



### Features

- Resistance thermometer for direct temperature measurement on tanks and pipes
- Compact design
- High measurement accuracy
- Output signal:
  - Pt 100, 3-wire technology
  - 4...20 mA, 2-wire technology
- Fast response
- Circular connector M12

### Options

- Explosion protection
- Classification per SIL 2
- Output signal 4...20 mA via programmable transmitter
- Pt 100, 4-wire technology
- Thermowell with reduced tip Ø 4 mm

### Application area

- General application
- Machinery and tank construction
- Water and wastewater systems
- Plant engineering

### Applications

The resistance thermometer MiniTherm is suited for temperature measuring in tanks and pipes. Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

### Technical Data

#### Mechanical design

The Pt 100 is integrated directly into a thermowell. Various types of process connections are available.

#### Electrical connection

circular connector with screw connection M12. Further electrical connections upon request. Degree of protection: IP 67 per DIN EN 60529

#### Temperature detecting element

- thermowell Ø 6 mm
  - option: reduced tip Ø 4 mm
  - length see order code.
- Upon request a calculation for thermowells can be made (for static or dynamic application) with certificate.

#### Measuring resistor

1 x Pt 100, tolerances per class A per DIN EN 60751

#### Output signal

- Pt 100, 3- or 4-wire technology (internal connected, see connection diagram)
- 4...20 mA, 2-wire technology, programmable, option

- auxiliary power 8.5...36 V DC
  - max. load (U=8.5 V)/0.023 A
  - overrange 3.6...23 mA, infinitely adjustable
  - error signal (following sensor breakage) 3.6...23 mA, infinitely adjustable
  - damping time 0...30 s
  - accuracy at 23 °C < 0.1 % of span
  - temperature effect < 0.13 %/10 °C.
- Further technical data see type series PA2430, data sheet T4-082-1.

#### Temperature ranges

ambient temperature -40...+85 °C  
 process temperature -50...+200 °C  
 allowed storage temperature -40...+85 °C

#### Process connections

designs see order code.  
 Gasket is not included!  
 Further process connections upon request.

#### Operating pressure

max. 40 bar

#### Materials

wetted parts stainless steel mat.-no. 1.4404 (316L)

#### Functional safety

per EN 61508, classification per SIL 2 ; without transmitter, only

#### Response time

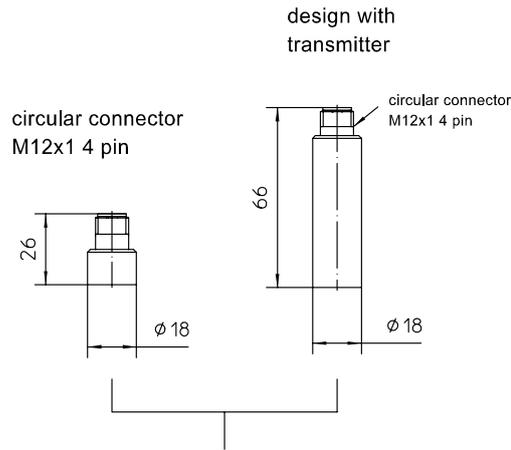
per DIN EN 60751, test procedure with flowing water (without transmitter)

- thermowell 6 mm: T 90 = 5.5 s
- thermowell with reduced tip 4 mm: T 90 = 4.5 s

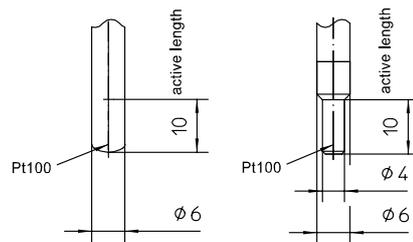
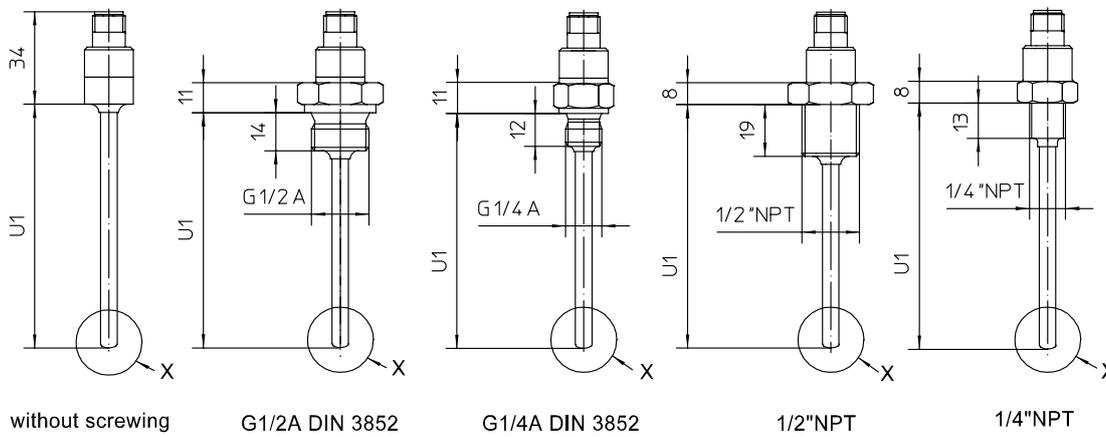
#### Ex-approval

TÜV 08 ATEX 554093 X  
 Ex II 1G Ex ia IIC T6/T5/T4  
 Ex II 2G Ex ib IIC T6/T5/T4  
 Ex II 1D Ex iaD 20 T89°C  
 Ex II 2D Ex ibD 21 T129°C  
 U<sub>i</sub> ≤ 30 V  
 P<sub>i</sub> ≤ 200 mW  
 C<sub>i</sub> and L<sub>i</sub> negligible small  
 (not available with transmitter)

**Dimensions**



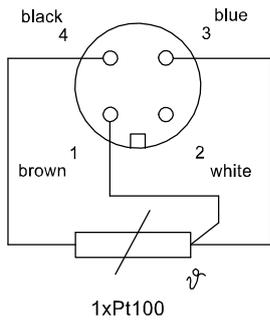
process connection  
diagramed with circular connector M12x1



design of stem

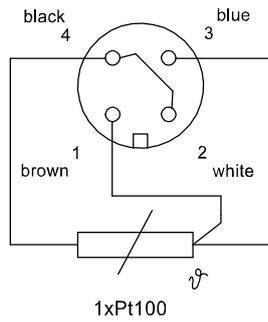
**Connection diagram**

pin connection  
transducer 3-wire technology



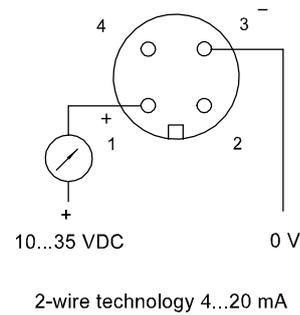
standard

pin connection  
transducer 4-wire technology



option

pin connection  
transmitter



2-wire technology 4...20 mA

**Order Details** - please give additional specifications for models not listed -

Resistance thermometer MiniTherm for general application		GA270 .
Ex design	· without	0
	· explosion protection, type of ex-protection s. below	1
process connection	· G 1/4 A	A1006
	· G 1/2 A	A1010
	· 1/4" NPT	A1020
	· 1/2" NPT	A1022
temperature detecting element	· Ø 6 mm	C1 ...
	· Ø 6 mm, reduced design to Ø 4 mm	C4 ...
insertion length U1 (mm)	25	025
	30	030
	35	035
	50	050
	100	100
	150	150
	200	200
	as in writing	990
material	wetted parts stainless steel mat.-no. 1.4404 (316L), standard	G11
measuring insert	· 1 x Pt 100 in 3-wire technology, fast response, standard	N2
	· 1 x Pt 100 in 4-wire technology (3-wire technology internal connected)	N3
electrical connection: circular connector M12x1 (4 pin), IP 67, standard		T150
<b>additional features (to be indicated in case of need, only)</b>		
type of ex-protection	· Ex II 1G Ex ia IIC T6/T5/T4	S71
	· Ex II 2G Ex ib IIC T6/T5/T4	S72
	· Ex II 1D Ex iaD 20 T89°C	S73
	· Ex II 2D Ex ibD 21 T129°C	S74
functional safety per EN 61508, classification per SIL 2		W2604
incl. transmitter	output signal 4...20 mA <sup>1</sup> via programmable transmitter type series PA2430; pls. refer also to datasheet T4-082-1	Z52
<b>Order code (example):</b>		GA2700 A1010 C1050 G11 N2 T150

<sup>1</sup> not with ex-protection