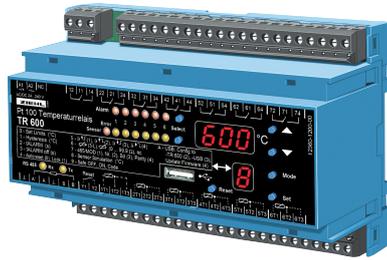# Pt100-Temperature-Relay Type TR600
Digital, 6 Sensors, 6 Limits

1

TR600

Temperature Relay for 6 Sensors Pt100

The Pt100-temperature relay TR600 monitors up to six sensors Pt100 (RTD) at the same time. Six switching points and six relays permit almost any combination of switching action. It also can select the highest temperature of groups of sensors. The temperatures of two sensors or groups of sensors can be issued to 2 analog outputs i.e. for remote displays or further evaluation. Programming is very variable and simple.

Due to the fact that 6 type Pt100 sensors can be connected, the unit is especially suitable for temperature monitoring wherever up to 6 different measuring points must be monitored simultaneously:
- machines, bearings, plants
- motors and generators with simultaneous monitoring of bearings and coolant.
- transformers with additional monitoring of the core temperature also

Function

- measuring and monitoring range -199 ... +800 °C
- 6 sensor inputs with 2- or 3-wire connection
- 6 relay outputs K1 to K6 with change-over contacts
- switching points for single sensor or group of 2, 3 or 6 sensors
- sensor error relay K7 monitors sensor break or
- sensor short circuit as well as an interruption of the power-supply.
- 2 analog outputs, 0/4...20 mA and 0/2...10 V, with individual scaling.
- universal power supply in 2 ranges AC/DC 24 - 240 V
- USB-Stick-Terminal for up- and download of sets of parameters and for firmware-updates
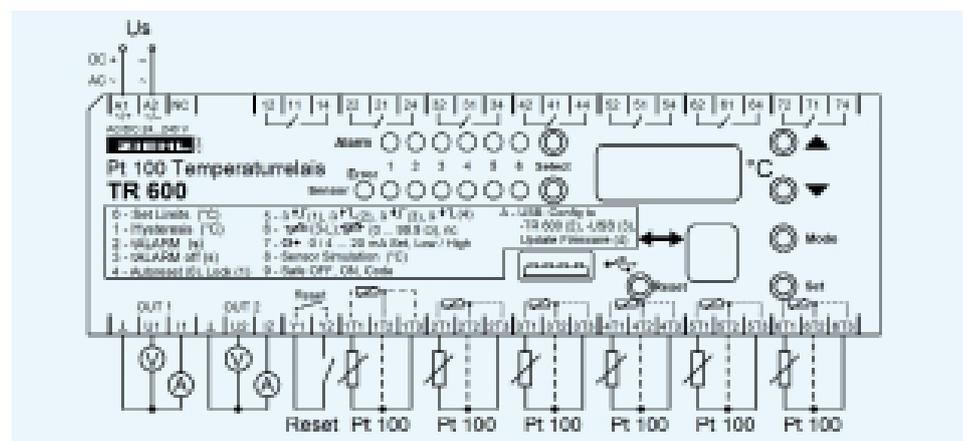
Displays
- built-in 3 digit temperature display and 1 digit program-mode display
- LED Alarm showing state of the alarm relays
- LED Sensor Error blinking at sensor short circuit or sensor interruption.
- Stored Values of MIN- and MAX- temperature can be displayed
- „Sensor select" showing temperatures of the different sensors
- „Alarm select" showing switching points .

Programmable for each relay extra:
- hysteresis
- electronic reclosing lock or autoreset
- switch-on delay and switch-off delay
- MIN or MAX- function of relay
- relay releases or picks up when exceeding the setpoint

Options:
- interface RS485
  protocols ZIEHL and Modbus RTU

Technical Data TR600

Rated supply voltage Us		AC/DC 24 – 240 V
	tolerance DC-supply	DC 20,4...297 V
	tolerance AC-supply	AC 20...264 V
	power consumption	< 3 W, < 6 VA
	frequency	0 / 50 / 60 Hz

Relay outputs		7 change-over contacts (co)
	switching voltage	max. AC 415 V
	switching current	max. 5 A
	switching power	max. 1250 VA (ohmic load)
		max. 5 A DC 30 V
	recommended fuse for contacts	T 2 A (gL)
	expected life mechanical	15 x 10^6 operations
	expected life electrical	1 x 10^5 operations with AC 250 V / 5 A, cos φ = 1
		2 x 10^5 operations with AC 250 V / 3 A, cos φ = 1
		1 x 10^6 operations with AC 250 V / 1 A, cos φ = 1
	derating factor cosφ =0,7	0,5

Testing conditions		EN 60 010-1
	ambient temperature range	- 20 ... + 65 °C

Sensor connection		6 x Pt 100 acc. to EN 60751 / IEC 60751
	measuring accuracy	±0,5 % of value ±1 Digit
	sensor current	≤ 0,7 mA
	sensor connection	2- / 3-wire
	measuring delay time t_M	<1,5 s

Switching points		6 , digitally adjustable
	relay operating function	standard = closed circuit current mode
		operating current mode programmable

Temperature alarm	switch points	-199 ... +800 °C
	hysteresis	1 ... 99 K
	delay time tALARM	0,1 ... 99,9 s
	delay time tALARM off	0 ... 999 s

Analog output	voltage outputs	DC 0/2 V – 10 V , max. DC 10 mA
	current outputs	DC 0/4 mA – 20 mA
	output resistance current	max. 500 Ω
	no-load voltage	max. DC 16 V
	accuracy	1% of span ±1 K

Interface RS485		Modbus RTU/ZIEHL RS485 protocol
	address/busnumber	1-247 (Modbus)/0-99 (ZIEHL RS485 protocol)
	baudrate	4800/9600/19200/57600
	parity bit	no, odd, even
	stoppbit	1 (at modbus and pority no, stoppit = 2)
	Response time ZIEHL RS485 protocol	7-9 ms after reception of last sign

Housing	design	V8
	dimensions (h x w x d)	90 x 140 x 58 [mm]
	line connection solid wire	1 x 1,5 mm^2(1,0 mm^2 with end sleeves for strands)
	protection housing / terminals	IP 30 / IP 20
	attachment	on 35 mm DIN rail according to DIN EN 60 715 or M4 screw
	weight	app. 360 g

Order-numbers	analog output (= standard) T224360	interface RS 485: without analog output T224361