

#### GENERAL:

The ZSW 3 safety lighting time-impulse switch provides a high level of comfort, safety and flexibility. The warning light function prevents sudden and unexpected cut-off of the light.

The warning light phase allows comfortable time for reaching the next pushbutton switch, which restarts the light timer. The light can also be switched off at any time with the warning light phase. The ZSW 3 thus permits flexible and energy-saving light use without having to renounce the extra safety of the warning light phase.

In the case of dimmable loads, switching off is indicated by dimming the lights. In the case of non-dimmable lighting media, imminent switching off is indicated by short light pauses.

#### APPLICATION:

Light control for areas used for short periods, e.g. staircase, courtyard, garage, store rooms etc.

#### OPERATION:

The 3 pushbutton inputs 1, Z1 and Z2 can be allocated the following functions by programming: switch ON, switch OFF with warning light, switch OFF without warning light, Toggle with warning light and Toggle without warning light.

The pushbutton functions are factory-set to the following defaults:

- Pushbutton input 1: Toggle with warning light
- Pushbutton input Z1: Switch ON
- Pushbutton input Z2: Switch OFF with warning light

## Safety lighting time-impulse switch ZSW 3

with warning light phase before switching off

#### SPECIAL FEATURES:

- Warning time adjustable from 0 to 5 min
- Operating time adjustable from 0 to 60 min
- Two additional electrically isolated universal voltage inputs (8 to 230V AC or DC)
- Soft on/off for reduced lighting component stress and pleasant switching characteristic
- Long-period switchover via light switch
- With dimmer-type warning light suitable for dimmable loads (incandescent lamps, halogen lamps with conventional or tronic transformer)
- With pulsed-type warning light suitable for non-dimmable loads (energy-saving lamps)
- Electronic short-circuit and overload protection
- Fully electronic semiconductor output with highpower MOSFET output stage
- 500VA load (with external power extension modules EL3 up to 4 x 500VA)

The "Switch ON" function switches the light on and starts the timer. If the pushbutton is pressed again during the timer-controlled operating time, the timer is retriggered, i.e. the full operating time is restarted.

The "Switch OFF with warning light" function immediately starts the warning light phase. After expiry of the warning time, the light is switched off.

In the "Switch OFF without warning light" function, the light is switched off immediately without warning light.

The "Toggle with warning light" function switches the light on and starts the timer if the light was previously switched off or in the warning light phase. If the pushbutton is pressed during the timer-controlled operating time, the warning light phase is started, and the light is then switched off after expiry of the warning time.

The "Toggle without warning light" function switches off the light immediately without warning light phase.

If a pushbutton with ON or Toggle function is held down for longer than 1.5s, the timer is started or retriggered in long-time mode. The long-time is factory-set to twice the normal operating time setting, but can also be programmed to 1h or 2h or deactivated.

If several pushbutton inputs are operated at the same time, input Z2 has priority over Z1, and Z1 has priority over input 1.

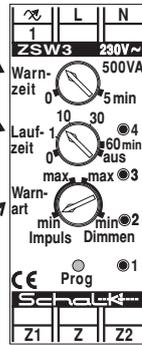
**Warning time:** duration of the warning light phase. At position 0, the warning light is deactivated.

**Operating time:** time-delay before the light is automatically switched off. In the "Off" position, the automatic timed shut-off is deactivated. In the 0 position, the ZSW 3 is only activated while the pushbutton is operated (pushbutton mode).

**Warning type:** type and intensity of the warning light.

**Pulsed warning light:** for non-dimmable lighting media (energy-saving lamps etc.). In the min. to max. "Pulse" range, the duration of the warning pulses can be set between 20 and 250 ms.

**Dimmed warning light:** In the min. to max. "Dim" range, the user can set the steps of the dimming process. At "min." the dimming process is uniform and without graduations. As the control is moved towards "max.", the dimming steps becoming increasingly marked and intensive.



**LEDs 1-4**

**LEDs flashing rapidly:** pushbutton input 1, Z1 or Z2 activated and in operation

**LEDs constantly lit:** programming function

**LEDs flashing every 3s:** fault indicator

**LEDs Continuous flashing:** timer is running

**Prog button:**

to allocate a function to a pushbutton input, the Prog button must be held down for 2s (LED1 lights up). Then repeatedly press and release the Prog button until the desired function is displayed by the LEDs. The function can then be assigned to a pushbutton input (1, Z1 or Z2) by activating this input. If no button is pressed, the ZSW 3 automatically quits programming mode after 20s.

**Example:**

Assigning Function 4 "Toggle with warning light" to pushbutton input Z1:

**1. Hold down Prog button for 2s**

> LED 1 lights up and displays function 1

**2. Briefly press Prog button 3 times**

> LEDs indicate func. 4 "Toggle with warning light"

**3. Briefly press the button at input Z1**

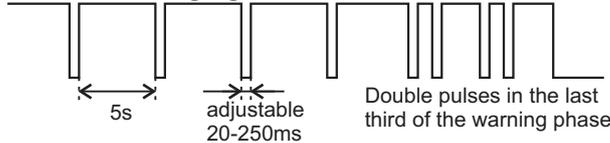
> the LEDs go out. Programming is complete.

Z1 now has function 4 "Toggle with warning light".

Functions 6 to 8 are not assigned to a particular pushbutton input but are applied generally.

Therefore it is not important which pushbutton input (1, Z1 or Z2) is pressed when programming these functions.

**Pulsed warning light:**

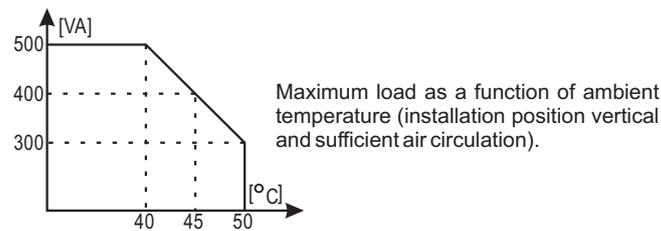


**Dimmed warning light:**



**Installation instructions:**

when the ZSW 3 is operated, heat is generated as a function of the connected load. If this heat cannot be adequately dissipated, the power input must be reduced. If several ZSW 3 switches are used, they should not be installed directly next to one another but should be mounted with a minimum clearance equivalent to half the width of the housing.



Maximum load as a function of ambient temperature (installation position vertical and sufficient air circulation).

**LED No.**

1 2 3 4

- ☀ ● ● ● 1 Switch ON
- ☀ ● ● 2 Switch OFF with warning light
- ☀ ☀ ● ● 3 Switch OFF without warning light
- ● ☀ ● 4 Toggle with warning light
- ☀ ● ☀ ● 5 Toggle without warning light
- ☀ ☀ ● 6 Long-time = 2x normal runtime
- ☀ ☀ ☀ ● 7 Long-time = 1h
- ● ● ☀ 8 Long-time = 2h
- ☀ ● ● ☀ 9 Long-time deactivated

**Programmable functions:**

**Fault codes:**

- ☀ ● ● ● 1 Load exceeds 500VA
  - ☀ ● ● 2 Device temperature too high
  - ☀ ☀ ● ● 3 Short-circuit at output
  - ● ☀ ● 4 Overvoltage
  - ☀ ● ☀ ● 5 Asymmetrical load
- ☀ = LED on ● = LED off ☀ = LED flashing

**TECHNICAL DATA:**

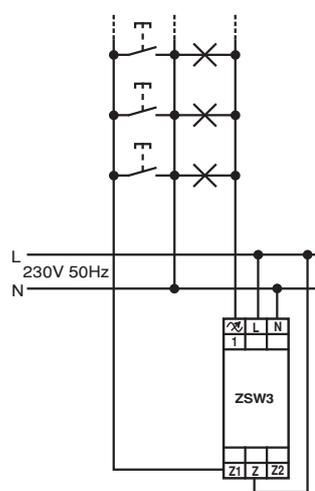
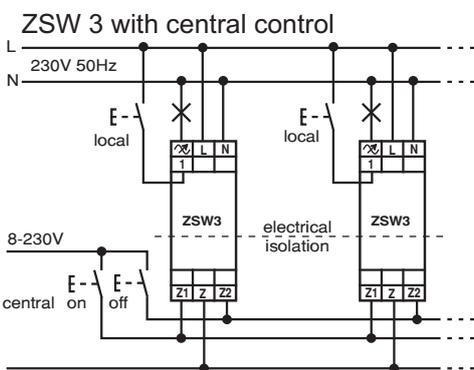
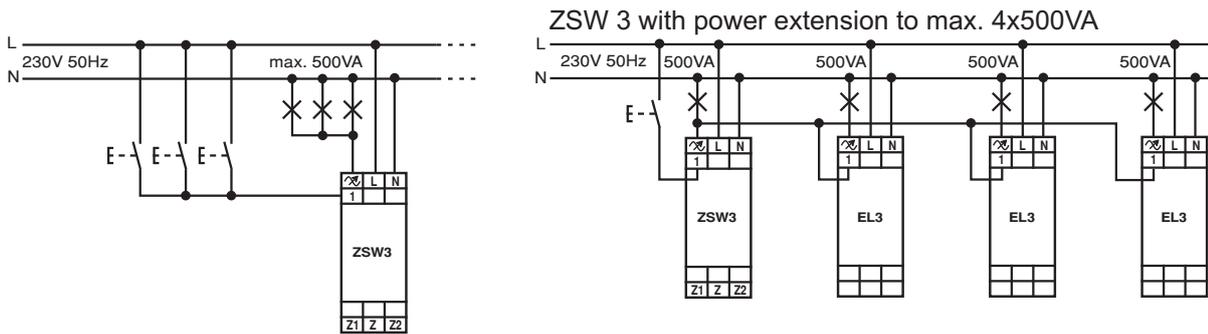
Operating voltage	230V AC 50Hz
Power consumption	2W for 500VA load
Load	0-500VA
Input 1:	
-Line capacitance	max. 100nF
-Glow lamp load	max. 20mA
Inputs Z1 and Z2:	
-Line capacitance	max. 10nF
-Glow lamp load	max. 1mA
Interference immunity	compliant IEC 801-4 level 2
Equipment protection	compliant IEC 801-5 level 2
Ambient temperature	-10°C to +50°C
Insulated housing	Flameproof to VDE 0304 Part 3, level FV 0

Connections	Socket terminals with captive screws M3.5
Fixing	Clip fastening on 35 mm standard rail DIN EN 50022
External dimensions	18x88(45)x58mm
Installation depth	55 mm
Weight	80g
Colour (RAL)	Grey 7035

**ORDERING INFORMATION:**

Part. No.	Type	Description
zsw309	ZSW 3	Safety lighting time-impulse switch
el3009	EL 3	Power extension 500VA

**TYPICAL APPLICATIONS:**



If a pulse relay in an existing installation is to be replaced by the ZSW 3 in 3-conductor circuit configuration, one of the potential-free central inputs can be used for this purpose. However, the load capacity of this input is limited to 1mA glow lamp current.

**On request**, the ZSW 3 can also be supplied with central inputs for 230V fixed voltage permitting glow lamp currents up to 20mA. This circuit is not recommended for new installations.

**SUITABLE LIGHTING EQUIPMENT:**

**Dimmable loads:** transformers or Tronic transformers must be authorised by their manufacturer for dimming with leading-edge or trailing-edge phase control. The efficiency of the transformers must also be taken into account. The maximum connected load is based on the transformer primary power input.

-  **Incandescent lamps and high-voltage halogen lamps**
-  **Dimmable Tronic transformers**
-  **Conventional (wound) transformers**
-  **Combination of incandescent lamps and Tronic transformers**
-  **Combination of incandescent lamps and conventional transformers**
-  **The combination of Tronic transformers and conventional transformers is not permitted because they require different dimming modes.**

**Non-dimmable loads** must be suitable for pulsed operation. Energy-saving bulbs and fluorescent lamps with electronic ballast are generally suitable. Standard fluorescent tubes with conventional or low-loss ballast (KVG/VVG) are not suitable (the light pause generates flicker). In case of doubt, the suitability of the lighting media must be tested. It should be noted that energy-saving bulbs or electronic ballasts have a capacitive reactive current, i.e. the apparent power of these lighting media is higher than the active power component specified by the manufacturer. Energy-saving bulbs have a power factor (lambda or cos phi) of approx. 0.75. This yields a maximum connected load of  $500VA * 0.75 = 375W$ .