

# 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 $\pm 10\%$ 115 V AC $\pm 10\%$ 24 V DC $\pm 15\%$ Um = 253 V AC or 125 V DC (terminals 11 and 13)
Power consumption	: max. 5 VA
Operating temperature	: -10..+55 °C
CE-conformity	: ATEX-directive 2014/34/EU EN 60079-0:2006 EN 60079-11:2007 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 thermo- couple) and short circuit (only Pt100/1000)
Input RTD	: Pt100 (3-wire) -100.0..+600.0 °C Pt1000 (3-wire) -100.0..+300.0 °C (terminals 35, 36, 37)
Input TC	: Thermocouple type J -100.0..+800.0 °C type K -150..+1200 °C type N -150..+1200 °C type S -50..+1600 °C 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

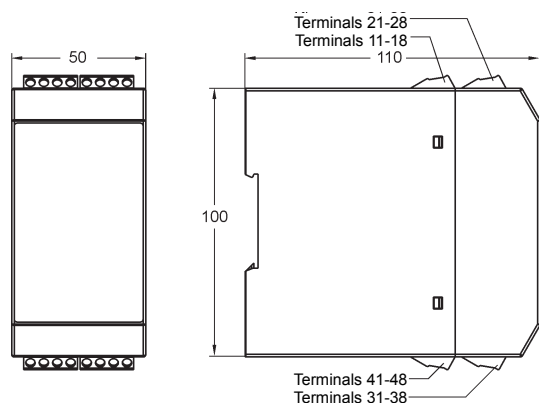
Max. external inductivity	: 100 mH	Ex ia/IIC	ia/IIB
Max. external capacity	: 25 $\mu$ F		

### Outputs

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

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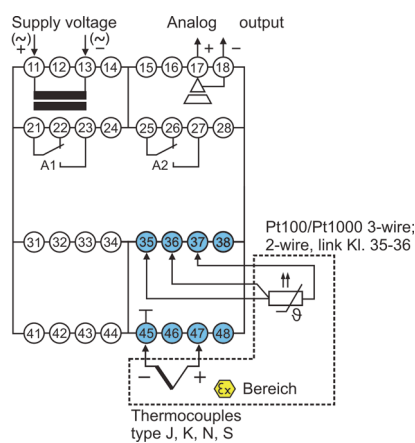
## Dimensions



## Ordering code

TG50Ex -  -  -  -  -  -

## Connection diagram



### 1. Device type/input

3 RTD Pt100, 3-wire, -100.0..+600.0 °C  
 RTD Pt1000, 3-wire, -100.0..+300.0 °C  
 Thermocouple  
 J (Fe-CuNi), -100.0..+800.0 °C  
 K (NiCr-Ni), -150..+1200 °C  
 N (NiCrSi-NiSi), -150..+1200 °C  
 S (Pt10Rh-Pt), -50..+1600 °C

Inputs intrinsically safe EX II (1) G [Ex ia] IIC/IIB  
 EX II (1) D [Ex iaD]

### 2. Alarm outputs A1, A2

2R 2 relay SPDT

### 3. Alarm outputs A3, A4

00 not available

### 4. Analog output

00 not installed

AO 0/4..20 mA, 0/2..10 V DC, isolated

### 5. Supply voltage

0 230 V AC, ± 10 % 50-60 Hz

1 115 V AC, ± 10 % 50-60 Hz

5 24 V DC, ± 15 %

### 6. Options

00 without option