Resistance thermometer MiniTherm for food/pharmaceutical/ biotechnology, fast response, Type Series GA270. HY

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
- Process connections for food/pharmaceutical/ biotechnology
- Hygienic design
- Fast response
- Circular connector M12 or field housing

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
- Electropolishing

Application area

· Food industry
· Pharmaceuticals
· Biotechnology

Applications

The resistance thermometer MiniTherm is suited for temperature measuring in tanks and pipes especially in hygienic applications. The change in resistance, dependent on the measurement temperature, can be detected and converted by a transmitter. 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.
· flush mounted with PEEK insert for temperature decoupling (for G 1/2 B)

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, infinitily adjustable
· error signal (following sensor breakage) 3.6…23 mA, infinitily 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. 16 bar
exception: Varivent D=68 Code A1512
max. 10 bar

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

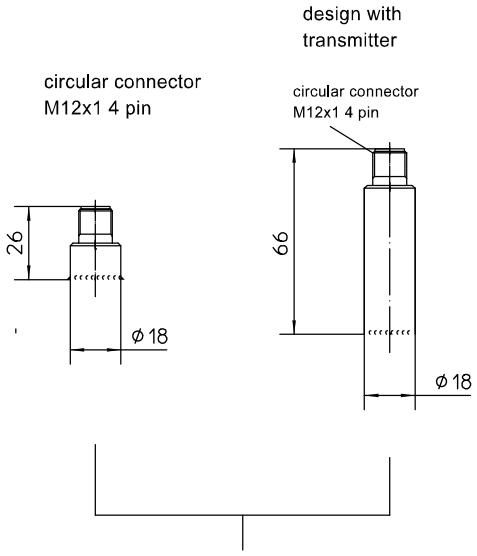
Functional safety
per EN 61508, classification per SIL 2; without transmitter, only

Hygienic design
surface quality
surface roughness Ra ≤ 0.8 µm
electropolished upon request

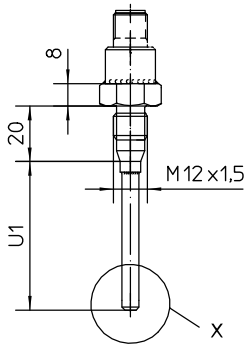
Response time
per DIN EN 60751, test procedure with flowing water (without transmitter)
· thermowell 6 mm: T 90 = 5.5 s
· thermowell with reduced tip Ø 4 mm: T 90 = 4.5 s

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_i ≤ 30 V
P_i ≤ 200 mW
C_i and L_i negligible small
(not available with transmitter)

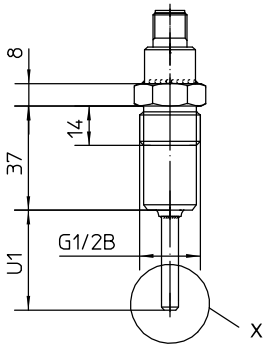
Dimensions



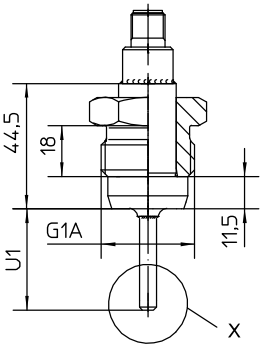
Process connection
diagramed with circular connector M12x1



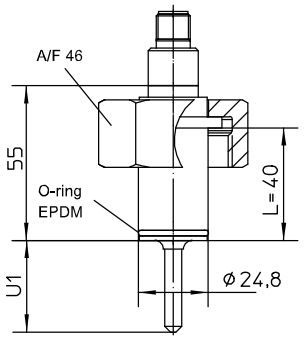
M12x1,5 dead-zone free
(conical taper of metal)
tightening torque: 20 Nm



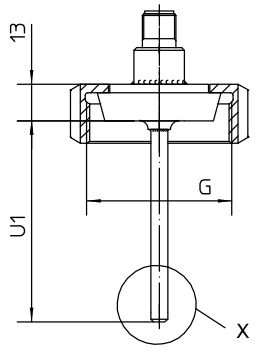
G1/2B dead-zone free
(conical taper of metal)
tightening torque: 50 Nm



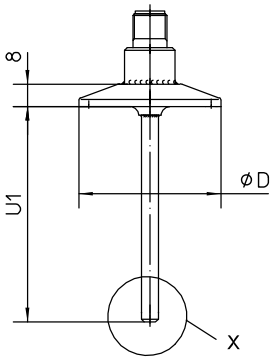
G1A dead-zone free
(conical taper of metal)
tightening torque: 20 Nm



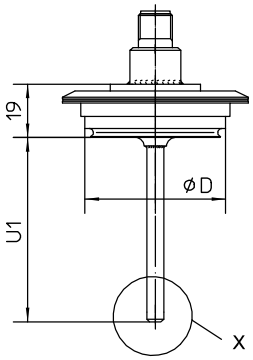
connection per INGOLD
DN 25 with coupling nut



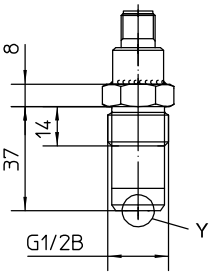
tapered coupling with
groove union nut DIN 11851
DN25 G=Rd.52x1/6
DN32 G=Rd.58x1/6
DN40 G=Rd.65x1/6



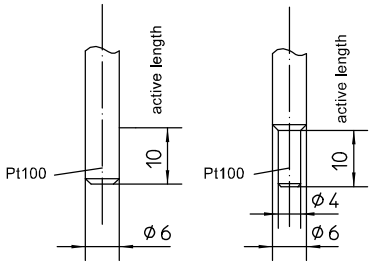
clamp connection
Tri-Clamp 1/2"/3/4" D=25
Tri-Clamp 1"/1½" D=50,5
ISO 2852 DN25/38 D=50,5
DIN 32676 DN25/40 D=50,5



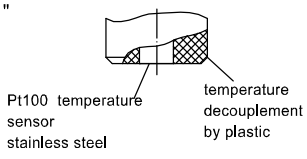
Varivent connection
D=31 for Varivent-case DN10/DN15
D=50 for Varivent-case DN25/1"
D=68 for Varivent-case
DN 40-125 /1 1/2"...6"



G1/2B dead-zone free
(conical taper)
design flush mounted
tightening torque: 50 Nm



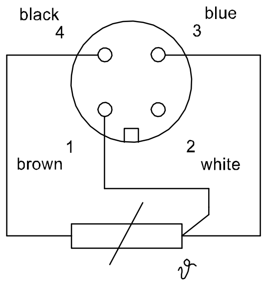
design of stem X



design flush mounted Y

Connection diagram

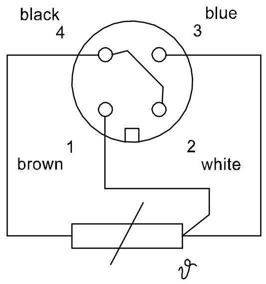
pin connection
transducer 3-wire technology



1xPt100

standard

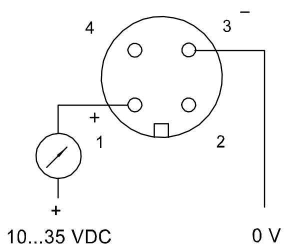
pin connection
transducer 4-wire technology



1xPt100

option

pin connection
transmitter



2-wire technology 4...20 mA

Order Details

- please give additional specifications for models not listed -

Resistance thermometer MiniTherm for food/pharmaceutical/biotechnology			**GA270 . HY**
Ex-design		· without	**0**
		· explosion protection, type of ex-protection s. below	**1**
process connection	threaded connection	· G 1/2 B conical, metal-to-metal joint ¹	**A1011**
		· G 1 A, conical, metal-to-metal joint ¹	**A1015**
		· M12x1.5, metal-to-metal joint	**A1031**
	coupling nut DIN 11851	· DN 25	**A1213**
		· DN 32	**A1214**
		· DN 40	**A1215**
	Clamp DIN 32676	· DN 25/40, Ø 50.5 mm	**A1413**
	Clamp ISO 2852	· DN 25/38 (1"/ 1 1/2"), Ø 50.5 mm	**A1423**
		· DN 40/51, Ø 64 mm	**A1424**
	TriClamp	· 1/2" / 3/4", Ø 25 mm	**A1432**
		· 1" / 1 1/2", Ø 50.5 mm	**A1433**
	Varivent connection	· D=31 for Varivent housing DN 10 and DN 15	**A1510**
		· D=50 for Varivent housing DN 25 and DN 1"	**A1511**
		· D=68 for Varivent housing DN 40...DN 125 and 1 1/2"...6"	**A1512**
	Connection per INGOLD	· DN 25, hexagon union nut A/F 46, G 1 1/4" L=40 mm, including gasket EPDM (in correspondence with FDA)	**A1810**
temperature detecting element		· flush mounted ²	**C1000**
		· Ø 6 mm	**C1 . . .**
		· Ø 6 mm, reduced design to Ø 4 mm	**C4 . . .**
insertion length U1 (mm)		15	**015**
		25	**025**
		30	**030**
		35	**035**
		50	**050**
		100	**100**
		150	**150**
		200	**200**
		as in writing	**999**
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**
additional features (to be indicated in case of need, only)			
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 via programmable transmitter ³	**Z52**

order code (example):									
	GA2700HY	**A1011**	**C1050**	**G11**		**T47**			

¹ suitable weld-in sockets see product group T6
² for G 1/2 B conical, metal-to-metal joint, only
³ not with ex-protection, see data sheet T4-082-1