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
  - Certificate of measuring equipment for Russian Federation
- 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 Ø 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 per EN 60529:	IP 67
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:	■ Pt100 per EN 60751, class A 3-wire ■ Pt100 per EN 60751, class A 4-wire (3-wire bridged) ■ 2 x Pt100 per EN 60751, class A 3-wire

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:

- Transmitter, Type PA2430, for circular connector M12
- Transmitter, Type PA2530 IO-Link, for circular connector M12
- Transmitter head mounted, Type series PA210., 4…20 mA, programmable
- Transmitter head mounted, Type series PA220., electrically isolated, classification per SIL2
- Transmitter head mounted, Type series PA230., electrically isolated, classification per SIL2, HART®
- Transmitter head mounted, Type series PA2420, 2 channel, classification per SIL2/3, HART®

Tests and certificates

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

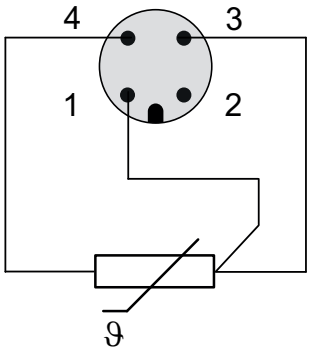
Ex approval TÜV 08 ATEX 554093 X
Ⓔx II 1G Ex ia IIC /T6 /T5/T4
Ⓔx II 2G Ex ia IIC /T6 /T5/T4
Ⓔx II 1D Ex iaD 20 T89°C
Ⓔx II 2D Ex iaD 21 T129°C
U_i ≤ 30 V
P_i ≤ 200 mW
Ci and Li are negligible small (not for devices with transmitter)

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

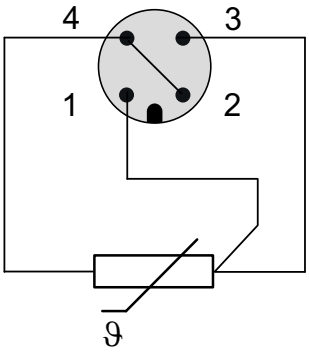
Connection diagram

Circular connector M12

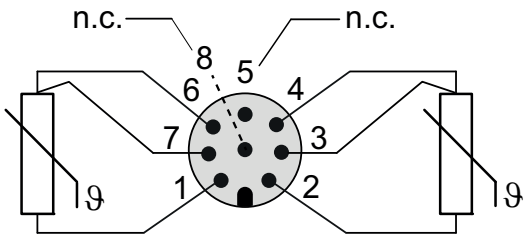
1 x Pt100, 3-wire



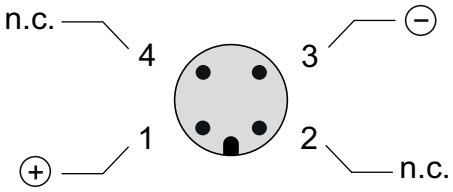
1 x Pt100, 4-wire
(3-wire bridged)



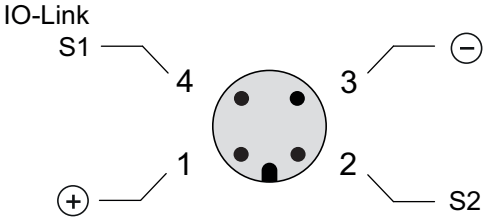
2 x Pt100, 3-wire



Transmitter
(type series PA2430)

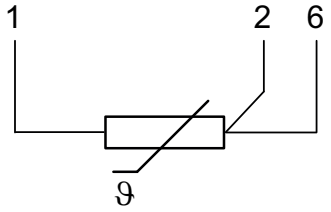


Transmitter IO-Link
(type series PA2530)

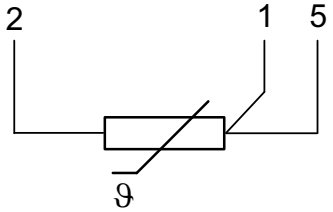


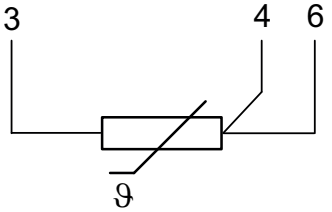
Terminal block / cable gland

1 x Pt100, 3-wire

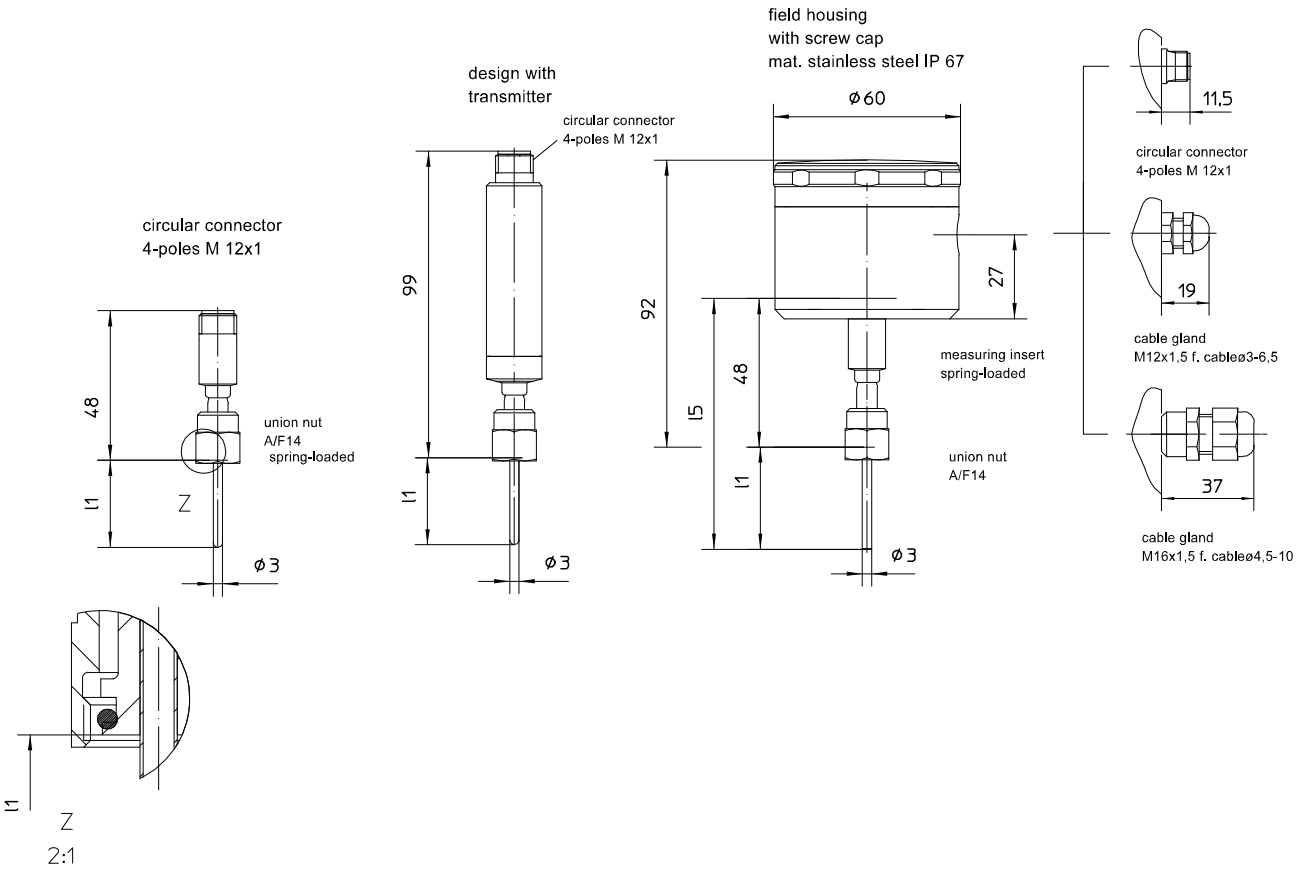


2 x Pt100, 3-wire





Dimensions



All dimensions are in mm

For the calculation of the insertion length l1, see:
Data sheet T5-050 (thermowells HP1100)
Data sheet T5-051 (thermowells HP1200)

For the design with neck tube the insertion length l1 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			
GA2730	resistance thermometer MiniTherm for installation in a separate thermowell		
A10	instrument connection	union nut M12x1	
A50		union nut G3/8“	
C3…	temperature sensor	Ø 3 mm	
029	insertion length l1 [1]	29 mm	
039		39 mm	
060		60 mm	
084		84 mm	
161		161 mm	
…		required insertion length up to 250 mm can directly be ordered, e.g. l1: 100 mm, order code 100	
M2	tolerance	class A per EN 60751	
N2	measuring resistor	Pt100 3-wire	
N3		Pt100 4-wire (3-wire bridged)	
N5		2 x Pt100 3-wire [2,3]	
T150	electrical connection	circular connector M12 x 1 (4-pin)	
T151		circular connector M12 x 1 (8-pin) [4]	
T47		field housing Ø 60 mm	cable gland M12 x 1.5 polyamide black for cable Ø 3-6.5
T47.40			cable gland M16 x 1.5 polyamide black for cable Ø 4.5-10
T47.21			cable gland M12 x 1.5 stainless steel for cable Ø 3-6.5
T47.51			with circular connector M12 x 1 (4-pin)
T47.52			with circular connector M12 x 1 (8-pin) [4]

Additional features (to be indicated in case of need, only)		
V1070	neck tube (M12 x 1)	length of neck tube M = 70 mm
V1080		length of neck tube M = 80 mm
V1999		length of neck tube M (in mm)
S71	Ex-protection	⟨Ex⟩ II 1G Ex ia IIC T6/T5/T4
S72		⟨Ex⟩ II 2G Ex ib IIC T6/T5/T4
S73		⟨Ex⟩ II 1D Ex iaD 20 T89 °C
S74		⟨Ex⟩ II 2D Ex ibD 21 T129 °C
Z1	incl. transmitter	mounting in field housing (selection of transmitter see product group T4)
Z52		with output signal 4...20 mA (Type PA2430) [3,5]
Z54		with output signal IO-Link (Type PA2530) [3,5]
W1201	calibration certificate	per EN 10204-3.1, 5 measuring points
W2604	functional safety per IEC/EN 61508, classification of Pt100 element per SIL2	
W2673	certificate of measuring equipment for Russian Federation	

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

[1] insertion length > 250 mm upon request
[2] thermowells with insertion length U1 ≥ 40 mm required
[3] not for devices with Ex-protection
[4] necessary for measuring resistor 2 x Pt100 (order code N5)
[5] not for devices with classification per SIL2