

Switching Relays and Controls

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Controls for Suction-plants

for Dust, Sawdust, Shaving and Smoke

General

ZIEHL controls STW are designed to control suction plants especially in carpentry and wood-processing industry.

They are mounted centrally in the switchgear-cabinet. They monitor the current to the machines with help of transformers STWA1 or STWA1H and thus detect, when a machine is switched on. When used in systems with welding-fume, the DC-currents are detected with current-sensors S1.

Simple switch-on automats (STW1K, STW12V) start dedu-

sting when at least one of the monitored machines is switched on and stop dedusting with a delay after the last machine has been switched off.

Devices with integrated control of slide-valves (STW81V, STW84V) make sure that full advantage is taken from the available dedusting-capacity.

Multiple STW84V can be combined for controlling greater plants.

In addition STW84V can control a frequency-converter at the motor of the fan and thus optimize dedusting and save energy.

When PLCs are used for controlling the dedusting plant, electronic current-transmitters STWA1 S can detect, if a machine is switched on. They can be directly connected to digital inputs of PLCs.

Overview

Typ	STW1K	STW12V	STW81V	STW84V	STWA1S/SEH	Sensor S1
Number of monitored machines	8	12	8	8	1	1
Inputs for Transformers STWA 1	STWA1	STWA1	STWA1	STWA1	-	-
Current Sensor S1	S1	S1	S1	S1	-	-
Potential-free contact	-	Contact	Contact	Contact	-	-
Operating value	≤ 1 A	0,5 - 5 A	≤ 1 A	0,5-5 A	2 A / 2-10 A	5 / 5-30 A
Control of valves	-	-	X	X	-	-
Relay outputs	1 U	1 U	8 + 1 U	8 + 3 U	Transistor	Transistor
Control of minimum volume-flow	-	-	-	X	-	-
Control of filter-cleaning	-	-	-	X	-	-
Control of discharge	-	-	X	-	-	-
Monitoring of max. volume flow	-	-	-	X	-	-

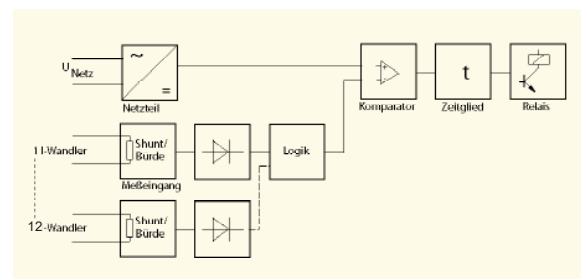
Function and Characteristics

When there is a current through a current-transformer STWA 1, the input of the control can measure a voltage at the output of the STWA 1. This voltage is evaluated and according actions are performed by the device.

This simple principle to detect current yes/no allows to realize various functions at a reasonable price.

The state (on/off) of a consumer outside the switchgear-cabinet can be detected without needing a signal from the consumer. This saves cabling.

At currents <1 A, the necessary current for reaching the operating-value of the input of the control can be reduced by leading the monitored wire multiple times through the transformer STWA 1.



Current-Relay STW1K

AC-Detection, OR-Evaluation of 1-8 Transformers

STW1K



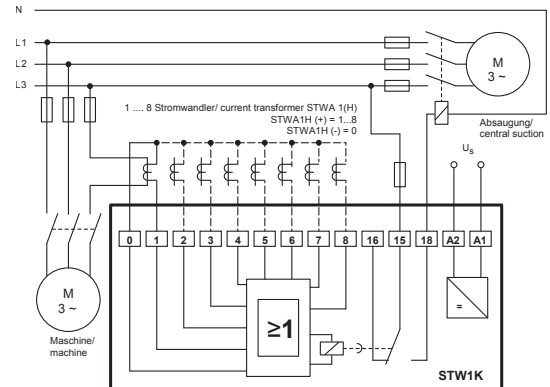
Part number:
S225636 AC 220-240 V

Current relay in OR evaluation with 8 inputs, designed e.g. for controlling of suction plants in the timber and plastics processing industry.

When there is an AC-current >1 A through one of up to 8 connected transformers STWA1, the integrated relay (1co) picks up. When all currents are 0, the relay releases with a delay of approx. 10s. This enables a run-after of the central suction.

- 8 inputs
- OR-evaluation
- relay picks up if at least 1 input is activated
- operating value approx. 1 A
- turn-off delay approx. 10 s
- not necessary inputs remain open

- options:
 - switch-on delay 3 s
 - without switch-off delay



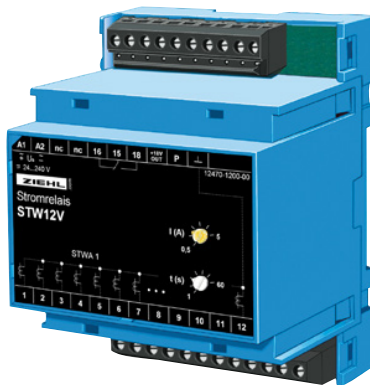
Technical Data

Rated supply voltage U_s	AC 220 - 240 V $\pm 10-15\%$, < 3 VA, 50/ 60 Hz
Transformer input	1...8, type STWA , order-number S225201
Overload cap.continuous/max 10s	100 A / 300 A
Function	OR-evaluation
Switching point on	\leq AC 1 A
Switching point off	$>$ AC 0,3 A
Switch-off delay	approx. 10 sec.
Switch-on delay	approx. 0,5 sec.
Output relay	1 change-over contact (co)
Type of contact	type 2 , see "general technical informations"
Test conditions	see "general technical informations"
Rated ambient temperature range	$-20^{\circ}\text{C} \dots +55^{\circ}\text{C}$
Dimensions (h x w x d)	Design K: 75 x 22.5 x 115 [mm]
Attachment	on 35 mm DIN rail according to DIN EN 60715 or with screws M4 (option)
Protection housing / terminals	IP 30 / IP 20
Weight	approx. 140 g

Current-Relay STW12V

Current-Detection, OR-Evaluation, 12 Inputs, adjustable

STW12V



Part number:
T225519 AC/DC 24-240 V

Current relays in OR evaluation with 12 inputs, designed e.g. for controlling of suction plants in the timber and plastics processing industry.

Recording of current is made with current transformers type STWA 1, current-sensors S 1 (DC also) or potential-free contacts.

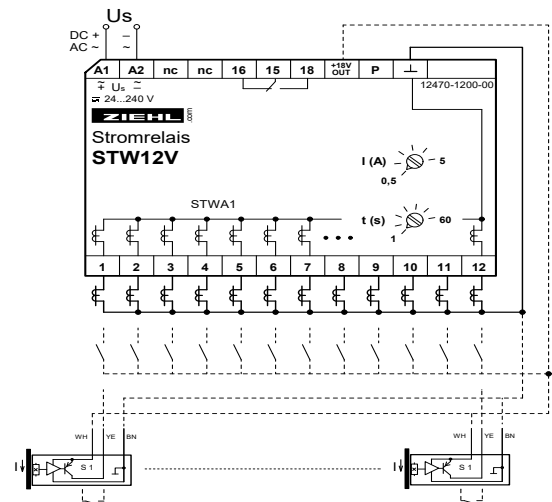
When there is an AC-current higher than the set response value (setting range 0.5 - 5A) through at least one of the connected transformers, the integrated relay (1 NO) picks up. If all monitored circuits are switched off or the current falls below the set response value by approx. 0.3A, the output relay releases after the set time delay (1 - 60).

Due to the adjustable response value, the user can permit lower currents without releasing switchings. Thus, for example, a machine can be switched on in order to adjust its electronic settings (low current via transformers). The STW will only switch on when the main motor has been put into operation (high current). Due to the adjustable switch off delay an easy adjustment of the follow-on is possible.

- Current monitoring of up to 12 currents
- Inputs for current transformers STWA 1, current-sensors S 1 or potential-free contacts
- Adjustable switching point 0.5 - 5 A
- Adjustable switch off delay (1 - 60 s)
- Plug-in terminals
- Universal supply-voltage AC/DC 24-240 V
- Housing for mounting in switchgear cabinets or fuse-boxes, 70 mm wide, mounting height 55 mm

Application:

ZIEHL current monitors in OR-circuits can be used particularly where dust, fumes and gases are generated by various electrical devices, and where these must be extracted by a central suction system. Due to the integrated delaytime the follow-on of the suction is controlled.



4

Technical Data

Supply voltageUs

AC/DC 24 - 240 V, < 3 W, < 5 VA, 50/ 60 Hz
AC 20 - 264 V, DC 20,4 - 297 V

Relay output

Type of contact

Test conditions

Rated amb. temperature range

Function

Measuring inputs

1 change-over contact (co)

type 2 see "general technical informations"

siehe "general technical informations"

-20°C...+55°C

OR-evaluation

12 x for current transmitters STWA 1, current-sensors S 1 or potential-free contacts

100 A / 300 A

with STWA 1 adjustable, AC 0,5 - 5 A

± 20%

adjustable 1- 60 s

app. 0,5 s

Overload cap./continuous max 10s

Switching point

Tolerance

Switch-off delay

Switch-on delay

Dimensions (H x W x D)

Attachment

design V4: 90x70x58 [mm], mounting height 55 mm

on 35 mm DIN-rail according to EN 60 715 or

with screws M4

Protection housing/terminals

Weight

IP 30 / IP 20

app. 200 g

Current relay STW81V

8-channel, single evaluation + OR-circuit

NEW: adjustable switching point 0,5 - 5 A

STW81V



Part number:
S225516.1 AC/DC 90-240 V

The current relay STW81V is an 8-channel AC current relay, designed for controlling of suction plants e.g. in the timber and plastics processing industry.

When there is an AC-current >1A through one of up to 8 connected transformers type STWA1, the appropriate relay K1...K8 (1 x co) picks up and opens the slide valve of the machine. At the same time the relay K9 starts the central suction.

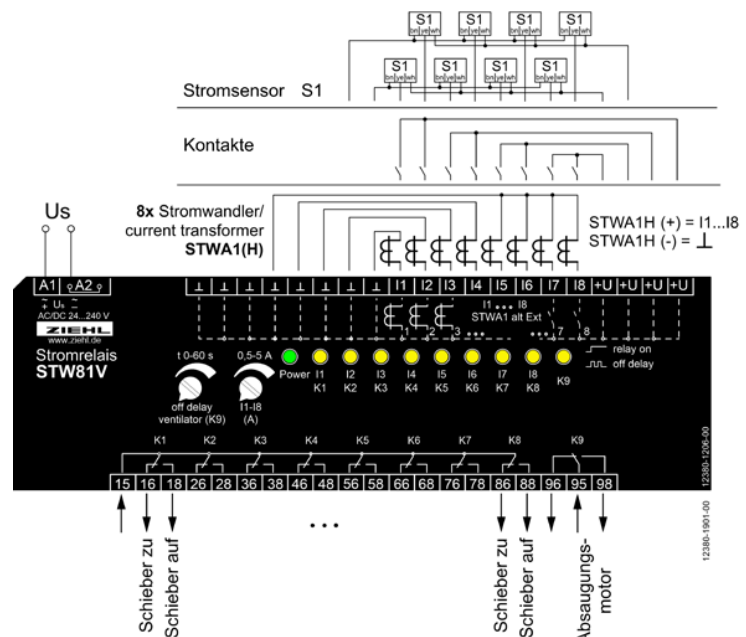
Relays K1...K8 switch off 10s after the current flow through the appropriate transformer is 0. K9 switches

off 0...60s (adjustable) after the current in all transformers is 0.

Application:

The current relay STW81V is particularly suitable for the central control of slide valves in suction plants, which are to be operated dependent on operating condition of individual machines. It can control a central suction at the same time.

- single evaluation of 8 inputs with STWA1
- single evaluation of 8 inputs with current-sensor S1
- inputs for 8 potential-free contacts
- OR-evaluation of all circuits (K9)
- 9 output relays
- LED display for relays / inputs
- Switching point adjustable 0,5 ...5 A
- switch-off delay of K9 adjustable 0 - 60 seconds
- switch-off delay single relays 10 s last relay: K9 + 20 s
- Power consumption < 1W (in standard-operation with STWA1)



Technical Data

Rated supply voltage U_s

AC/DC 24 - 240 V, 0/50/60 Hz, < 2 W, < 6 VA
DC: 20,4... 297 V, AC: 20 ... 264 V

Output relay

Type of contact

Test conditions

Rated ambient temperature range

8 + 1 change-over contacts (co)

type 2 see "general technical informations"

see "general technical informations"

-20°C...+55°C

Transformer input

Function

Overload cap. continuous max. 10 s

Switching point on

1...8 type STWA1, or STWA1H

single/OR-circuit

100 A / 300 A

adjustable 0,5...5 A

Switch-on delay

Switch-off delay

approx. 0,5s

10 s / 0 - 60 s

Dimensions (h x w x d)

Attachment

Protection housing / terminals

Weight

design V 8 / 90 x 140 x 58 [mm]

on 35 mm DIN rail according to DIN EN 50 022 or with screws M4 (option)

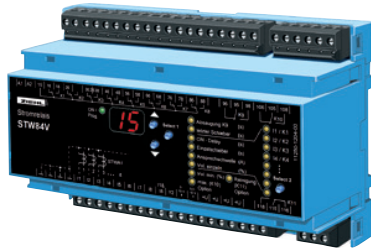
IP 30 / IP 20

approx. 330 g

Control for Suction Plants STW84V

with integrated control for dedusting of filters and volume flow

STW84V



Part numbers:

STW84V **S225522**

ER8 **T224388**



The current relay STW84V monitors up to 8 alternating current sets on current flow yes/no. The inputs can analyse signals of current transformers type STWA1 or of potential-free contacts. For controlling of great dedusting plants several relays can be combined.

Applications: Controlling of dedusting plants in the timber and plastic processing industry ac-

ording to the technical rules for dangerous materials TRGS 553.

The central suction is switched on, as soon as any machine is put into operation. According slide valves in the suction ducts of the individual machines are opened. In addition, cleaning of a filter (vibration) and a cellular wheel/discharge can be controlled, an external cleaning (with compressed air) can be started or exceeding of max. volume flow can be reported.

The analog output 0...10 V can control a frequency-converter at the motor of the ventilator and thus optimize performance and save energy.

Description:

- Monitoring of 8 machines (STWA1 or contact)
- input for "open all slide valves"
- 8 relays (with change-over contacts) for slide valves
- 1 relay for control ventilator
- 1 relay for filter-cleaning
- 1 relay for control of cellular wheel/ discharge or report exceeding max.. volume flow
- analog output for control of frequency-converter and combination of more STW
- terminals plugable
- Universal supply voltage AC/DC 24-240 V

Functions/adjustments:

- run-after last slide valve 0... 99 s
- turn-off delay ventilator 0...99 s
- minimum volume flow 1... 100%, (if necessary automatic opening of additional slide valves, beginning with K8)
- maximum volume flow 5... 100%

Individually adjustable per channel:

- turn-on delay I1... I8: 0... 20 s
- turn-off delay relay K1...K8: 0... 99 s

- operating value I1...I8: app. 0.5... 5A
- volume flow of slide valves 1...100%

Combination of more STW:

Master-relay considers volume-flow of other relays for:

- control of ventilator (relay K9 and analog output 0-10 V)
- opening of additional slide valves
- adding time for filter-cleaning
- report of exceeding max. volume flow

Control of cleaning of filters:

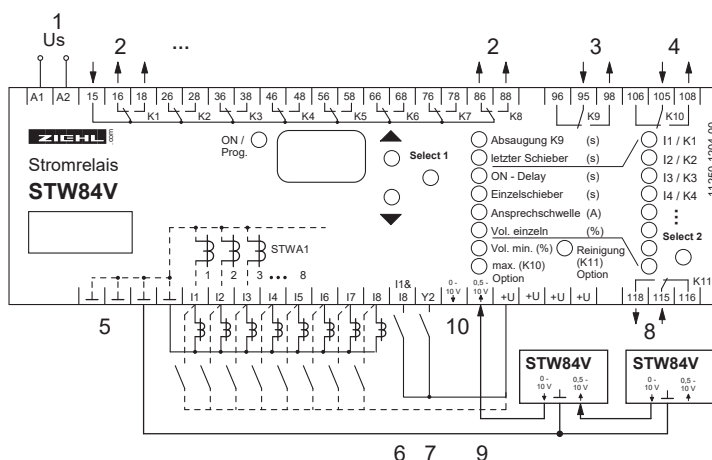
The run time of the ventilator is added with consideration of the volume flow. The dedusting of the filters is started after achieving the programmed run time (only with switched off ventilation).

- time for addition: 0... 99 min.
- added time stored permanently even at loss of power (power failure or upon completion of work)
- delay before start of cleaning: 0... 990 s
- number of dedusting impulses: 0... 20
- impulse on-time: 1... 30 s
- impulse off-time: 1... 990 s
- time of continuous dedusting: 0... 990 s
- alternatively impulse shaking 0.1... 9.9 s (square)
- alternatively dedusting request (with running suction)
- input for external dedusting command
- controlling a cellular wheel / discharge during dedusting

Displays and operation:

- 7-segment-display for settings during programming, in operation display of the volume flow
- 8 LEDs for input/output selection and display of the active inputs/outputs
- 9 LEDs for function selection
- easy programming

Accessory: [Installation frame ER8 for panel mount](#)



- 1 power supply
- 2 8 outputs for slide-valves (16, 26...86=close, 18, 28...88=open)
- 3 suction ON
- 4 max. volume-flow exceeded/option
- 5 inputs for current transformers STWA 1

- 6 open all slide valves
- 7 external dedusting command
- 8 dedusting/option
- 9 analog input
- 10 control of suction power

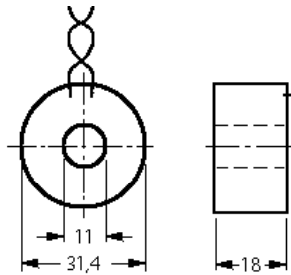
Technical Data STW84V

Power Supply	rated supply voltage U_s	AC/DC 24-240 V
	Voltage tolerance	+10...-15%
	Power consumption	< 12 VA
	Frequency	50/ 60 Hz
Relay output	Contact elements	11 change-over contacts (co)
	Type of contact (see with " general information " under relays)	type 3 max. 5 A/ 1250 VA
Test conditions	rated insulation voltage U_i	EN 61010 U_i 250 V
	Pollution degree	2
	rated impulse voltageelement	4000 V
	EMC - interference transmission	EN 61326-1 CISPR 11 class B
	EMC - interference resistance	EN 61326-1 (industrial surrounding)
	rated ambient temperature range	-20°C...+45°C
Voltage output +U		DC 17-21 V
		max. 120 mA at $U_s = 230$ V (max. 8 Current sensors S1) max. 10 mA at $U_s = 24$ V (0 sensors S1)
Inputs		1..8 STWA 1, floating contact or AC/DC 24 V, STWA 1 H or current-sensor S1
	Overload cap. continuous/max.10s	100 A/300 A
	Current overload capacity	ca.15 k Ω
	Operating value	adjustable 0.5... 5 A
	Tolerance	$\pm 20\%$
Command inputs	Y2, external dedusting command	+ DC 24 V
	I1&I8, command all valves open internal resistance of inputs	+ DC 24 V approx.15 k Ω
Housing	Design / Installation Frame	V8 / Front mounting kit ER8, 8 TE
	Dimensions (h x w x d) mm	90 x 140 x 58 mm, mounting height 55 mm
	Wire connections	1 x 1.5 mm ² for each pole
	Installation position	any
	Attachment	on 35 mm DIN rail or M4 screws
	Housing protection	IP 30
	Terminal protection	IP 20
	Vibration resistance	1 mm 25 cycles per second / 10 g 25 - 100 cycles per second of
	Shock resistance	10 g 20 ms 20 g 4 ms
	Weight	approx. 350g

Current Transformer Type STWA1

für AC Stromerkennungsrelais

**Current Transformer
STWA1** for monitoring
current yes/no



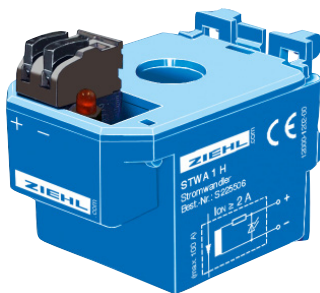
The STWA1 current transformer is made to match the STW current monitor. One current transformer is required for each line being monitored. The STWA1 consists of a climate-proven sealed-in coil with toroidal tape core. The connection cables are permanently fixed to the transformer and are 1 m in length. The level of the current to be monitored is limited to 100 A continuously, 300 A for max. 10s.

In case of current of more than approx. 5 A, an LED can be triggered directly via the STWA1 current transformer. Thus it's easy for users to visually monitor the current conduction in a line. The LED is protected by an anti-parallel diode or by its connection in series. A protective resistor is necessary depending on the LED used or the level of current being monitored.

Part number: S225201

Weight: app. 43 g

**Current Transformer
STWA1H**
for DIN-rail-mount or
screw-mount

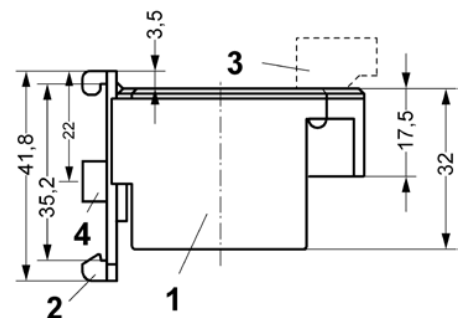
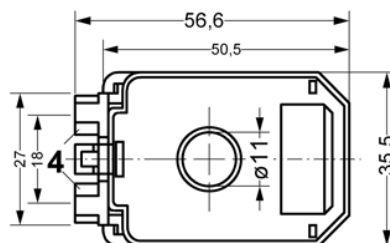


Current-transformers STWA1H can be fixed on a 35 mm DIN-rail or with 2 screws. The electrical connection is made via pluggable terminals. The cables are led vertical through the transformer (right angle to 35 mm-rail). The available diameter is 11 mm.

A built-in LED lights up at currents > app. 2 A. Even short current pulses are visible. ZIEHL current monitor type STW or an external LED can be connected to the terminals. The built-in resistor protects the LED from overload. The STWA 1 H can also be used to visualize current-flow in stand-alone mode, without connecting it to a current monitor.

Part number: S225506

Weight: app. 90 g



- 1 Unterteil
- 2 Tragschienenhalter (abnehmbar)
- 3 Anschlussklemme (steckbar)
- 4 Wandbefestigung (M4)

4

AC-Electronic Current Transformer STWA1S

with transistor-output

STWA1S

Electronic current transformer
with fixed switching-point



Part number: **S225195**

The STWA1S has an integrated electronic with transistor-output. The switching point is 2 A. Above app. 2 A the output transistor is switched on (LOW), below app. 1.5 A it is off (HIGH).

The conductor is simply pushed through the transformer. Multiple loops reduce the switching point correspondingly, for instance to 0.5 A with four loops. A supply voltage is not required.

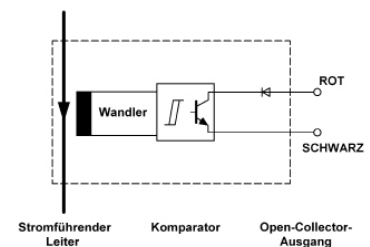
Application: The STWA1S is used where current flow is to be detected, with the exact value of the current either known from the power consumption of the connected consumer or does not

matter for the evaluation.

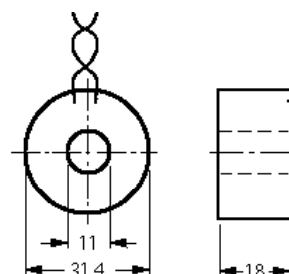
For simultaneous evaluation of the current flow in several conductors the STWA1S device can be connected in series (AND circuit, pay attention to the voltage drop) or in parallel (OR circuit, pay attention to the leak current).

- isolated transistor-output max. DC 40 V/40 mA
- output can be directly connected to the digital input of a PLC
- integrated diode for reverse voltage protection
- 2-wire-connection, 1 m
- no supply voltage required
- transformer and electronic unit enapsulated in a climate-proof housing
- plug-in current transformer (Ø 11 mm)
- max. overload 100 A continuously, 300 A / 10 s

Switching point at $T_u = 25^\circ\text{C}$	AC 2 A $\pm 25\%$
Switching-back Point	AC 1,5 A $\pm 25\%$
Repeat accuracy	$\pm 5\%$
Temperature dependence	$< 0,06\%/K$
Overload cap. continuous / 10s	100 A / 300 A
Output voltage/current max.	DC 40 V / 40 mA
Voltage drop (ON)	max. 3 V
Leak current (OFF)	max. 0,6 mA
Switch-on /switch-off delay	app. 50 / 200 ms
nominal frequency/ operating range	50 Hz/ 30...70 Hz
error	$\leq 1\%/Hz$
rated ambient temperature range	0...55°C
Housing	Design S
Dimensions (Ø x H)	34,5 x 27 mm
Diameter for conductor	11 mm
Weight	app. 60 g



Dimension illustrations

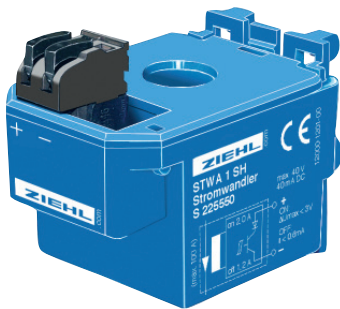


AC-Electronic Current Transformer STWA1SH

2 A, with transistor-output

STWA1SH

Electronic Current Transformer with fixed switching point



Part number: **S225550**

The STWA1SH has an integrated electronic with transistor-output. The switching point is 2 A. Above app. 2 A the output transistor is switched on below app. 1.5 A it is off.

The conductor is simply pushed through the transformer. Multiple loops reduce the switching point correspondingly, for instance to 0.5 A with four loops. A supply voltage is not required.

Application: The STWA1SH is used where current flow is to be detected, with the exact value of the current either known from the power consumption of the connected consumer or does not

matter for the evaluation.

For simultaneous evaluation of the current flow in several conductors the STWA1S device can be connected in series (AND circuit, pay attention to the voltage drop) or in parallel (OR circuit, pay attention to the leak current).

- isolated transistor-output max. DC 40 V/40 mA
- output can be directly connected to the digital input of a PLC
- integrated diode for reverse voltage protection
- electrical connection via screwless pluggable terminals
- no supply voltage required
- DIN-rail-mount or with screws
- plug-in current transformer (Ø 11 mm)
- max. overload 100 A continuously, 300 A / 10 s

Switching point at $T_u = 25^\circ\text{C}$
Switching-back Point
Repeat accuracy
Temperature dependence
Overload cap. continuous / 10s

Output voltage/current max.
Voltage drop (ON)
Switch-on /switch-off delay

Nominal frequency
operating range
error

Rated ambient temperature range

Housing
Dimensions (h x w x d)
Diameter for conductor
Weight

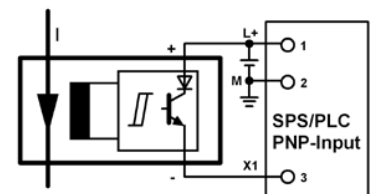
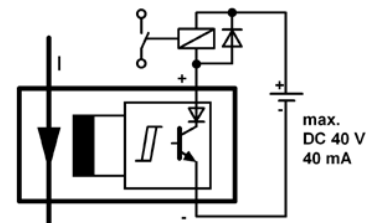
AC 2 A $\pm 25\%$
AC 1,5 A $\pm 25\%$
 $\pm 5\%$
< 0,5%/K
100 A / 300 A

DC 40 V / 40 mA
max. 1 V
app. 50 / 200 ms

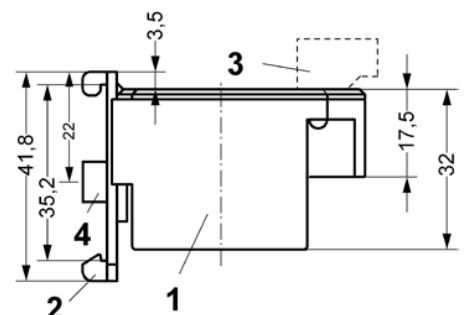
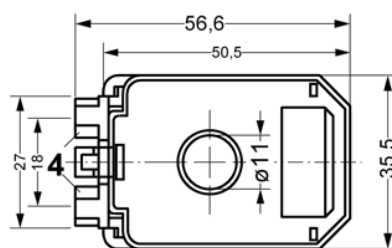
50 Hz
30...70 Hz
 $\leq 1\%/Hz$

0...50 °C

Design H
50 x 36 x 56 mm
11 mm
app. 90 g



Dimension illustrations

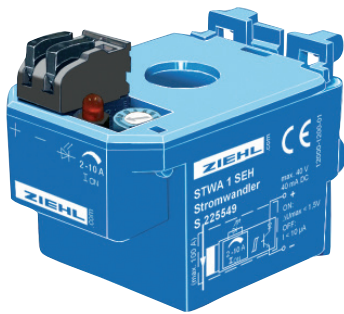


- 1 Housing
- 2 Clip for DIN-rail (removeable)
- 3 Terminal (pluggable)
- 4 Wall-mounting (M4)

AC-Electronic Current Transformer STWA1SEH

adjustable 2...10 A, with transistor-output

STWA1SEH
Electronic current transformer with fixed switching-point 2...10 A



Part number: S225549

The STWA1SEH has an integrated electronic with transistor-output.

The switching point is adjustable 2-10A. Above switching-point the output transistor is switched on, below it is off.

The conductor is simply pushed through the transformer. Multiple loops reduce the switching point correspondingly, for instance to 0.5-2,5 A with four loops. A supply voltage is not required.

For monitoring of higher currents, the STWA1SEH is simply looped into the secondary current of big current transformers.

Application: The STWA1SE is used where AC current flow is to be detected in a conductor, e.g. to give a warning if a defined current value is exceeded or not reached, or to switch off a machine or to simply report the current flow.

- adjustable switching limit 2...10 A
- isolated transistor-output max. DC 40 V/40 mA
- output can be directly connected to the digital input of a PLC
- LED for display state of output
- integrated diode for reverse voltage protection
- electrical connection via screwless pluggable terminals
- no supply voltage required
- plug-in current transformer (Ø 11 mm)
- max. overload 100 A continuously, 300 A / 10 s

Switching point at $T_u = 25^\circ\text{C}$
Hysteresis
Repeat accuracy
Temperature dependence
Overload cap. continuous / 10s

AC 2...10 A $\pm 25\%$
5...30 %
 $\pm 2\%$
< 0,06%/K
100 A / 300 A

Output voltage/current max.
Voltage drop (ON)
Leak current (OFF)
Switch-on /switch-off delay

DC 40 V / 40 mA
max. 3 V
max. 0,6 mA
0,2...2s / $\leq 0,3$ s

nominal frequency
operating range
error

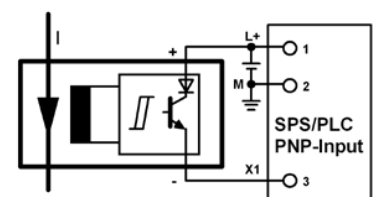
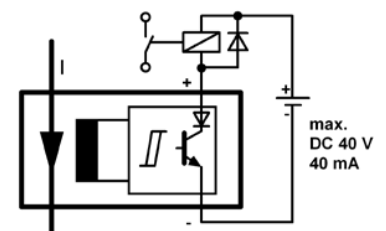
50 Hz
30...70 Hz
 $\leq 3\%/Hz$

rated ambient temperature range

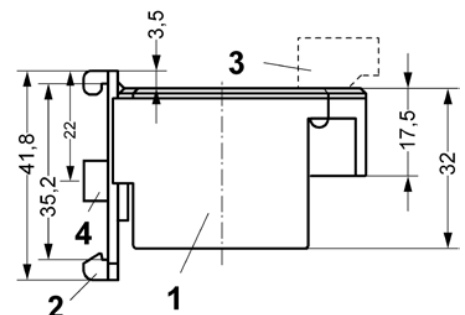
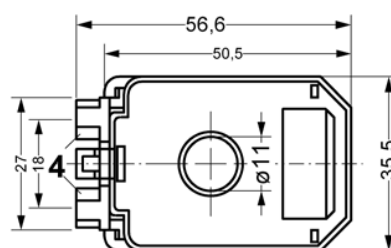
-20...+50°C

Housing
Dimensions (h x w x d)
Diameter for conductor
Weight

Design H
50 x 36 x 56 mm
11 mm
app. 90 g



Dimension illustrations

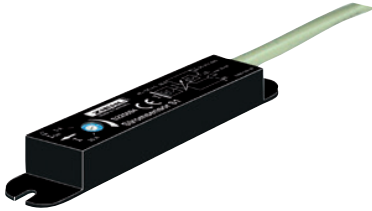


- 1 Housing
- 2 Clip for DIN-rail (removeable)
- 3 Terminal (pluggable)
- 4 Wall-mounting (M4)

Current Sensor for AC- and DC-Currents

Put-on sensor with transistor-output

Current Sensor S1 for AC- und DC-Ströme



Part number: **S225694**

The current sensor S1 records the current in a cable with a hall-sensor. At currents of adjustable 5-30 A the transistor-outputs switch and report a current in the monitored cable.

The current sensor can be fixed with a cable fastener (apply to only 1 cable). Thus it can be mounted subsequently without disconnecting the cable.

As supply-voltage DC 24 V are required (e.g. ZIEHL-power-supply NG 4 V).

The current sensor can be connected to ZIEHL current-relays for current detection yes/ no ant to ZIEHL controls for dedusting plants. The connection to a digital input of a PLC also is possible.

Application:

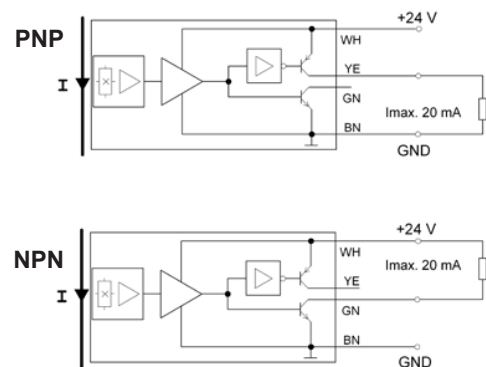
Recording of welding currents (mounting at ground wire) for controlling dedusting plants in combination with ZIEHL-controls type STW.

Recording of the state of a consumer of electricity (on or off or defective).

In general the current sensor S1 is used where the current flow is to be detected, with the exact value of the current either known from the power consumption of the connected consumer or does not matter for the evaluation.

For evaluation of measuring data in more than 1 cable, the outputs of several current sensors can be connected in parallel (or-evaluation).

- switching point adjustable 5-30 A
- LED for current flow
- monitoring of AC and DC currents
- mounting without disconnection of cable possible
- 2 transistor-outputs, switching + and -
- direct connection to a PLC possible
- connection to current-relays ZIEHL type STW
- sturdy, sealed execution
- overload capacity: unlimited
- test-voltage 2,5 kV



Technical Data

Supply voltage U_s	DC 24 V $\pm 20\%$, 12 mA
Switching point at $T_u = 25^\circ\text{C}$	adjustable AC/DC 5-30 A
Tolerance	$\pm 20\%$
Repeat accuracy	$\pm 2\%$
Temperature coefficient	typical $< \pm 0,2 \text{ A/K}$, max. $\pm 0,45 \text{ A/K}$
Frequency of measured current	0 / 10 ... 400 Hz
Overload cap. continuous/ $< 1\text{min}$	500 A / 1000 A
Output 1	DC 24 V, + switching, max. 10 mA
Output 2	DC 24 V, - switching, max. 10 mA
On- / off-delay	app. 300 ms
Rated ambient temperature range	0...55°C
Dimensions (l x w x h)	75 x 16,5 x 10 mm
Cable for connection	app. 2 m, 4 x 0,34 mm ²
Attachmant	e.g. with cable fastener (not included)
Weight	app. 150 g (cable included)

Vibrator Control Type RS1K

RS1K



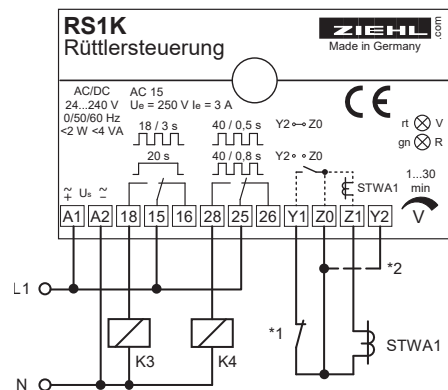
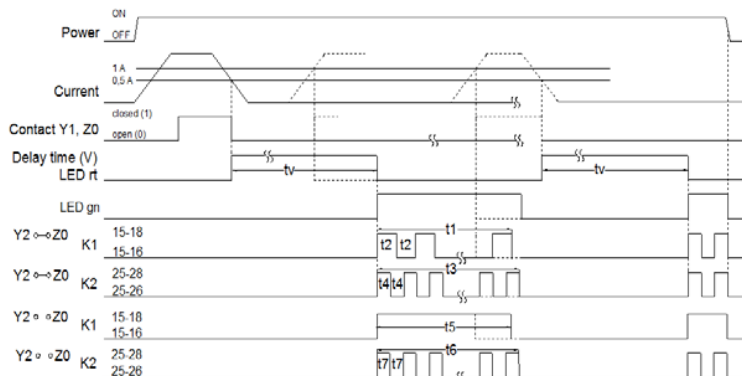
Part number: **Z224302**

The vibrator control RS1K is a compact multiple time relay for triggering of vibrators in suction plants. In order to be able to operate suction plants at an optimum, the filters which get clogged by sawdust, chips or dust, have to be dedusted by vibration from

time to time. The vibration action is by no means to be carried out the suction running or while slowing down the ventilator. If suctioning is started during vibration, the process is immediately to be interrupted. Prior to starting the vibration action, an adjustable deceleration time is running to delay the ventilator before start of vibration. This means that short stoppages can be bypassed without being obliged to carry out a vibration every time.

- Start of deceleration time by break contact at Y1/Z0 (e.g. from contactor suction motor)
- Starting of deceleration time through current transformer STWA1 at Z0/Z1 (e.g. L1 from suction motor)
- adjustable deceleration time 1...30 min.
- Relay K1: continous vibration 20 s or impulse-vibration 18 s with 3 s clock
- Relay K2: impulse-vibration 40 s with clock 0,5 s or 0,8 s (for magnet valves)
- LED (red) signals deceleration time
- LED (green) signals vibration action
- automatic interruption of the vibration action when starting the suction process.

Function diagram:



Technical Data

Rated Voltage Supply U_s

AC/DC 24...240 V, AC 19-264 V, DC 20-297 V < 2VA

Input Y1/Z0, Y2/Z0
 Input Z1/Z0
 Switching current
 Overload Capacity of transformer

Contact, Breaker (nc), 18 V, 3 mA
 Current Transformer STWA1
 ON \geq AC 1 A, OFF \leq AC 0,4 A
 max. 100 A continuous, 300 A / 10 s

Relay-Output
 Type of Contact

2 x 1 co
 Type 2 (see general technical informations)

Test Conditions
 adm. ambient temperature

see "general technical informations"
 -20...+55°C

Dimensions H x B x T
 Fitting position

Design K: 75 x 22,5 x 115 [mm]
 on 35 mm standard rail according to DIN EN 60 715
 or screws M4 (not included in delivery scope)
 IP 30/IP 20

Protection Housing/Terminals

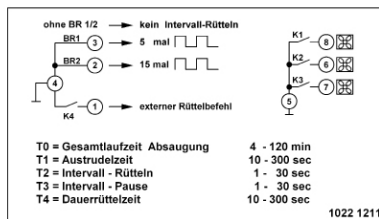
Vibrator Control RSP1

with Time addition

RSP1



Part number: **Z224305**



The vibration control RSP1 is a compact multiple timing relay for capturing operation times of suction plants and for triggering vibrators.

It provides optimal control of the vibration device by collecting of operating times of up to 3 suction

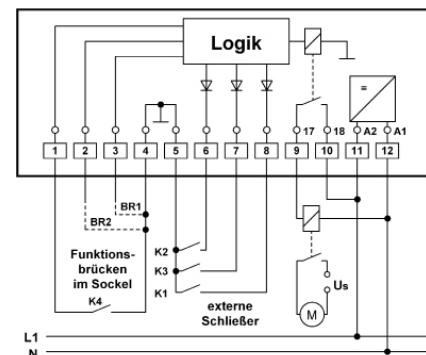
- addition of the running time of 1, 2 or 3 suction.
- introduction of vibration procedure after having reached the set total time (adjustable 4 to 120 min.) and after completion of the last suction operation.
- external vibration command by closing a contact, e.g. by filter monitoring work
- spintime adjustable 10 to 300 sec.
- interval vibrations 5, 15 or 20 times (disconnectable)
- interval vibration time (adjustable 1 - 30 sec.)
- interval break time (adjustable 1 - 30 sec.)
- continuous vibration (adjustable 10 - 300 sec.)
- no vibration during suction operation.
- if vibration procedure is interrupted (e.g. by switching on suction), the same will be recommenced at the next possible opportunity.

with variable programs for vibration procedures (spintime, interval- and permanent vibration) and programmable vibration periods. LED displays provide information about the operational state at any time.

All times are permanently saved in an EEPROM. Thus the accumulated operation period of the suction operation saved when switching off the supply voltage, e.g. during the night or weekend.

Features:

- inputs for up to 3 suction.
- permanent saving of all times in the EEPROM.
- LED-display
- 2 pushbuttons for programming.
- coding switch for adjustment of all times
- RESET-button, resets operation period to zero or interrupts a running vibration procedure.
- VIBRATION-button, starts vibration procedure (only if suction is not active).



Technical Data

Supply voltage U_s

AC 220 - 240 V, $\pm 10\%$, 50/ 60 Hz, < 3 VA

Relay output
Contact type
Test Conditions
max. ambient temperature

1 NO
type 2 see "general technical informations"
see "general technical informations"
-20°C...+55°C

Inputs
Contact 6, 7, 8 against 5
Contact 1 against 4

approx. DC 24 V/3 mA
approx. DC 5 V/5 mA

Casing dimensions (W x H x D)
Protection housing/terminals
Mounting

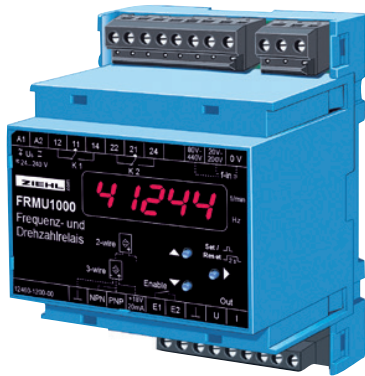
Design S 12: 41.5 x 82 x 121
IP 30/ IP 20
on 35 mm standard rail according to EN 60 715 or with M4 screws.
approx. 300 g

Weight

Frequency- and Speed-Relay FRMU1000

with integrated Measuring-Transducer

FRMU1000



Part numbers:

FR1000 no analog output
U226135

FRMU1000 with analog output
U226134

Input 20-200 / 80-440 V

U226138

Input 110-300 / 210-830 V

The FRMU1000 is a speed-monitor, a frequency-monitor and a measuring-transducer in one device.

2 limits with 1 relay each can be programmed for under- or over-speed, under- or overfrequency or each monitoring of a range (min/max).

The input for monitoring of speed can evaluate signals from proximity-sensors 2- or 3-wire, npn- or pnp. The display can be scaled. Thus the real speed of a shaft can be displayed, even though there are several pulses per revolution, e.g. from a cogwheel.

Application as Frequency-Relay:

Monitoring of frequencies in mains 16 2/3 to 400 Hz on maintaining a range (min/max).

Application as Speed-Relay:

Monitoring of overspeed or underspeed, each with pre-alarm and alarm, monitoring of maintaining a range (min/max) or monitoring of stop at machines and equipment, e.g. at conveyors, escalators or lifts or for monitoring of drive-belts.

Application as Measuring-Transducer:

In addition, the FRMU can be used as measuring-transducer to convert the input-signal into a standard-signal 0/4-20 mA or 0-10 V.

Function

Frequency:

- Measuring-inputs voltage AC 20-200 V/ 80-440 V oder AC 110-300 V/ 210-830 V (option)
- Monitoring of frequency of own supply-voltage
- Monitoring range 10-500 Hz
- Resolution of display 0,01 Hz

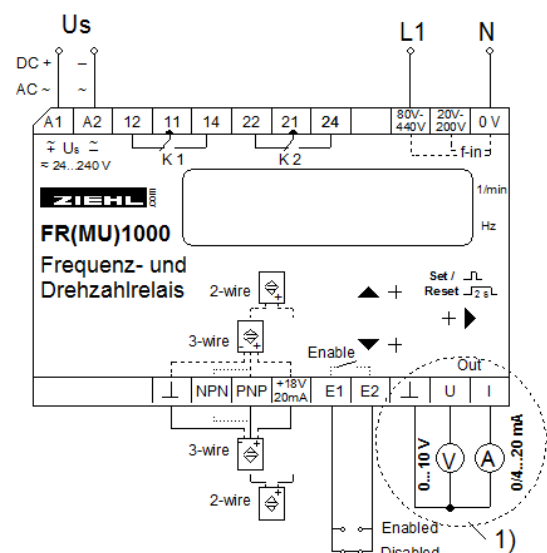
Speed:

- Monitoring range 5...99999 min⁻¹
- Display can be scaled
- Measuring-input for capacitance-switches 2- or 3-wire, npn or pnp
- Start-up-delay programmable
- Start-input (activates device with switching on the monitored drive)

General:

- Setting in Hz or min⁻¹
- 5-digit display
- Analog output DC 0/4-20 mA, or DC 0-10 V, freely scaleable (with isolation to frequency-input U1/U2)
- 2 limits/ 2 relays

- Programmable for each relay:
 - Monitoring of min, max or range
 - Hysteresis
 - Autoreset reclosing lock
 - Delay-time for switching and switching back down to 50 ms
 - Operating- or closed-current mode
- LEDs for state of relays and unit (Hz oder min⁻¹)
- Storage of min- and max- values of the inputs
- Easy setting with 3 buttons
- Code lock against manipulation of settings
- Universal power supply AC/DC 24-240 V
- Terminals pluggable



Technical Data
FRMU1000

Rated supply voltage U_s	AC/DC 24-240 V, <3W, <10VA (AC 20-264 V, DC 20,4-297 V)
Frequency	0, 40...500 Hz, > AC 80 V: 10...500 Hz
Measuring input Frequency	10.00-500.00 Hz
Admissible voltage	AC 20-200 V/ 80-440 V AC 110-300 V/ 210-830 V (option)
Measuring input Speed	5-99999 min ⁻¹
Analog output	PNP or NPN, 3-wire or 2-wire 0/4-20 mA, max. 500 Ω, 0-10 V, max. 10 mA
max. error	< 0,15 % from FullScale + 0,015 %/K
Relay output	Type 3, see "general technical informations" 2 x 1 (change-over) contact
Test conditions	see "general technical informations"
Rated ambient temperature range	-20 °C ... +60 °C
Dimensions(h x w x d)	
Protection housing / terminals	Design V4: 90 x 70 x 58 mm, mounting height 55 mm
Weight	IP 30/IP 20 (terminals pluggable)
Attachment	app. 180 g on 35 mm DIN rail or with screws M 4

Inductive Proximity Sensor IG2



Part numbers:
U226003 IG2
U226004 cable

Proximity-Sensor for Speed Relay FRMU1000.

- 3-wire-connection PNP
brown =+, blue = -, black = A
- nickel-plated brass
- flush-mounting possible
- max. 48.000 IPM (800 Hz)
- max. switching distance 4 mm
(recommended ≤ 3 mm)

- Connection cable pluggable
- integrated protection against reverse polarity
- LED for state of output

Connection Cable

- Plug M 12, angled
- Length 5 m, 3 x 0,34 sqmm
- PUR cable sheath

4

Technical Data

Rated supply voltage U_s	DC 10-30 V
Max. switching frequency	800 Hz = 48000 Imp/min
Max. switching distance	4 mm (recomm. ≤3 mm)
Factor of reduction	Ms: 0,45, Al: 0,4, Cu: 0,3
Rated amb. temp. range	-25 ... +70 degC
Housing	Threaded pipe M12x1
Material	nickel-plated brass
Weight	app. 26 g
Dimensions	M 12x1 / length 50 mm
Torque	max. 10 Nm
Connection	threaded plug M 12
Shock resistance	≤30 g, ≤11 ms
Vibration resistance	≤55 Hz, ≤1 mm
protection	IP 67
Order-number IG2	U226003
Order-number cable	U226004

Level Monitors Type NS

General

The NS level monitor is an electronic device for monitoring liquid levels. They can be used as limit monitor or minimal-maximal control.

The monitoring of liquid levels is effected via electrodes.

Application:

The NS units protect aggregates and plants against dry running, overflow, leakage damages and unnecessary lost of liquids. Characteristical applications are swimming pools, groundwater endangered buildings, oilfilled under-water-pumps as well as wherever a certain level should be maintained resp. dosed.

Function

The level capture is effected through resistance measurement via an AC voltage measuring path, operating completely DC voltage-free. Hereby, the resistance between two (resp. three) electrodes is measured.

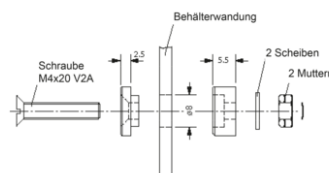
When the level increases, the electrodes are bridged and an integrated relay switches.

The level monitor operates as conductivity measuring device and guarantees a perfect level capture at a resistance of up to 250 k Ω , measured between the electrodes. ZIEHL level monitors are also available with adjustable time delay in order to avoid a too high relay switching frequency in case of a moving water surface. As electrodes any conductors, that jut into the tank down to the required level, can be used. At metal tanks the wall of the tank can be used as basic electrode.

Niveauelectrodes

Electrode NE1

Part number: **V223430**



Insulated screw-in electrodes for mounting in walls of tanks. The electrodes are made of stainless steel (V2A), the material of the insulation is Teflon.

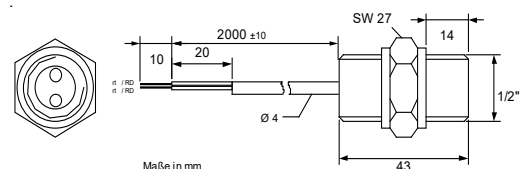
Electrode NE2

Part number: **V223429**



The electrode NE2 with its 1/2" thread can directly be screwed into the wall of a tank. The two electrodes (stainless steel V4A) are flush cast in a plastic housing (Polypropylen, PP) with cast resin. The electrode can be used in a temperature-range -5...+60 °C and is pressure-resistant up to 6 bar. The ingrained cable with 2 strands, each 0,25 mm², is 2000 mm long, \varnothing 4 mm.

For one level only one NE2 is sufficient. For use with a level-monitor for more levels, normally one NE2 per level is required.



Filling level probe Type NS6123-6

for measuring filling level of water and gasoil
0 - 250 mbar, integrated measuring transducer

NS6123-6



Part number: **V223470**

Economy-priced probe with integrated measuring transducer for measuring filling level e.g. in tanks, cisterns or waters. Connection to ZIEHL-Web-Relay TR800Web for monitoring and logging of filling levels. Alarms by emails when levels are reached, e.g. before tank is empty. Monitoring and display of levels with [Digital Panelmeters MINI-PAN 352](#) or other [devices with input 4-20 mA](#). The probe for relative pressure is submersible. It is placed at the bottom of the tank and determines the level by measuring the hydrostatic pressure. The result

is transmitted via signal 4-20 mA (2 wire). The cable (PUR) includes a pressure compensation capillary that compensates fluctuation of atmospheric pressure.

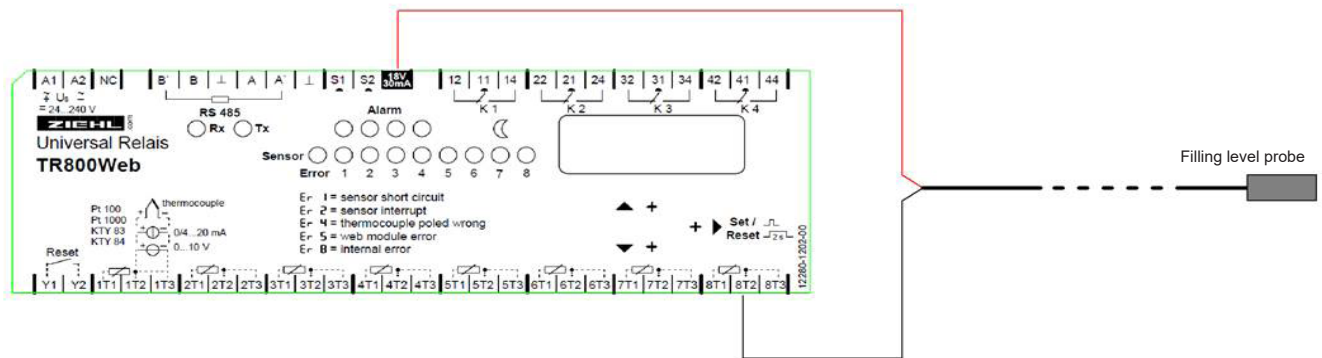
Applications:

- Gasoil, diesel, used oil
- Engine oil and lube oil (fresh)
- Rainwater in cisterns, basins and water levels in general

Standard probe NS6123-6
0-250 mbar, cable 6 m



Connection to Universal Web-Relay Type TR800Web



4

Scaling of TR800Web for water:

Sensor-Einstellungen									
Nr.	Sensor-Name	aktueller Messwert	Sensortyp	Leitungs-Kompensation	Skalierung				
					ein	Nullpunkt	Fullscale	Dez. Punkt	Einheit
1.	Pegelsonde	25.3 cm	4..20 mA	3-Leiter	<input checked="" type="checkbox"/>	0	2500	xxx . x	cm

Water (density 1,0): 1 mbar = 1 cm
0...250 mbar correspond to level 250.0 cm

Scaling of TR800Web for oil:

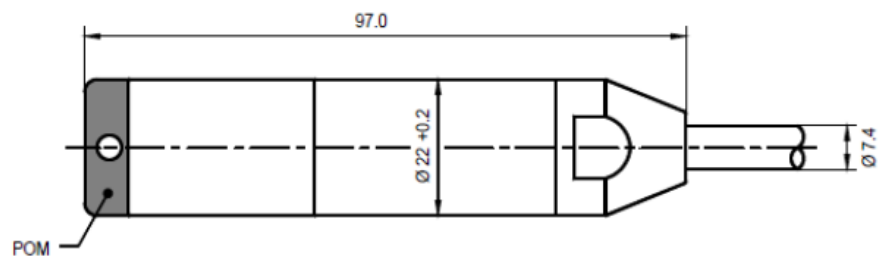
Sensor-Einstellungen									
Nr.	Sensor-Name	aktueller Messwert	Sensortyp	Leitungs-Kompensation	Skalierung				
					ein	Nullpunkt	Fullscale	Dez. Punkt	Einheit
1.	Pegelsonde	25.3 cm	4..20 mA	3-Leiter	<input checked="" type="checkbox"/>	0	2900	xxx . x	cm

Oil (density 0,82...0,95): 1 mbar = 1/density cm
Example density 0,862: 1 mbar = 1,160 cm
0...250 mbar correspond to level 0,0...290 cm
Density of liquid can be calculated by using signal of probe and measuring depth of immersion with a meter stick.

Technical Data

Input	0...250 mbar (0...250 cm water; 0...~290 cm oil)
Output	4...20 mA, 2-wire
Supply voltage	10...30 V DC direct connection to TR800Web
Measuring cell	ceramic Al ₂ O ₃ , DMS bridge
Response time	50 ms
Error	< 1% of FullScale
Thermal drift	< 0,05% /K of span
Ambient temperature	-10...+40 °C
Housing	stainless steel 1.4404 (316 L, V4A)
Weight of probe	ca. 0,2 kg, without cable
Cable	PUR black, oil proofen with pressure compensation capillary
Applications	Gasoil, diesel, water not for petrol, kerosine not for use in zone EEx

Drawing



Level Monitors Type NS1

1 Niveau, Wall-mount

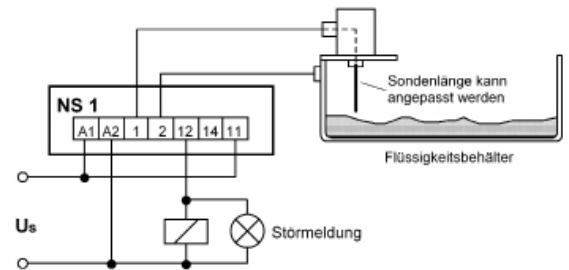
NS1



Part number: V223202

This level monitor for two electrodes preferably serves to the limit control, e.g. as overflow or running dry protection of a conducting liquid. The device is integrated in a shock-resistant plastic housing of the type 94 and can also be used for outside- resp. waterproof mounting according to its protection system IP 54.

The function of the relay is reversible (standard: releases, when E2 is reached) by changing of jumpers in the device. The sensitivity can be changed between 25...250 kOhm and the switching delay between 0,5...10 s.



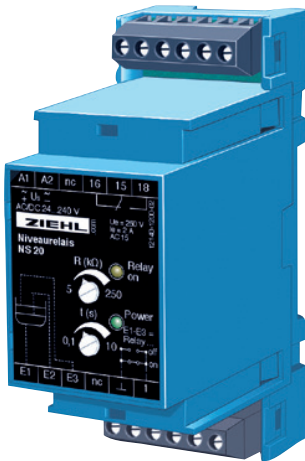
Technical Data

Supply Voltage U_s	AC 230 V
Adm. Tolerance U_s	+10%...-15%
Power Consumption	≤ 3 VA
Frequency	50...60 Hz
Relays	1 CO
Contact type	Type 2 (see "General technical Informations")
Pick up delay approx.	0,5 s
Release delay approx.	0,5...10s adjustable
Text conditions	see "General technical Informations"
max. ambient temperature	-20°C...+55°C
Quantity Electrodes	2
Voltage at the Electrodes	< AC 6 V _{eff}
Line capacity	at 25 kΩ max. 100 nF = approx. 500 m
	at 150 kΩ max. 20 nF = approx. 100 m
	at 250 kΩ max. 10 nF = approx. 50 m
Dimensions (H x B x T)	Design I 94: 94 x 94 x 57 mm
Fitting position	with screws
Protection housing/ terminals	IP 54/ IP 20
Weight	approx. 310 g

Level Monitor Type NS20

1 Level and MIN / MAX-Control

NS20



Part number: **V223440**

Lever-Relays NS20 for conductive liquids can be used as monitors for 1 Level and for controlling a level between 2 electrodes.

- 3 elektrodes for MIN/MAX-control
- 2 elektrodes (E2 open) as level-monitor
- Sensitivity adjustable 5 k Ω ...250 k Ω
- LED for state of relay
- Function of relay reversible (picks up or releases at top electrode)
- Switching-delay adjustable 0,1 ... 10 s
- Universal supply-voltage AC/DC 24-240 V

Applications as level-monitor: Protection from running dry or overflow, seal-monitoring of submersible pumps for leaks, detection of leaks.

Applications Min/Max: Controlling a level between minimum (elektrode E2) and maximum (E3). As long as E3 is dry, a magnetic valve is opened (or a pump is running) and liquid is influenting. As soon as maximum (E3) is reached, the NS 20 closes the valve. When the level falls below E2, the cycle starts new. In reverse also discharging of a container can be controlled.

Technical Data

Supply voltage U_s

Relay
Contact
Switching delay

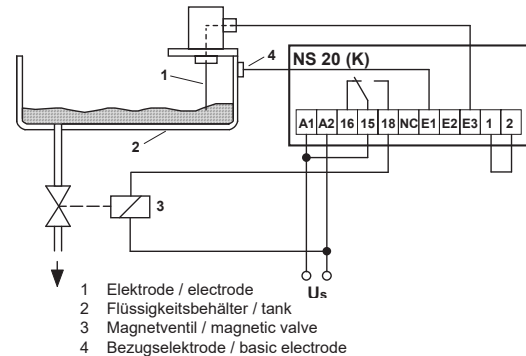
Test conditions
Rated ambient temperature range

Number of electrodes
Voltage at electrodes

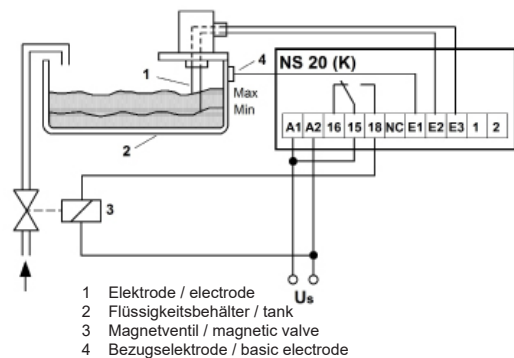
Line capacity at 5 k Ω
at 150 k Ω
at 250 k Ω

Dimensions (h x w x d) mm
Attachment
Protection housing/terminals
Weight

Überwachung Flüssigkeitsstand mit 1 Elektrode (E3 benetzt, Relais an 15-18 geschlossen)
monitoring of liquid with 1 electrode (E3 dipped, relay on 15-18 closed)



Zulaufsteuerung mit 2 Elektroden (E3 benetzt, Relais aus 15-16 geschlossen)
filling tank with 2 electrodes (E3 dipped, relay off 15-16 closed)



AC/DC 24-240 V, 0/50/60 Hz, <2W, <3VA
(DC 20,4-297 V, AC 20-264 V)

1 change-over-contact (co)
type 2 see "general technical information"
adjustable 0,1...10 s

see "general technical information"
-20°C...+55°C

2 or 3 (with 2 electrodes: E2 not connected)
< AC 6 V_{eff}

max. 500 nF = app. 2500 m
max. 20 nF = app. 100 m
max. 10 nF = app. 50 m

design V2: 90 x 35 x 58 mm, mounting height 55 mm
on 35 mm DIN-rail or with screws M4
IP 30/ IP 20
app. 100 g

Level Monitor Type NS20K

1 Level and MIN / MAX-Control

NS20K



Part number: **V223445**

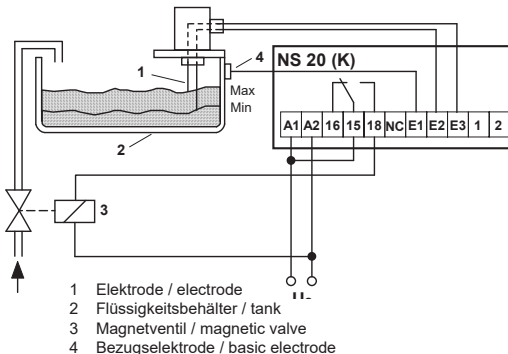
Level-Relays NS20 can be used for monitoring 1 level and as MIN/MAX-Control.

- 3 elektrodes for MIN/MAX-control
- 2 elektrodes (E2 open) as level-monitor
- Sensitivity adjustable 5 kΩ...250 kΩ
- LED for state of relay
- Function of relay reversible (picks up or releases at top electrode)
- Switching-delay adjustable 0,1 ... 10 s

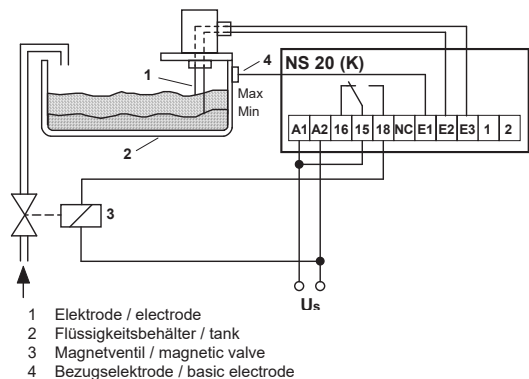
Application as level-monitor: Protection from running dry or overflow, seal-monitoring of submersible pumps for leaks, detection of leaks.

Application Min/Max: Controlling a level between minimum (elektrode E2) and maximum (E3). As long as E3 is dry, a magnetic valve is opened (or a pump is running) and liquid is influencing. As soon as maximum (E3) is reached, the NS 20 closes the valve. When the level falls below E2, the cycle starts new. In reverse also discharging of a container can be controlled.

Überwachung Flüssigkeitsstand mit 1 Elektrode (E3 benetzt, Relais an 15-18 geschlossen)
 monitoring of liquid with 1 electrode (E3 dipped, relay on 15-18 closed)



Zulaufsteuerung mit 2 Elektroden (E3 benetzt, Relais aus 15-16 geschlossen)
 filling tank with 2 electrodes (E3 dipped, relay off 15-16 closed)



Technical Data

Supply voltage U_s

AC/DC 24-240 V, 0/50/60 Hz, <2W, <3VA
 (DC 20,4-297 V, AC 20-264 V)

Relay
 Contact
 Switching delay

1 change-over-contact (co)
type 2 see "general technical information"
 adjustable 0,1...10 s

Test conditions
 Rated ambient temperature range

see "general technical information"
 -20°C...+55°C

Number of electrodes
 Voltage at electrodes

2 or 3 (with 2 electrodes: E2 not connected)
 < AC 6 V_{eff}

Line capacity at 5 kΩ
 at 150 kΩ
 at 250 kΩ

max. 500 nF = app. 2500 m
 max. 20 nF = app. 100 m
 max. 10 nF = app. 50 m

Dimensions (h x w x d) mm
 Attachment
 Protection housing/terminals
 Weight

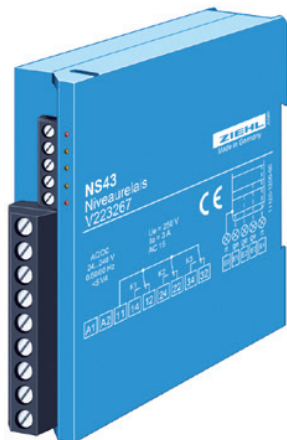
Design K: 75 x 22,5 x 115 mm
 on 35 mm DIN-rail or screws M4
 IP 30/ IP 20
 approx. 100 g

4

Level Monitors Type NS43

MIN/MAX-Regulation, protection from overflow and unlubricated operation

NS43



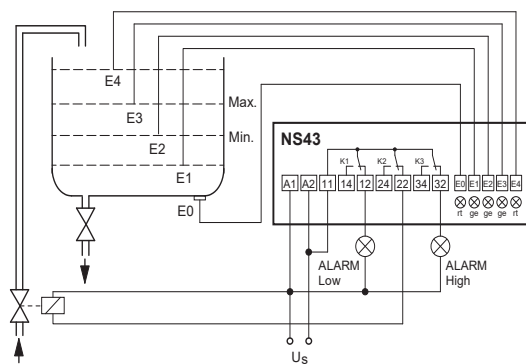
Part number: **V223267**

The level monitor NS43 regulates the level of liquid in a container between 2 electrodes. In the normal operation the level of the liquid is situated between the electrodes E2 and E3. The relay K2 tightens, if the level E3 is achieved and drops, if E2 is fallen below. Over the output contacts (1 change-over switch) a pump or a valve can be controlled depending upon case of application and so the level be regulated. If the level continues to rise in an incident and if the electrode achieves E4, then a message takes place via relay K3 (drops). In the reverse case (level under E1) the relay K1 drops and protects e.g. a pump against running dry. LEDS signal, which electrodes are moistened.

- Level monitoring of leading liquids
- MIN/MAX level regulation
- protection from overflow
- protection from running dry
- sensitivity adjustable 5... 250 k Ω
- LED for level display / alarm

Application:

In the galvanotechnics and everywhere, where the level of a leading liquid must be held on a certain level and at the same time a monitoring on overflow and/or no-load operation is necessary.



Elektrodes	LED	Relay	Contact	
E1 not dipped	E0-red	K1 off	11-12 closed	ALARM Low (running dry)
E1 dipped	E1-ye	K1 on	11-14 closed	
E2 dipped	E2-ye	K2 off	11-22 closed	
E3 dipped	E3-ye	K2 on	11-24 closed	ALARM High (overflow)
E4 dipped	E4-red	K3 off	11-32 closed	

Technical Data

Supply voltage U_s
Admissible tolerance U_s
Power consumption
Frequency

AC/DC 24-240 V
AC 20-264 V, DC 20-297 V
 ≤ 5 VA, < 3 W
0,45 - 62 Hz

Relay
Contact

3 CO
Type 2 see "general technical information"

Pick up delay
Release delay

approx. 1 s
approx. 1 s

Test conditions
Rated ambient temperature range

see "general technical information"
-20°C...+60°C

Number of electrodes
Voltage at electrodes

5
 $< AC 3 V_{eff} (\leq 0,1 \text{ mA})$

Line capacity at 5 k Ω
at 25 k Ω
at 250 k Ω

max. 500 nF = approx. 2500 m
max. 100 nF = approx. 500 m
max. 10 nF = approx. 50 m

Dimensions (h x w x d) mm
Attachment
Protection housing/terminals
Weight

Design K: 75 x 22,5 x 115 mm
Snap mounting on 35 mm standard rail
IP 30/ IP 20
approx. 130 g

Level Monitor Type NS43V

Switchgear-mount Housing

NS43V



Part numbers:

NS43V

V223313

ER6



T224386

The NS level monitor is an electronic device for monitoring levels of conductive liquids.

The monitoring of the levels is effected vis electrodes, which are dipped or set free according to liquid level.

All conductive liquids can be monitored, preferably, however, water, also of different degree of hardness.

To adapt the relay to the conductivity of the liquid and to the capacitance of (long) cables, the switching limit can be adjusted app. 5 kΩ ... 250 kΩ. Thus it also is possible to tell between the liquid and foam over the liquid.

The NS unit protects aggregates and plants against dry running, overflow, leakage damages and unnecessary loss of liquids.

It controls and monitors levels of liquids in waste-water, pools, fish farms and wherever a certain level should be maintained or dosed.

Depending on the application and the set program, it controls the level between 2 or 3 electrodes by means of opening or closing dose or drain of a container.

The top and the lowest electrode protect from overflow or running dry.

An electrolytic corrosion of the electrodes as well as detonating gas production is excluded due to a AC current measuring path.

The universal supply voltage AC/DC 24-240 V allows to connect the relay to any common mains. The isolation between electronics (= electrodes) and supply voltage avoids malfunctions caused by potential spreading, also at DC-supplys.

- Monitoring of up to 4 levels
- 4 relays with change-over contacts (co)
- Sensitivity adjustable 5...250 kΩ
- Switching delay of relays adjustable 0...10 s
- Switching-delay of alarms (on/off) adjustable 0...10 s
- Basic programs (selectable with DIP-switches) for various applications
- Universal supply voltage AC/DC 24-240 V
- Terminals pluggable
- Housing for DIN-rail or wall-mount, mounting height 55 mm, 70 mm wide

Accessory: [Installation frame ER6 for panel mount](#)

Technical Data

Supply voltage Us

AC/DC 24-240V, <3W, <6VA
AC 20-264 V, DC 20,4-297 V,

Electrode connection

max. voltage/current
Sensitivity
max. cable-length/capacity

Level electrodes E1, E2, E3, E4, reference E0
<3Veff / <100 μA
adjustable 5 kΩ...250 kΩ ± 25%
5 kΩ/approx. 500m/100 nF, 250
kΩ/approx. 50m/10nF

Hysteresis

Switching delay

approx. 15% + 5 kΩ
adjustable 0,1...10 s

Relay output

Type 2 see "general technical informations"
4 x 1 changeover-contact

Test conditions

Rated ambient temperature

see "general technical informations"
-20...+55°C

Housing / Installation Frame

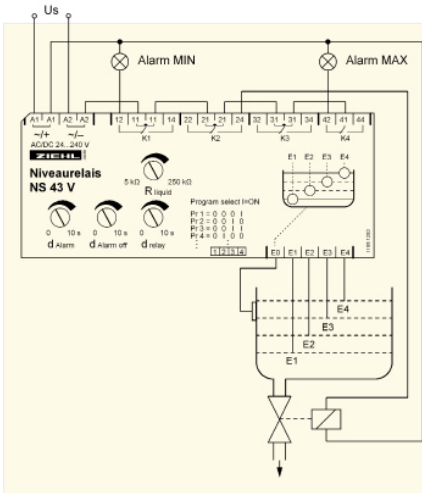
Dimensions h x b x d

Attachment

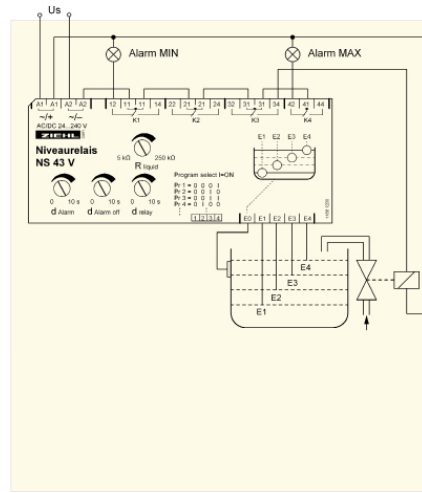
Protection housing / terminals

Weight

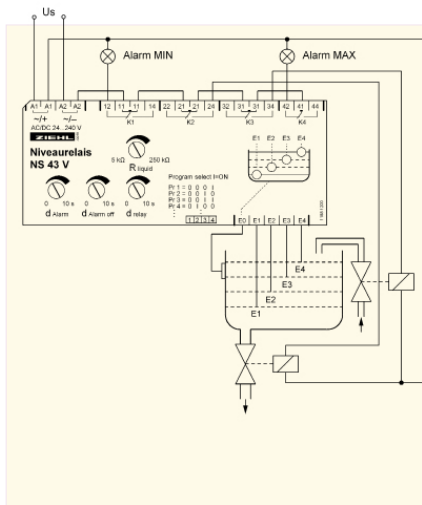
Design V6 / Front mounting kit type ER6, 6 TE
90 x 105 x 58 [mm], mounting height 55 mm
On 35 mm DIN-rail or screws M4
IP 30 / IP 20 (terminals pluggable)
approx. 250 g



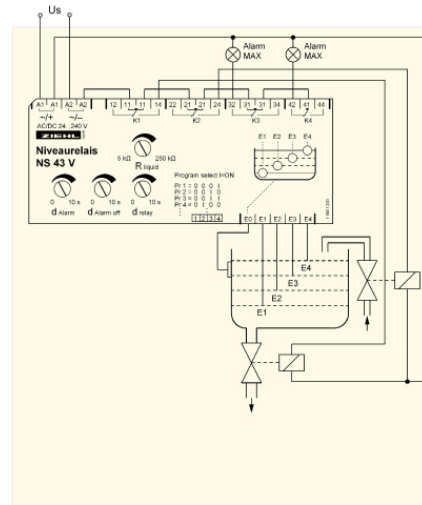
Program 1
Control of dose or drain with 2 electrodes with 2 more electrodes to protect from overflow and running dry. The level swings between the 2 middle electrodes. Standard-program for levelling a liquid in a container.



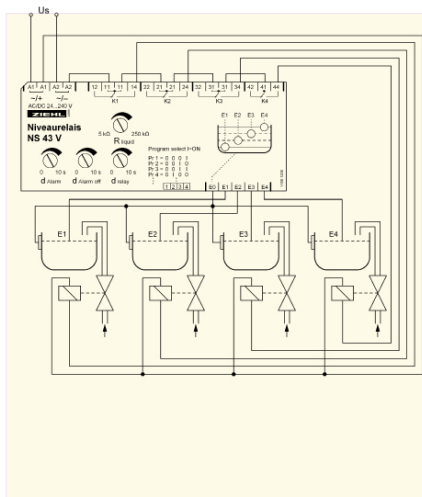
Example for dose-control



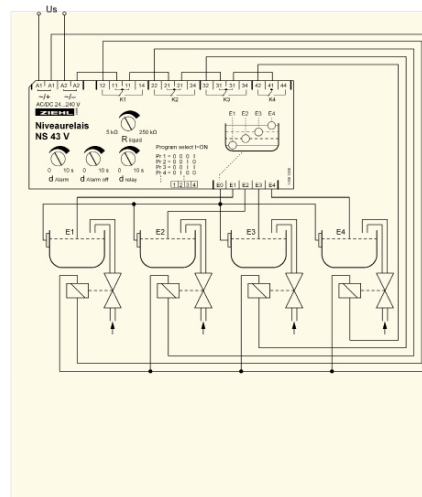
Program 2
Control of dose and drain between 2 electrodes with 2 more electrodes to protect from overflow and running dry. Depending on if speed of dose or drain is higher, the level swings around the upper or the lower of the 2 middle electrodes.



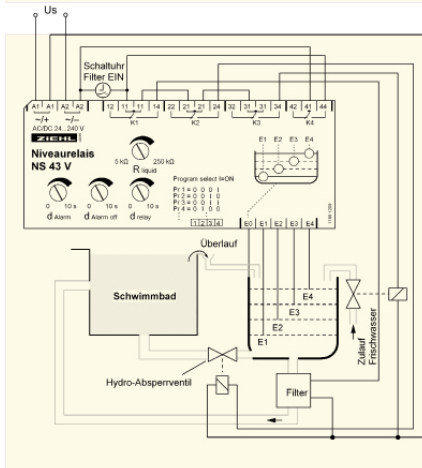
Program 3
Control of dose and drain between 3 electrodes with 2 more electrodes to protect from overflow. The level swings between electrodes E1 and E3. Dose and drain are switched on at E2 and off at E3 respectively E1. Application e.g. in fish-farming.



Program 4
Monitoring of 4 single levels with 4 electrodes. Relay OFF when relevant electrode is dipped. Program for controlling or monitoring of levels in 4 containers or for monitoring of up to 4 levels in 1 container.



Program 5
Monitoring of 4 single levels with 4 electrodes. Relay ON when relevant electrode is dipped. Program for controlling or monitoring of levels in 4 containers or for monitoring of up to 4 levels in 1 container. E.G. monitoring of break of a pipe at 4 different points.

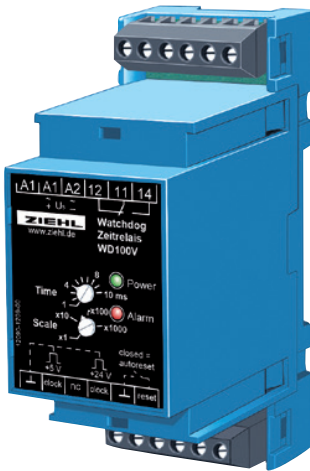


Program 6
Pool control for overflow basin with switching of hydro-lock valve, dosing of fresh water, emergency filter-on and protection from running dry.

Order-number:
AC/DC 24-240 V
V223313

Watchdog Time-Relay Type WD100V

WD100V



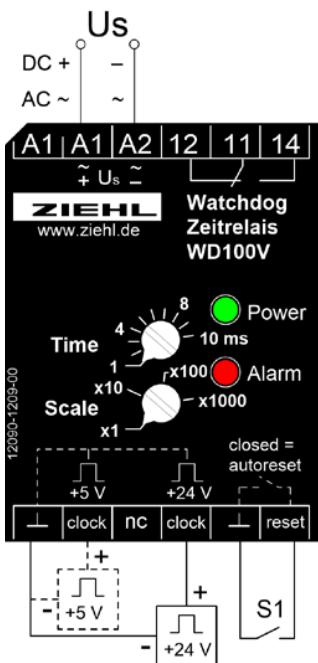
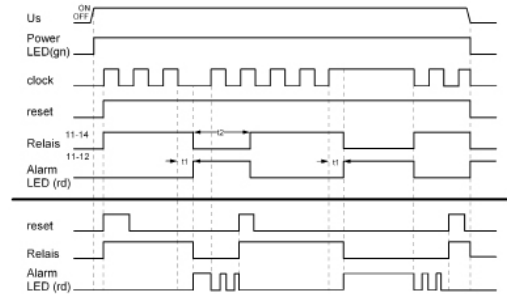
Part number: **Z224319**

In the control technology of today, the number of industrial PCs (IPC) partly with decentralized intelligence constantly increases. Individual processes are controlled independent of each other. In case of failure or malfunction of one component, it can therefore be necessary to switch off the hardware of a complete machine or plant.

Time-Relay WD100V is used to make sure that because of malfunctions in the program flow, caused by short-term voltage interruptions for instance, no undefined status are created. The output signal can be evaluated by a superordinate control or directly switched into the

emergency-stop circuit of the machine.

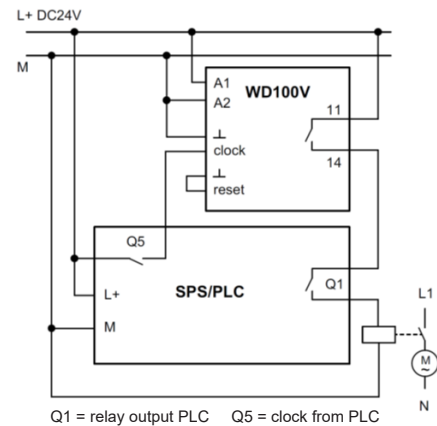
Application:
Monitoring of controls/IPC in packing machines.
Monitoring of application software



Example for application: Release motor

The software of the monitored control (PLC, IPC) makes a clock signal at the output Q5 (DC24V, transistor). The relay of the WD100V picks up only when the input recognizes a clock signal. The time between two slopes has to be shorter than the time set at the WD100V (time x scale). When the clock is missing completely or at a missing slope, the output relay of the WD100V opens contacts 11-14 and the motor is switched off respectively switching on is inhibited. When the square signals recovers and the reset-input is closed or supply-voltage is swit-

ched on, the relay picks up again (not earlier than 500 ms after switching off).



Technical Data

Rated supply voltage U_s	AC/DC 24-240 V, 0/50/60 Hz, <2W, < 3 VA DC 20,4-297 V, AC 20-264 V
Contact elements	1 change-over contact (co)
Contact type	Type 3 see "General technical Informations"
Measuring input clock	app. DC 5/24 V square wave Relay picked up when square wave voltage is fed Relay is released 1-10.000 ms after last slope
Pulse length	0,5 ... 10.000 ms
Input Reset	Button for Reset / bridge = autoreset
Rated ambient temp. range	-32°C...+70°C
Dimensions h x w x d	Design V2: 90 x 35 x 58 [mm]
Weight	approx. 100 g
Attachment	on 35 mm DIN-rail or with screws M4.
Protection housing / terminals	IP 30/ IP 20

