

Resistance thermometer Pt100 without thermowell Type Series GA250 .



Application area

- Chemical and petrochemical industry
- Machinery construction
- General process technology

Features

- Resistance thermometer for additional 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

- Explosion protection
- As per UKCA regulations
- Transmitter can be integrated
- Classification per SIL 2
- Approval German Lloyd
- Measuring insert for In-process calibration

Application

The resistance thermometer is suited for operation in a separate thermowell. Different designs of thermowells are available, see product group T5.

For In-process calibration the integration of a special measuring insert with additional test pipe is possible (data sheet T4-025-45, Type GA3100, reference sensor: data sheet T4-025-46, Type GA3110).

Technical Data

Mechanical design

Measuring insert interchangeable with connection head and neck-tube

Connection head

selective

- model B, cap with 2 slotted screws, mat. aluminium, IP 54
 - model BUZH, high spring cover with slotted screw, mat. aluminium, IP 65
 - field housing Ø 60 mm, screw cap, stainless steel mat.-no. 1.4305 (303), IP 67
- further connection heads upon request

Neck-tube

stainless steel mat.no. 1.4571 (316Ti)
neck-tube Ø 9 mm
reinforced design Ø 11 mm
length and connection see order details

Measuring insert

Material stainless steel, interchangeable, DIN 43735
measuring insert Ø 6 mm
resistor Pt100 according to DIN 60751
Optional: Measuring insert with connection socket per DIN 43735 and with additional test pipe for In-process calibration.
Material: stainless steel, mat.-no. 1.4571 (316 T_i) (see data sheet T4-025-45)

Type of sensor/class/circuit

see order details

Ex-approval

Ex-type examination certificate for

Standard measuring insert:

BVS 04 ATEX E 144 X

⊕ II 2G EEx ia IIC T4/T6

$U_i \leq 30 \text{ V}$

$P_i \leq 200 \text{ mW}$

More technical information see XA_002.

Intrinsically safe per EN 60079-11,
P5.7 simple electrical apparatus (UK).

More technical information see XA_030.

Measuring insert In-process calibration:

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 max. 10 $\mu\text{H/m}$

C_i max. 500 pF/m

More technical information see XA_003.

Intrinsically safe per EN 60079-11,
P5.7 simple electrical apparatus (UK).

More technical information see XA_003.

Functional safety

per EN 61508, classification per SIL2 ;
without transmitter, only

DNV GL approval

per certificate no. TA00002MV

Accuracy of the measuring resistor

class A per EN 60751

For In-process measuring insert:
class A in the range -50...300 °C,
above this class B

Integrated transmitters

suitable Pt100 transmitters can be integrated into the connection head.

Options:

- instead of terminal block
 - mounting in the spring cover of the connection head BUZH
- see product group T4 for analog or digital transmitters

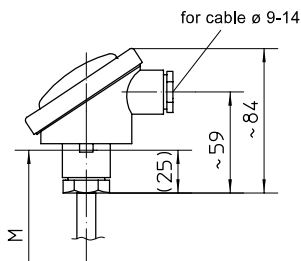
LED-on-site indication

programmable LED-on-site indication for stainless steel field housing (Ø 60 mm), see data sheet M6-031.

Dimensions

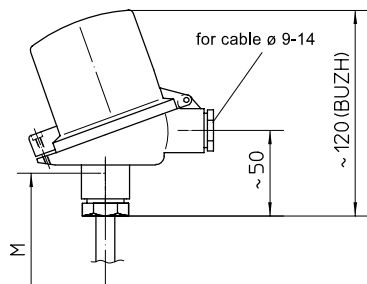
connection heads

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



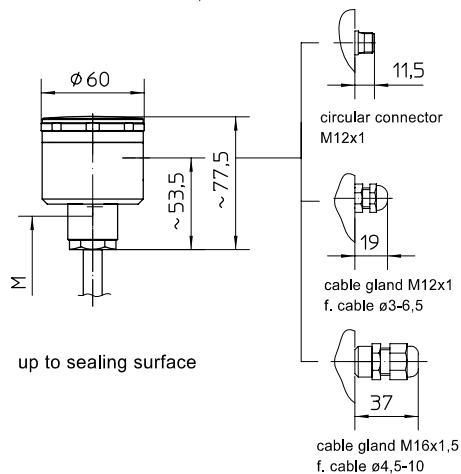
up to sealing surface

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



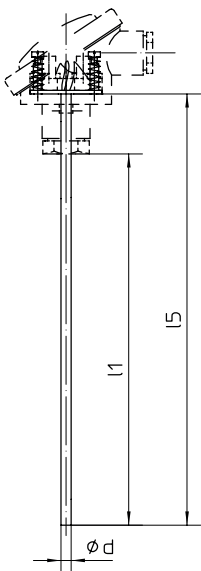
up to sealing surface

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



up to sealing surface

design with
head screwing



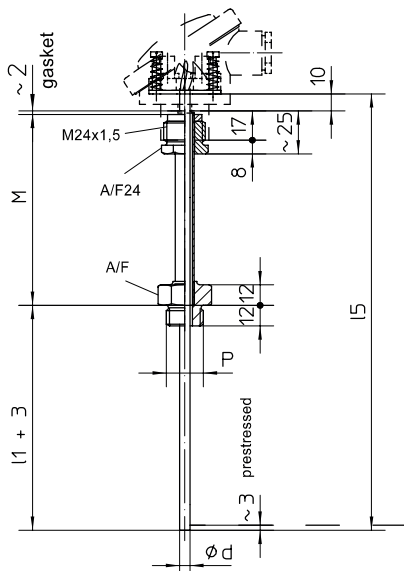
calculation formula

$$I1 = I5 - 38$$

$$I5 = I1 + 38$$

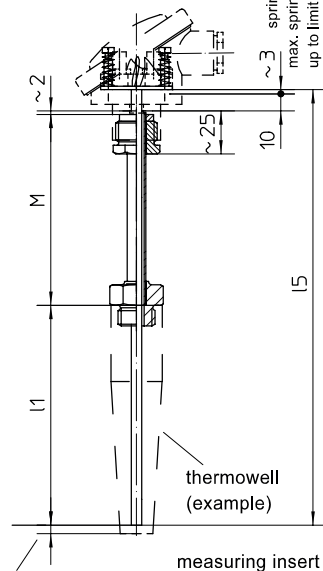
design with necktube

status of delivery



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

status after mounting



calculation formula

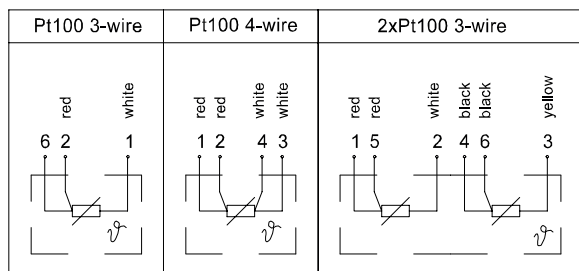
$$I1 = I5 - (M+13)$$

$$I5 = I1 + M + 13$$

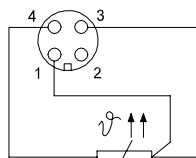
Length of measuring insert I5: plus 3mm to allow subsequent prestressing on bottom of thermowell.

Connection diagram

connection head



circular connector M12x1



Order details

Resistance thermometer Pt100 without thermowell											
design	· without thermowell								GA250	.	
ex-protection	· without								0		
	· explosion protection, type of ex-protection s. below								1		
without neck tube	· with head screwing								A21		
	· with double nipple								A22	...	
double nipple	connections	to connection head M 24 x 1.5	to thermowell								
			G 1/2 B							10	
			G 3/4 B							11	
			G 1 B							12	
			M 18 x 1.5							17	
			M20 x 1.5							18	
			1/2" NPT							25	
	3/4" NPT							26			
	material	stainless steel mat.-no. 1.4571 (316Ti)								1	
		varying								9	
with neck tube	connections	to connection head M 24 x 1.5	to thermowell								
			G 1/2 B							A2310	...
			G 3/4 B							A2311	...
			G 1 B							A2312	...
			G 1/4 B							A2313	...
			M 14 x 1.5							A2315	...
			M 18 x 1.5							A2317	...
			M 20 x 1.5							A2318	...
			1/2" NPT							A2325	...
			3/4" NPT							A2326	...
			coupling nut G 1/2							A2352	...
			coupling nut G 3/4							A2353	...
	coupling nut M 24 x 1.5							A2358	...		
	coupling nut M 27 x 2							A2359	...		
	neck tube Ø	9 mm, standard								1	
		11 mm, reinforced design								2	
		varying								9	
	length neck tube	M = 145, standard								1	
		M = 165								2	
M = 56								3			
M = 89								4			
varying								9			
material neck tube	stainless steel mat.-no. 1.4571 (316Ti)								1		
	varying								9		
length measuring insert l5 (mm)	205								B22		
	255								B28		
	275								B31		
	315								B37		
	375								B40		
	405								B43		
	435								B46		
	555								B52		
	varying								B99		
meas. insert, as per DIN 43735 (class A)	diameter, design, material		meas. element		operating range		test pipe				
	· 6 mm, st. steel, standard		thin film		-50...+400 °C		-		D2-M22		
	· 6 mm, sheathed element, st. steel		ceramic		-200...+600 °C		-		D6-M21		
· 6 mm, rigid, st. steel (In-process)				-50...+400 °C ¹		28 mm ²		D22-M24			
sensor type	· 1 x Pt100 in 3-wire technology, standard								N2		
	· 1 x Pt100 in 4-wire technology								N3		
	· 2 x Pt100 in 3-wire technology								N5		
connection head	· model B	electrical connection cable gland M20x1.5 nickel plated brass							T11		
		cable Ø 9-14							T15		
	· field housing	cable gland	polyamide black	cable Ø 3-6.5				T47			
				cable Ø 4.5-10				T47.40			
			st. steel		cable Ø 3-6.5				T47.21		
	with circular connector M12x1							T47.51			
· field housing with additional opening for reference sensor	cable gland	polyamide black		cable Ø 3-6.5				T49			
		st. steel		cable Ø 4.5-10				T49.40			
				cable Ø 3-6.5				T49.21			
additional features (to be indicated in case of need, only)											
type of ex-protection	· Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK; standard measuring insert)								S52		
	· Intrinsically safe per EN 60079-11, P5.7 simple electrical apparatus (UK; measuring insert In-process calibration)								S53		
	· II 2 G EEx ia IIC T4/T6 ³ , BVS 04 ATEX E 144 X (standard measuring insert)								S68		
· II 2 G Ex ia IIC T6...T1 Gb, IBExU 13 ATEX 1017 X (In-process calibration)								S75			
incl. transmitter (pls specify separately)	· mounting on the measuring insert (instead of terminal block)								Z1		
	· mounting in the spring cover of the connection head BUZH								Z2		
functional safety per EN 61508, classification per SIL2											
DNV GL approval											
as per UKCA regulations ⁴											
transmitter with resistance thermometer calibrated, incl. calibration certificate 3 meas. points											
order code (example):											
	GA2500	A22101	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 ASEPTconnect with pipe diameter > 25 mm