

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
- Transmitter can be integrated
- Classification per SIL 2
- DNV GL approval
- 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 Pt 100 according to DIN EN 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 Ti) (see data sheet T4-025-45)

Type of sensor/class/circuit

see order details

Ex-approval

For standard measuring insert:

BVS 04 ATEX E 144 X

⊕ II 2 G Ex ia IIC T4/T6 Gb

$U_i \leq 30 \text{ V}$

$P_i \leq 200 \text{ mW}$

More technical information see XA_002

For In-process calibration:

IBExU 13 ATEX 1017 X

⊕ II 2 G Ex ia IIC T6-T1 Gb

$U_i \leq 30 \text{ V}$

$P_i \leq 750 \text{ mW}$

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

$C_i \text{ max. } 500 \text{ pF/m}$

More technical information see XA_003.

Functional safety

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

DNV GL approval

per certificate no. TA00002MV

Accuracy of the measuring resistor

class A according to EN 60751

Integrated transmitters

suitable Pt100 transmitters can be integrated into the connection head.

Options:

a) instead of terminal block

b) mounting in the spring cover of the connection head BUZH

see product group T4 for analog or digital transmitters

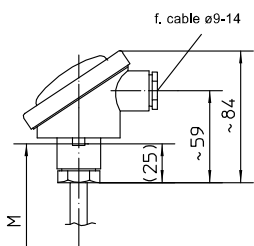
LED-on-site indication

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

Dimensions

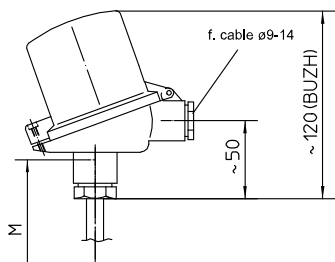
connection heads

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



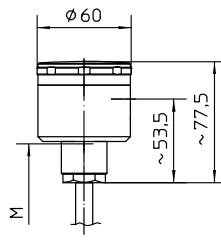
up to sealing surface

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



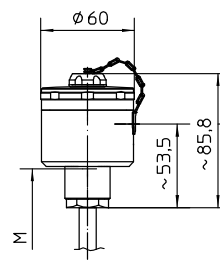
up to sealing surface

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

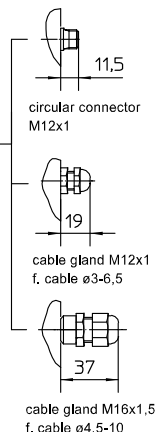


up to sealing surface

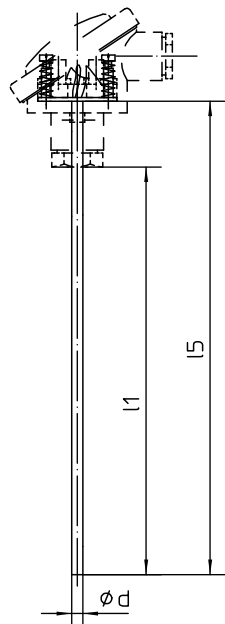
connection head field housing, screw cap with opening,
mat. stainless steel, IP 67



up to sealing surface



design with head screwing



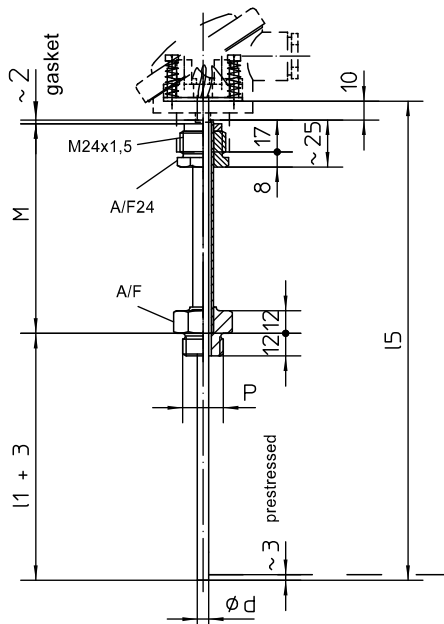
calculation formula

$$l1 = l5 - 38$$

$$l5 = l1 + 38$$

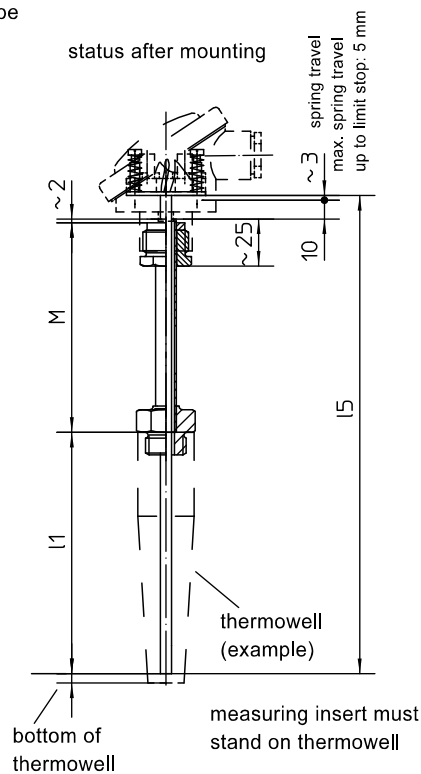
design with necktube

status of delivery



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

status after mounting



calculation formula

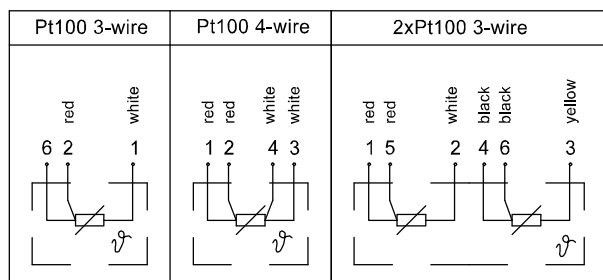
$$l1 = l5 - (M+13)$$

$$l5 = l1 + M + 13$$

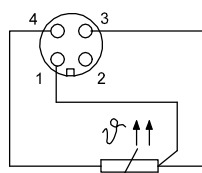
Length of measuring insert l5: plus 3mm to allow subsequent prestressing on bottom of thermowell.

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, rigid, 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	28 mm ¹				D22-M22											
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										
				cable Ø 4.5-10					T49.40										
st. steel		cable Ø 3-6.5					T49.21												
additional features (to be indicated in case of need, only)																			
type of ex-protection	II 2 G Ex ia IIC T4/T6 Gb², BVS 04 ATEX E 144 X (standard measuring insert) II 2 G Ex ia IIC T6-T1 Gb, IExU 13 ATEX 1017 X (In-process calibration)									S68									
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 SIL 2																			
DNV GL approval																			
transmitter with resistance thermometer calibrated, incl. calibration certificate 3 meas. points																			
order code (example):					GA2500	A22101	B37	D2-M22	N2	T47									

¹ for In-process calibration
² only with sheathed element