

Operating Manual STW12V

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

- Current Relay, 12 inputs in OR circuit with adjustable response threshold

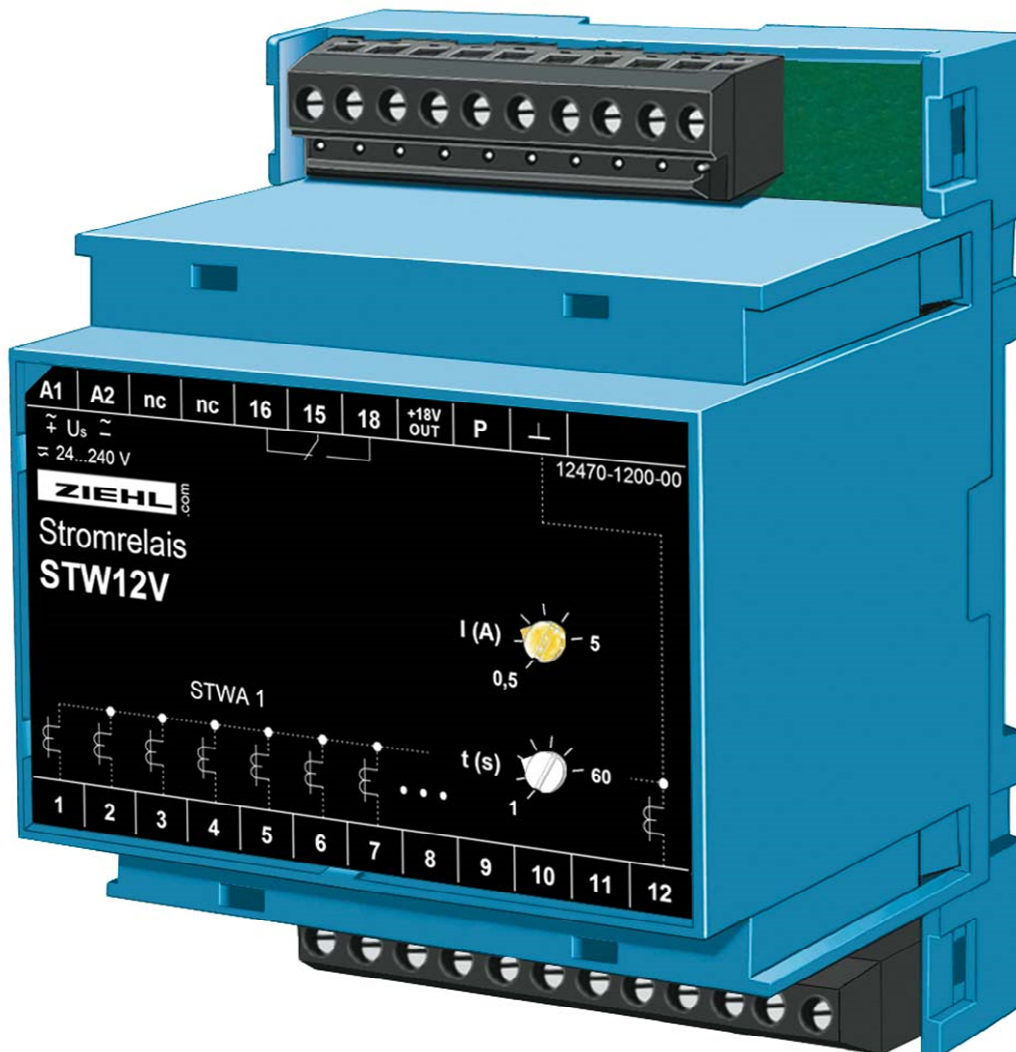


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1 General Notes

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 brief description

ZIEHL current relays in the OR circuit are particularly suitable for applications where dusts, fumes, vapours or gases are generated at various electrical consumers, which must be removed by a central extraction system.

An integrated shutdown delay controls the operation of the extraction system after working hours.

Automatic actuation with 12 inputs with adjustable response threshold.

Current is detected using current transducers type STWA1(H), current sensors S1 (also DC) or potential free contacts.

If current is detected on at least one input, the current sensor turns on or a contact closes, the built-in relay turns on. If the current is turned off in all monitored circuits or if it falls below the set response threshold (for detection with STWA1(H)), the output relay disconnects with the set delay.

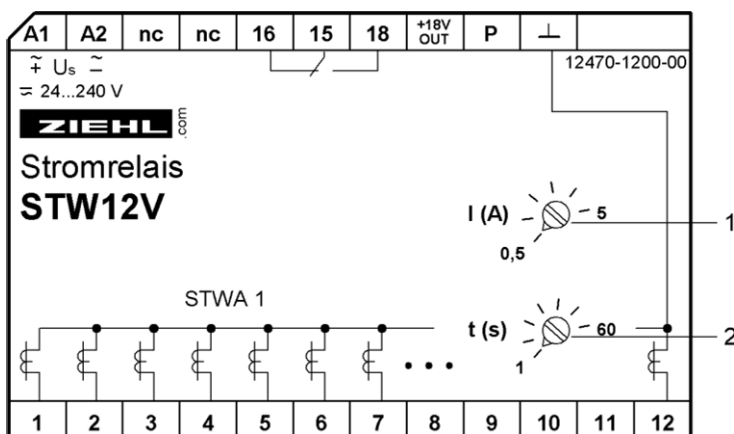
An adjustable response threshold allows the user to allow smaller currents without triggering switching operations. For example, the device can be turned on to make adjustments in an electronic circuit (small current through a current transducer). However, the extraction will not start until the main motor is turned on (high current).

The adjustable shutdown delay makes it easy to set the delay time value.

3 Functional overview

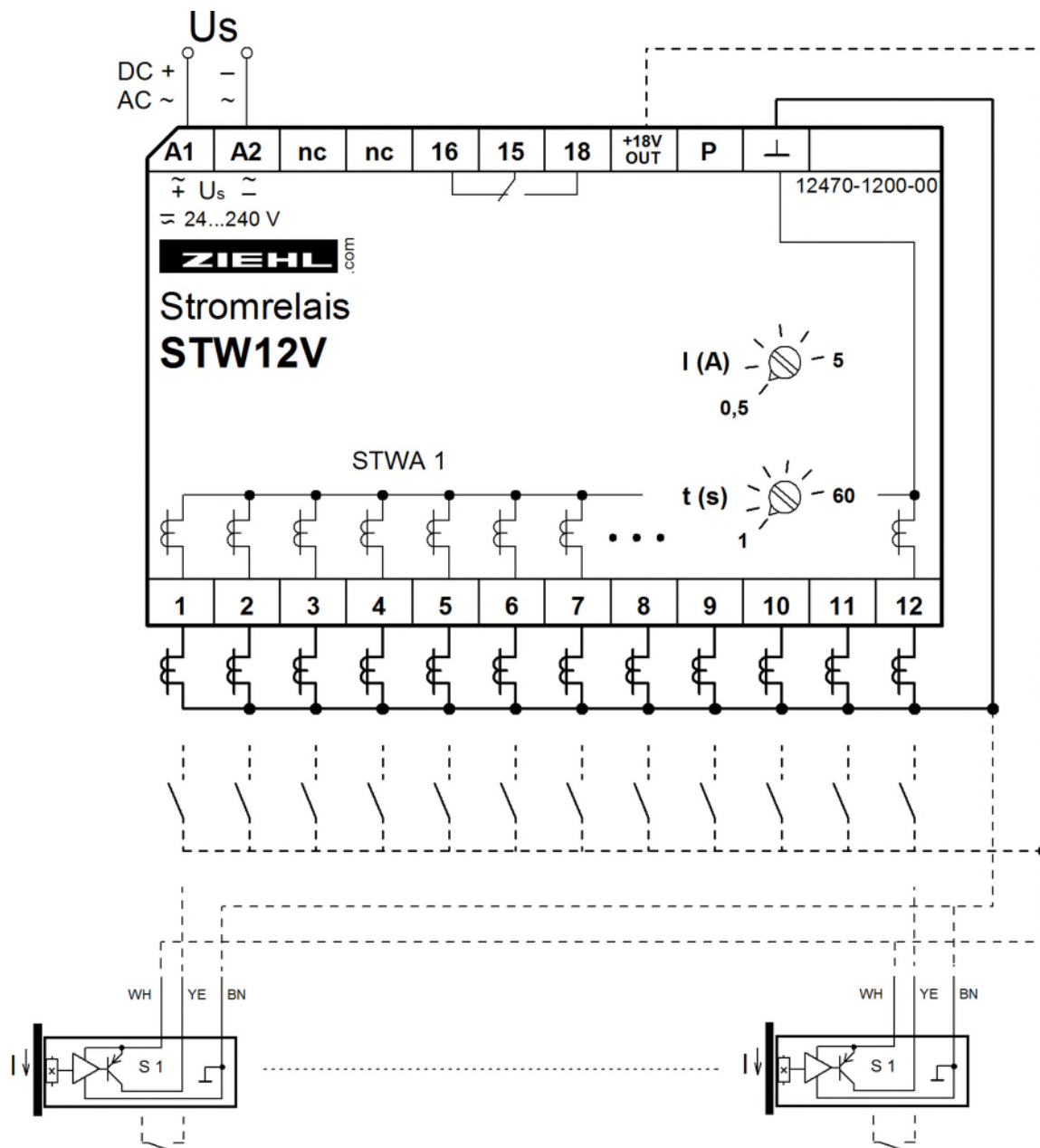
- monitoring up to 12 current circuits in an OR circuit
- inputs for current transducer STWA1(H), current sensor S1 and potential free contacts
- switching point adjustable 0.5 - 5 A (only for connection to the converter)
- adjustable switch-off delay 1 - 60 s
- plug-in connection terminals
- low-voltage AC/DC adapter 24-240 V
- distributor housing

4 Display and controls



- 1) Response threshold adjustment knob for transmitter connection with integrated yellow LED:
 - LED is on
 - relay on
 - LED flashes
 - relay on
 - delay time active
 - LED is off
 - relay off
- 2) Delay time adjustment knob

5 Connection diagram



Note!

When using STWA1H current transducers instead of STWA1:

ensure correct wiring of the connections

- STWA1H (+) = 1 ... 12
- STWA1H (-) = \perp

6 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 U_s of the type- plate and the mains voltage are the same.

Failure-free and safe operation of the equipment requires that it is properly transported and stored, professionally installed and commissioned, and operated as intended.

Work on the unit may only be performed by persons who are familiar with the installation, startup and operation of the unit and who have the necessary qualifications for this works. They must comply with the operating manual, the instructions placed on the device and the relevant safety regulations for the installation and operation of electrical systems.

The units are built and tested in accordance with DIN EN and leave the factory in perfect safety condition. If the information in the manual is not sufficient, please contact us directly or your sales agent.

Instead of the industrial standards and regulations mentioned in the operating manuals and applicable in Europe, observe any relevant regulations valid in the country of use, should the device is operated outside the above area.

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 Detailed description

The current relay STW12V operates in the OR circuit.

8.1 Connection of current transducer STWA1(H):

If a current greater than the set value "I" flows through at least one of up to 12 monitored wires, the relay activates (yellow LED is on).

If the value falls approx. 0.3 A below the inrush current (yellow LED flashes),

the relay switches off again after the delay time set with the " t " adjustment knob has elapsed (yellow LED goes out).

8.2 Current sensor or contact connection only:

If the current sensor turns on or the contact closes, the relay turns on (yellow LED is on).

If all sensors are off or all contacts are open (yellow LED flashes), the relay switches off again after the delay time set with the setting knob " t " (yellow LED goes out).

The output is a potential-free switching contact.

8.3 Mixed operation: Transducers, sensors and contacts can also operate in mixed mode

Note:

The wires can also be looped through the STWA1(H) current transducer several times if the minimum response threshold is too low. The current transducer STWA1(H) can be loaded with a maximum current AC 100 A. The switch point setting for current " I " is only active when the transducer is connected.

If only sensors or contacts are connected, the switch point setting for current " I " does not work.

Tipps:

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

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

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

- connect a resistor (0.25 W / 200 V) before the corresponding input of STW, to the current transducer 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, but much longer are also possible.

Shielding may be required when laid parallel to power lines

9 Technical data

Control voltage Us:

DC 24 - 240 V

AC 20 - 264 V

Tolerance

- with ≤ 4 pcs. S1 current sensors

DC 20.4 - 297 V

AC 20- 264 V 50/60 Hz

- with > 4 pcs. S1 current sensors

DC 80.0 - 297 V

AC 80- 264 V 50/60 Hz

Power consumption

- without S1 current sensors

< 2 W

< 5 VA

- with 4 pcs. S1 current sensors

< 3 W

< 9 VA

- with 12 pcs. S1 current sensors

< 5.5 W

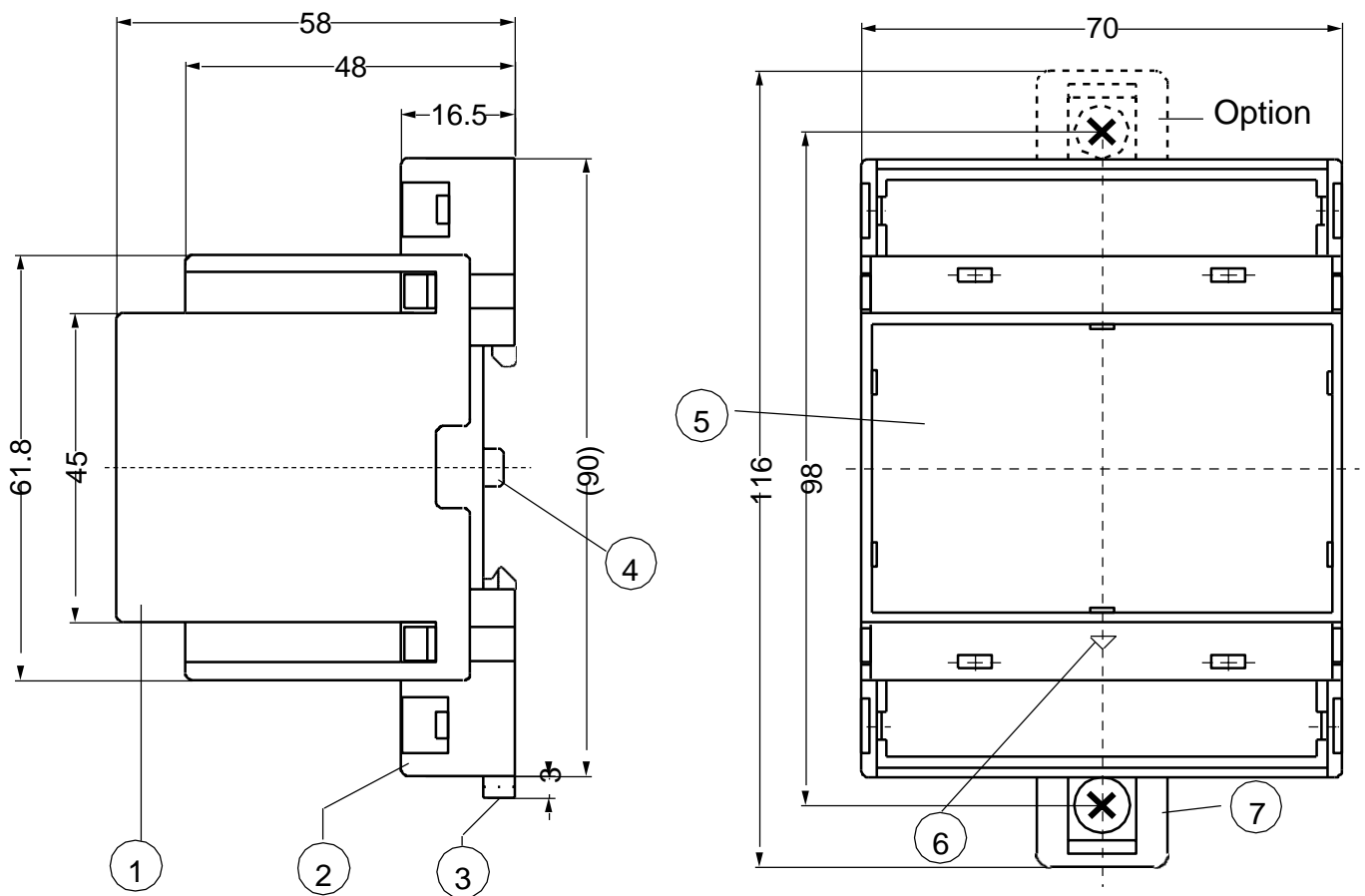
< 16 VA

<u>Relay output:</u>	1 switching contact (CO)
Switching voltage	max AC 250 V
Switching current	max 5A
Switching capacity	max 1250 VA (resistive load) max 120 W at 24 V DC
Rated operational current I _e	AC15 I _e = 3 A U _e = 250 V DC13 I _e = 2 A U _e = 24 V I _e = 0.2 A U _e = 125 V I _e = 0.1 A U _e = 250 V
Recommended initial protection	T 3.15 A (gL)
Durability of mechanical contacts	3 x 10 ⁷ switching cycles
Life of electrical contacts	1 x 10 ⁵ switching cycles at AC 250 V / 6 A
<u>Test conditions</u>	EN 61010-1
Rated insulation voltage	U _i 300 V Pollution degree 2
Rated withstand surge voltage	4000 V
EMC immunity	EN 61326-1 (industrial environment)
Interference emission EMC	EN 61326-1 CISPR 11 Class B
Operating cycle	100 %
Permissible ambient temperature	-20 °C +65 °C (without condensation and icing)
<u>Measuring inputs:</u>	max 30 V, max 3mA
Connection - current transducer	STWA1 or STWA1H - current sensor S1 (see U _s from STW12V) - potential-free contacts - total connection of the listed sensors
<u>Switching point / limit value</u>	
Limit value I (current)	adjustable via STWA1 AC 0.5 5 A
Tolerance	±20 %
Current sensor S1 or not adjustable contact	not adjustable
Switch off delay	adjustable 1. 60 s
Reception delay	approx. 0.5 s
Overload capacity with STWA1	max 100A continuous, max 300 A for 10 s
<u>+18V OUT</u>	17 V ... 21 V
<u>Casing:</u>	Type V4, distributor mounting
Mounting depth	55 mm
Width	4 TE
Dimensions (W x H x D)	70 x 90 x 58 mm
Cable connection one cable	je 1 x 1.5 mm ²
Fine wire with conductor ferrule	je 1 x 1.0 mm ²
Tightening torque of fixing screw	0.5 Nm
Protection deg. enclosure	IP 30
Protection deg. snaps	IP 20
Fixing	Snap-on attachment on standard 35 mm rail in accordance with EN 60 715 or screw fixing (with additional screw)
Weight	ca. 150g, with packaging approx. 175g

Subject to technical changes

10 Type V4

Dimensions in mm



- 1 Upper part / cover
- 2 Bottom part / base
- 3 Snap / bar for snap mounting
- 4 Sealing latch
- 5 Front panel insert / front panel
- 6 Position downward
- 7 Snap on wall mount with screws. Screw hole \varnothing 4,2 mm / for fixing to the wall with screws, \varnothing 4,2 mm.

11 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.