

Resistance thermometer Pt100 with interchangeable measuring insert Type series GA254 .

In Proud Partnership with Labom

PAQUIN SENSORS

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SIL2



Features

- Measuring resistor 1 x Pt100 in 3- or 4-wire technology
- Measuring insert of stainless steel
- Measuring insert interchangeable (spring-loaded)
- DIN 11864-1, VARIVENT®, DIN 11851 and Clamp per DIN 32676 / ISO 2852 with EHEDG certificate
- Process connections for food/pharmaceutical/ biotechnology
- Hygienic design, constructive design according to the EHEDG recommendations
- Available with reduced tip (fast response)

Options

- Explosion protection
- As per UKCA regulations
- Transmitter can be integrated
- Classification per SIL2
- 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 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 Pt100 per 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 SIL2 ;
without transmitter, only

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

$U_i \leq 30 \text{ V}$

$P_i \leq 750 \text{ mW}$

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

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

More technical information see XA_003.

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

More technical information see XA_003.

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

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).

Surface roughness

standard:

surface roughness $R_a \leq 1.5 \mu\text{m}$

hygienic:

surface roughness $R_a \leq 0.8 \mu\text{m}$

welding: $< 1.5 \mu\text{m}$

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

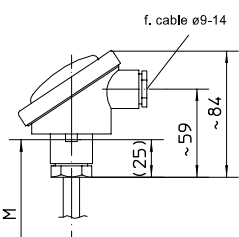
LED-on-site indication

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

Dimensions

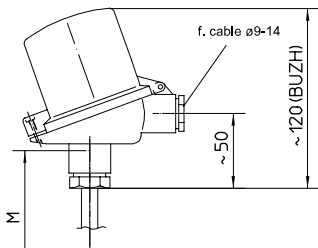
connection heads

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



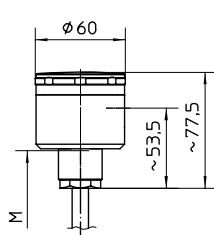
up to sealing surface

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



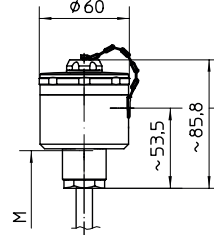
up to sealing surface

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

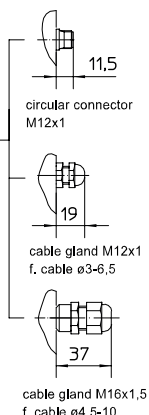


up to sealing surface

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

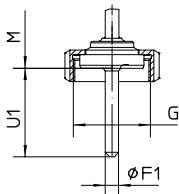


up to sealing surface

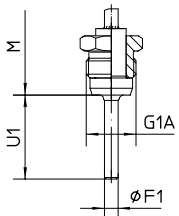


process connections

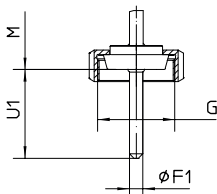
tapered coupling with groove union nut
aseptic design per DIN 11864-1



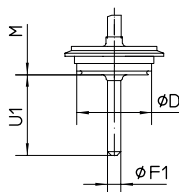
G1A dead-zone free (conical taper of metall)



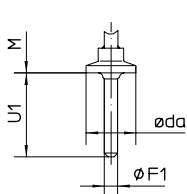
tapered coupling with groove union nut
per DIN 11851



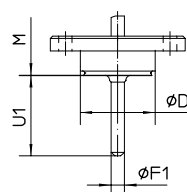
Varivent connection



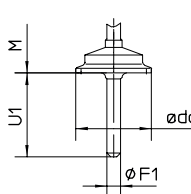
Tri-clamp connection



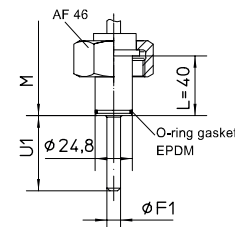
NEUMO BioControl



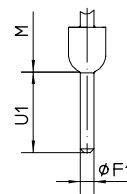
clamp connection per DIN 32676 or ISO 2852



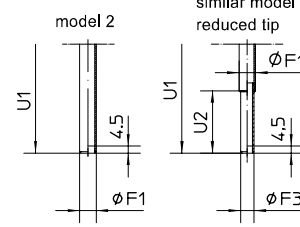
connection per INGOLD DN 25 with coupling nut



thermowell with welding ball 30x40 mm

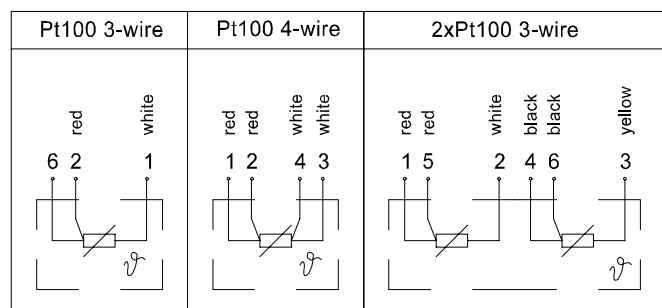


neck tube according to DIN 43772

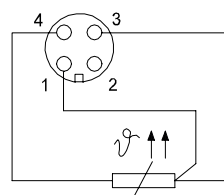


Connection diagram

connection head



circular connector M12x1



Order details

Resistance thermometer Pt100 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 ^{1,2} 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 ^{1,2} DN (da)	· DN 25 (50.5 mm)		A141066								
		· DN 40 (50.5 mm)		A141070								
		· DN 50 (64 mm)		A141072								
	clamp ISO 2852 ^{1,2} 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) ^{1,2}	· DN 1" (50.5 mm)		A147083								
		· DN 1 1/2" (50.5 mm)		A147084								
	VARIVENT® ^{1,2} connection	· Form F (D = 50) for VARINLINE® access unit			A151060							
		· Form N (D = 68) for VARINLINE® access unit			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 (further variants upon request) ¹	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)	<u>diameter, design, material</u>		<u>meas. element</u>	<u>operating range</u>	<u>test pipe</u>							
	· 6 mm, st. steel, standard		thin film	-50...+400 °C	-							
	· 6 mm, sheathed element, st. steel		ceramic	-200...+600 °C	-							
	· 6 mm, rigid, st. steel (In-process)			-50...+400 °C ³	28 mm ⁴							
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							
	· model BUZH	cable Ø 9-14			T15							
	· field housing	cable gland	polyamide black	cable Ø 3-6.5	T47							
			st. steel	cable Ø 4.5-10	T47.40							
			with circular connector M12x1		T47.21							
	· 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	· 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 2G EEx ia IIC T4/T6 ⁵ , BVS 04 ATEX E 144 X (standard measuring insert)				S68							
	· II 2G Ex ia IIC T6...T1 Gb, IBEU 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					W2604							
as per UKCA regulations ⁶					W2660							
process connection electropolished					W4035							
transmitter with resistance thermometer calibrated, incl. calibration certificate 3 meas. points					W1204							
order code (example):				GA2540	A121066	C1311100	D2-M22	N2	T47			

¹ EHEDG certified only in connection with hygienic design (order code option HY)
² EHEDG certificate valid only if gaskets are used that are listed in the "EHEDG position paper"
³ up to 300 °C accuracy class A, above this class B
⁴ for In-process calibration
⁵ for devices with Ex protection only with sheathed element
⁶ not possible with inline diaphragm seal or connection to inline unit ASEPTconnect with pipe diameter > 25 mm