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Operating Manual SW31K

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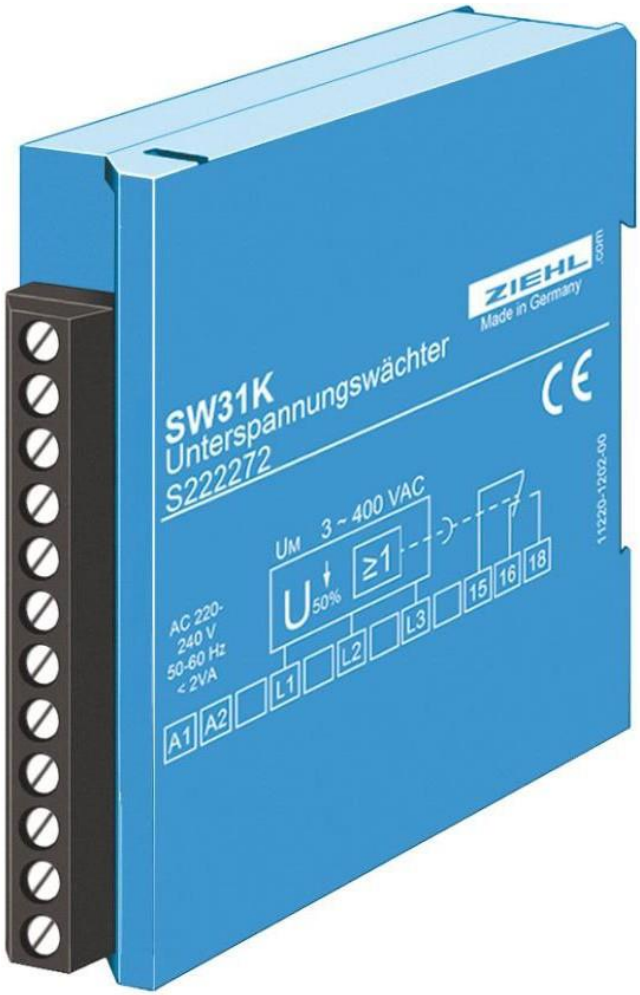
- Low-voltage monitor



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1 Application and brief description

The SW31K undervoltage monitor monitors the voltage in three-phase systems without N for undervoltage and voltage failure. The failure of one phase or the symmetrical reduction of all phases is recognised. The switching threshold is factory-set to 50 % Us . Switching back takes place with a hysteresis of approx. 10 %. The switch-off delay of the relay is approx. 1 s.
Other values can be realised at the factory on request.

2 Overview of functions

- Voltage monitoring for undervoltage in three-phase systems without N
- Auxiliary voltage 230 V
- Switching point fixed at 50 % Us
- Fixed response delay
- Indication of the switching status with LED as an option
- 1U relay in closed-circuit current version
- Design 22.5 mm

3 Function

The SW31K undervoltage monitor measures the voltage of the three phases internally against an artificial N and thus reliably detects the reduction or failure of each individual phase if the voltage falls below the factory-set limit value. The device is supplied by a separate auxiliary voltage. If all voltages are present on the mains, the relay switches on after approx. 0.5 s. If the voltage falls below the permissible limit value, the relay switches off after a delay of approx. 1 s. Short voltage interruptions therefore do not lead to an error message.

4 Assembly

- The device can be mounted on 35 mm mounting rails in accordance with EN 60 715
- Connect in accordance with the wiring diagram or rating plate

Pay attention to the maximum permissible temperature when installing in a switch cabinet. Keep sufficient distance from other heat sources or ensure forced ventilation. Generally recommended installation distance: 2 cm.

5 Commissioning

Caution!

Before switching on the appliance, make sure that the supply voltage Us on the side rating plate and the mains voltage connected to the appliance match!

<u>Check that the appliance is functioning correctly:</u>

- Switch on the mains voltage
- When the device is ready for operation, relay K1 must switch on (terminals 15, 18 closed)
- Switch off one phase of the voltage to be monitored. Relay K1 (alarm 1) must switch off (terminal 15, 16 closed).

  For devices with display option: The red Alarm LED lights up.

6 Troubleshooting and measures

Relay does not switch on

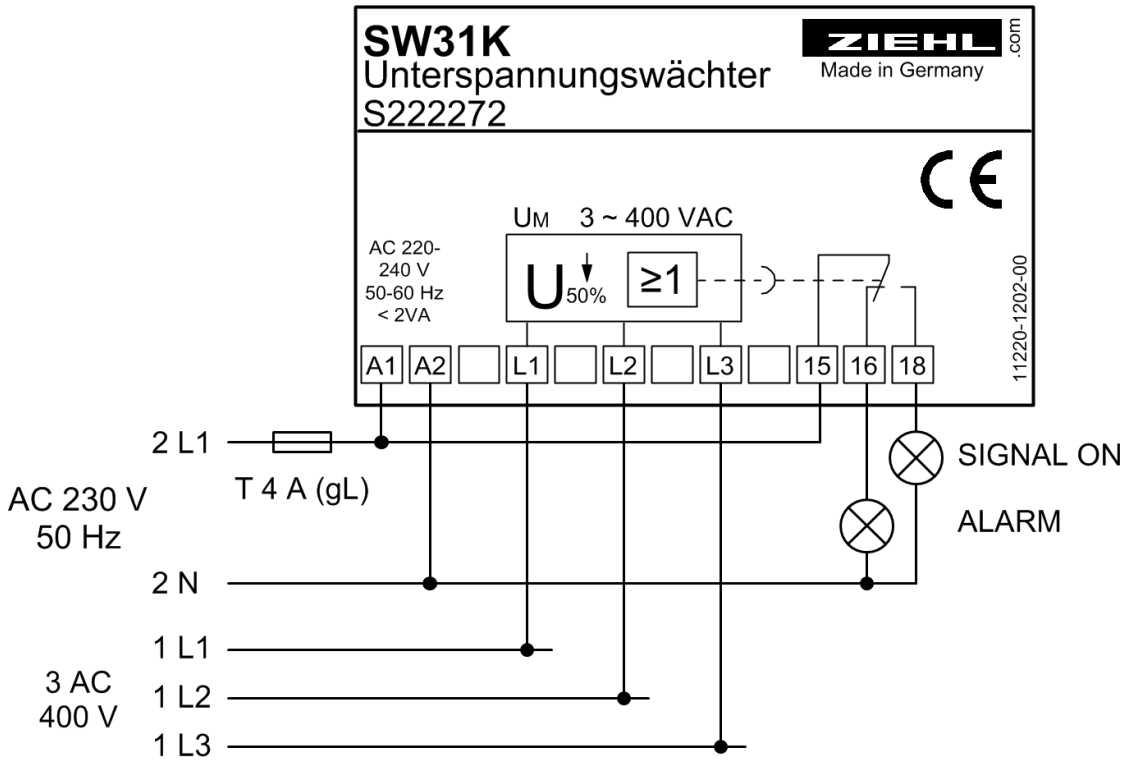
- Check whether the supply voltage at terminal A1, A2 is correct and corresponds to the device voltage on the side rating plate.
- Check whether the measuring voltage at terminal L1, L2, L3 is connected correctly and the voltage is > 50% of the nominal voltage.

7 Technical data

Control voltage Us		AC 220...240 V 50/60 Hz
Permissible tolerance		0.85...1.1 Us
Nominal power consumption		2 VA
Measuring voltage Um		3 x AC 400 V 50/60 Hz
Permissible tolerance		0.7...1.1 Um
Nominal switch-off value		AC 170 V
Nominal switch-back value		AC 230 V
Tolerance		± 10%
Response time switch-off delayed		approx. 1 s
Relay output		1 changeover contact, potential-free
Switching voltage		max. AC 415 V
Switching capacity max.		2000 VA (resistive load) max.120 W at DC 24 V
Thermal rated current I_{th}		5 A
Rated operating current	AC15:	I_e= 2 A, U_e= 400 V I_e= 3 A, U_e= 250 V
	DC13:	I_e= 2 A, U_e= 24 V
Mechanical contact life		3 x 107 switching cycles
Electrical contact life		1 x 10^5 switching cycles at 230 V / 5 A
		1 x 106 switching cycles at 230 V / 2 A
Reduction factor with cos j		0.3 0.5
Recommended back-up fuse		4 A slow-blow (gL)
Test conditions		VDE 0160 / VDE 1
Nominal insulation voltage Ui		AC 690 V
Pollution degree		2 / VDE 0110
Transformer		VDE 0551
Insulation, dielectric strength		Input/output/supply 4000 VAC EMC IEC
801/EN 50081/EN 50082		
Duty cycle		100%
Operating / storage temperature		-25...55 °C / - 40...+85 °C
Housing		Type K, polyamide PA 66, UL 94 V-2
Dimensions (H x W x D) 75 x 22.5 x 110 mm		
Mounting position		any
Fastening		35 mm standard rail to EN 60 715 or M4 screw fastening
Protection class housing		IP 40
Protection class Terminals IEC 529 IP 20		
Contact safety		VBG 4, VDE 0106 Part 100
Vibration resistance		10...150 HZ, 0.15 mm amplitude
Shock resistance		15 g/ 11 ms
Connection cross-section		
Single-wire cable connection		1 x 0.5 mm^2 (AWG 26) - 2.5 mm^2 (AWG 14)
finely stranded with wire end ferrules		1 x 0.14...1.5 mm^2
Stripping length		8 mm
Connection torque		max. 0.5 Nm
Captive clamping screw		
Weight	approx. 250 g	

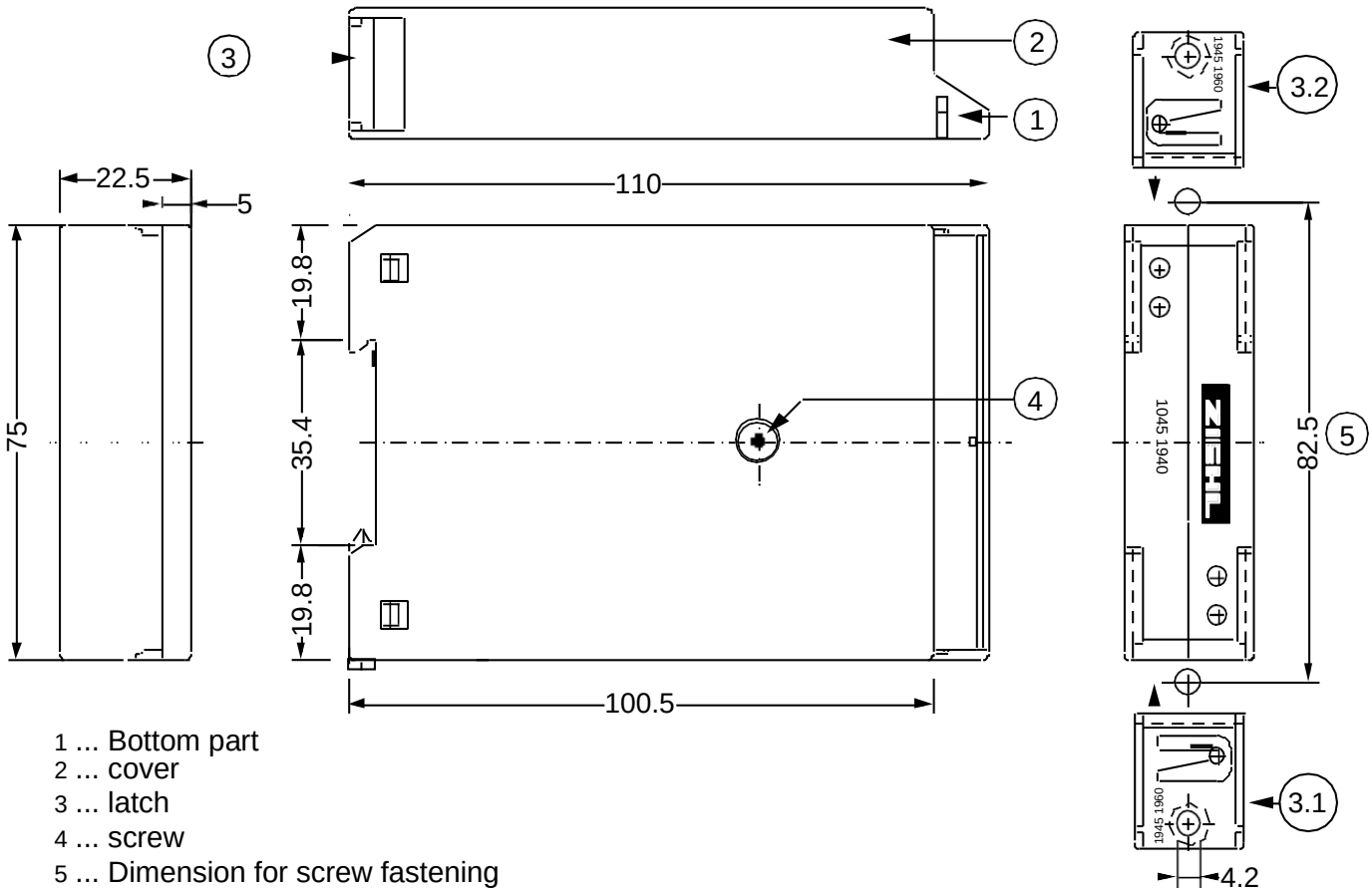
Subject to technical changes

8 Connection diagram



9 Type K

Dimensions in mm



1 ... Bottom part
2 ... cover
3 ... latch
4 ... screw
5 ... Dimension for screw fastening