

# Operating manual STWA1

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## - Current transformer for AC current detection - accessories for current relay STW



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## 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

Current transformers STWA1 are inductive working single-ended current transformers. Due to the applied measuring principle, these current transformers are only suitable for alternating current. The current transformer STWA1 is used together with ZIEHL current relay type STW for current detection and control of extraction systems. The level of the current to be monitored is limited to 100 A continuously, 300 A for max. 10s. The electrical connection is made via the lead out black cable.

### 3 Overview of functions

- Current transformer for alternating current detection
- connection to current-relays type STW
- no supply-voltage required
- plug-in current transformer (Ø 11 mm)
- length of the fixed connection cable 1000 mm

### 4 Important Information

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.

Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instruction's manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.

The equipment is built according to DIN / EN and checked and leave the plant according to security in perfect condition. If, in any case the information in the instruction's manual is not sufficient, please contact our company or the responsible representative.

Instead of the industrial norms and regulations written in this instruction manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.



**DANGER!**

**Hazardous voltage!**

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



**DANGER!**

**In a non-loaded (open) secondary circuit of the current transformer STWA1 high voltages are induced at the secondary terminals.**

**For primary currents > 16 A, this voltage can be dangerous for human beings.**

**An "open mode", i.e. operation of the current transformer without secondary wiring, should be avoided.**

### 5 Installation

The current transformer STWA1 is intended for installation in dry rooms. The STWA1 can be mounted as follows:

- simply plug over the conductor to be monitored
- STWA1 e.g. secure with cable ties



**DANGER!**

**The current transformer STWA1 is suitable for current detection in insulated cables. At applications with non-insulated conductors the operator must take care for touch safety. The insulation of the connection cables of the STWA1 must not be damaged. When laying the cable, make sure that there is sufficient distance to not isolated live parts (such as busbars).**

**If necessary, use an additional electric insulation hose.**

## 6 Connecting diagram

See operating manual of ZIEHL current relays type STW.



**Attention!**  
There may only one conductor be lead through the transformer!



**Attention!**  
The connecting cable can be extended up to 50 m. When laying parallel to power cables use twisted or shielded cables.



**Attention!**  
The polarity of the current transformer output (white marking on the cable) must be observed only if several current transformers are connected in series to increase the sensitivity.

### 6.1 Tips

**Limit too high** (current in wire too low):

- Loop through wire several times

**Limit too low** (small loads shall not be recognized)

- Connect a resistor (0,25 W / 200 V) in parallel to the current transformer STWA1(H)
  - - - resistor 750 Ohm = enhancement by factor 2x
  - - - resistor 330 Ohm = enhancement by factor 4x
  - - - resistor 150 Ohm = enhancement by factor 10x

Because of high tolerances we recommend to determine the best value by try out.

## 7 Technical data

### Input / primary conductor

Rated thermal continuous current $I_{cth}$	AC 100 A
Thermal rated short-time current $I_{th}$	AC 300 A for 10 s
Rated frequency	50/60 Hz
Max. Operating voltage $U_m$	0.72 kV

### Output

Max. output voltage $U$ at $I_{cth} = 100$ A	200 V peak (not limited)
Max. short circuit current $I$ at $I_{cth} = 100$ A	140 mA eff.

### Test Conditions

Type test voltage	EN 61010-1 AC 2500 V 50 Hz 60 s
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## Installation conditions

Permissible ambient temperature	-25 °C ... +70 °C
Permissible storage temperature	-25 °C ...+70 °C
Installation height	< 2000 m over N.N.
Climatic conditions	5-85% rel. F., no condensation
Vibration resistance EN 60068-2-6	2 ... 13.2 Hz ±1 mm 13.2 ... 100 Hz 1 g 2...25 Hz ±1.6 mm 25 ... 150 Hz 5 g

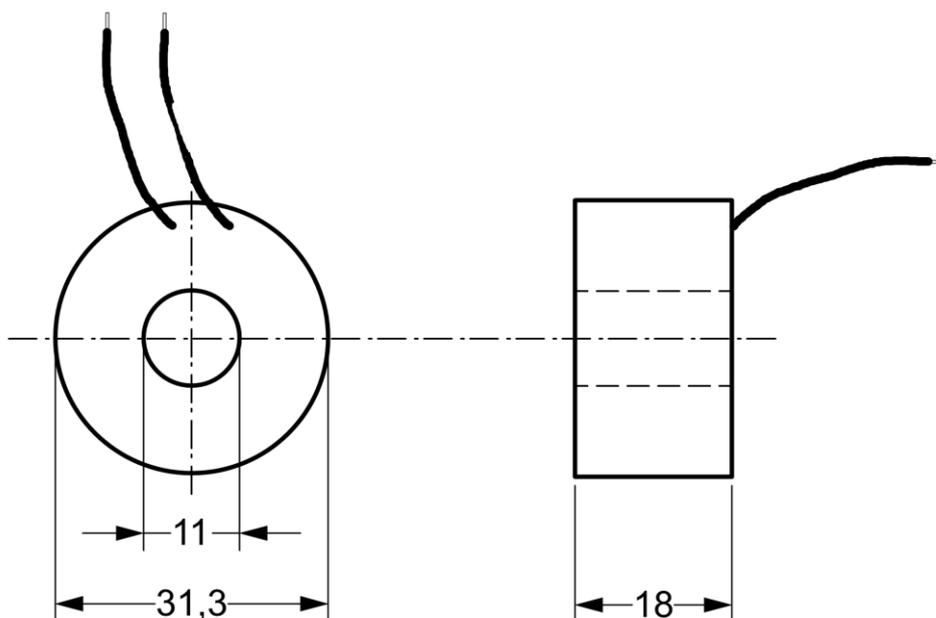
## Housing

clip-on

Housing material	Polyamide PA66 blue
Flammability	UL94 V-2
Grouting	2 component-epoxy DOLPHON CB-1107
Protection class	IP 20
Outside diameter	31.3 mm
Height	18 mm
Connection cable	Wire LiYv 7x 0.25 (0.34 mm <sup>2</sup> ) AWG 22 black
Wirelength	2 x 1000 mm
Stripping length	10 mm
Opening for primary conductor	11 mm
Mounting position	any
Weight	~ 43 g

Subject to technical changes

## 8 Housing



## 9 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.