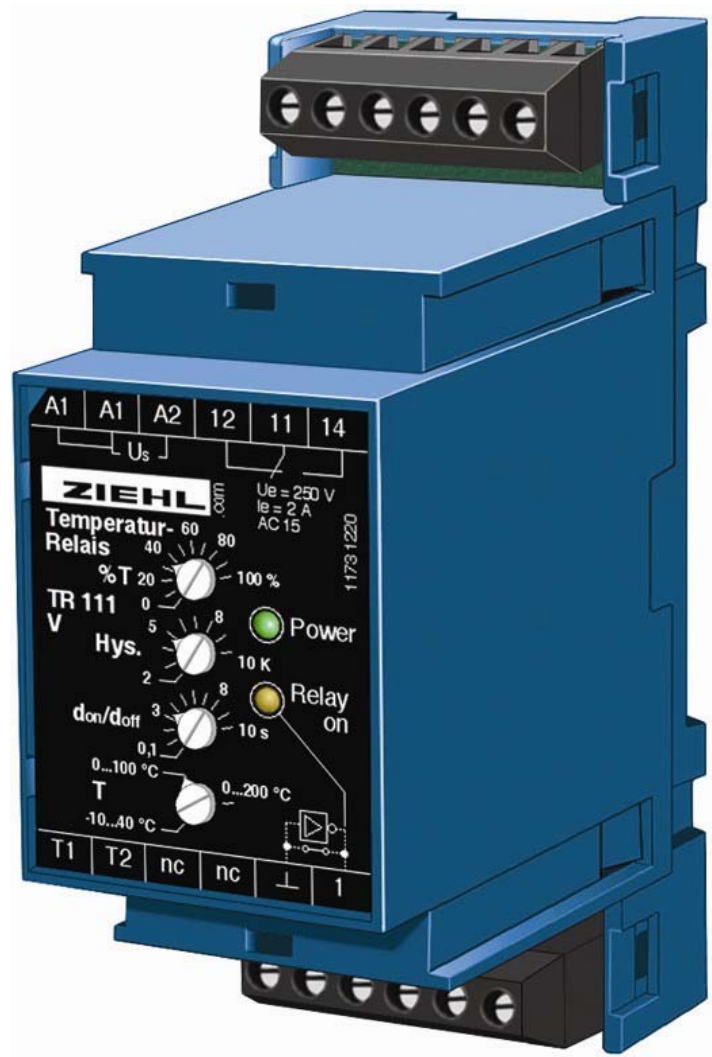


Operating manual - Archive document

Pt 100-Temperature-Relay TR 111 V



Application and short description

Temperature-Relays TR 111 V can be used as limit-switches or 2-point controllers with high repeat accuracy.

3 measuring-ranges, adjustable hysteresis and switching delay and the choice between operating- and closed-current principle of the relay make it a very universal device.

Protection from over-temperature in processes, plants and machines.

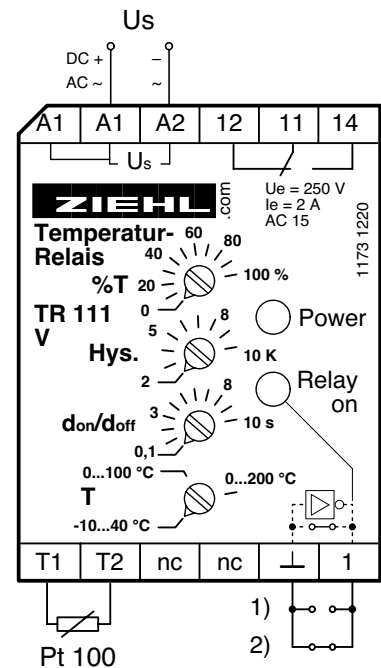
Monitoring of temperatures in bearings.

Controlling of temperatures in processes and plants.

Overview of functions

- Measuring input 1x Pt 100 (RTD) / 2-wire
- 3 or 4 measuring-ranges switchable
- 1 limit adjustable 0...100 %
- switching delay adjustable 0,1...10 s
- Output-relay 1 changeover-contact (co)
- Operating- or closed-current-principle selectable with bridge
- Switching off at sensor-shortcircuit or break
- LEDs for display state of operation
- Housing for mounting in switchgear cabinets or fuseboxes, 35 mm wide
- Mounting height 55 mm

Connection plan

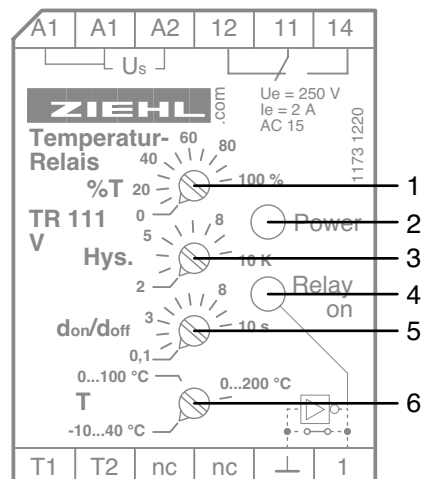


1) Ruhestrom / closed current mode

2) Arbeitsstrom / operating current mode

Display and operating elements

- 1 Potentiometer for limit value
- 2 LED Power
- 3 Hysteresis
- 4 LED Relay on
- 5 Switching delay don/doff
- 6 Range selection



Detailed description

As standard, the TR 111 V thermostats operate according to the closed-current-principle. If a temperature sensor is connected, the installed relay picks up (11-14 closed = ok).

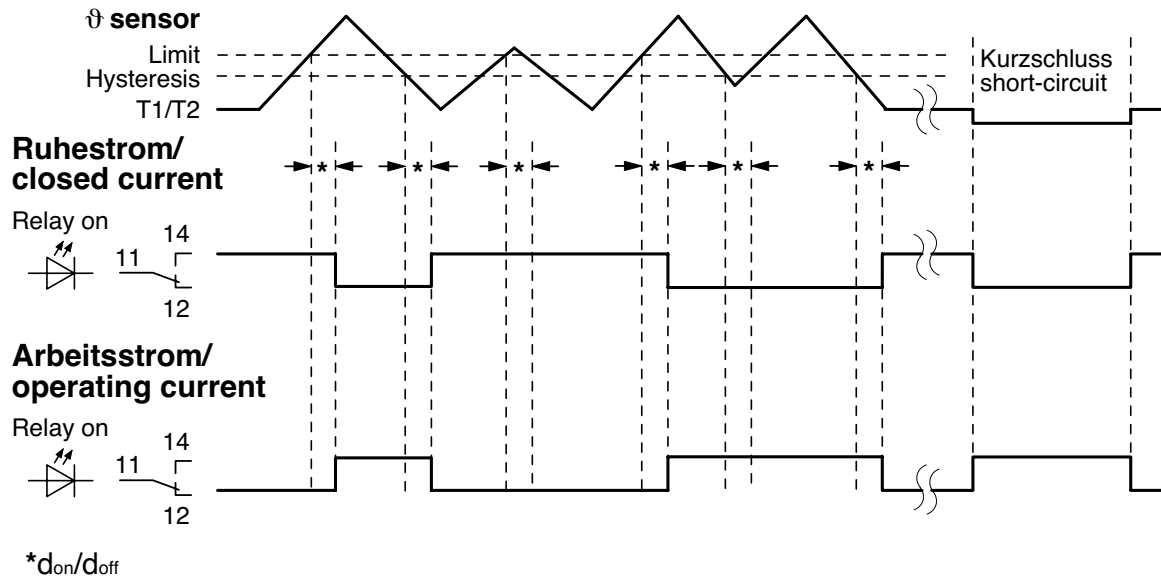
The relay releases in the case of a sensor breakdown.

The thermostat signals and switches when the set limit is exceeded.

If the temperature at the sensor rises over the adjusted value, then the relay releases. The switching status is signalled by a LED: relay picked up = LED on.

At operating-current-principle the function pf the relay is inverted. It picks up at over-temperature (11-12 closed = ok).

Function Diagram



Important notes

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 instructions 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 equipments are built according to EN and checked and leave the plant according to security in perfect condition. To keep this condition, observe the security instructions with the headline „Attention“ written in the instructions manual. Ignoring of the security instructions may lead to death, physical injury or damage of the equipment itself and of other apparatus and equipment.

If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.

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

Attention!

Before switching on make sure that the operational voltage U_s of the lateral type plate and the mains voltage are the same.

Assembly

- mount on 35 mm mounting rail according to EN 60715
- wall-mount with 2 x screws M4
- connecting wires refer to the wiring diagram.

Putting into operation

- Connect Pt 100 sensor
- Switch on mains voltage
- Relay releases when set temperature is exceeded, the relevant LED is switched on.

Trouble shooting

Die Funktion des Gerätes kann mit einem Pt 100 - Simulator oder nach der Widerstandstabelle für Pt 100 Sensor EN 60751 überprüft werden. Das Relais schaltet ab bei überschreiten des eingestellten Grenzwertes, bei Sensorbruch oder Sensorkurzschluss. (Ruhestrom)

Technical data

Power Supply

Supply Voltage U_s

(version see lateral type plate)

AC 230 V 50/60 Hz

AC 24 V / DC 20...30 V without potentially separation

Tolerance Voltage U_s

AC : +10 % / -15 %

Frequency (AC)

48...62 Hz

Power Consumption

< 3 VA

Sensor connection

Sensor voltage

<5 V

Sensor current

<3 mA

Short circuit

<15 Ω

Limit value

Measuring- ranges

3 or 4 ranges switchable

3 measuring-ranges

-10...40 °C / 0...100°C / 0...200°C

Repead error

app. 0,5 K

4 measuring-ranges

0...100°C / 100...200°C / 200...300°C / 300...400°C

Repead error

app. 0,8 K

Error of setting

± 5 K

Temperature-dependence

$\leq 0,05$ %/K

Hysteresis

adjustable app. 2...10 K

Switching delay don/doff

adjustable 0,1 s...10 s

Relay output

Switching voltage

max. AC 250 V

Switching current

max. 5 A

Switching power AC $\cos \varphi = 1$

max. 1250 VA (ohmic load)

max. 48 W at DC 24 V

Derating factor at $\cos \varphi 0,7$

0,5

Rated operational current AC 15

$I_e = 2$ A $U_e = 250$ V

Rated operational current DC 13

$I_e = 2$ A $U_e = 24$ V

$I_e = 0,2$ A $U_e = 125$ V

$I_e = 0,1$ A $U_e = 250$ V

Recommended Fuse

3,15 A gl (slow)

Mechanical Contact Life

1×10^7 operations

Electrical Contact Life

1×10^5 operations at AC 250 V 5 A

2×10^5 operations at AC 250 V 3 A

6×10^5 operations at AC 250 V 1 A

EN 50178 / EN 60947

Testing conditions

Rated insulation voltage U_i

AC 250 V

Insulation

EN 60664

Contamination Level

3

Rated impulse voltage

4000 V

Transformer

EN 61558

EMC

EN 50081-2/EN 50082-2

On period

100 %

max. ambient temperature

-20 °C... +55 °C

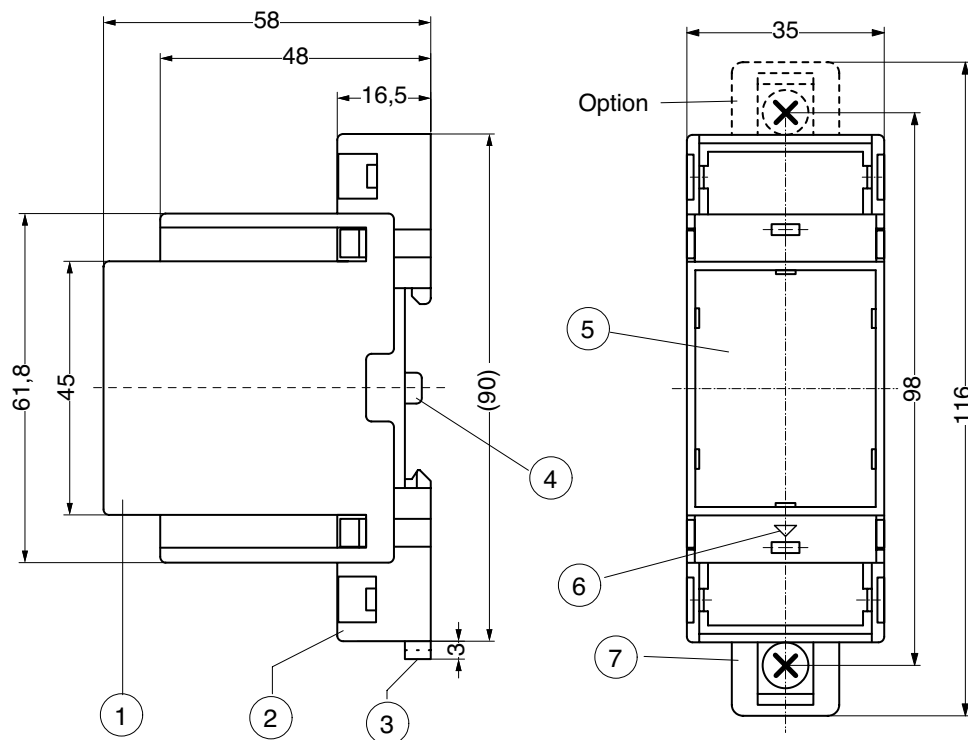
Housing

Mounting height	Design V2
Width	55 mm
Dimensions (H x W x D) mm	2 TE
Line connection solid wire	90 x 35 x 58
Stranded wire with insulated ferrules	1 x 4 mm ²
Protection class housing	1 x 2,5 mm ²
Protection class terminals	IP 30
Attachment Mounting	IP 20
Optional: Screw mounting	35 mm standard rail according to EN 60715
Weight	M4
	approx. 130 g

Subject to technical modifications

Form V2

Dimensions in mm



- 1 Oberteil / cover
- 2 Unterteil / base
- 3 Riegel / bar for snap mounting
- 4 Plombenlasche / latch for sealing
- 5 Frontplatteneinsatz / front panel
- 6 Kennzeichen für unten / position downward
- 7 Riegel bei Wandbefestigung mit Schrauben. Riegelbohrung Ø 4,2 mm / for fixing to wall with screws, Ø 4,2 mm