



### Features

- Measuring resistor 1 x Pt 100 in 3- or 4-wire technology
- Measuring insert of stainless steel
- Measuring insert interchangeable
- Process connections for food/pharmaceutical/biotechnology
- Hygienic design, constructive design according to the EHEDG recommendations
- Available with reduced tip (fast response)

### Options

- Explosion protection
- Transmitter can be integrated
- Classification per SIL 2
- Measuring insert for In-process calibration

### Application area

- Food industry
- Pharmaceuticals
- Biotechnology

### Application

The resistance thermometer is suited for operation on tanks and pipings especially in hygienic applications. All standard types of process connections are available. Because of its robust design it is suitable for use in a great number of technological processes. The change in resistance, dependant on the measurement temperature, can be detected by a transmitter and converted into a standardized signal. A variety of transmitters for head mounting is available for different applications. 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 thermowell

#### 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

#### Thermowell

material stainless steel mat.-no. 1.4571 (316Ti) or 1.4404 (316L)

thermowell 9 x 1 or 11 x 2 mm

length see order details

option: certification of material testing per DIN EN 10204

Upon request a calculation for thermowells can be made (for static or dynamic application) with certificate.

#### Measuring insert

material stainless steel, interchangeable, DIN 43735

resistor Pt 100 per 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/ciit

see order details

#### Functional safety

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

#### Ex-approval

For standard measuring insert:

BVS 04 ATEX E 144 X

Ex II 2G Ex ia IIC T4/T6

$U_i \leq 30$  V

$P_i \leq 200$  mW

More technical information see XA\_002

For In-process calibration:

IBExU 13 ATEX 1017 X

Ex II 2G Ex ia IIC T6-T1 Gb

$U_i \leq 30$  V

$P_i \leq 750$  mW

$L_i$  max. 10  $\mu$ H/m

$C_i$  max. 500 pF/m

More technical information see XA\_003.

#### Accuracy of the measuring resistor

class A per DIN EN 60751

#### Process connections

- aseptic connection DIN 11864-1
  - DIN 11851 with coupling nut
  - Tri-Clamp
  - clamp connection DIN 32676
  - clamp connection acc. to ISO 2852
  - thermowell with welding ball 30 x 40 mm
  - thread connection G1A conical, metal-to-metal joint
  - Varivent
  - Neumo BioControl
  - Ingold connection incl. O-ring gasket EPDM
- Further process connections upon request.  
material of process conn.: stainless steel mat. no. 1.4404 (316L).  
Gasket is not included (except for Ingold).

**more Technical Data**

**Surface roughness**

standard: surface roughness  $Ra \leq 1.5 \mu m$   
 hygienic: surface roughness  $Ra \leq 0.8 \mu m$   
 welding:  $< 1.5 \mu m$

**Integrated transmitters**

suitable Pt 100 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 ( $\varnothing 60 \text{ mm}$ ), see data sheet M6-031.

**Dimensions**

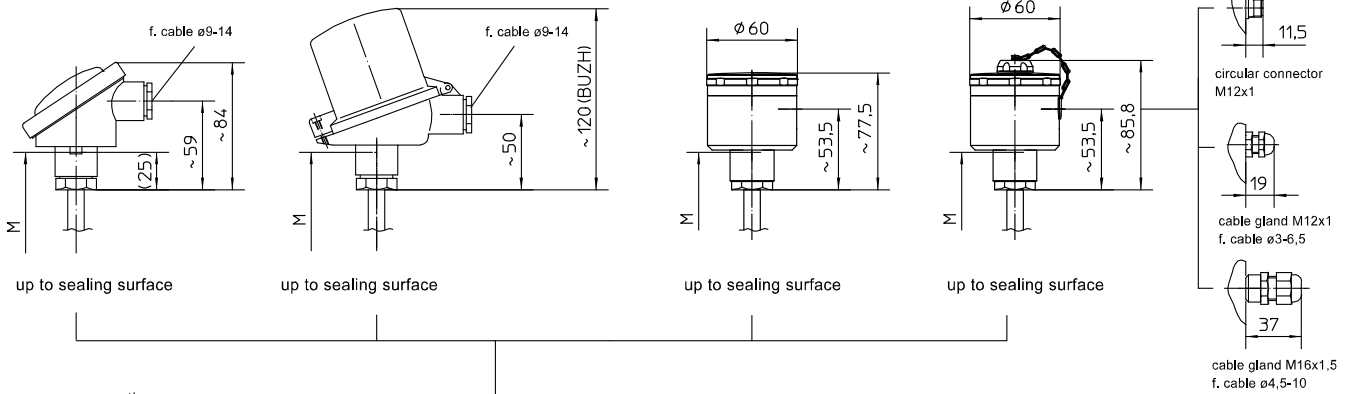
connection heads

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



process connections

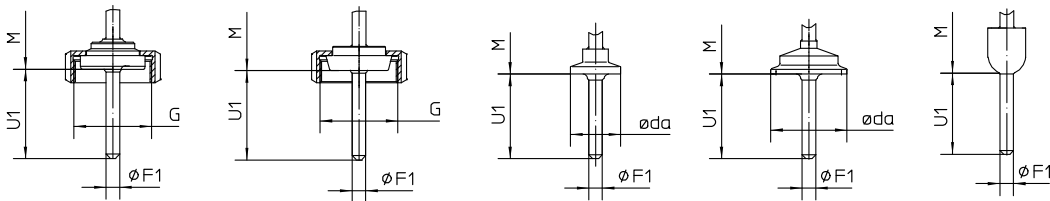
tapered coupling with groove union nut  
 aseptic design per DIN 11864-1

tapered coupling with groove union nut  
 per DIN 11851

Tri-clamp connection

clamp connection per DIN 32676 or ISO 2852

thermowell with welding ball 30x40 mm



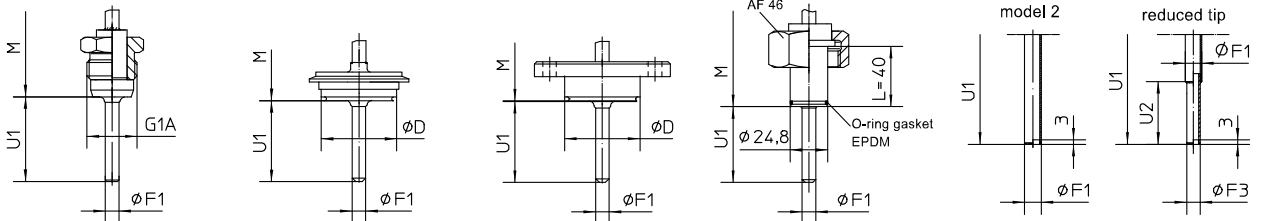
G1A dead-zone free (conical taper of metall)

Varivent connection

NEUMO BioControl

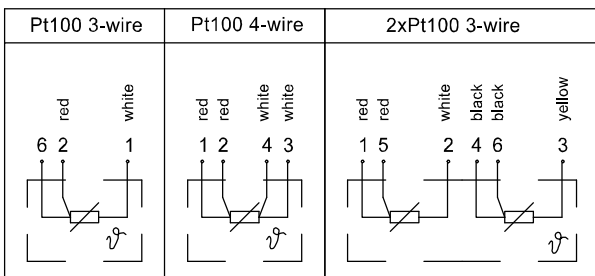
connection per INGOLD DN 25 with coupling nut

neck tube according to DIN 43772

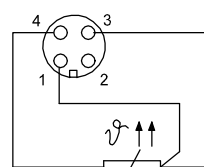


**Connection diagram**


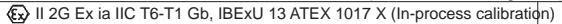
connection head



circular connector M12x1



**Order Details** - please give additional specifications for models not listed -

Resistance thermometer Pt 100 for food/pharmaceutical/biotechnology				GA254 .						
ex-protection	· without			0						
	· explosion protection, type of ex-protection s. below			1						
surface roughness	· standard			-						
	· according to hygienic design (see data sheet D1-030)			HY						
process connection (further process connections upon request)	tapered coupling with groove union nut DIN 11851 DN (da)	· DN 25 (26 mm)						A121066		
		· DN 32 (35 mm)						A121068		
		· DN 40 (41 mm)						A121070		
		· DN 50 (53 mm)						A121072		
	clamp DIN 32676 DN (da)	· DN 25 (50.5 mm)						A141066		
		· DN 40 (50.5 mm)						A141070		
		· DN 50 (64 mm)						A141072		
	clamp ISO 2852 DN (da)	· DN 25 (1") (50.5 mm)						A145083		
		· DN 38 (1 1/2") (50.5 mm)						A145084		
		· DN 51 (2") (64 mm)						A145085		
		· DN 63.5 (2 1/2") (77.5 mm)						A145086		
	Tri-Clamp DN (da)	· DN 1" (50.5 mm)						A147083		
		· DN 1 1/2" (50.5 mm)						A147084		
	Varivent case connecting flange	· D = 50, for Varivent-case DN 25 and 1" (da=66)						A151060		
		· D = 68, for Varivent-case DN 40...DN 125 and 1 1/2"...6" (da=84)						A151061		
	BioControl (Neumo)	· Gr. 25 (30.5 mm)						A161066		
		· Gr. 50 (50 mm)						A161072		
		· Gr. 65 (50.5 mm)						A161073		
	thermowell w. welding ball	· 30 x 40 mm						A191010		
	aseptic connection DIN 11864-1, collar connection with coupling nut, model A (further variants upon request)	for pipes per DIN 11850 DN (da)	· DN 25 (RD 52x1.6)					B121166		
			· DN 32 (RD 58x1.6)					B121168		
			· DN 40 (RD 65x1.6)					B121170		
			· DN 50 (RD 78x1.6)					B121172		
		for pipes ISO 1127 per DIN 2463 DN (da)	· DN 26.9 (RD 52x1.6)					B121266		
· DN 33.7 (RD 58x1.6)						B121268				
· DN 42.4 (RD 65x1.6)						B121270				
· DN 48.3 (RD 78x1.6)						B121272				
threaded connection			· G1A, conical, metal-to-metal joint				A101015			
custom-made							A9999			
thermowell Ø	· F1 = 9 mm, thermowell 9/7, material stainless steel mat.-no. 1.4404 (316L)						C122 . . .			
	· F1 = 11 mm, thermowell 11/7, material stainless steel mat.-no. 1.4571 (316Ti)						C131 . . .			
	· 9/7, reduced design, tip F3 = Ø 5x20 mm, ID 3.5 mm, mat. stainless steel mat.-no.1.4404 (316L)						C162 . . .			
	as in writing						C99 . . . . .			
neck tube	· M = 80 mm						1			
	· M = 145 mm						2			
as in writing							9			
immersion length	immersion length U1		length meas. insert I5							
		neck tube M=80 mm	neck tube M=145 mm							
	35 mm	125 mm	190 mm				035			
	50 mm	140 mm	205 mm				050			
	100 mm	190 mm	255 mm				100			
	160 mm	250 mm	315 mm				160			
	250 mm	340 mm	405 mm				250			
	400 mm	490 mm	555 mm				400			
custom-made							999			
measuring 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 <sup>2</sup>			D22-M22		
sensor type	· 1 x Pt 100 in 3-wire technology, standard							N2		
	· 1 x Pt 100 in 4-wire technology							N3		
	· 2 x Pt 100 in 3-wire technology							N5		
connection head	· model B	electrical connection cable gland M20x1.5 nickel plated brass						T11		
		cable Ø 9-14						T15		
	· model BUZH	cable gland	polyamide black	cable Ø 3-6.5				T47		
			st. steel	cable Ø 4.5-10				T47.40		
	· field housing	with circular connector M12x1						T47.21		
								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			
<b>additional features (to be indicated in case of need, only)</b>										
type of ex-protection	· 								S68	
	· 								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 SIL 2										
process connection electropolished										
transmitter with resistance thermometer calibrated, incl. calibration certificate 3 meas. points										
<b>order code (example):</b>				GA2540	A121066	C1311100	D2-M22	N2	T47	

1 only with sheathed element

2 for In-process calibration (no classification per SIL 2)