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Operating Manual STW1K

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For more information and help about this product please scan the QR-Code or choose the following link: STW1K

**Operating manual, Quick guide, Datasheet, Connection diagram, CAD Data
Firmwareupdates, FAQ, Videos about installation and settings, Certificates**

- AC Current Sensing Relay, OR circuit 1-8 of transducers

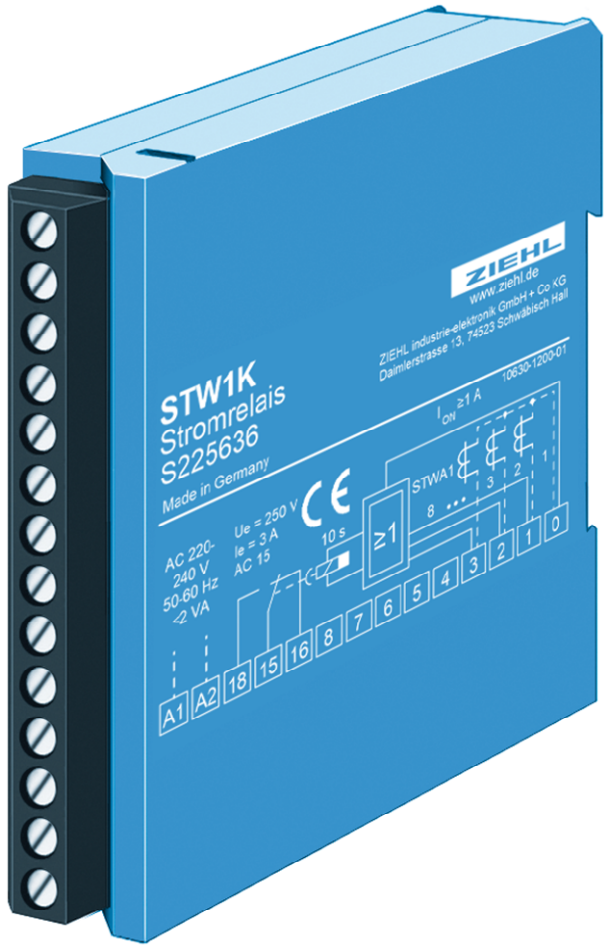


Table of contents

1 General Notes

Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given especially but not limited for general safety, transport, storage, mounting, operating conditions, commissioning and disposal / recycling are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties.

Deviations from the following requirements may therefore lead both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

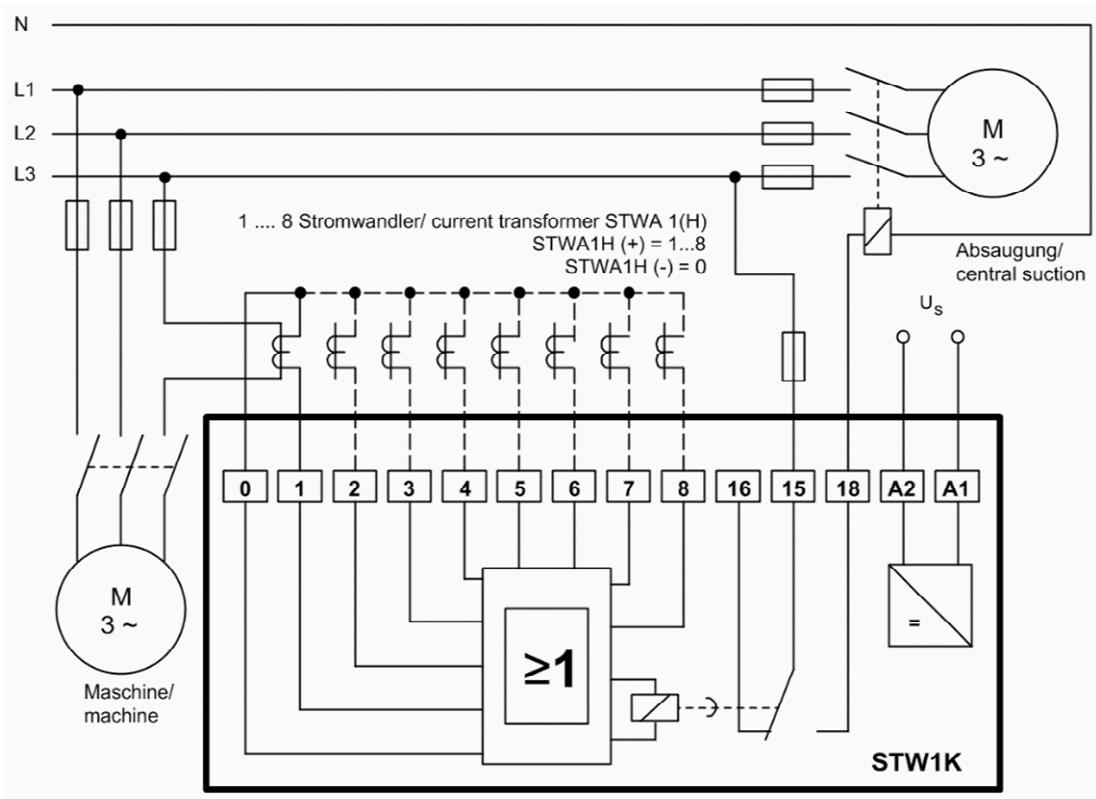
2 Application and short description

STW1K current relay is an automatic starting device in OR circuit with 8 inputs. If a current > 1 A flows through at least one connected transducer, the integrated relay (1co) is activated. If the currents through all transformers are 0, the relay switches off with a delay of about 10 s to allow for the necessary timeout, e.g. for a central extraction system in wood processing.

3 Functional overview

- 8 inputs in OR circuit
- relay on when 1 input is activated
- response threshold approx. 1 A
- connection of current sensor S1 (power supply for S1 required)
- switch-off delay approx. 10 s
- Inputs that are not required remain open

4 Wiring scheme



5 Important notes

DANGER!
Hazardous voltage!
Will cause death or serious injury. Turn off and lock out all power supplying this device before working on this device.

Attention!
Before switching on make sure that the operational voltage Us of the type- plate and the mains voltage are the same.

6 Detailed description

The STW1K current relay operates in an OR circuit and detects whether or not current is flowing in one of up to 8 monitored wires. The relay is activated when the current flowing through the current transducer exceeds a value of approximately 1 A. The output is a potential-free switching contact. It can be used to turn on additional equipment such as extraction or blowing systems. If this value falls below approx. 0.5 A, the relay switches off the auxiliary equipment again (after the switch-off delay time has elapsed). The STWA1(H) current transformer can be loaded with a maximum current of 100 A.

Tips:

Response threshold is too high (current flow in the wire is too low):

- wires pass through the current transformer STWA1(H) several times.

Response threshold is too low (base load current must be extinguished):

- connect a resistor (0.25 W / 200 V) to the corresponding input of STW, in parallel to the current transformer STWA1(H).
  - 750 Ω resistor = increase by a factor 2
  - 330 Ω resistor = increase by a factor 4
  - 120 Ω resistor = increase by a factor 10

Due to large tolerances that must be considered, we recommend that the best values be determined by trial and error method.

Length of connecting cables STWA1(H):

Up to 50 m, also much longer are also possible.
Shielding may be required when laid parallel to power lines.

7 Assembly

The unit can be mounted as follows:

- mounting of the on a 35 mm mounting rail according to EN 60715
- optional: M4 screw fitting, only with additional bolt (not included)

Make the connection in accordance with the wiring diagram or the nameplate

When installing the device into the switchgear cabinet, please observe the max. admissible temperature. Care for both, sufficient clearance to other devices and sources of heat or enough forced draught. If cooling is made more difficult, e.g. close devices with increased surface temperature or by handicap of airflow cooling, the permissible ambient temperature has to be reduced.

8 Start-up

Attention!
Only 1 live conductor may be fed through the current transformer!

- switch on the mains voltage
- when the device is ready for operation, the relay must switch on when a current ≥ approx. 1 A flows through the current transformer.

9 Trouble – shooting and remedies

Relay does not turn on:

- check that the control voltage at terminals A1, A2 is correctly applied and corresponds to the device voltage specified on the device's rating plate.
- check that the current transformer is properly connected. The consumer must be turned on. Verify that only one conductor is routed through the transmitter.

10 Technical data

Control voltage Us:	**Refer to the unit rating plate**	
Tolerance	DC 21 - 30 V	AC -15 - +10%; 50/60 Hz
Power consumption	< 1.5 W	< 2 VA
Relay outputs K1, K2 (Alarm 1, 2)	**1 switching contact**	
Switching voltage	max AC 415 V	
Conventional thermal current Ith	max 6A	
Switching capacity max AC cos φ = 1	2000 VA (resistive load) 120W at 24 V DC	
Electrical contact life cos φ = 1	1 x 10^5 switching cycles at 240 V / 6 A	
Durability of mechanical contact	3 x 10^7 switching cycles	
Short circuit resistance (NO)	4 A slow action or LS switch	
Short circuit resistance (NC)	B4 3.15 A slow action	
Shutdown capability	AC-15 Ie = 3 A Ue = 250 V	
Category		
Rated operational current	DC-13 Ie = 2 A Ue = 24 V	
Rated operational voltage		
Reduction factor for cos φ = 0.3	0.5	
Transformer connection		
Connection transformers	1 … 8 pcs Type STWA1 or STWA1H	
Alternating current - internal resistance	approx. 7kΩ	
Transformer overload capacity	max 100A continuous, max 300 A for 10 s	
Switching points		
Switching value	app. AC 1 A	
Activation delay	< 200 ms	
Switch-off delay	See nameplate (without < 200 ms)	
Testing conditions	**EN 61010-1**	
Rated withstand voltage	4000V	
Overvoltage category	III	
Degree of contamination	2	
Rated insulation voltage Ui	250V	
On-time	100%	
EMC tests	**EN 61326-1**	
Interference emission	EN 61326-1; CISPR 11 Class B	
Interference immunity	EN 61326-1 (industrial environment)	

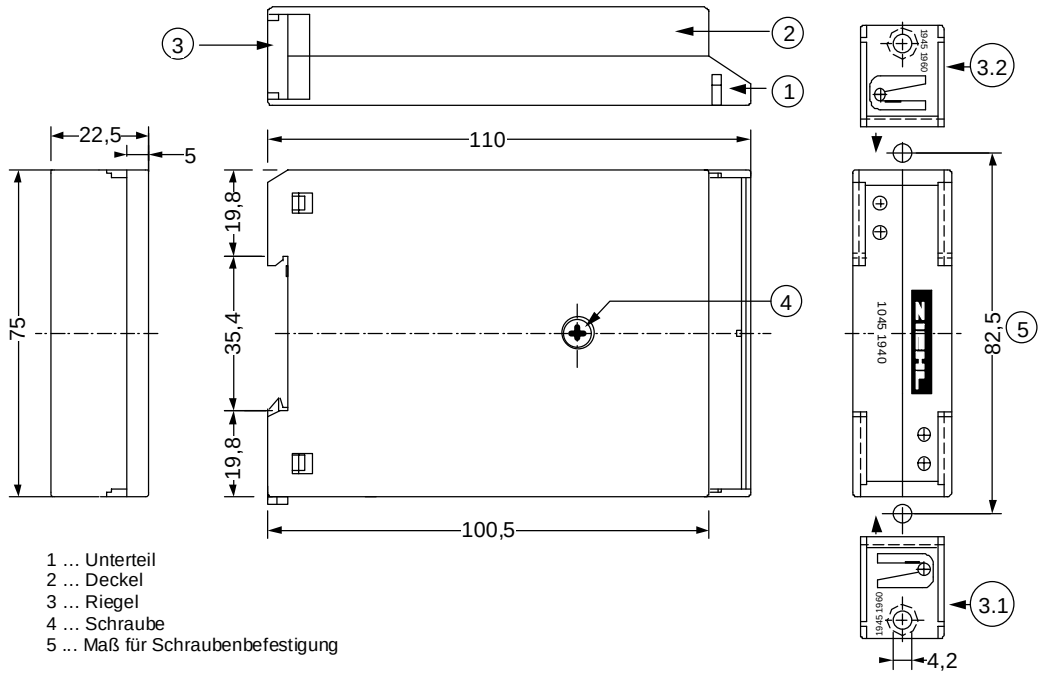
Environmental conditions	
Permissible ambient temperature	-20 °C ... +55°C
Permissible storage temperature	-20 °C …+70 °C
Installation altitude	< 2000 m a.s.l.
Resistance to climatic conditions	5- 85% relative humidity, non-condensing
Permissible wiring temperature	-5 °C …+70 °C
Vibration resistance EN 60068-2-6	2…25 Hz ±1.6 mm 25 ... 150 Hz 5 g

Housing	**design K**
Dimensions (W x H x L)	75 x 22.5 x 115 mm
Width	1 TE
Cable connection single wire / fine wire	1 x 0.5 mm ^{2}– 2.5 mm² 2/ AWG 22 - 14
Fine wire with conductor ferrule	1 x 0.14 mm ^{2}– 2.5 mm² 2/ AWG 28 - 16
Strip length / tightening torque	8 mm / 0.5 Nm
Protection snaps	IP40 / IP 20
Fastening	Snap-on mounting on 35 mm mounting rail according to EN 60715 or screw fixing M 4
Mounting position	any
Weight	approx. 150 kg.

Subject to technical changes

11 Design K

Dimensions in mm



12 Disposal

Disposal should be carried out properly and in an environmentally friendly manner in accordance with legal provisions.
ZIEHL is registered with the EAR Foundation under WEEE no .: DE 49 698 543.