Safety Temperature-Limiting-Device STR100
for Pt100

STR100

Part numbers:

T224148	0...200 °C	AC 230 V
T224142	100...300 °C	AC 230 V
T224144	200...500 °C	AC 230 V
T224058	0...200 °C	DC 24 V
T224059	100...300 °C	DC 24 V
T224062	200...500 °C	DC 24 V

Other measuring ranges upon request

The electrical safety temperature limiting device type STR100, in connection with Pt100 sensors, monitors temperatures in applications for which monitoring with increased safety is required. Functioning corresponds to type 2BDK as per VDE 0631.
The limit temperature T can be set at the front by means of a scaled potentiometer. An unauthorized or unintended manipulation of the limit is prevented by a transparent plastic-plate which can be sealed.A potential free relay contact is switched off when exceeding the limit value.

Safety temperature limiting devices are used in plants when temperature monitoring has to meet high requirements:

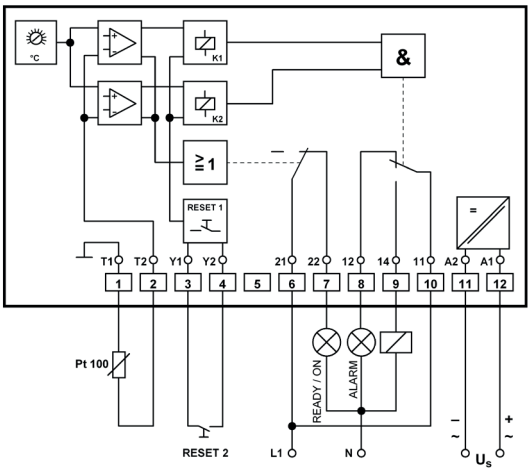
- Industrial furnace plants
- Dyeing machines
- Thermal oil plants

The device ca be used in combination with sensors Pt100 (RTD). The suitability must be proved in combination with the used sensors. Regular checks are stipulated for enhanced safety requirements.
The safe STR100 can be used in applications, in which an increased safety level up to SIL 2, PL c is required. It meets the requirements of safety category 3 (Safety of machines according to DIN EN 954-1, for models with supply-voltage DC 24 V and AC 230 V tested and approved by TÜV Rheinland with reports T24/00, 19.6.2000, T103/2007, 25.1.2007 and Z103/2007 E2, 12.9.07. Reports see homepage www.ziehl.de).

Description

The safety temperature limiting device STR100 detects the resistance of a Pt100-sensor connected to the input. This is linearized and evaluated in 2 separated channels. If the measured temperature is smaller than the limit value adjusted, both output relays are picked up. To do this, a reset has to be made after switching on the supply voltage (close contact between terminals 3+4). The relays are wired in such a way to have the function of a change-over switch to the outside. The load circuit is only closed when both relays are picked up. If a malfunction occurs or if the limit value is exceeded, both relays are released and the load circuit is separated. The released relays K1 and K2 are indicated by the lighting up of the red LEDs. When the limit value is exceeded, a third relay picks up which is used for error indication. Interruption of the sensor or short-circuit are signaled by a red LED each and also lead to disconnection of both channels.
Only when the temperature has fallen below the response value by the switching hysteresis of about 10°C and no malfunction occurs, it is possible for the STR 100 to close the load circuit after actuating the reset key.
Readiness for switching on is displayed by the third relay and a LED. An incorporated safety fuse avoids welding of the relay contacts.

- Safety temperature limiting device meets safety category 3 (SK 3) as per DIN EN 954-1
- SIL2 according to IEC61508
- Connection for Pt 100 sensors as per EN 60751/IEC 60751 can be delivered with
- measuring-range between -200 and +700 °C
- 2-channel evaluation
- Sensor monitoring for interruption and short-circuit
- LED-displays for relay position, error messages and
- readyness for switching on
- Relay for message readiness for switching on
- Setting of limit value to be sealed
- Incorporated reset key
- Connection for external reset key
- Assembly-friendly plug-in base housing S 12



Technische Daten STR100

Power supply	Rated supply-voltage U_s	AC 230 V	DC 24 V
	Adm. tolerance U_s	-10...+10%	-15...+25%
	Power consumption	< 2 VA	< 3W
	Frequency	50/60 Hz	
Sensor-Input		2-wire Pt 100 acc. to EN 60751/IEC 751, α = 0,00385	
	Max. current	< 3,15 mA (< 10 mA bei -200...+0°C)	
	Max. voltage	< 2 V, open terminals < 15 V	
	Line resistance	Standard = 0,5 Ω, Option: max. 30 Ω	
Switching points	Switching off	Over-temperature, sensor break, sensor short circuit and malfunction	
	Limit value T	adjustable	
	Switching hysteresis	10°C (±25%)	
	Reset	with reset key at the front or an external key	
Relay outputs		1 change-over contact (CO)	
	Switching voltage	max. AC 400 V	max. DC 300 V
	Switching current	max. 6 A	
	Switching power	max. 2000 VA (ohmic load)	
		max. 48 W at DC 24 V	
	nominal continous current I_{th}	6 A	
	nominal operating current I_e	2 A AC 15 400V	2 A DC 13 24 V
		4 A AC 11/AC 15 230V	
	recommended fuse for contacts	3,15 A slow blow, 4 A flink	
	expected life mechanical	3 x 10^7 operations	
	expected life electrical	1 x 10^5 operations with 240 V/6 A	
	derating factor cos φ 0,3	0,5	
Testing conditions		EN 50178, EN 61010-1, EN 60947-5	
	Rated insulation voltage	AC 250 V	
	Contamination level	2 (normal)	
	Rated impulse withstand voltage	4000 V	
	Overvolatage category	III	
	Transformer	EN 61558-2-6 (VDE 0551)	
	Interference resistance industry	EN 61000-6-2, EN 61326-1	
	Interference transmission	Class B EN 50081-1	
	"on"-period	100 %	
	Rated ambient temperature range	0...50°C EN 60068-2-1 dry heat	
Housing	Dimensions H x B x T	Design S 12 (plugable): 82 x 42 x 121 [mm]	
	wire-connection	12-pole, each 2 x 1,5 mm^2	
	Protection housing	IP 40	
	Protection terminals	IP 20	
	Fitting position	any	
	Fastening	Snap mounting on 35 mm standard rail conforms to DIN EN 50 022 or M4 screws	
	Vibration resistance	1 mm deflection 25 Hz/ 10 g 25-100 Hz	
	Shock resistance	10 g 20 ms	
		20 g 4 ms	
	Weight	approx. 300 g	