ZIEHL industrie - elektronik GmbH + Co , Daimlerstr.13 , D-74523 Schwäbisch Hall , Tel. +49 (0)791-504-0 , Fax -504-56

Operating manual - Archive document

TR 101

Application

Thermostats of the TR series are temperature controllers. The thermostat switches operate when the set limiting value is exceeded.
TR thermostats and Pt 100 temperature sensors are a reliable monitoring system. Possible damage by excess temperature in machines and plants are positively avoided.
ZIEHL thermostats of the TR series are electronic two- position controllers. Modern circuitry, well- proved components as well as function and routine tests ensure high repeat accuracy and a long service life.

Function

As standard, the TR 101 thermostats operate according to the closed- circuit current principle. If a temperature sensor is connected, the installed relay picks up.
The relays always switch off in the case of a sensor breakdown.
If the measured temperature has additionally to be displayedor transfered to an overriding computer system, the thermostat TR 101 supply the corresponding analog output signal 0 - 20 mA (4 - 20 mA , 0 - 10 V).
The TR 101 unit can thus be used as thermostat and measuring transmitter at the same time. Panel instruments of the ZIEHL MINIPAN series are especially suitable for temperature display.

Features

- exact temperature sensing and precise switching operations with high repeatability
- 1 sensor, 2 adjustable limits, 2 relays
- LED display for release of the relays K1 and K2
- line resistance of 3- wire connection is internally compensated up to 3 x 22 Ω
- option: operating current design
- current output 0 - 20 mA (4 - 20 mA) without potential separation or
- voltage output 0 - 10 V
- easy to install and service as the cables are wired directly to the plug base and the upper electronic part can easily be replaced
- housing can be snapped onto a mounting rail according to DIN EN 50 022 or fixed with M4 screws
- gold- coated contact springs and plugs ensure a perfect contact and a long service life

Technical data

	.....
Type - Plate	
Order number	
Supply voltage Us / frequency	
Power consumption	see type plate
	on the device
	.....
Tolerance voltage Us	AC 0.9 ... 1.1 Us
Tolerance frequency Us	48 ... 62 Hz
Sensor connection	
Sensor	Pt 100 DIN 43 760 / IEC 751
Sensor current	≤ 2 mA
Connection type	3 lines = standard line resistance max. 2 x 20 Ω Options: 2 line connection (max. 10 Ω line resistance, adjustment by manufacturer)
Monitoring	Sensor / line short-circuit < 50 Ω Sensor / cable break > 430 Ω
Limit value	
Adjustment accuracy	approx. 3 °C
Repeat accuracy	approx. 0,2 °C
Hysteresis	≤ 2 % of span
Switching state	standard: closed - circuit current principle option: operating current principle
Relay standard	true > set value = relay released
LED Display	relay released = LED off
Current output	0 - 20 mA (standard) or 4 - 20 mA apparent ohmic resistance: max. 500 Ω
Voltage output	0 - 10 V apparent ohmic resistance: min. 1000 Ω
Relay output	2 relays, each 1 x CO
Switching voltage	max. AC 415 V
Switching current	max. 8 A
Switching power consumption	max. 1100 VA
Rated operational current	2,5 A 400 V AC 15 4 A 250 V AC 15 3 A 24 V DC 13
Testing conditions	VDE 0660 / VDE 0160
Rated insulation voltage Ui according to VDE 0110	AC 415 V
Isolation	VDE 110 / Gr. C
Transformer	VDE 0550
Test voltage between supply voltage, relay outputs and sensor side	2.5 kV
On period	100 %
max. ambient temperature	-20 ... +55 °C
Climatic category	F (according to DIN 40 040)
Housing:	design S-12, plug-in housing
Dimensions (H x W x D)	82 x 42 x 121 mm
Line connection	12-pole, max. 2 x 1.5 mm^2 each
Protection Housing	IP 30
Protection contacts	IP 20
Panel inclination	any
Mounting	snapable on 35 mm standard rail according to DIN or assembly with screws M 4

Installation - Putting into operation

The plug base can be mounted

- 35 mm mounting rail according to DIN 50 002
- M4 screws

When installing the device into the switch-gear cabinet, please observe the max. admissible temperature. Care for both sufficient clearance to other devices or sources of heat or enough forced draught. Generally recommended mininum clearance: 2 cm.

Wiring directly to plug base

- Connect wires as per wiring scheme
- Plug in electronics and fix with knurled screw

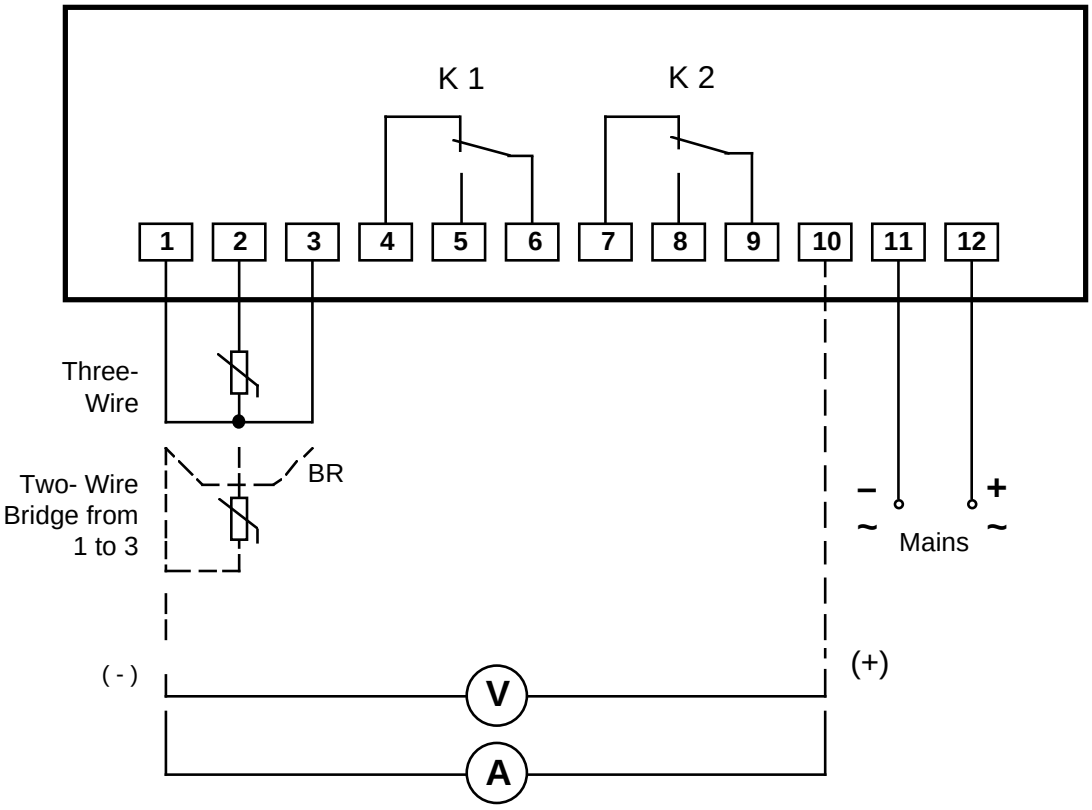
Attention!
Do not plug in device alive nor detach it from socket.

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

Put into operation the thermostat as follows

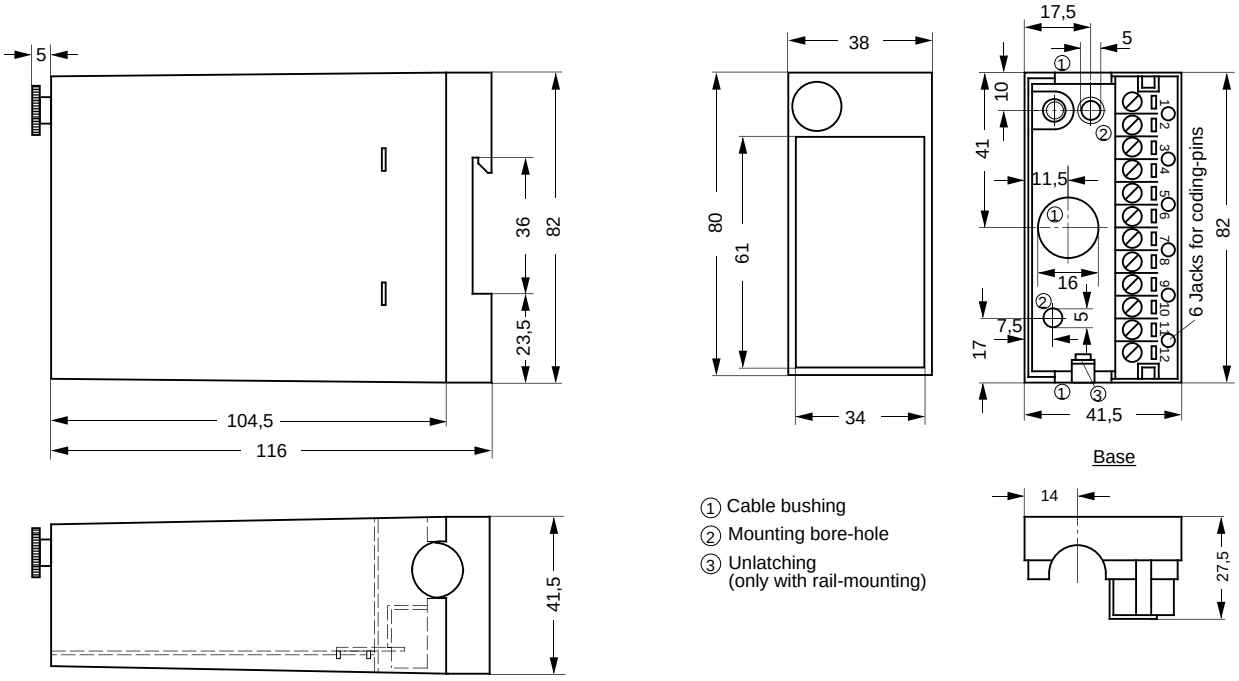
- Connect Pt 100 sensor (3 lines).
- Switch on mains voltage
- At correct state, both the LED´s light up (tempeature lower than the set limits), contacts 5, 6 and 8, 9 closed. (Relays picked up).
- Set limits with screwdriver to desired value, e.g. limit 1 for warning, limit 2 for switching off.
- Relay releases when set temperature is exceeded, the relevant LED is switched off.

Wiring scheme



At Thermostats with Current or Voltage Output

Design S12



Subject to technical modifications.

Z. Nr.: 984 0712.1
Type: TR 100
EA - Nr.: 9903.3