

Resistance thermometer Pt100

without thermowell

Type series GA250.



Features

- Resistance thermometer for operation in a separate thermowell
- Pt100 connection in 3- or 4-wire technology
- Measuring insert 1 x Pt100 or 2 x Pt100
- Measuring insert interchangeable
- Various designs available

Options

- Approvals / Certificates
 - Explosion protection
 - Classification per SIL2
 - DNV approval
- Various transmitters can be integrated
- Measuring insert for In-Process calibration

Application

For In-Process calibration the integration of a special measuring insert with additional test pipe is possible (data sheet DB_T4-025-45, Type GA3100, reference sensor: data sheet DB_T4-025-46, Type GA3110).



Application area

- Chemical and petrochemical industry
- Plant and mechanical engineering
- General process technology

Technical data

Constructional design

Design:	Measuring insert (interchangeable) with connection head and thermowell
Connection head:	■ Model B cap with slotted screws, material: aluminium, degree of protection IP 54 ■ Model BUZH high spring cover with slotted screw, material: aluminium, degree of protection IP 65 ■ Field housing Ø 60 mm screw cap, material: stainless mat.-no. 1.4305 (303), degree of protection IP 67 Further connection heads upon request
Neck tube:	Standard Ø 9 mm, reinforced design Ø 11 mm. Material: stainless steel mat.-no. 1.4571 (316Ti)

Measuring system

Measuring insert:	Per DIN 43735, interchangeable, Ø 6 mm, rigid or as sheathed element Material stainless steel
Measuring resistor:	Pt100 per EN 60751, 3- or 4-wire technology (see order details)
Optional :	Measuring insert with connection socket per DIN 43735 and with additional test pipe for In-Process calibration (see data sheet DB_T4-025-45) Material: stainless steel mat.-no. 1.4571 (316 Ti)

Accuracy

Accuracy:	Class A per EN 60751 For In-Process measuring insert: class A in the range -50...300 °C, above this class B
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Indication

Design:	Programmable LED-on-site indication for stainless steel field housing (Ø 60 mm), (see data sheet DB_M6-031)
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Temperature ranges

See order details

Transmitter

Integration:	Suitable Pt100 transmitter can be integrated into the connection head Options: ■ Instead of terminal block ■ Mounting in the spring cover of the connection head BUZH For further suitable analog and digital transmitters see product group T4.
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Tests and certificates

SIL2:	Functional safety per EN 61508, classification per SIL2. For detailed information see SIL instruction SA_005.
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Ex approval standard measuring insert:

ATEX:	BVS 04 ATEX E 144 X ⊕ II 2G EEx ia IIC T4/T6 $U_i \leq 30 \text{ V}$ $P_i \leq 200 \text{ mW}$ Further technical information see Ex Instruction XA_002.
UK:	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus. Further technical information see Ex Instruction XA_030.

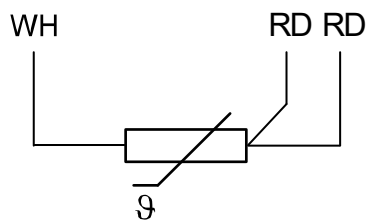
Ex approval measuring insert In-Process calibration:

ATEX:	IBExU 13 ATEX 1017 X ⊕ II 2G Ex ia IIC T6...T1 Gb $U_i \leq 30 \text{ V}$ $P_i \leq 750 \text{ mW}$ $L_i \text{ max. } 10 \mu\text{H/m}$ $C_i \text{ max. } 500 \text{ pF/m}$ Further technical information see Ex Instruction XA_003.
UK:	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus. Further technical information see Ex Instruction XA_003.
DNV GL approval:	per certificate no. TA00002MV

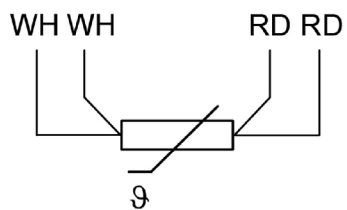
Connection diagram

Connection head

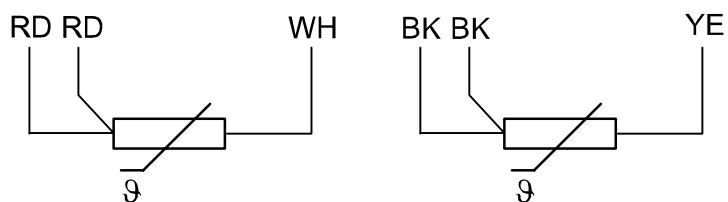
Pt100 3-wire



Pt100 4-wire

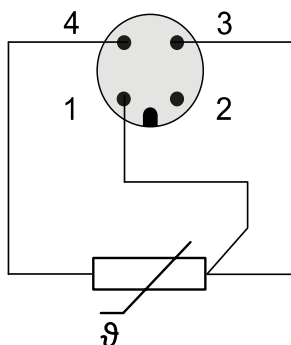


2 x Pt100 3-wire

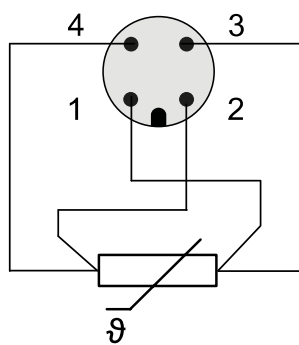


Circular connector M12

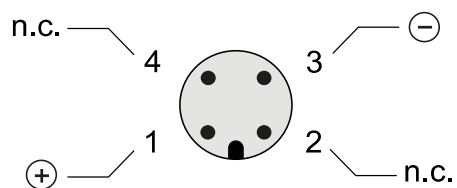
1 x Pt100 3-wire



1 x Pt100 4-wire



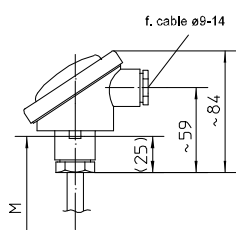
Transmitter



Dimensions

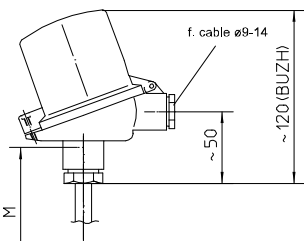
connection heads

model B, cap with
2 slotted screws
mat. aluminium, IP 54



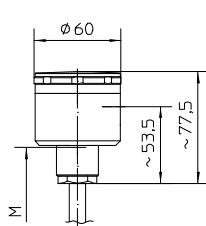
up to sealing surface

model BUZH, high spring cover
with slotted screw,
mat. aluminium, IP 65



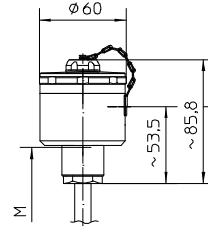
up to sealing surface

connection head field housing,
screw cap,
mat. stainless steel, IP 67

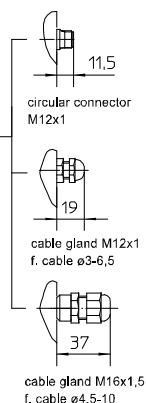


up to sealing surface

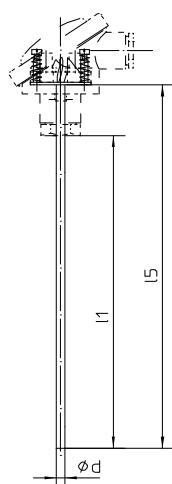
connection head field housing,
screw cap with opening,
mat. stainless steel, IP 67



up to sealing surface



design with
head screwing



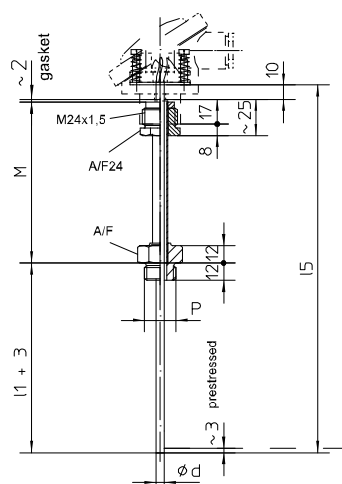
calculation formula

$$L1 = L5 - 38$$

$$L5 = L1 + 38$$

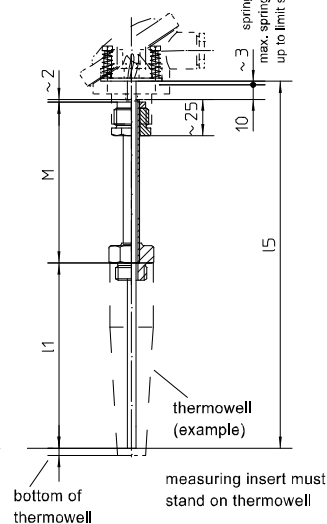
design with necktube

status of delivery



P	A/F
G1/2 B	27
M14x1,5	17
M18x1,5	24

status after mounting



calculation formula

$$L1 = L5 - (M + 13)$$

$$L5 = L1 + M + 13$$

Length of measuring insert L5: plus 3mm to allow subsequent prestressing on bottom of thermowell.

Order details

Resistance Thermometer Pt100 without thermowell				
GA250 .	design	without thermowell		
0	ex-protection	without		
1		explosion protection, type of ex-protection s. below		
A21 . . .	without neck tube	with head screwing		
A22 . . .		with double nipple		
	with double nipple	connection	to connection head M 24 x 1.5	to thermowell
10				G1/2 B
11				G3/4 B
12				G1 B
17				M18 x 1,5
18				M20 x 1,5
25				1/2" NPT
26				3/4" NPT
1		material	stainless steel mat.-no. 1.4571 (316Ti)	
9			varying	
	with neck tube	connections	to connection head M 24 x 1.5	to thermowell
A2310 . . .				G1/2 B
A2311 . . .				G3/4 B
A2312 . . .				G1 B
A2313 . . .				G1/4 B
A2315 . . .				M14 x 1,5
A2317 . . .				M18 x 1,5
A2318 . . .				M20 x 1,5
A2325 . . .				1/2" NPT
A2326 . . .				3/4" NPT
A2352 . . .				coupling nut G1/2
A2353 . . .				coupling nut G3/4
A2358 . . .				coupling nut M24 x 1,5
A2359 . . .				coupling nut M27 x 2
1		neck tube Ø	9 mm, standard	
2			11 mm, reinforced design	
9			varying	
1		length neck tube	M = 145, standard	
2	M = 165			
3	M = 56			
4	M = 89			
9	varying			
1	material neck tube	stainless steel mat.-no. 1.4571 (316Ti)		
9		varying		
B22	length measuring insert l5 (mm)	205		
B28		255		
B31		275		
B37		315		
B40		375		
B43		405		
B46		435		
B52		555		
B99		varying		

		diameter, design, material	meas. element	operating range	test pipe
D2-M22	meas. insert, as per DIN 43735 (class A)	6 mm, st. steel, standard	thin film	-50...400 °C	-
D6-M21		6 mm, sheathed element, st. steel	ceramic	-200...600 °C	-
D22-M24		6 mm, rigid, st. steel (In-Process)		-50...400 °C ¹	28 mm ²
N2	sensor type	1 x Pt100 in 3-wire technology			
N3		1 x Pt100 in 4-wire technology			
N5		2 x Pt100 in 3-wire technology			
T11	connection head	model B	electrical connection cable gland M20x1.5		
T15		model BUZH	plated brass cable Ø 9-14		
T47		field housing	cable gland	polyamide black	cable Ø 3-6,5
T47.40					cable Ø 4,5-10
T47.21			with circular connector M12x1	st. steel	cable Ø 3-6,5
T47.51					
T49		field housing with additional opening for reference sensor	cable gland	polyamide black	cable Ø 3-6,5
T49.40					cable Ø 4,5-10
T49.21				st. steel	cable Ø 3-6,5

Additional features (to be indicated in case of need, only)		
S52	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK; standard measuring insert)	
S53	Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK; measuring insert In-Process calibration)	
S68	type of ex-protection	⊕ II 2G Ex ia IIC T4/T6 ³ , BVS 04 ATEX E 144 X (standard measuring insert)
S75		⊕ II 2G Ex ia IIC T6-T1 Gb, IBExU 13 ATEX 1017 X (In-Process calibration)
Z1	incl. transmitter (pls specify separately)	mounting on the measuring insert (instead of terminal block)
Z2		mounting in the spring cover of the connection head BUZH
W2604	functional safety per EN 61508, classification per SIL2	
W2654	DNV GL approval	
W2660	as per UKCA regulations ⁴	
W1204	calibration certificate per EN 10204-3.1 (3 meas. points)	

Order code (example): GA2500 - A21101 - B37 - D2-M22 - N2 - T47 - ...

¹ Up to 300 °C accuracy class A, above this class B.

² For In-Process calibration.

³ Only with sheathed element.

⁴ Not possible with inline diaphragm seal or connection to inline unit ASEPconnect with pipe diameter > 25 mm.