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
- Classi ication 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 measuriung 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 T_i) (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
Ex II 2 G Ex ia IIC T4/T6 Gb
$U_i \leq 30$ V
$P_i \leq 200$ mW
More technical information see XA_002

For In-process calibration:
IBExU 13 ATEX 1017 X
Ex II 2 G Ex ia IIC T6-T1 Gb
$U_i \leq 30$ V
$P_i \leq 750$ mW
L_i max. 10 µH/m
C_i max. 500 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

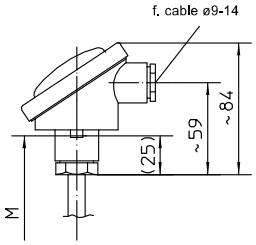
Integrated transmitters
suitable Pt100 transmitters can be integrated into the connection head.
Options:
a) instead of terminal block
b) mounting in the spring cover of the connection head BUZH
see product group T4 for analog or digital transmitters

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

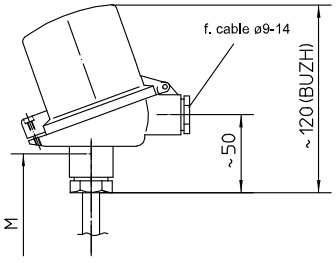
Dimensions

connection heads

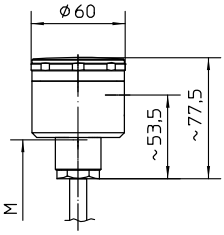
model B, cap with
2 slotted screws
mat. aluminium, IP 54



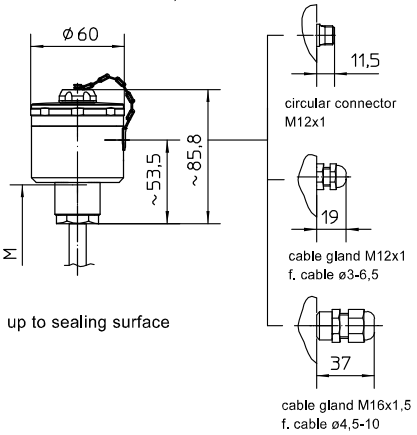
model BUZH, high spring cover
with slotted screw,
mat. aluminium, IP 65



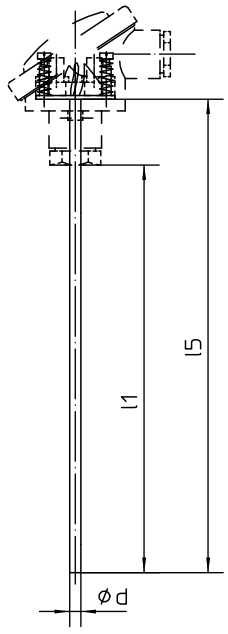
connection head field housing,
screw cap,
mat. stainless steel , IP 67



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



design with
head screwing

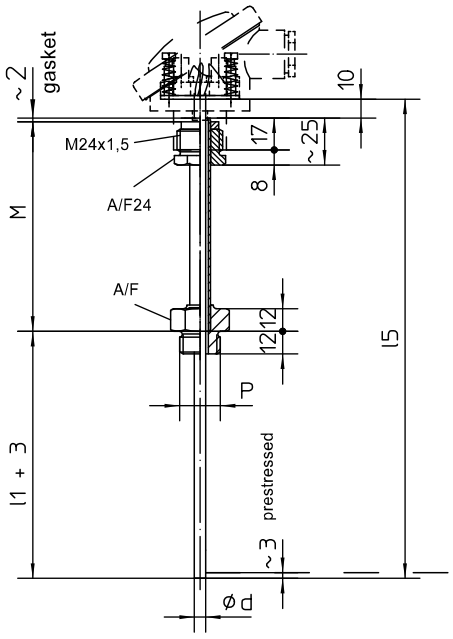


calculation formula

l1 = l5 - 38
l5 = l1 + 38

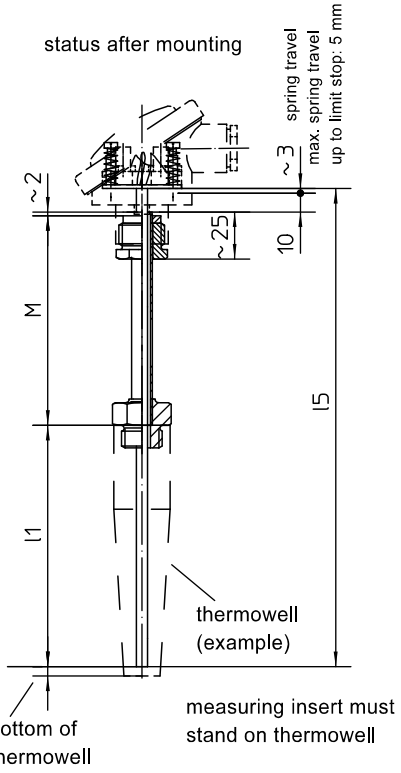
design with necktube

status of delivery



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

status after mounting



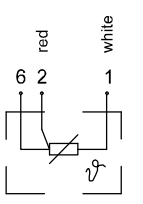
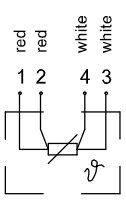
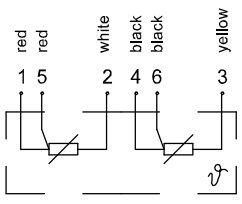
calculation formula

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

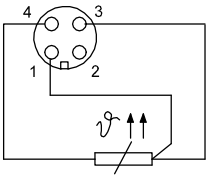
Length of measuring insert l5: plus 3mm to allow subsequent prestressing on bottom of thermowell.

Connection diagram

connection head

Pt100 3-wire	Pt100 4-wire	2xPt100 3-wire
		

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 nippel	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 cable Ø 9-14		T11
	· model BUZH			T15
	· field housing	cable gland	polyamide black / cable Ø 3-6.5	T47
			polyamide black / 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
			polyamide black / 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	Ex II 2 G Ex ia IIC T4/T6 Gb[2], BVS 04 ATEX E 144 X (standard measuring insert)			S68
	Ex II 2 G Ex ia IIC T6-T1 Gb, IBExU 13 ATEX 1017 X (In-process calibration)			
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				W2604
DNV GL approval				W2654
transmitter with resistance thermometer calibrated, incl. calibration certificate 3 meas. points				W1204
order code (example):	GA2500 A22101 B37 D2-M22 N2 T47			

[1] for In-process calibration
[2] only with sheathed element