



#### Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

#### Technical data

##### Constructional design / case

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 with screw connection M12

- Field housing with screw cap  
Mat.: stainless steel mat.-no. 1.4305 (303)

Measuring resistor: Pt100 per EN 60751, connection: 3-wire technology

##### Accuracy

Pt100: per EN 60751, class A

Response time: per EN 60751  
Test procedure with flowing water, including separate thermowell 6 x1 mm

a) without heat sink compound  $t_{90}$ = 16 s  
b) with heat sink compound  $t_{90}$ = 11 s

We recommend the use of heat sink compound (Data sheet T6-030).

#### Features

- Resistance thermometer for the installation in a separate thermowell
- Measuring insert spring loaded
- Compact and small design
- Measuring resistor 1 x Pt100 in 3-wire technology, class A
- Fast response
- Circular connector M12 or field housing

#### Options

- Approvals/Certificates
  - Explosion protection
  - Classification per SIL2
  - Certificate of measuring equipment for Russian Federation
- Transmitter 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 sheet T5-051 and T5-050). Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

## 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

Integration: Suitable Pt 100 transmitter can be mounted

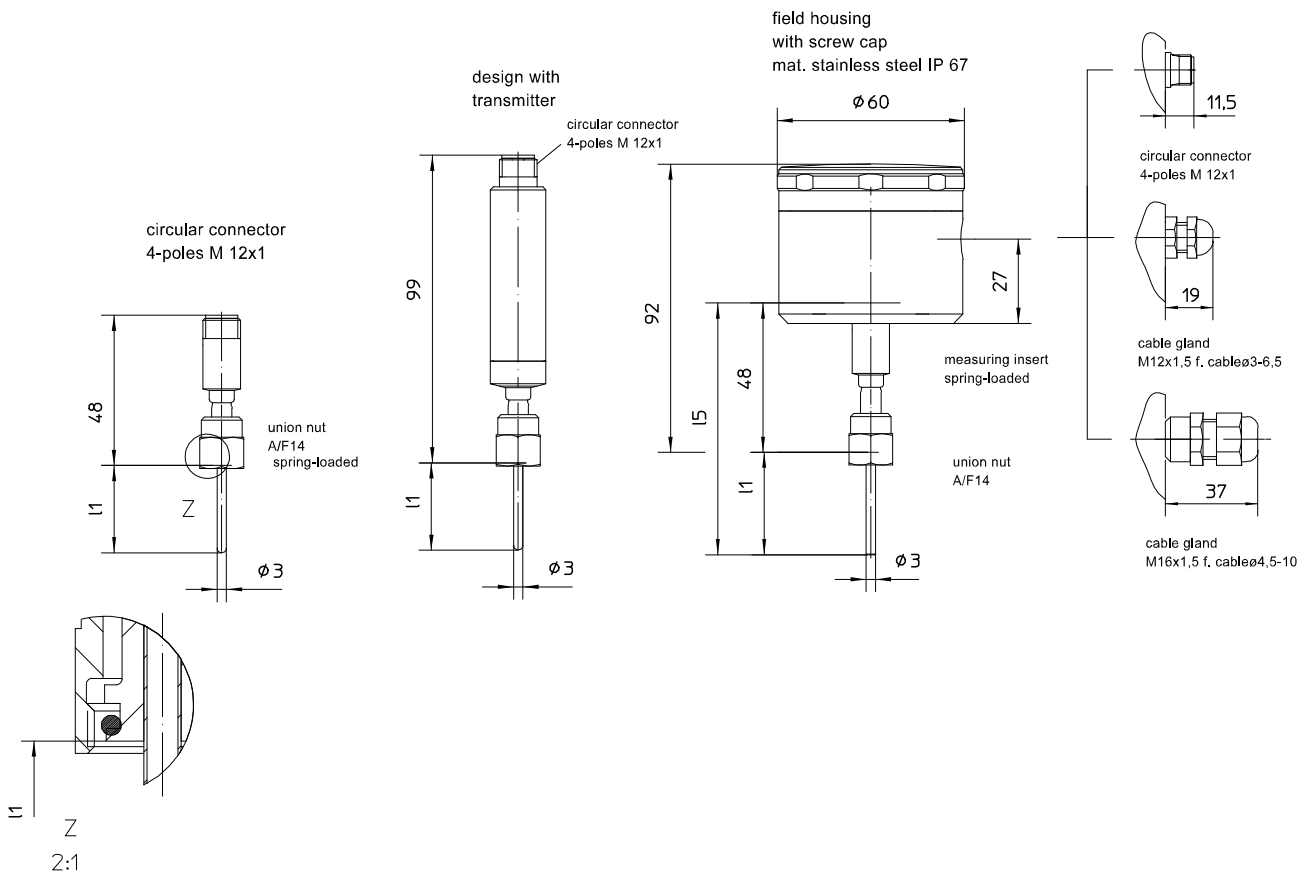
- Transmitter head mounted, Type series PA210., 4...20 mA, programmable
- Transmitter head mounted, Type series PA220., electrically isolated, classification per SIL 2
- Transmitter head mounted, Type series PA230., electrically isolated, classification per SIL 2, HART
- Transmitter, Type series PA 2430, for circular connector M12

## Approvals/Certificates

SIL 2:	Functional safety: per EN 61508, classification of Pt100 sensor per SIL2, suitable transmitter upon request
Ex approval	TÜV 08 ATEX 554093 X ⓧ II 1G Ex ia IIC /T6 /T5/T4 ⓧ II 2G Ex ia IIC /T6 /T5/T4 ⓧ II 1D Ex iaD 20 T89°C ⓧ II 2D Ex iaD 21 T129°C $U_i \leq 30 \text{ V}$ $P_i \leq 200 \text{ mW}$

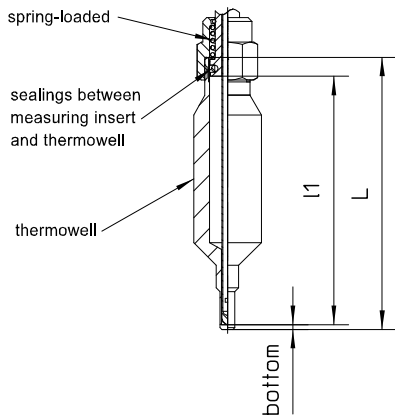
- EAC declaration upon request
- Certificate of measuring equipment for Russian Federation

## Dimensions



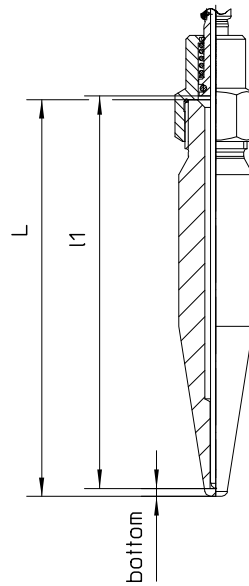
All dimensions are in mm

### Design with circular connector

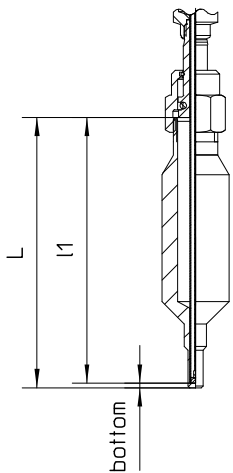


L = Total length thermowell  
l<sub>1</sub> = Insertion length measuring insert

### Design with G 3/8" installation system



### Design with field housing

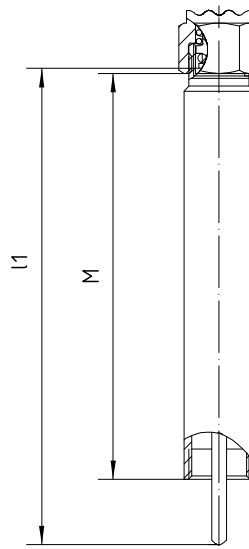


### Calculation of insertion length for the measuring insert:

Data sheet T5-050 (thermowells HP1100)

Data sheet T5-051 (thermowells HP1200)

### Design with neck tube

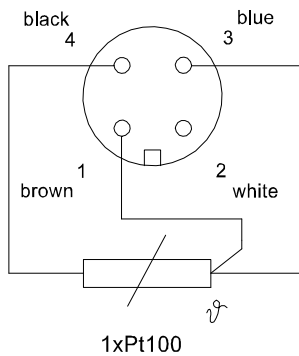


connection M12x1  
for thermowell

For this design the insertion length of the measuring insert has to be extended by M.

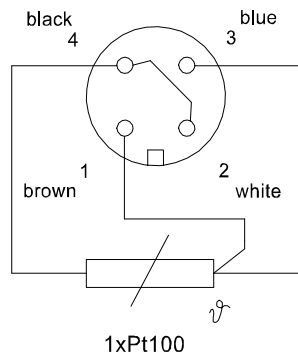
## Connection diagram

pin connection  
transducer 3-wire technology



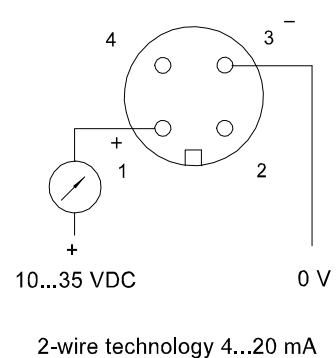
standard

pin connection  
transducer 4-wire technology



option

pin connection  
transmitter



## 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>029</b>	insertion length l1 <sup>1</sup>	29 mm	
<b>039</b>		39 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 insert spring loaded	1 x Pt100 in 3-wire technology	
<b>N3</b>		1 x Pt100 in 4-wire technology (3-wire bridged)	
<b>T150</b>	electrical connection	circular connector M12 x 1 (4-pin), standard	
<b>T47</b>		field housing Ø 60 mm	cable gland polyamide black for cable Ø 3-6.5
<b>T47.40</b>			cable gland polyamide black for cable Ø 4.5-10
<b>T47.21</b>			cable gland stainless steel for cable Ø 3-6.5
<b>T47.51</b>			with circular connector M12 x 1 (4-pin)

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
<b>S72</b>		⊕ II 2G Ex ib IIC T6/T5/T4
<b>S73</b>		⊕ II 1D Ex iaD 20 T89 °C
<b>S74</b>		⊕ II 2D Ex ibD 21 T129 °C
<b>Z1</b>	incl. transmitter	mounting in the field housing (selection of transmitter see product group T4)
<b>Z52</b>		integrated in the circular connector M12 (Type PA2430) <sup>2</sup>
<b>W2604</b>	functional safety per IEC/EN 61508, classification of Pt100 element per SIL 2	
<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 sheet T4-082-1)

<sup>2</sup> not with Ex-protection and not with SIL2 (see data sheet T4-082-1)