted in outdoor areas, the sensors may be irreparably damaged by direct sunshine.
The 2.20 m lens

Mode of operation of the 2.20 m lens

Sensing range of the 2.20 m lens

The lens has three ranges of sensing levels, so that the sensing range is divided into near, medium and distant range.

Avoidance of sources of interference

In order to avoid unintended switching operations, the following instructions should be complied with during installation:

- Thermal radiation from the lighting or insufficient distance between the motion detector and the lamp may cause an undefined switch-on operation to be initiated.

- When selecting the mounting location, it should be ensured that no sources of interference, e.g. lamps or heaters are positioned within the sensing field. If this is not possible, a plug-on blind should be used.

The lens has a sensing range with an opening angle of 180° in three levels. The three levels are directed from the top to the bottom.

The size of the sensing range is as follows:

- For a mounting height of 2.20 m: approx. 12 m x 12 m
- For a mounting height of 1.10 m: approx. 6 m x 6 m
Use of the plug-on blind

Using the plug-on blind, sources of interference can be suppressed by narrowing the sensing range. The blind covers 90° of the left or right sensing range.

Programming

Setting the brightness threshold

The brightness threshold is the threshold of the brightness at which a detected movement releases a switching operation. The brightness threshold can be set within a range of approx. 0 to 80 lux.

To modify the brightness threshold, the controller must be turned in the desired direction.

If the controller is set to the “sun” limit stop (> 80 lux), the motion detector top works in day mode and therefore switches irrespective of the current brightness level.

Note: if the motion detector top no longer responds to a detected motion at the “moon” limit stop (night setting, 0 lux), the controller must be slightly turned in the direction of the sun.

Setting the sensitivity

The motion detector top has an internal algorithm which automatically adjusts the device to ambient conditions. This virtually eliminates the possibility of unintended switching operations.

Under normal circumstances, the controller should be set to maximum sensitivity.

If, in exceptional cases, it is necessary to determine a different sensitivity level, this can be done using the controller .

Behavior in case of power failure/recovery

<table>
<thead>
<tr>
<th>Interruption time</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 200 ms</td>
<td>No change of the switching state.</td>
</tr>
<tr>
<td>200 ms … approx. 1 s</td>
<td>In case of a power recovery, the duration of the delay time is activated (retriggering)</td>
</tr>
<tr>
<td>&gt; Approx. 1 s</td>
<td>In case of power recovery, auto-test for approx. 60 s. The lighting is switched on for the time of the auto-test. After the test has been completed, the lighting is switched off and the motion detector top is ready for operation.</td>
</tr>
</tbody>
</table>

Behavior when pulling off the motion detector top

The switching state of the insert is retained. If the motion detector top is plugged on again, it behaves in the same way as after a power failure of more than approx. 1 s.
Caution: It is not permissible to connect motion detector center units in parallel.

**Extension units**

The sensing range of the center unit can be extended by means of a motion detector extension unit insert ② used in conjunction with a motion detector top. Motion detector extension unit inserts issue brightness-independent motion signals to the center unit. The brightness evaluation and the delay time are determined by the center unit.

**Mechanical pushbuttons**

Using a mechanical pushbutton without a glow lamp ① the lighting can be switched on or retriggered irrespective of the current brightness level.

It is not possible to switch off the lighting.

Note:

- Long and short operation have the same effect.
- It is not permissible to connect motion detector center units in parallel.
- If the mechanical pushbutton requires lighting, the 5TD2 114 type can be installed if there is a neutral conductor.
Design

The motion detector insert 1 is mounted in a DIN 49073-compliant device box.

The terminals of the insert must be directed downwards (wall mounting). Failure to do so may cause malfunctions.

Together with the motion detector top 3, the frame 2 is plugged onto the insert.

An optimum detection is achieved by mounting the top laterally to the walking direction. Otherwise, a delayed detection must be taken into account.

The 1.10 m lens

The mounting height is generally 1.10 m.

The lens has a sensing range with an opening angle of 180° in two levels.

The sensing range is approx. 10 x 12 m for a mounting height of 1.10 m. The detection radius may vary for other mounting heights.

As a result of the right-angled adjustment of the upper lens level, the sensing range is not subject to spatial limitations. Therefore, even motions outside the defined sensing range may initiate switching operations under certain circumstances (overreach).

Note: Due to the almost horizontal adjustment of the upper sensing level, the motion detector tops equipped with the 1.10 m lens are generally only suitable for indoor use.
Technical Information
Motion Detectors

Comfort motion detector tops

The 2.20 m lens

The lens has three ranges of sensing levels, so that the sensing range is divided into near, medium and distant range.

Sensing range of the 2.20 m lens

Avoidance of sources of interference

In order to avoid unintended switching operations, the following instructions should be complied with during installation:
- Thermal radiation from the lighting or insufficient distance between the motion detector and the lamp may cause an undefined switch-on operation to be initiated.

Use of the plug-on blind

Using the plug-on blind, sources of interference can be suppressed by narrowing the sensing range. The blind covers 90° of the left or right sensing range.
Programming

Operating modes

On the Comfort motion detector top, three different operating modes can be set by means of a switch:

- **Continuous OFF**
  For this mode, the switch must be moved to the ① position. The lighting is continuously switched off. Switching is not possible by means of extension units.

- **Automatic mode**
  For this mode, the switch must be moved to the ② position. If a motion is detected, the Comfort motion detector top switches on in dependence of brightness and if the motion is no longer detected, it is switched off after the set delay time has expired. Switching is possible by means of extension units.

- **Continuous ON**
  For this mode, the switch must be moved to the ③ position. The lighting is continuously switched on. Switching is not possible by means of extension units.

Locking of the switch

The switch can be interlocked in the automatic mode switching position using a locking clip:

1. Set the device to automatic mode
2. Carefully remove the slider ① with a screwdriver.
3. Insert the locking clip

Adjusting the delay time

The delay time determines how long the lighting remains switched on if a motion is no longer detected. The delay time can be set within a range of 10 s to approx. 30 min. The setting is carried out non-linearly, longer times can only be specified within a relatively rough grid.

To modify the delay time, turn the ① controller in the desired direction.

If the Comfort motion detector top has switched on, each further detected motion results in a retriggering of the delay time. This means, the delay time starts anew.

The Comfort motion detector top does not support a forced shutdown. This means, continuous motion within the sensing field results in continuous light.
Technical Information

Motion Detectors

Comfort motion detector tops

Setting of short-time duty

Within the scope of a special operating mode, the Comfort motion detector top can also be set to short-time duty. The short-time duty operates irrespective of the current brightness level and can be used, e.g. for controlling a bell.

For this mode the delay time controller 1 is set to the shortest time (symbol similar to α).

If a motion is detected, the Comfort motion detector top switches on for 0.5 s. If the detector continues to detect motions, the lighting is not switched on again until a locking time of 3 s has expired.

Setting of the brightness threshold

The brightness threshold is the threshold of the brightness at which a detected movement releases a switching operation. The brightness threshold can be set within a range of approx. 0 to 80 lux.

To modify the brightness threshold, the controller 2 must be turned in the desired direction.

If the controller 2 is set to the "sun" limit stop (> 80 lux), the Comfort motion detector top works in day mode and therefore switches irrespective of the current brightness level.

Note: if the Comfort motion detector top no longer responds to a detected motion at the "moon" limit stop (night setting, 0 lux), the controller 2 must be slightly turned in the direction of the sun. A key feature of the Comfort motion detector top is its high level of immunity to external light. For this reason, the Comfort motion detector top

- Does not interpret a brief illumination (e.g. that of a flashlight) as "brightness threshold exceeded", thus causing it not to switch in the case of motion, so that the motion detector cannot be disabled by exposing it briefly to a bright light,
- Does not interpret brief unintentional shadowing (e.g. by a person) as "brightness threshold fallen below" and does not switch on in case of motion.

The external light immunity is attained by a time delay.

When brightness turns into darkness, the set brightness threshold must be fallen below for at least 10 s before detected motions initiate a switching operation.

The same applies to the changeover from darkness to brightness. Only if the set brightness threshold has been exceeded by at least 10 s will detected motions no longer initiate a switching operation.

Exception: If the Comfort motion detector top has just switched off, the 10 s time delay is no longer active.

Releasing the teach function

By means of the teach function, the current ambient brightness can be stored as brightness threshold whereas the brightness threshold set at the controller is no longer evaluated.

To activate the teach function, the Comfort motion detector top must be completely covered briefly (approx. 1 s) at least 3 times, e.g. using your hand, within a 9-second period.

As soon as the Comfort motion detector top has detected three light changes, the teach function is activated. This activation is confirmed

- When the switched on lighting is switched off and subsequently switched on for 3 s,
- The switched off lighting is switched on for 3 s.

You then need to step away from the Comfort motion detector top for at least one minute in order to enable it to correctly measure and store the current brightness.

The lighting then switches on for 3 s to confirm that this brightness level has been stored.

The Comfort motion detector top switches to the set operating mode.

If the brightness threshold set at the controller is to be reactivated, the Comfort motion detector top must be pulled off the insert and plugged on again.
Setting the sensitivity

The Comfort motion detector top has an internal algorithm which carries out an automatic adjustment to the ambient conditions. This virtually eliminates the possibility of unintended switching operations.

Under normal circumstances, the controller should be set to maximum sensitivity.

If, in exceptional cases, it is necessary to determine a different sensitivity level, this can be done using the controller 3.

Schematics

Caution: It is not permissible to connect motion detector center units in parallel.

Extension units

The sensing range of a center unit can be extended by means of extension units. This can be achieved by combining, for example, a Comfort motion detector top with a motion detector extension unit insert and connecting it to the center unit.

Caution:

- Motion detector extension units are not suitable for the direct switching of loads but just output brightness-independent motion signals to the center unit.
- The brightness threshold, the operating mode and the delay time are set and evaluated at the center unit only.
- The operating mode switch and the controllers for brightness and delay time of the Comfort motion detector top on the extension unit have no function.
- If required, the Comfort motion detector top plugged onto the extension unit can be adjusted over the respective controller (see the section Programming).
- When combining the Comfort motion detector top with the motion detector extension unit insert, please note that after the lighting has been switched off, there is a locking time of approx. 3 s before the extension unit can be switched on again.

Mechanical pushbuttons

Using mechanical pushbuttons without a glow lamp (NO contact) 1 and with automatic mode activated, the Comfort motion detector top can be operated from several sides.

In case of a short operation in the switched off state, the lighting is switched on irrespective of the current brightness level.

It is not possible to switch off the lighting.
**Design**

The motion detector relay insert (1) is mounted in a DIN 49073-compliant device box.

The terminals of the motion detector relay insert must be directed downwards (for wall mounting).

Only use the motion detector relay insert in combination with a motion detector top. Plug the motion detector top (2) together with the frame (3) onto the insert. The electrical contacting is achieved over the plug (4).

Plug on the motion detector top prior to applying the supply voltage. Do not replace the motion detector top if the insert is connected to the power supply as this will cause a malfunction.

Power losses > 1 s lead to a switch-off of the motion detector relay insert.

Connect an upstream miniature circuit breaker 10 A for device protection.

Observe the maximum connected load and the load specifications contained in the technical specifications.

Depending on the mounting type, the max. connected load must be reduced by:
- –10 % each time the ambient temperature of 25 °C is exceeded by 5 °C,
- –15 % for mounting on wood, Rigips or cavity walls,
- –20 % for mounting in multiple combinations.

**Use of extension units**

The sensing field of the center unit can be extended by means of the motion detector extension unit insert.

If mechanical pushbuttons are used (NO contacts), the lighting can be switched on from several sides irrespective of the current brightness level.

Note: A motion detector top must be mounted on the center unit - otherwise, there will be no function. A motion detector extension unit insert and a mechanical pushbutton without a glow lamp can be connected to a center unit in combination.

---

**Schematics**

Connection of motion detector relay inserts

Connection of all possible inserts
**Design**

The motion detector triac insert ① is mounted in a DIN 49073-compliant device box.

The terminals of the motion detector triac insert must be directed downwards (for wall mounting).

Only use the motion detector triac insert in combination with a motion detector top ③. Together with the frame ②, the top is plugged onto the insert ①. The electrical contacting is achieved over the plug ④.

Load conventional transformers with at least 85% of the rated load with lamps.

The total load including the transformer power loss must not exceed 400 W/VA.

Depending on the mounting type, the max. connected load must be reduced by:
- 10% each time the ambient temperature of 25 °C is exceeded by 5 °C,
- 15% for mounting on wood, Rigips or cavity walls,
- 20% for mounting in multiple combinations.

**Use of extension units**

The sensing field of the center unit can be extended by means of the motion detector extension unit insert.

If mechanical pushbuttons are used (NO contacts), the lighting can be switched on from several sides irrespective of the current brightness level.

Note: A motion detector top must be mounted on the center unit - otherwise, there will be no function.

A mechanical pushbutton insert without a glow lamp and a motion detector extension unit insert may also be combined.

---

**Schematics**

Connection of the motion detector triac insert

Connection of all possible inserts
Design

The motion detector extension unit insert (1) is mounted in a DIN 49073-compliant device box. The terminals of the insert must be directed downwards (for wall mounting).

Together with the frame (2), the top (3) is plugged onto the insert. The electrical contacting is achieved over the plug (4).

Schematics

- 1 Main control location
- 2 Extension unit
- 3 Further extension units
- 4 Load
Overview

**Individual control, demonstrated using i-system titanium white**

Shutter/blind control with sys shutter/blind insert (STC1 231) and sys shutter/blind pushbutton (STC1 321)

Shutter/blind control with Comfort shutter/blind control complete assembly (STC1 521) and sun sensor (STC1 526)

**Group and central controls, demonstrated using i-system titanium white**

Shutter/blind control with sys shutter/blind inserts (STC1 231) and sys shutter/blind pushbuttons (STC1 321)

Shutter/blind control with sys shutter/blind inserts (STC1 231) and sys shutter/blind pushbuttons (STC1 321) and shutter/blind control complete assembly (STC1 520) or Comfort shutter/blind control (STC1 521)
Shutter/Blind Controls

Shutter/blind switches, with electrical and mechanical interlock (5TA2 154)

Schematics

![Schematic diagram of shutter/blind switch with electrical and mechanical interlock (5TA2 154)](image)

Shutter/blind pushbuttons, with electrical interlock

Schematics

![Schematic diagram of shutter/blind pushbutton with electrical interlock (5TA2 114)](image)
Technical Information

Shutter/Blind Controls

Overview

All profile semicylinders must comply with DIN 18252 with approx. 40 mm overall length. Examples:

<table>
<thead>
<tr>
<th>Make</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEC</td>
<td>No. 8511/2 (as PH 22)</td>
</tr>
<tr>
<td>BKS</td>
<td>No. 3101</td>
</tr>
<tr>
<td>Wilka</td>
<td>No. Z 1411 12h</td>
</tr>
<tr>
<td>Zeiss Ikon</td>
<td>No. 1600044 = mv</td>
</tr>
</tbody>
</table>

Bit is in neutral position.

The key-operated switch is ideal for use in main and general master-key systems.

In the case of special requirements and existing systems or custom-made tumbler arrangements for master-key systems, the lock barrels must be obtained from a specialist dealer.

Schematics

Symbols

| Maintained contact | 0 position | Maintained contact |

Circuit diagram

1-pole

M1

Application example

1-pole

2-pole

PE

L

P

PE

L

P

PE

L

P

PE

L

P

PE

L

P

PE

L

P

PE

L

P

PE

L

P
## Technical specifications

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Over 230-V user interface (230 V PEI) of the sys shutter/blind control insert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminals</td>
<td>10-pole pin connector (230 V PEI) for connection of sys shutter/blind control insert</td>
</tr>
</tbody>
</table>

### Mechanical specifications

- **Enclosure**: Plastic
- **Dimensions (L x W x D)**:
  - DELTA line/vita/miro: 55 x 55 x 24 mm (incl. spring)
  - DELTA profil: 65 x 65 x 25 mm (incl. spring)
  - DELTA style: 68 x 68 x 27 mm (incl. spring)
- **Weight**: Approx. 30 g
- **Fire load**: Approx. 950 kJ
- **Mounting**: Mounted on the sys shutter/blind control insert

### Electrical safety

- **Pollution degree** (acc. to IEC 60664-1): 2
- **Degree of protection** (acc. to EN 60529): IP20
- **Overvoltage category** (acc. to IEC 60664-1): III
- **Standard**: According to EN 50090-2-2 and IEC 60664-1

### EMC requirements

According to EN 50090-2-2, EN 61000-6-3, EN 61000-6-1

### Environmental specifications

- **Resistance to climate**: EN 50090-2-2
- **Ambient operating temperature**: –5 … +45 °C
- **Storage temperature**: –25 … +70 °C
- **Relative humidity (non-condensing)**: 5 … 93 %
- **CE marking**: According to EMC Directive (residential buildings), Low Voltage Directive

## Dimensional drawings

![Dimensional drawings](image_url)
### Technical Information

**Shutter/Blind Controls**

sys shutter/blind control inserts (5TC1 231)

---

#### Technical specifications

| Power supply | Mains connection 230 V  
|             | Rated voltage: 230 V AC, 50 Hz |
| Outputs     |                               |
| • Output channel (UP/DOWN) | 1 |
| • Rated voltage       | 230 V AC, 50 Hz |
| • Rated current       | 8 A resistive load |
| • Switching capacity  | 1 motor, 1000 VA |
| • Max. On period of the relay | 120 s |
| • Switchover interval between UP and DOWN operation | 1 s |
| • Relay duty ratio for STEP command | 100 ms |
| • System interruptions | < 0.2 s are bridged |

**Terminals**

The connections for the DELTA shutter/blind control sys insert comprise six screw terminals, the following conductor/cross-sections are permissible:
- 0.5 … 2.5 mm² solid
- 0.5 … 1.5 mm² finely stranded with end sleeve without insulating collar (gas-tight crimp connection)

Caution: If the conductors need to be looped through, only conductors with max. 1.5 mm² can be used

**Mechanical specifications**

- Enclosure: Plastic
- Dimensions:
  - Modular width: 71 mm x 71 mm
  - Mounting depth: 32 mm
- Weight: Approx. 75 g
- Fire load: Approx. 1000 kJ
- Mounting: Installation in device boxes 60 mm Ø, at least 40 mm deep complies with DIN 49073-1

**Electrical safety**

- Pollution degree (acc. to IEC 60664-1): 2
- Degree of protection (acc. to EN 60529): IP20
- Overvoltage category (acc. to IEC 60664-1): III
- Relay: µ contact

**EMC requirements**

According to EN 50090-2-2, EN 60669-2-1, EN 61000-6-3, EN 61000-6-1

**Environmental specifications**

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

**Approvals**

VDE certification

**CE marking**

According to EMC Directive (residential buildings), Low Voltage Directive

---

#### Dimensional drawings

![Dimensional drawings](image_url)
**Schematics**

**Sample connection**

**Example 1:** Shutter/blind control with conventional extension units

When using the shutter/blind pushbutton (STA 114), the shutter/blind can be manually moved to the required position (UP/DOWN or STEP command). The number of connectable conventional extension units is unlimited.

**Example 2:** Group control with 2 motors and central operating point

Together with the UP 211 wave shutter/blind pushbutton inserts, the shutter/blind control sys insert is implemented as a central operating point. The inserts individually control the respective shutter/blind motors M and . The time values stored in the UP 211 wave shutter/blind pushbutton (e.g. 8:00 UP and 20:00 DOWN command) allow the time-controlled stopping and starting of all connected motors.

**Caution:**
- It is not permissible to use a shutter/blind control sys insert as the central operating point and directly operate a shutter/blind motor.
- When protecting the central operating point against short circuit using a separate residual current operated circuit breaker, both circuits must be isolated in order to prevent inadvertent tripping of the circuit breaker.

**Example 3:** Integrating a wind alarm

The detector for the wind alarm is integrated in the shutter/blind control over the extension unit input. In the event of a wind alarm, the shutters/blinds are raised and locked in that position until the wind alarm is reset over the detector. As long as the interlock is enabled, neither manual nor automatic operation of the shutters/blinds is possible.
Shutter/Blind Controls

Overview

**Product features:**
- Easy operation via a 4-button field
- Switching time block Mo to Fr: 1 x UP, 1 x DOWN
- Switching time block Sa to Su: 1 x UP, 1 x DOWN
- Quick configuration function
- Factory-configured switching times
- Reserve power > 6 h over storage capacitor
- Also configurable with an unlocked shutter/blind control insert without extension unit input
- After approx. 30 min, the storage capacitor for the reserve power is completely recharged.

Design

The shutter/blind control insert (1) is mounted in a DIN 49073-compliant device box (recommendation: deep box).

The terminals of the insert must be directed downwards.

The shutter/blind clock is plugged with the frame (3) onto the insert.

The electrical contacting is achieved over the plug (4).

Programming

With a charged storage capacitor, the control remains configurable for approx. 6 h even with the insert released.

The following factory-preset switching times are stored in the memory:
- Switching time 1: ↑ 07:00, Mo. to Fr.
- Switching time 2: ↓ 20:00, Mo. to Fr.
- Switching time 3: ↑ 09:00, Sa. to Su.
- Switching time 4: ↓ 20:00, Sa. to Su.

The current time can be accepted as switching time for the memory by pressing the desired direction of travel (↑ or ↓) and then activating the "Prog" button. The present switching time is overwritten in this case.

Effect of the length of the button stroke:
- Short keystroke (< 1 s): jog mode for adjusting the slats on shutters/blinds
- Long keystroke (> 1 s);
  2 min continuous operation, can be stopped with pushbutton ↑ or ↓.

Schematics

![Schematic Diagram](image-url)
Technical Information
Shutter/Blind Controls

Comfort shutter/blind controls

Overview

Form of delivery for the Comfort shutter/blind control

Design

The shutter/blind control insert ① is mounted in a DIN 49073-compliant device box (recommendation: deep box).

The terminals of the insert must be directed downwards.

The Comfort shutter/blind clock ② is plugged onto the insert with the frame ③.

The electrical contacting is achieved over the plug ④.

The additional plug-in contacts ⑤ or the socket contact ⑥ of the Comfort shutter/blind clock are used for the adaptation of the sensor cable.

Connection options for the sun sensor cable

There are three ways to connect the sun sensor cable to the Comfort shutter/blind control:

- Flush-mounting routing of the sun sensor cable
- Surface-mounting routing of the sun sensor cable
- Connection of the sun sensor cable by plugs

Flush-mounting routing of the sun sensor cable

When choosing the flush-mounting routing of the sun sensor cable, a suitable cable must be selected. Recommendation: J-Y(ST)Y 2 x 2 x 0.6 mm (telephone cable). The plug at the sun sensor must be removed. The individual wires of the sensor cable are isolated and connected with the selected cable in a suitable manner (soldering, screw terminals or similar).

In this context, it must be ensured that the insulating tube (supplied with the sun sensor) encloses the individual wires from the external cable insulation to the terminal. The cable, together with the insulating tube, is plugged through the drill hole ① of the insert and passed through the cable duct ② to the terminal ③. The terminal (supplied with the sun sensor) is put in the insert as shown in the illustration.
Comfort shutter/blind controls

Surface-mounting routing of the sun sensor cable

The plug at the sun sensor must be removed. The individual wires of the sensor cable are stripped and routed through the insulating tube (supplied with the sun sensor).

The cable 1, together with the insulating tube, is then routed directly underneath the supporting frame 2 through the cable duct 3 to the terminal 4.

Connection of the sun sensor cable by plugs

The sun sensor cable is connected by plugging the plug of the sensor into the socket of the Comfort shutter/blind clock.

Schematics
Programming

Operating and display elements

The three program memories, A, B, and C, enable storage of independent programs (e.g., for everyday, weekend, vacations etc.). All three program memories support a maximum of 18 switching times. The factory settings can be reset at any time.

Daylight savings

To implement daylight savings, the "Set" button must be briefly pressed at the appropriate times on the respective dates in spring and fall.

You can also set whether or not any configured individual motor runtimes are to be executed.

Operating modes

The Comfort shutter/blind clock can be set to the "automatic" and "manual" mode. It has three program memories (A, B, C), which can be alternatively selected in the automatic mode.

- **Automatic mode**
  The set switching times of the program memory A, B or C are executed. Manual operation is also possible using the \( \text{I} \) and \( \text{II} \) buttons. A, B or C is shown on the display.

- **Manual mode**
  Manual operation is only possible by means of the \( \text{I} \) and \( \text{II} \) buttons. The set switching times of the program memories A, B or C are not executed. A, B or C are not shown on the display.

Automatic mode with program memories A, B, C

In the three program memories, three individual switching time programs can be generated. By selecting the A, B or C program memory, the desired switching time program is activated.

By pressing the "Mode" button, it is possible to change between the program memories (A, B, C) and manual operation.

Manual operation

Manual operation is possible in any operating mode. The shutters/blinds are raised using the \( \text{II} \) button and lowered using the \( \text{I} \) button.

During operation, a distinction is made between short and long button strokes:

- **Short button stroke** (< 1 s)
  A pulse is generated in accordance with the duration of the key operation. This function serves to adjust the blind slats.

- **Long button stroke** (> 1 s)
  The shutter/blind control is set to maintained function (continuous operation). If no other motor runtimes are programmed, a runtime of approx. 2 min is executed.
Technical Information
Shutter/Blind Controls

### Comfort shutter/blind controls

#### Adjusting the astro time for sunrise and sunset

Astro times reflect the sunrise and sunset times in the course of a calendar year. The modification of the astro time facilitates an individual adjustment of the factory-calculated sunrise and sunset times to local conditions. The adjustment is executed for all days of the year.

The maximum adjustment of the astro times equals +/- 1 h 59 min for both the sunrise and sunset times. Note: It is therefore possible to compensate for “brighter” and “darker” installation sites.

- **Example 1**
  The patio is located at the southwest side of the house, so that it remains brighter longer as the sun sets in the west. The astro time for the sunset can therefore be delayed (e.g. +0:25 -> the shutters/blinds are lowered 25 min later).

- **Example 2**
  With a hillside location at the east side of a house, it gets dark earlier than specified in the astro curve. The astro time for the sunrise can therefore be set to an earlier time. (e.g. -0:20 -> the shutters/blinds are lowered 20 min earlier).

- **Example 3**
  You would like to enjoy the morning sunrise in the kitchen. To ensure that the shutters/blinds in the kitchen are already raised at this time, simply set the astro time for the sunrise to an earlier time. (e.g. -0:30 -> the shutters/blinds are raised 30 min earlier).

### Sun protection and twilight function

The sun protection function automatically lowers the shutters/blinds if it gets too dark. As soon as the predefined brightness value is exceeded, the sun symbol starts to flash and the shutter/blind is lowered after 2 min. The sensor position on the window pane determines the stop position of the shutters/blinds:

- When the sensor position is reached, the shutters/blinds stop.
- There are 2 min delayed to uncover the sun sensor and then lowered again until they are just above the sun sensor. This ensures that the sun sensor is not covered and changes in brightness can be detected. For optimum sun protection, the position of the shutters/blinds are readjusted hourly.

If the programmed brightness value is fallen below for 15 min, the shutters/blinds are raised again. Note: The delay times of 2 or 15 min are necessary in order to prevent premature movement of the shutter/blind when there are brief fluctuations of brightness.

### Setting the individual motor runtime

The motor runtime is factory-set to approx. 2 min. It can be reduced (only for the Down direction) or increased to a maximum of 12 min (Up and Down direction).

An individual motor runtime of less than 2 min is only executed with down commands if the shutters/blinds have previously been automatically or manually raised to their highest position. If the shutter/blinds are not in their top position, the standard runtime of 2 min is executed instead of the individual runtime of less than 2 min.

An individual runtime of more than 2 min is executed both in the Down and Up direction. An individual runtime of less than 2 min is only executed in the Down direction. The upward travel time is always at least 2 min.

### Astro curve

The astro curve displays the approximate sunrise and sunset time in the course of a calendar year. The astro time does not change within a calendar week. The times stated in the graphics refer to the Würzburg location.
Shutter/Blind Controls

Shutter/blind control flush-mounting isolating relays (5TC1 270)

Schematics

Sample connection

Wiring diagram
Technical Information

Shutter/Blind Controls

Shutter/blind control flush-mounting isolating relays, compact (5TC1 271)

Schematics

Sample connection

Wiring diagram
### Technical Information

**Room Temperature Controllers**

**Room temperature controllers, 1 NC contact**

(5TC9 200)

#### Mode of operation

![Graph showing temperature range and setting button range restriction](image1)

- **Range restriction in the setting button**

#### Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>5 ... 30 °C</td>
</tr>
<tr>
<td>Operational voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>Switch contact</td>
<td>1 NC contact</td>
</tr>
<tr>
<td>Rated current</td>
<td>10 (4) A</td>
</tr>
<tr>
<td>Switching temperature difference</td>
<td>Approx. 0.5 K</td>
</tr>
<tr>
<td>Temperature reduction</td>
<td>Approx. 4 K</td>
</tr>
<tr>
<td>Degree of protection/safety class</td>
<td>IP30/totally insulated</td>
</tr>
</tbody>
</table>

---

### Schematics

- **Legend:**
  - L = Outer conductor (phase)
  - N = Neutral conductor
  - φ = Connection for time switch (or switch) for nighttime/temperature reduction
  - = Load connection (heating)
  - RF = Resistance for thermal feedback
  - TA = Resistance for temperature reduction

---

### Room temperature controllers, 1 CO contact

(5TC9 201)

#### Mode of operation

![Graph showing temperature range and setting button range restriction](image2)

- **Range restriction in the setting button**

#### Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>5 ... 30 °C</td>
</tr>
<tr>
<td>Operational voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>Switch contact</td>
<td>1 CO contact</td>
</tr>
<tr>
<td>Rated current</td>
<td>10 (4) A (heating) 5 (2) A (cooling)</td>
</tr>
<tr>
<td>Switching temperature difference</td>
<td>Approx. 0.5 K</td>
</tr>
<tr>
<td>Temperature reduction</td>
<td>Approx. 4 K</td>
</tr>
<tr>
<td>Degree of protection/safety class</td>
<td>IP30/totally insulated</td>
</tr>
</tbody>
</table>

---

### Schematics

- **Legend:**
  - L = Outer conductor (phase)
  - N = Neutral conductor
  - = Load connection (heating)
  - = Load connection (cooling)
  - RF = Resistance for thermal feedback

---

© Siemens AG 2008
### Technical Information

#### Room Temperature Controllers

**Room temperature controllers, 3-position switch (5TC9 202)**

#### Mode of operation

![Mode of operation diagram](image)

Range restriction in the setting button

#### Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>5 ... 30 °C</td>
</tr>
<tr>
<td>Operational voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>Switch contact</td>
<td>1 NC contact</td>
</tr>
<tr>
<td>Rated current</td>
<td>10 (4) A (heating)</td>
</tr>
<tr>
<td>Switching temperature difference</td>
<td>Approx. 0.5 K</td>
</tr>
<tr>
<td>Temperature reduction</td>
<td>Approx. 5 K</td>
</tr>
<tr>
<td>Degree of protection/safety class</td>
<td>IP30/totally insulated</td>
</tr>
</tbody>
</table>

#### Room temperature controllers, direct floor heating (5TC9 203)

#### Mode of operation

![Mode of operation diagram](image)

Range restriction in the setting button

#### Schematics

![Schematics diagram](image)

Legend:
- **L** = Outer conductor (phase)
- **N** = Neutral conductor
- **<** = Connection for time switch (or switch) for nighttime/temperature reduction
- **L** = Load connection (heating)
- **RF** = Resistance for thermal feedback
- **TA** = Resistance for temperature reduction

Legend:
- **L** = Outer conductor (phase)
- **N** = Neutral conductor
- **<** = Connection for time switch (or switch) for nighttime/temperature reduction
- **L** = Load connection (heating)
- **L** = Load connection (cooling)
- **RF** = Resistance for thermal feedback
- **TA** = Resistance for temperature reduction

---

© Siemens AG 2008
### Technical specifications

**Control devices**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>5 … 50 °C</td>
</tr>
<tr>
<td>Operational voltage</td>
<td>230 V AC, 50/60 Hz</td>
</tr>
<tr>
<td>Tolerance range</td>
<td>195 … 253 V AC, 50 Hz</td>
</tr>
<tr>
<td>Switch contact</td>
<td>1 NO contact</td>
</tr>
<tr>
<td>Rated current (250 AC)</td>
<td>10 A at p.f. =1.0 (heating)</td>
</tr>
<tr>
<td>Switching capacity</td>
<td>2.3 kW</td>
</tr>
<tr>
<td>Switches</td>
<td>Power supply &quot;ON/OFF&quot;</td>
</tr>
<tr>
<td>Display LED</td>
<td>Red: control device demands heat (heating mode)</td>
</tr>
<tr>
<td></td>
<td>Green: temperature reduction &quot;ON&quot;</td>
</tr>
<tr>
<td>Switching temperature difference</td>
<td>Approx. 1 K</td>
</tr>
<tr>
<td>Temperature reduction</td>
<td>Approx. 5 K</td>
</tr>
<tr>
<td>Degree of protection/safety class</td>
<td>IP30/totally insulated</td>
</tr>
</tbody>
</table>

**Remote sensors**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor element</td>
<td>NTC according to DIN 44574</td>
</tr>
<tr>
<td>Sensor cable</td>
<td>PVC, 2 x 0.50 mm², length 4 m</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP68 (according to DIN VDE 0470T1)</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25 … +70 °C</td>
</tr>
</tbody>
</table>

**Sensor characteristics of measuring instrument $R_i > 1M$**

<table>
<thead>
<tr>
<th>Temperatures in °C</th>
<th>Resistance in kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.527</td>
</tr>
<tr>
<td>10</td>
<td>3.657</td>
</tr>
<tr>
<td>15</td>
<td>2.974</td>
</tr>
<tr>
<td>20</td>
<td>2.432</td>
</tr>
<tr>
<td>25</td>
<td>2.000</td>
</tr>
<tr>
<td>30</td>
<td>1.655</td>
</tr>
<tr>
<td>35</td>
<td>1.379</td>
</tr>
<tr>
<td>40</td>
<td>1.151</td>
</tr>
<tr>
<td>45</td>
<td>0.968</td>
</tr>
<tr>
<td>50</td>
<td>0.816</td>
</tr>
</tbody>
</table>
Technical Information

Communication

Overview

Data networks

The following three versions are used primarily for the data network:

- **Ring networks**
  - In a ring network, the users (network nodes) are connected in a closed loop. The data are transmitted from network node to network node in one direction. To expand the system, simply open the ring and add another user.

- **Star-type networks**
  - When a star structure is used, all users are linked to a control room, which also operates as the system control. It relays the data to all required devices. This network structure enables multichannel operation, which supports the simultaneous linking of many connections. Further users can be simply connected to the central operating point if required.

- **Bus networks**
  - In a bus network, all users are directly connected to a bus cable. The data transmitted from one network node are initially received by all other nodes. However, all the network nodes ignore this data – with of course the exception of the targeted node. An expansion of the power supply is achieved by directly tapping the bus and thus connecting new users to the supply.

Plug-in connectors, distribution boards and outlet boxes

For the connection and distribution of cables and the connection of terminals, there are a range of system-specific plug-in connectors, distribution boards and outlet boxes available.

Flush-mounting devices

These components for data processing and data communication, as well as telecommunication and electro-acoustical systems, are available in the surface-mounting product range of installation switch/socket outlet systems; DELTA line, DELTA vita, DELTA miro, DELTA profi, DELTA style, DELTA natur, DELTA ambiente, DELTA fläche, as well as for installation in flush-mounting device boxes with 60 mm diameter and in sill-type trunkings with either vertical or 30° inclined outlets.

Examples

The following describes just a few examples of the large range of connection components available in the field of data processing and telecommunications technology. Covers and frames (80 mm) of the installation switch/socket outlets product ranges DELTA line, DELTA vita, DELTA miro, DELTA profi, DELTA style, DELTA natur, DELTA ambiente and DELTA fläche surface-mounting can be used with all outlet boxes.

**D-subminiature plug-in connectors**

D-subminiature plug-in connectors are primarily used for the plug-in connection of computer terminals and data transmission devices, as well as for measuring and control equipment. The outlet box has a 9, 15 or 25-pole trapezoid plug-in pin or socket connector for connection of one device, or two pin/socket connectors each, if two devices are to be connected.

**BNC/TNC plug-in connectors**

BNC\(^1\)/TNC\(^2\) plug-in connectors are used for high-frequency applications in coaxial cable networks. The standard version is used for frequencies up to 4 GHz and is available for coaxial cable impedances of 50 W and 70 W. For BNC plug-in connectors, the connector is linked to the socket of the outlet box over a bayonet lock and, in the case of vibration-resistant TNC plug-in connectors, over a screw plug.

**Western (WE) plug-in connectors**

Western (WE) plug-in connectors are used in both data processing applications (e.g. as twisted pair connection\(^3\)) and telecommunications technology (e.g. as ISDN\(^4\) basic connection).

The WE outlet boxes are equipped with one or two 6 or 8-pole WE sockets, which, if partially equipped with contacts, provide 4, 6 or 8-pole outlet versions.

**Twinax plug-in connectors**

Twinax plug-in connectors are primarily used in local data networks (LAN) with IBM data terminal equipment. Both primary conductors of the Twinax cable are soldered to the Twinax installation socket of the outlet box, the metal braiding is securely clamped. After contacting with the outlet box, the connector is screwed securely into place by a cap nut.

**TAE connection units**

TAE telecommunication connection units are intended solely for the connection of telecommunication devices, such as telephones, fax machines, telex systems. The adapter (connector) is available on its own and preassembled with connecting cable in various lengths. The outlet boxes with one to three sockets and the adapters are prepared for telephone connection (F coding) or for connection of additional devices (fax, etc.) and data terminal equipment (Btx) (N coding).

**Fiber-optic outlet boxes**

All fiber-optic outlet boxes in the DELTA profi product range meet the requirements of a modern cabling system with glass-fiber cables.

These systems are equipped to cope with future communication requirements and ensure fast and reliable transmission for many applications, such as:
- Telephone (voice, fax),
- Data transmission (client/server, computing, mail, Internet, virtual LAN),
- Multimedia (integration of voice, data and video).

---

1) BNC: Standard bayonet connector.
2) TNC: Threaded standard connector.
3) Two twisted cables.
4) ISDN: Integrated Services Digital Network.
Overview

Color coding for analog and ISDN telephone

Connection to the ISDN-S0 bus

ISDN-telephone outlet boxes
point-to-point with WE 8 or UAE 8
Overview

TAE outlet box, for one telephone

TAE outlet box, for one telephone and two additional devices

UAE/TAE outlet box for one telephone and/or an additional device

TAE outlet box, for two telephones and two additional devices
### Technical Information

#### TV/RF/SAT

**Aerial branch-circuit boxes (5TG2 485)**

**Schematics**

1. Aerial branch-circuit box (5TG2 485)
2. Separating filter

With separating filter for coupling of terrestrial signals e.g. for regional UKW/TV reception

---

**Aerial system, terrestrial and/or broadband cable in star structure**

---

**Aerial system, terrestrial and/or broadband cable in tree/structured**

---

**Schematics**

1. Amplifier
2. Directional tap
3. Aerial branch-circuit box (5TG2 485)
4. Terminating resistor

---

**Aerial through-way boxes/terminal boxes (5TG2 484)**

**Schematics**

1. Amplifier
2. Distribution board
3. Aerial through-way box/terminal box (5TG2 484)
4. Terminating resistor

---

**Aerial system, terrestrial and/or broadband cable in tree/star structure**

---

**Aerial system, terrestrial and/or broadband cable in tree structure**
Remote Controls

IR-64K

Design

Mounting instructions

When mounting the modules, the wiring must always be disconnected and laid in a straight line.

Optimum cable routing

In the event of faults in the decoder (self-switching), connect the minus input of the receiver preamplifier to the PE.
Impractical cable routing
In the case of insufficient receiving range, the following must be heeded:
- Preamplifier cable must not be laid parallel to power lines
- Avoid coils and loops

Conditions of reception
Optimum reception conditions are achieved if the following points are observed:
- Transmitters and receiver preamplifiers must lie on an optical axis
- No direct sunlight or artificial light on the photodiode or focussing lens of the receiver preamplifier
- It is not permitted to transmit simultaneously with two or more transmitters in a single room, even if different commands are encoded

Range impairment, fault types
Avoid direct sunlight, e.g. by using a mechanical shutter
Prevent reception through reflections, it is essential to ensure visual contact to the receiver preamplifier
Receiver preamplifiers must not be mounted directly in the emission range of lights