

## Product information

## Temperature

# Temperature Limiter TB225

(in accordance with DIN EN 14597)



- For use as a temperature limiter or monitor
- Certified according to EN 14597, optional EN 61508 (SIL2)
- configurable operating / configuration lock
- Universal signal input
- 2 relay changers + analogue output
- Intuitive operation: Illuminated graphic display
- Display colour change in the event of an alarm "white / red"
- Safe 3-way galvanic isolation
- Wide range power supply 18..230 V AC / DC

### Characteristics

The temperature limiter TB225 is used for applications where thermal processes must be monitored and the system must be switched to a safe operating state in the case of a fault. The device has universal inputs for the connection of double thermocouples, Pt100 sensors, and normized signals (0/4..20mA or 0/2..10V). The safety function is provided by means of the main relay with configurable threshold. An additional relay with an independently adjustable threshold is provided for additional signalling. The TB225 also offers an analog output which can be freely defined within the measuring range of the temperature input. The resetting of the device in the operating mode as a temperature limiter can take place via the buttons on the front, the integrated graphic display, or using an external switch or external voltage. The TB225 has safe 3-way electrical isolation between input, output, and auxiliary voltage.

### Brief information

The connected temperature signal is evaluated and monitored. If the permissible threshold is reached or an error occurs within the permissible temperature range, the TB225 switches off immediately. The additional relay output of the TB225 enables the function of a preliminary alarm with an independent threshold. The following operating modes are possible through configuration:

#### Temperature limiter:

Maximum or minimum monitoring with catch, manual resetting after fault elimination via the front keys or an external switch / voltage signal. Operating methods in accordance with EN14597: 2012: Typ 2B, 2H, 2V

#### Temperature monitor:

Maximum or minimum monitoring without catch, automatic resetting on return to the permissible range. Operating methods in accordance with EN14597: 2012: Typ 2B

### Technical data

#### Auxiliary power

Auxiliary voltage : 18 – 230 V AC/DC  
 Power consumption : < 5 VA  
 Rated voltage : 250V AC in accordance with EN 60730-1: 10/2011, between input / relay output / auxiliary voltage, Degree of contamination 2, Overvoltage category III  
 Rated surge voltage 4kV

CE Conformity : 2014/30/EU: EN 600730-1:2011; EN 60730-2-9:2010  
 2014/35/EU: EN 60064-1:2007  
 2011/65/EU: EN IEC 63000:2018

#### Environmental conditions

Operating temperature : -10..+55 °C  
 storage temperature : -20..+60 °C  
 Relative air humidity : < 95 %  
 Condensation : not permitted

#### Approvals

EN 14597: 2012 : Temperature control devices and temperature limiters for heat generating systems  
 EN 61508:2010 SIL2 : Functional security safety-related electrical / electronic / programmable electronic systems

#### Input

Pt100 : -100.0..600.0°C  
 Accuracy : 0,2%, ±1 Digit  
 Temperature coefficient : 0,01%/K  
 Thermocouple : Type J:Fe-CuNi-100..800°C  
 Type K: NiCr-Ni -150..1200°C  
 Type N: NiCrSi-NiSi -150..1200°C  
 Type S:Pt10RH-PT 0..1600°C  
 Reference junction compensation integrated

Accuracy : <0.3 %, ±1 digit  
 Temperature coefficient : 0.01 %/K  
 Analog input : 0/2..10 V DC, 0/4..20 mA  
 0..10 V und 0..20 mA not allowed for temperature limiter

Accuracy : 0,2%, ±1 Digit  
 Temperature coefficient : 0,01%/K

#### Display

Display : graphic LC display with 32 x 90 pixel, with white/red background lighting

#### Outputs

Switching outputs : 2 x relay  
 Changeover relay : < 250 V AC < 500 VA < 2 A ohmic load  
 < 30 V DC < 60W < 2 A ohmic load  
 Internal main relay secured with 2A fuse!

fuse!

Analog output : Fuse is not interchangeable!  
 0/4..20 mA load ≤ 500 Ω  
 0/2..10 V DC load > 500 Ω electrically isolated.  
 Output switches automatically (load-dependent)

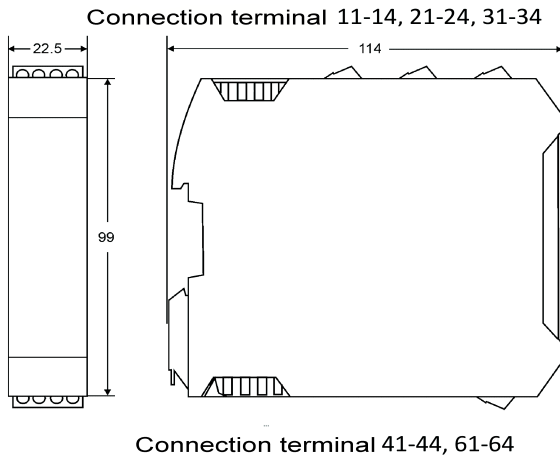
#### Housing

Housing : polyamide (PA) 6.6 , UL94V-0, TS35 in accordance with DIN EN 60715

Weight : approximately 180 g  
 Connection : screw terminals 0.14..2.5 mm<sup>2</sup> with wire protection  
 0.14 - 2.5 mm<sup>2</sup> (AWG 26 - 14)  
 Protection rating : IP20, BGV A3

**Product information**

**Dimensions**

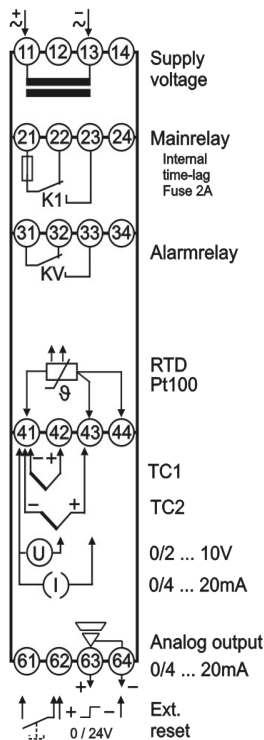


**Ordering code**

TB225 -  1. -  2. -  3. -  4. -  5.

|                                |     |                                      |
|--------------------------------|-----|--------------------------------------|
| <b>1. Version/input</b>        | 0   | Universal input                      |
| <b>2. Output</b>               | 0   | 2 relay / 1 analog output 0/4..20 mA |
| <b>3. Auxiliary voltage</b>    | 0   | 18 – 230 V AC/DC                     |
| <b>4. Options</b>              | 00  | without option                       |
| <b>5. Approvals (optional)</b> | -   | Standard, EN 14597                   |
|                                | SIL | additional EN 61508, up to SIL2      |

**Connection diagram**



**Accessories**

**Temperature sensor for use acc. to EN 14597**

- TR296 / TC296 for use in water, oil and air
- TR293 / TC293 for use in exhaust gas and air

**Safety temperature limiter / monitor acc. to EN 14597 for multi-fault safety**

- STL50, STL50Ex (rail)
- Security TL4896 (panel mounting)