

# 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  $\pm 15\%$   
 $U_m = 253$  V AC or 125 V DC  
 (terminals 11 and 13)

Power consumption : max. 5 VA

Operating temperature :  $-10..+55\text{ }^\circ\text{C}$

CE-conformity : ATEX-directive 94/9/EG  
 (certificate TG50ATEX.001)  
 EN 60079-0:2006 EN 60079-11:2007  
 EN 61241-0:2006 EN 61241-11-0:2006  
 IEC61326 05/2004,  
 IEC 61000-4-2  
 IEC 61000-4-3  
 IEC 61000-4-4  
 IEC 61000-4-5  
 IEC 61000-4-6  
 IEC 61000-4-8  
 IEC 61000-4-11  
 CISPR16-1/16-2

### 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)  $-100.0..+600.0\text{ }^\circ\text{C}$   
 Pt1000 (3-wire)  $-100.0..+300.0\text{ }^\circ\text{C}$   
 (terminals 35, 36, 37)

Input TC : Thermocouple  
 type J  $-100.0..+800.0\text{ }^\circ\text{C}$   
 type K  $-150..+1200\text{ }^\circ\text{C}$   
 type N  $-150..+1200\text{ }^\circ\text{C}$   
 type S  $-50..+1600\text{ }^\circ\text{C}$   
 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  $U_0$  : 1,4 V

Max. short circuit curr.  $I_0$  : 2.5 mA

Max. output power  $P_0$  : 3 mW

Resistance R : 5600  $\Omega$

Characteristic curve : trapezoidal

Internal inductivity : 4  $\mu\text{H}$

Internal capacity : 135 nF

**Explosion protection Ex ia/IIC ia/IIB**

Max. external inductivity : 100 mH 100 mH

Max. external capacity : 25  $\mu\text{F}$  120  $\mu\text{F}$

### 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  $\leq 500\text{ }\Omega$   
 0/2..10 V burden  $> 500\text{ }\Omega$ , 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  
 $\rightarrow$  analog output (programmable)  
 0 mA,  $< 3.6$  mA or  $> 21.5$  mA  
 $\rightarrow$  alarm relays

### Display

graphical-LCD-display, 128 x 64 Pixel

with white LCD backlight

**Case** : Polyamide (PA) 6.6, UL94V-0

TS35 acc. to DIN EN 60715:2001-09

Weight : approx. 450 g

Connection : screw terminals 0.14..2.5 mm<sup>2</sup>

AWG 26..AWG14

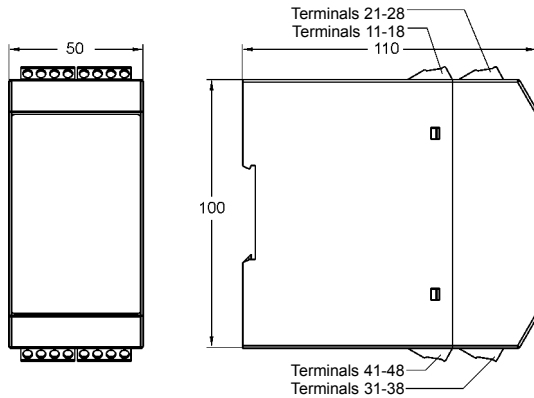
Protection class : case IP30, terminals IP20 acc. to

BGV A3

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**Product Information**

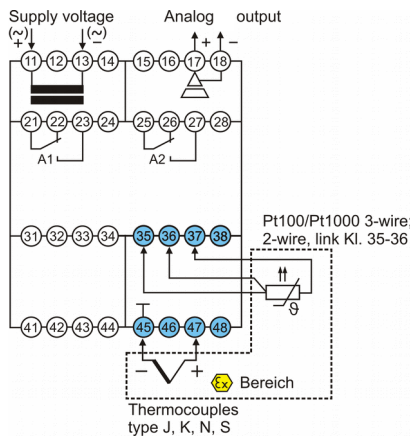
**Dimensions**



**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 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]	
<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 AO   0/4..20 mA, 0/2..10 V DC, isolated	
<b>5. Supply voltage</b>	0   230 V AC, ± 10 % 50-60 Hz 1   115 V AC, ± 10 % 50-60 Hz 5   24 V DC, ± 15 %	
<b>6. Options</b>	00   without option	