

## Resistance thermometer MiniTherm for installation in a separate thermowell Type series GA2730



### Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

### Features

- Resistance thermometer for the installation in a separate thermowell
- Measuring insert spring loaded
- Compact and small design
- Fast response
- Measuring resistor 1 x Pt100 or 2 x Pt100, class A
- Circular connector M12 or field housing

### Options

- Approvals/Certificates
  - Explosion protection
  - Classification per SIL2
  - Calibration certificate per EN 10204-3.1
- As per UKCA regulations
- Output signal 4...20 mA via transmitter PA2430
- Output signal IO-Link V1.1 via transmitter PA2530
- Various transmitters can be integrated
- Extended neck tube
- Process connection union nut G3/8"

### Application

The resistance thermometer MiniTherm is designed for the installation in a separate thermowell (suitable thermowells see data sheets T5-051 and T5-050). Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

## Technical data

### Constructional design

Design:	Measuring insert $\varnothing$ 3 mm spring loaded and union nut M12x1 Alternative with extended neck tube
Material:	Measuring insert: Stainless steel mat.-no. 1.4404 (316L) Union nut: Stainless steel mat.-no. 1.4301 (304)
Length of measuring insert:	See order details
Degree of protection:	IP 67 per EN 60529
Electrical connection:	Circular connector M12 (4-pin) Option: Circular connector M12 (8-pin) for 2 x Pt100  Field housing with screw cap Mat.: stainless steel mat.-no. 1.4305 (303)
Measuring resistor:	<ul style="list-style-type: none"><li>■ Pt100 per EN 60751, class A 3-wire</li><li>■ Pt100 per EN 60751, class A 4-wire (3-wire bridged)</li><li>■ 2 x Pt100 per EN 60751, class A 3-wire</li></ul>

### Accuracy

Pt100:	Per EN 60751, class A
Response time:	Per EN 60751, test procedure with flowing water, Measuring insert: $t_{90} = 3$ s Including separate thermowell, type series HP1200 (pipe 6 x1 mm): a) without heat sink compound $t_{90} = 15$ s b) with heat sink compound $t_{90} = 6$ s

We recommend the use of heat sink compound (Type MT8800).

### Temperature ranges

Design with circular connector M12 and field housing:

Ambient:	-40...85 °C
Media:	-50...200 °C
Storage:	-40...85 °C

Design with transmitter:

Ambient:	-20...80 °C
Media:	-50...200 °C
Storage:	-20...80 °C

### Transmitter

Installation variants:	<ul style="list-style-type: none"><li>■ Transmitter, Type PA2430, for circular connector M12</li><li>■ Transmitter, Type PA2530 IO-Link, for circular connector M12</li><li>■ Transmitter head mounted, Type series PA210., 4...20 mA, programmable</li><li>■ Transmitter head mounted, Type series PA220., electrically isolated, classification per SIL2</li><li>■ Transmitter head mounted, Type series PA230., electrically isolated, classification per SIL2, HART®</li><li>■ Transmitter head mounted, Type series PA2420, 2 channel, classification per SIL2/3, HART®</li></ul>
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### Tests and certificates

#### Ex approval

ATEX:	TÜV 08 ATEX 554093 X ⊕ II 1G Ex ia IIC T6/T5/T4 ⊕ II 2G Ex ib IIC T6/T5/T4 ⊕ II 1D Ex iaD 20 T89 °C ⊕ II 2D Ex ibD 21 T129 °C $U_i \leq 30$ V $P_i \leq 200$ mW Ci and Li are negligible small (not for devices with transmitter)
UK:	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus

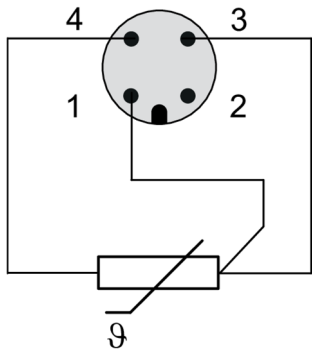
Further technical data see XA\_001.

SIL2:	Functional safety: per EN 61508, classification of Pt100 sensor per SIL2, suitable transmitter upon request
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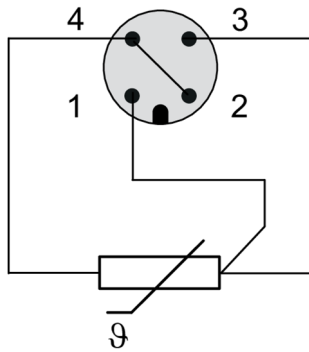
# Connection diagram

## Circular connector M12

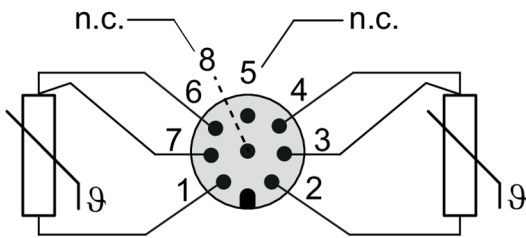
1 x Pt100, 3-wire



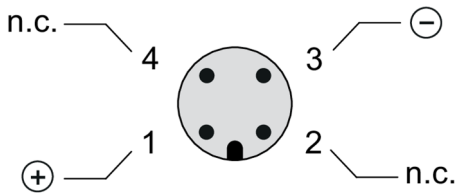
1 x Pt100, 4-wire  
(3-wire bridged)



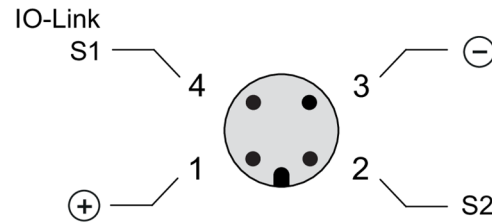
2 x Pt100, 3-wire



Transmitter  
(type series PA2430)

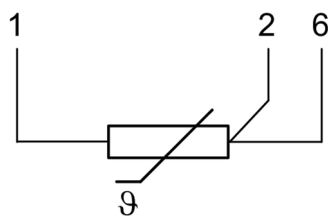


Transmitter IO-Link  
(type series PA2530)

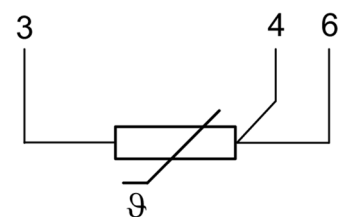
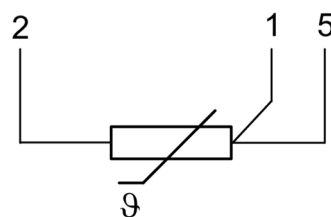


## Terminal block / cable gland

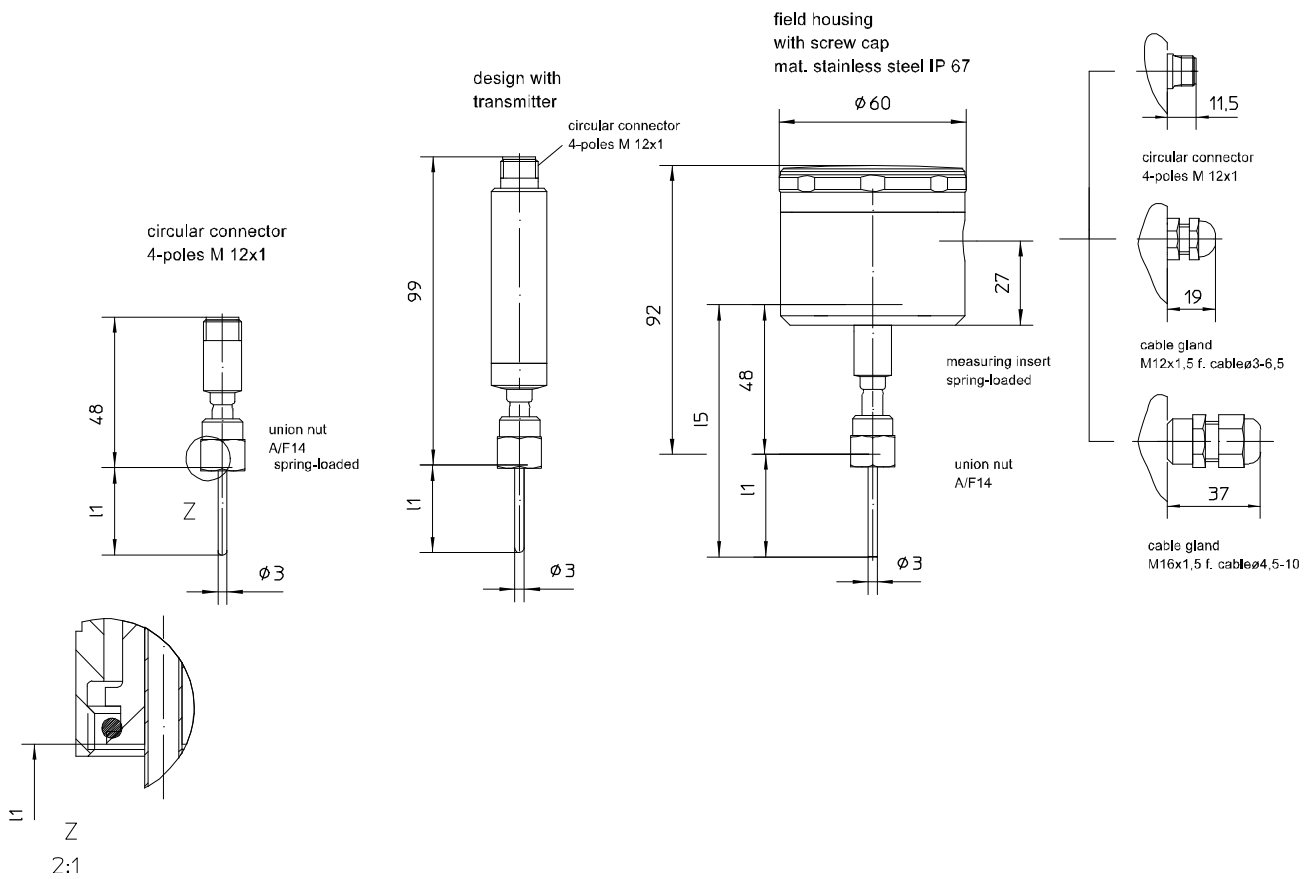
1 x Pt100, 3-wire



2 x Pt100, 3-wire



## Dimensions



All dimensions are in mm

**For the calculation of the insertion length I1, see:**

Data sheet T5-050 (thermowells HP1100)





Data sheet T5-051 (thermowells HP1200)

For the design with neck tube the insertion length I1 has to be extended by M (length neck tube).

## Order details

### Resistance thermometer MiniTherm for installation in a separate thermowell, Type series GA2730

Order details GA2730			
<b>GA2730</b>	resistance thermometer MiniTherm for installation in a separate thermowell		
<b>A10</b>	instrument connection	union nut M12x1	
<b>A50</b>		union nut G3/8"	
<b>C3...</b>	temperature sensor	Ø 3 mm	
<b>028</b>	insertion length l1 <sup>1</sup>	28 mm	
<b>038</b>		38 mm	
<b>060</b>		60 mm	
<b>084</b>		84 mm	
<b>161</b>		161 mm	
...		required insertion length up to 250 mm can directly be ordered, e.g. l1: 100 mm, order code 100	
<b>M2</b>	tolerance	class A per EN 60751	
<b>N2</b>	measuring resistor	Pt100 3-wire	
<b>N3</b>		Pt100 4-wire (3-wire bridged)	
<b>N5</b>		2 x Pt100 3-wire <sup>2,3</sup>	
<b>T150</b>	electrical connection	circular connector M12 x 1 (4-pin)	field housing Ø 60 mm
<b>T151</b>			
<b>T47</b>		cable gland M12 x 1.5 polyamide black for cable Ø 3-6.5	
<b>T47.40</b>		cable gland M16 x 1.5 polyamide black for cable Ø 4.5-10	
<b>T47.21</b>		cable gland M12 x 1.5 stainless steel for cable Ø 3-6.5	
<b>T47.51</b>		with circular connector M12 x 1 (4-pin)	
<b>T47.52</b>		with circular connector M12 x 1 (8-pin) <sup>4</sup>	

Additional features (to be indicated in case of need, only)		
<b>V1070</b>	neck tube (M12 x 1)	length of neck tube M = 70 mm
<b>V1080</b>		length of neck tube M = 80 mm
<b>V1999</b>		length of neck tube M (in mm)
<b>S71</b>	Ex-protection	 II 1G Ex ia IIC T6 /T5/T4 Ga
<b>S72</b>		 II 2G Ex ib IIC T6 /T5/T4 Gb
<b>S73</b>		 II 1D Ex ia IIIC T89 °C Da
<b>S74</b>		 II 2D Ex ib IIIC T129 °C Db
<b>Z1</b>	incl. transmitter	mounting in field housing (selection of transmitter see product group T4)
<b>Z52</b>		with output signal 4...20 mA (Type PA2430) <sup>3,5</sup>
<b>Z54</b>		with output signal IO-Link (Type PA2530) <sup>3,5</sup>
<b>W1201</b>	calibration certificate	per EN 10204-3.1, 5 measuring points
<b>W2604</b>	functional safety per IEC/EN 61508, classification of Pt100 element per SIL2	
<b>W2673</b>	certificate of measuring equipment for Russian Federation	

Order code (example): **GA2730 – A10 – D1209 – T47 - ...**

<sup>1</sup> insertion length > 250 mm upon request

<sup>2</sup> thermowells with insertion length U1 ≥ 40 mm required

<sup>3</sup> not for devices with Ex-protection

<sup>4</sup> necessary for measuring resistor 2 x Pt100 (order code N5)

<sup>5</sup> not for devices with classification per SIL2