

Product Information

Temperature

# Temperature Guard TG50Ex



## Characteristics

The Temperature Guard TG50Ex offers intrinsically safe inputs for direct connection of temperature probes RTD (Pt100, Pt1000) and thermocouples type J, K, N or S, which are installed in the explosion endangered area.

Simple programming, 2 alarm outputs (SPDT) and an optional available fully free programmable isolated analog output 0/4..20 mA; 0/2..10 V DC offers a lot of solutions for temperature monitoring. The peak value indication for minimum and maximum measured temperature are stored in the background and can be read out from the display at any time.

## Technical data

### Power supply

|                          |  |
|--------------------------|--|
| Supply voltage           | : 230 V AC $\pm 10\%$<br>115 V AC $\pm 10\%$<br>24 V DC $\pm 15\%$<br>Um = 253 V AC or 125 V DC<br>(terminals 11 and 13) |
| Power consumption        | : max. 5 VA  |
| Operating temperature    | : -10..+55 °C  |
| CE-conformity            | : ATEX-directive 2014/34/EU<br>EN 60079-0:2006 EN 60079-11:2007<br>EN 61241-0:2006 EN 61241-11-0:2006                    |
| EMC-directive / standard | : 2014/30/EU / EN 61326-1:2013   |

### Inputs

|                         |   |
|-------------------------|---|
| Explosions protection   | : II (1) G [Ex ia] IIC/IIB or II (1) D [Ex iaD]   |
| Approval                | : TÜV 08 ATEX 554329  |
| Fault detection         | : broken line (Pt100/1000 and thermocouple) and short circuit (only Pt100/1000)   |
| Input RTD               | : Pt100 (3-wire) -100.0..+600.0 °C<br>Pt1000 (3-wire) -100.0..+300.0 °C (terminals 35, 36, 37)  |
| Input TC                | : Thermocouple<br>type J -100.0..+800.0 °C<br>type K -150..+1200 °C<br>type N -150..+1200 °C<br>type S -50..+1600 °C<br>cold junction compensation integrated (terminals 45 and 47) |
| Accuracy                | : <0.1 %, $\pm 1$ Digit   |
| Temperature coefficient | : 0.01 %/K  |

### Safety data

|   |                 |
|---|-----------------|
| Max. voltage no load U <sub>0</sub>     | : 1,4 V         |
| Max. short circuit curr. I <sub>0</sub> | : 2.5 mA        |
| Max. output power P <sub>0</sub>        | : 3 mW          |
| Resistance R                            | : 5600 $\Omega$ |
| Characteristic curve                    | : trapezoidal   |
| Internal inductivity                    | : 4 $\mu$ H     |
| Internal capacity                       | : 135 nF        |

### Explosion protection

|                           |                  |               |
|---------------------------|------------------|---------------|
|                           | <b>Ex ia/IIC</b> | <b>ia/IIB</b> |
| Max. external inductivity | : 100 mH         | 100 mH        |
| Max. external capacity    | : 25 $\mu$ F     | 120 $\mu$ F   |

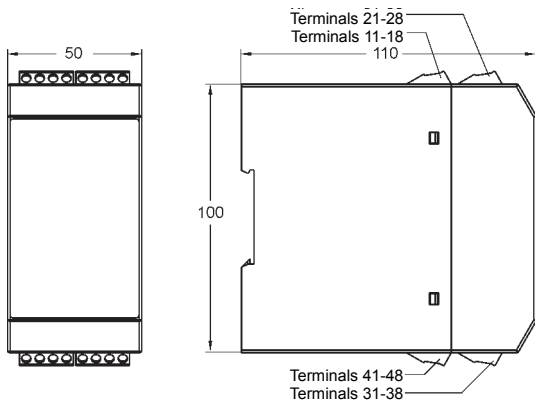
### Outputs

|                  |   |
|------------------|---|
| Alarm outputs    | : relay SPDT<br>< 250 V AC < 250 VA < 2 A<br>cos Phi $\geq 0.3$<br>< 300 V DC < 40 W < 2 A<br>(terminals 21, 22, 23; 25, 26, 27)                                      |
| Analog output    | : 0/4..20 mA burden $\leq 500 \Omega$<br>0/2..10 V burden > 500 $\Omega$ , isolated<br>output changes automatically<br>(burden depending)                             |
| - Accuracy       | : 0.2 %; TK 0.01 % / K<br>(terminals 17 and 18)   |
| Fault function   | : for broken line or short circuit detection<br>→ analog output (programmable)<br>0 mA, < 3.6 mA or > 21.5 mA<br>→ alarm relays<br>min. or max. function programmable |
| Display          | : graphic-LCD-display, 128 x 64 Pixel<br>with white LCD backlight   |
| Case             | : Polyamide (PA) 6.6, UL94V-0<br>TS35 acc. to DIN EN 60715  |
| Weight           | : approx. 450 g   |
| Connection       | : screw terminals 0.14..2.5 mm <sup>2</sup><br>AWG 26..AWG14  |
| Protection class | : case IP30, terminals IP20 acc. to BGV A3  |

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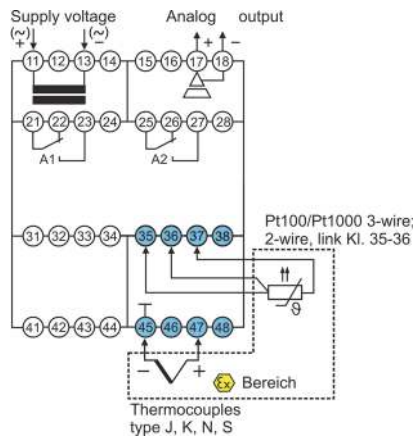
**Dimensions**



**Ordering code**

TG50Ex - 1. - 2. - 3. - 4. - 5. - 6.

**Connection diagram**



|                                |   |   |
|--------------------------------|---|---|
| <b>1. Device type/input</b>    | 3   | RTD Pt100, 3-wire, -100.0..+600.0 °C<br>RTD Pt1000, 3-wire, -100.0..+300.0 °C<br>Thermocouple<br>J (Fe-CuNi), -100.0..+800.0 °C<br>K (NiCr-Ni), -150..+1200 °C<br>N (NiCrSi-NiSi), -150..+1200 °C<br>S (Pt10Rh-Pt), -50..+1600 °C |
| Inputs intrinsically safe      | EX II (1) G [Ex ia] IIC/IIB<br>EX II (1) D [Ex iaD]                             |   |
| <b>2. Alarm outputs A1, A2</b> | 2R 2 relay SPDT   |   |
| <b>3. Alarm outputs A3, A4</b> | 00 not available  |   |
| <b>4. Analog output</b>        | 00 not installed<br>AO 0/4..20 mA, 0/2..10 V DC, isolated                       |   |
| <b>5. Supply voltage</b>       | 0 230 V AC, ± 10 % 50-60 Hz<br>1 115 V AC, ± 10 % 50-60 Hz<br>5 24 V DC, ± 15 % |   |
| <b>6. Options</b>              | 00 without option   |   |