Safety Temperaturee Limiter STL50

(acc. to DIN EN 14597, SIL 2)

- **Useable as Temperature Limiter/-Guard and Exhaust gas Temperature Limiter**
- **Certified according to DIN EN 14597 SIL2**
- **Inputs RTD Pt100 or double-thermocouple**
- **Limit value and switching hysteresis programmable**
- **Basic accuracy < 0.5%, ± 2 digit**
- **Reaction time ≤ 0.5 s**
- **1 Relay for safety-relevant temperature limit, forcibly guided**
- **1 Relay for pre-alarm**
- **Analogue output 0/4... 20mA; 0/2... 10 VDC**
- **Memory function for error message**
- **Operator lock (password protection)**
- **Contact input for external reset**
- **24 V DC signal for external alarm message**

Characteristics

The STL50 safety temperature limiter is used where ever thermal processes must be monitored and the system must be transferred into a safe operational state in case of fault. If the permissible temperature limit value is reached, or if a fault occurs within the permissible temperature range on the monitoring equipment (sensor open, sensor short-circuit, failure of a component part in the device, fault in the software, failure or inadmissible value of the supply voltage etc.), the STL50 switches off without delay.
The alarm contact is activated, the LED ALARM on the front panel and the back-lighting of the display light up, and the error cause is indicated as plain text on the display. In addition, there is a 24 V DC signal present on the terminals 16-17 for an external alarm signal. Alternatively, the device can be reset using an external contact. In addition, the STL50 optionally has an programmable analog output with up or downscaling function, as well as a precontact.

Description

Programming
The device is programmable via front side buttons in connection with the graphic display.
Operating modes
The device can be used as:
STB ➔ Maximum- or minimum-monitoring with hold. Reset possible after omission of the fault with the external or internal button.
ASTB ➔ as before, but monitoring the exhaust gas temperature
STW ➔ Maximum- or minimum-monitoring without hold. Automatic reset after leaving the dangerous range
Switching hysteresis always acts in the direction of safe range.
The last fault is stored as plain text and can be called up in the working level and deleted.

Temperature sensor
When using the device according to DIN EN 14597, temperature sensors which are approved according to DIN EN 14597 must be used!

Technical data

Power supply

Supply voltage	:	230 V AC ±10 % 115 V AC ±10 % 24 V DC ±15 %
Power consumption	:	< 4 VA
CE-conformity	:	EN 61326-1: 2013 EN 61326-2-2: 2013

Ambient conditions

Operating temperature	:	-10..+55 °C
Storage temperature	:	-30..+60 °C
Relative humidity	:	< 95 %
Condensation	:	not permitted
Vibrations	:	operation only in vibration less ambient

Approvals		**Title**
EN 14597:2012	:	Temperature control devices and temperature limiters for heatgenerating systems
EN 61508:2011 SIL2	:	Functional security safety-related electrical/electronic/programmable electronic systems

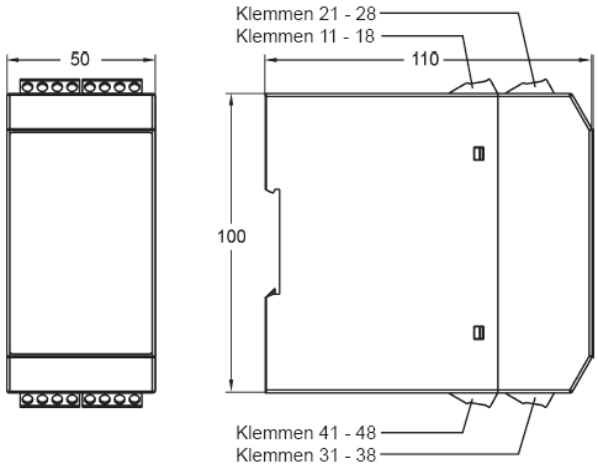
Input

Pt100	:	in the range -100,0..+600,0 °C 3-wire, max. line resistance 4 Ω each line sensor current <1 mA (non self heating)
Thermocouple		
Typ J	:	Fe-CuNi , -100,0..+800,0 °C
Typ K	:	NiCr-Ni,-150..+1200 °C
Typ N	:	NiCrSi-NiSi, -150..+1200 °C
Typ S	:	Pt10Rh-Pt, 0..+1600 °C cold junction compensation integrated
Accuracy	:	<0,5 %, ±2 Digit
Temperature coefficient	:	0,01 %/K
Display	:	graphic-LCD-display 28 x 64 Pixel, with white LCD-backlight

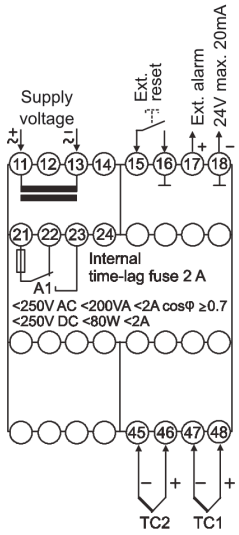
Outputs

Main relays	:	SPDT <250 V AC <200 VA <2 A cosn ≥0,7; <250 VDC <80 W <2 A, forcibly guided, internal fuse 2 A (slow-blow)
Pre-alarm relays	:	SPDT <250 V AC <500 VA < 2 A ohmic load; <30 VDC <60 W <2 A,
Analogue output	:	0/4 … 20mA burden ≤500Ω; 0/2 … 10V burden > 500Ω, galvanically isolated Output automatically changing (burdendependend)
Accuracy (analogue output)	:	0,4 %; TK: 0,01% /K
Case	:	Polyamide (PA) 6.6 , UL94V-0, TS35 according to DIN EN 60715
Weight	:	approx. 450 g
Connection	:	screw terminals 0,14..2,5 mm² (AWG 26 .. 14)
Protection class	:	IP20, DIN EN 60529, BGV A3

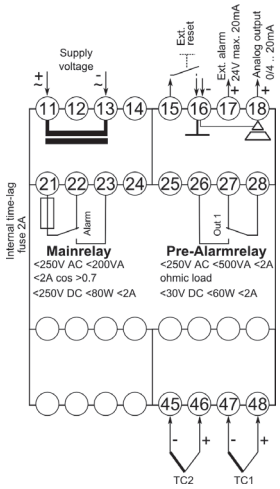
Dimensions



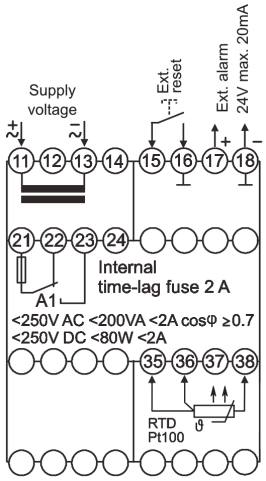
Connection diagrams



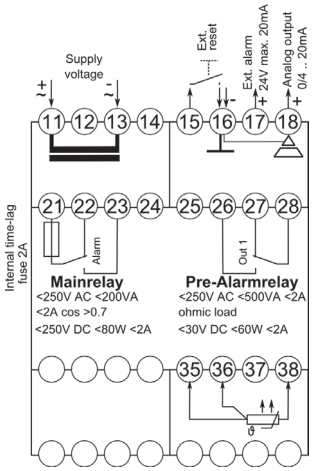
Thermocouple 1R



Thermocouple 2RAO



Pt100-1R



Pt100-2RAO

Accessories:

Temperature sensor

- When using STL50 as safety limiter -or guard- according to EN14597, safety temperature sensors acc. To 14597 have to be used: See our products TR296/293, TC296/293
- Temperature sensor for SIL applications:
  Temperature sensors without transducers are passive elements and not SIL-classified.
  All sensors of our portfolio can be used. PFD characteristics for resistance elements or thermocouples are to be found in the standard tables. Alternatively manufacturer declarations of evaluation electronics and sensors to the SIL level can be created on request.

Ordering code

STL50 - 1. - 2. - 3. - 4.

1.	**Device type/input**	
	1	Pt100, 3-wire, -100,0..+600,0 °C
	5	Thermocouple J (Fe-CuNi), -100,0..+800,0 °C K (NiCr-Ni), -150..+1200 °C N (NiCrSi-NiSi), -150..+1200 °C S (Pt10Rh-Pt), 0..1600 °C
2.	**Output**	
	1R	1 alarm output,relay SPDT
	2RAO	2 relay SPDT + analogue output
3.	**Supply voltage**	
	0	230 V AC, ± 10 % 50-60 Hz
	1	115 V AC, ± 10 % 50-60 Hz
	4	24 V AC, ±15 % 50-60 Hz
	5	24 V DC, ± 15 %
4.	**Options**	
	00	Without option