Resistance thermometer MiniTherm

for installation in a separate thermowell

Type series GA2730

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 (ATEX/CCCEx)
  - Classification per SIL2
  - Calibration certificate per EN 10204-3.1
- As per UKCA regulations
- Various transmitters can be integrated
- Output signal 4...20 mA via transmitter PA2430
- Output signal IO-Link V1.1 via transmitter PA2530
- 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 of the type series HP1100, HP1110 and HP1200. Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

Technical data

Constructional design

Design:	Measuring insert Ø 3 mm spring loaded and union nut M12x1 Alternative with extended neck tube
Material:	Stainless steel
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:	■ 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.

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:	■ Type PA2430, for circular connector M12, 4...20 mA ■ Type PA2530, for circular connector M12, IO-Link ■ Type PA210., head mounted, programmable, 4...20 mA ■ Type PA2320, head mounted, 1 channel, classification per SIL2/3, HART® ■ Type PA2420, head mounted, 2 channel, classification per SIL2/3, HART®

Tests and certificates

Ex approval

ATEX:	TÜV 08 ATEX 554093 X Ⓔx II 1G Ex ia IIC T6/T5/T4 Ⓔx II 2G Ex ib IIC T6/T5/T4 Ⓔx II 1D Ex iaD 20 T89 °C Ⓔx II 2D Ex ibD 21 T129 °C U_i ≤ 30 V P_i ≤ 200 mW Ci and Li are negligible small (not for devices with transmitter)
CCCEx:	CCCEx No. 2022322315004603 Ex ia IIC T6...T4 Ga Ex ib IIC T6...T4 Gb Ex ia IIIC T89 °C Da Ex ib IIIC T129 °C Db
UK:	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus

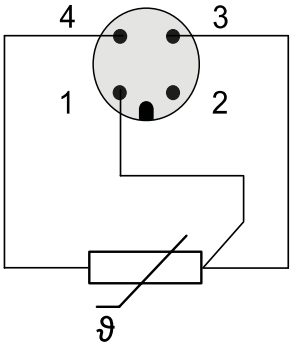
Further technical data see Ex Instructions XA_001 (ATEX) and XA_029 (CCCEx).

SIL2:	Functional safety per EN 61508, classification per SIL2. For detailed information see SIL instruction SA_005.

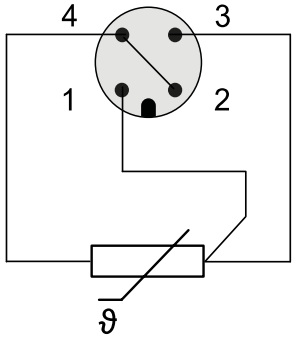
Connection diagram

Circular connector M12

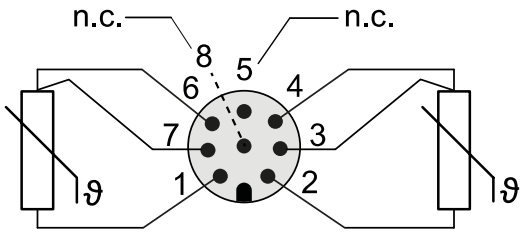
1 x Pt100, 3-wire



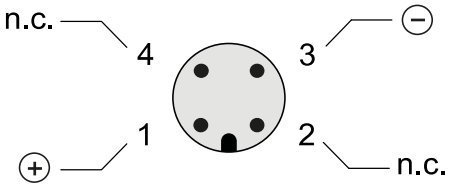
1 x Pt100, 4-wire
(3-wire bridged)



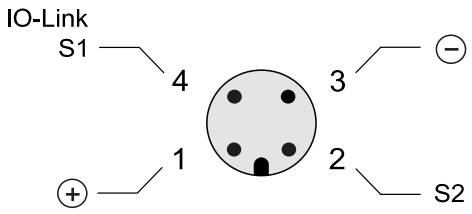
2 x Pt100, 3-wire



Transmitter
(type series PA2430)

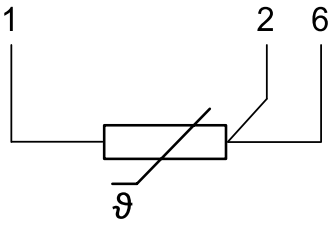


Transmitter IO-Link
(type series PA2530)

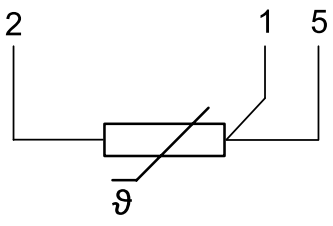


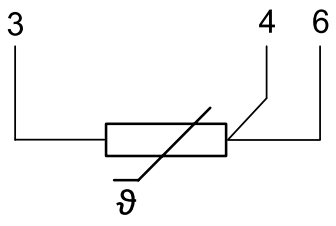
Terminal block / cable gland

1 x Pt100, 3-wire

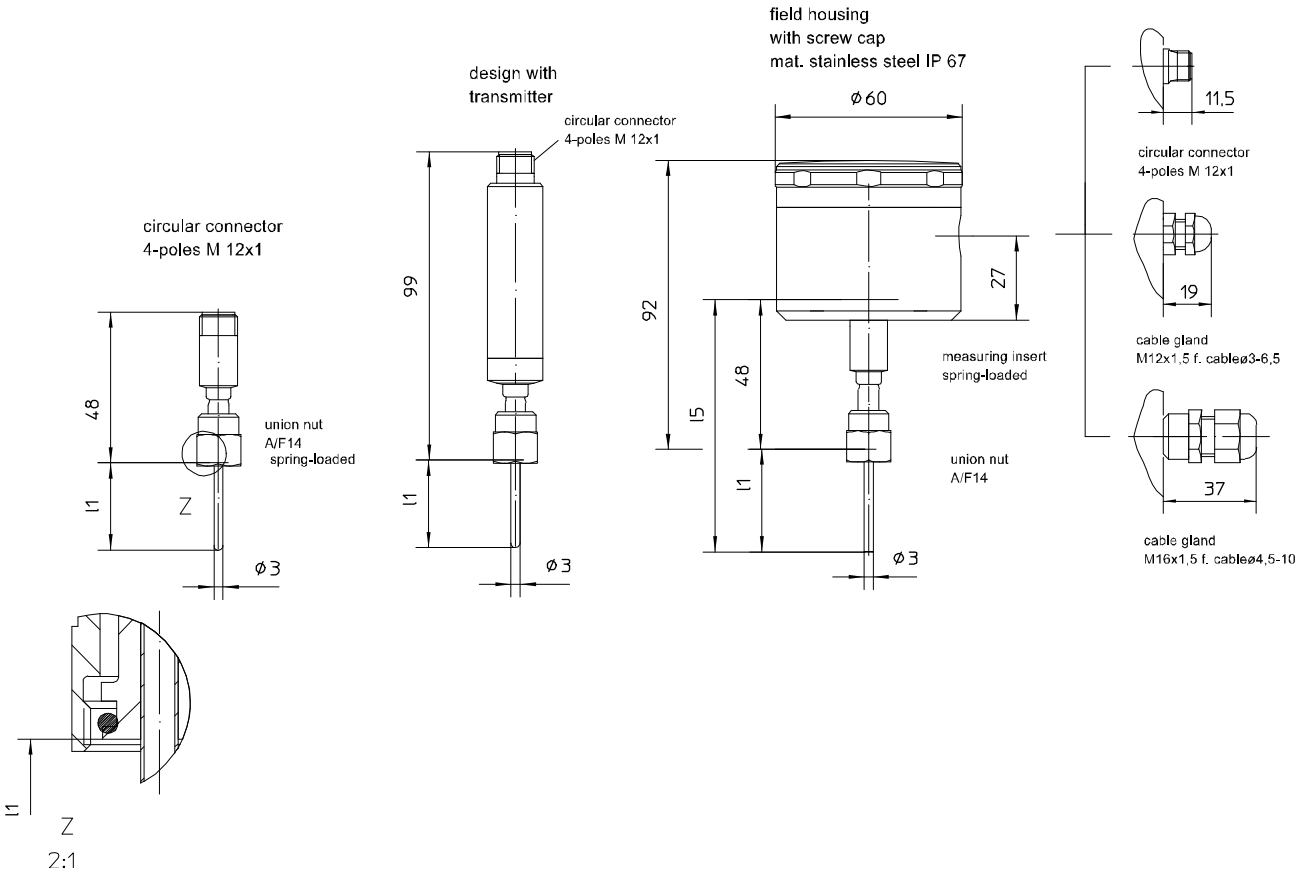


2 x Pt100, 3-wire





Dimensions



All dimensions are in mm

To determine the installation length l1, see:

Thermowell HP1100, data sheet DB_T5-050

Thermowell HP1110, data sheet DB_T5-052

Thermowell HP1200, data sheet DB_T5-051

For the design with neck tube the insertion length l1 has to be extended by M (length neck tube), (see order details, additional features, order code V1xxx).

Order details

Resistance thermometer MiniTherm for installation in a separate thermowell			
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	
028	insertion length l1 [1]	28 mm	
038		38 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) [2]	
N5		2 x Pt100 3-wire [3,4,5]	
T150	electrical connection	circular connector M12 x 1 (4-pin)	
T151		circular connector M12 x 1 (8-pin)	
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	ATEX	Ⓔx II 1G Ex ia IIC T6 /T5/T4 Ga
S72			Ⓔx II 2G Ex ib IIC T6 /T5/T4 Gb
S73			Ⓔx II 1D Ex ia IIIC T89 °C Da
S74			Ⓔx II 2D Ex ib IIIC T129 °C Db
S100		CCCEx	Ex ia IIC T6...T4 Ga
S101			Ex ib IIC T6...T4 Gb
S102			Ex ia IIIC T89 °C Da
S103			Ex ib IIIC T129 °C Db
S52		Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK)	
Z1	incl. transmitter	mounting in field housing (selection of transmitter see product group T4)	
Z52		with output signal 4...20 mA (Type PA2430) [4,6,7]	
Z54		with output signal IO-Link (Type PA2530) [4,6,7]	
W1201	calibration certificate	per EN 10204-3.1, 5 measuring points	
W2604	functional safety per IEC/EN 61508, classification of Pt100 element per SIL2		
W2660	as per UKCA regulations [8]		

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

[1] Insertion length > 250 mm upon request.

[2] Not possible in combination with transmitter type PA2430 (order code Z52).

[3] In combination with thermowell HP1100/HP1110 and thermowell HP1200 with insertion lengths U1 < 40 mm, higher measuring deviations than class A must be expected.

[4] Not for devices with Ex-protection.

[5] Requires circular connector M12 x 1, 8-pin (order code T151).

[6] Not for devices with classification per SIL2.

[7] Not possible with circular connector M12 x 1, 8-pin (order code T151).

[8] Not possible with thermowell systems with inner pipe diameter > 25 mm.