Gas-actuated thermometer with switch contacts
For sanitary applications
Model 74, stainless steel version

Applications

- Food industry
- Sanitary applications
- Bio and pharmaceutical industry

Special features

- Dead-space free, hygienic version
- Aseptic process connections
- Material and surface finish quality in accordance with pharmaceutical industry directives and standards
- Gauges with inductive contact for use in hazardous areas with ATEX approval

Gas-actuated thermometer with switch contact, model 74 with liquid damping and VARIVENT® connection

Description

This series of thermometers has been designed as an addition to the standard range of thermometers in order to meet the special requirements of the food, bio and pharmaceutical industries as well as in the paints and varnishes industry.

The model 74 gas-actuated thermometer is ideally suited to fulfil the high standard requirements of sanitary applications. Based on a third party verification, the thermometer complies with the 3-A standard 74-03 and is marked by us accordingly.

Stem and case are made of stainless steel.
The surface of the wetted parts is polished, and a wide variety of process connections is available to ensure the optimal adaptation to many different process requirements. The stem is free of dead space.

Switch contacts (electrical alarm contacts) make or break an electric control circuit dependent upon the position of the instrument pointer. The switch contacts are adjustable over the full measuring range.

The instrument pointer actual value pointer) moves freely across the entire scale range, independent of the setting. The set pointer can be adjusted via the window using a removable adjustment key (mounted on the terminal box).

Switch contacts consisting of several contacts can also be set to a single set point. Contact actuation is made when the actual value pointer travels beyond or below the desired set point.

For switch contacts, sliding and magnetic snap-action contacts, reed contacts, inductive contacts - for requirements to ATEX - or electronic contacts for PLC switching are available.

Data sheets showing similar products and accessories:
Electrical switch contacts; models 821, 831, 830 E, 851; see data sheet AC 08.01

Standard version

Measuring principle
Gas-pressure inert gas filling, physiologically safe

Nominal size in mm
100

Process connection
- VARIVENT® connection
  for pipes DN 40 to DN 125 and 1 ½" to 4", PN 25
- NEUMO BioControl®
  size 50 (mounting diameter 50 mm) for pipes DN 25 to DN 100, PN 16 or
  size 65 (mounting diameter 68 mm) for pipes DN 40 to DN 100, PN 16
- Grooved union nut DIN 11851, DN 40, PN 40 or DN 50, PN 25
- Tri-clamp, DN 1 ½", PN 40 or DN 2", PN 40

Instrument version
- Back mount (axial)
- Lower mount (radial)

Indication accuracy
DIN 16196

Working range
Normal (1 year): Measuring range (DIN 16196)
Short time (24 h max.): Scale range (DIN 16196)

Rated operating ranges and conditions
DIN 16196

Temperature sensor
Wetted parts 1.4435 stainless steel
Diameter 21 mm
Length 30 mm

Surface of the wetted parts
$R_a \leq 0.8$ µm

Case
Stainless steel 1.4301

Bezel ring
Cam ring (bayonet type) bezel, stainless steel 1.4301

Dial
Aluminium, white, black lettering

Window
Laminated safety glass

Pointer
Aluminium, black, adjustable pointer

Electrical connection
Terminal box

Temperature limits for storage and transport
-50 … +60 °C without liquid damping
-20 … +60 °C (EN 13190) with liquid damping

Permissible ambient temperature at case
0 … 40 °C max. (others on request)

Permissible working pressure at the temperature sensor
max. 25 bar, static

Ingress protection
IP 65 per EN 60529 / IEC 529

Scale range, measuring range [1], error limit
Scale graduation per WIKA standard

Scale range in °C	Measuring range in °C	Scale spacing in °C	Error limit ±°C
-30 ... +50	-20 ... +40	1	1.5
-20 ... +100	0 ... 80	2	3
0 ... 120	20 ... 100	2	3
0 ... 160	20 ... 100	2	3

1) The measuring range is indicated on the dial by two triangular marks.
The stated error limit is valit within this range per DIN 16196.

BioControl® is a registered trademark of the company NEUMO.

Switch contacts

Sliding contact model 811
- Simple construction
- No control unit and no extra power supply required
- Direct switching up to max. 230 V, 18 VA / 10 W

Magnetic snap-action contact model 821
- Simple construction
- No control unit and no extra power supply required
- Direct switching up to max. 230 V, 50 VA / 30 W
- Up to 4 switch contacts per measuring instrument

Inductive contact model 831
- Long service life due to non-contact sensor
- Additional control unit required
- With corresponding control unit suitable for use in zone 1 / 21 (2 GD) hazardous areas
- Low effect on the indication accuracy
- Fail-safe switching at high switching rates
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

Electronic contact model 830 E
- For direct triggering of a programmable logic controller (PLC)
- No additional control unit required
- Long service life due to non-contact sensor
- Low effect on the indication accuracy
- Fail-safe switching at high switching rates
- Insensitive to corrosion
- Up to 3 switch contacts per measuring instrument

Reed switch model 851
- No control unit and no extra power supply required
- Direct switching up to max. 250 V, 1 A, 60 W/VA
- Also suitable for direct triggering of a programmable logic controller (PLC)
- Long service life due to non-contact sensor
- Up to two change-over contacts per measuring instrument

Switching function

The switching function of the switch is indicated by function index 1, 2 or 3.

Model 8xx.1: Contact makes (clockwise pointer motion)
Model 8xx.2: Contact breaks (clockwise pointer motion)
Model 8xx.3: Change over; one contact breaks and one contact makes simultaneously when pointer reaches set point

Please indicate switch points!

Unless otherwise specified, the instrument will be delivered with the adjustable switching points factory-set as follows:
- Single contact: Start of measuring range
- Double contact: Start and end of the measuring range
- Triple contact: Start, middle and end of the measuring range

Note

For magnetic snap-action contacts and reed contacts, it does not make sense to test the display, around the set limit values, in the range ±5 % of the measuring span, because the magnet has an influence on the indication accuracy.

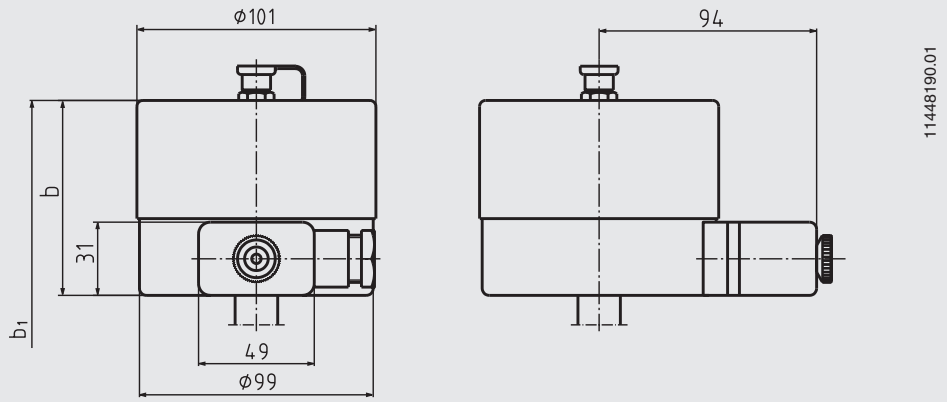
For further information please see data sheet AC 08.01, electrical switch contacts

Options

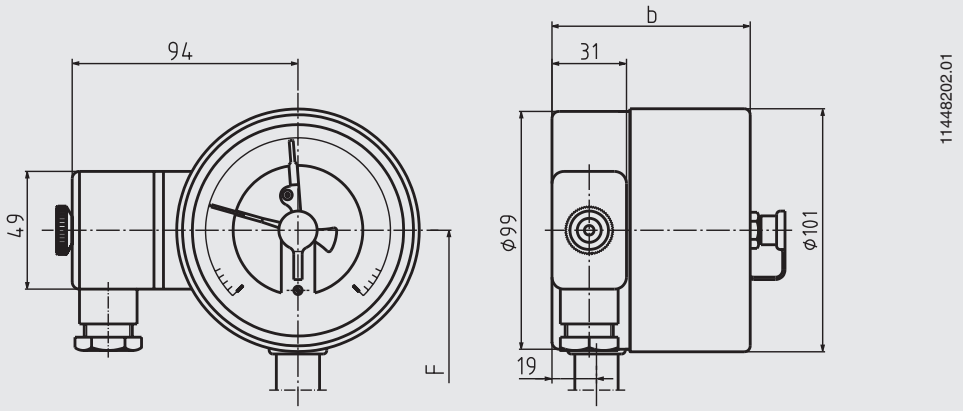
- Scale range °F, °C/°F (dual scale)
- Other process connection
- Surface of the wetted parts
  - $R_a \leq 0.4$ µm
  - Electropolished $R_a \leq 0.4$ µm
  - Polished and electropolished $R_a \leq 0.25$ µm
- Case with food-compatible liquid damping (medicinal white mineral oil KN 92)
- Window from clear non-splintering plastic
- Inductive contacts also in safety version
- Case in stainless steel 1.4571
- Version per ATEX Ex II 2 GD c TX

Dimensions in mm

Back mount, standard version



Lower mount, standard version



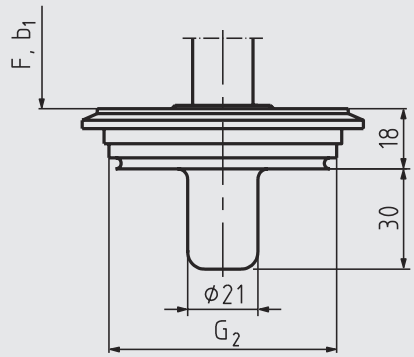
Nominal size	Dimensions in mm						Weight in kg
	Switch contact model 811, 821 or 831				Reed contact model 851		
	1- or 2-way		3-way		1- or 2-way		
NS	b	b_1 1)	b	b_1 1)	b	F 1)	
100	88	120	-	-	88	82	1.1

1) With scale ranges ≥ 0 ... 500 °C the dimensions increase by 40 mm

Process connections

Both thermometers (back mount and lower mount connection) are available with all process connections shown.

VARIVENT® process connection



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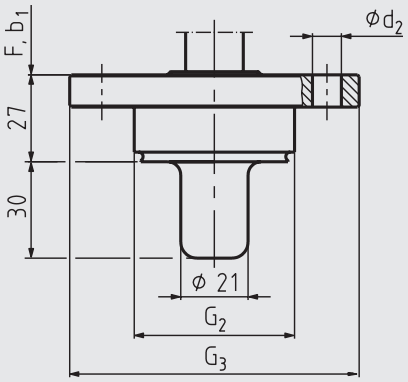
NEUMO BioControl® process connection



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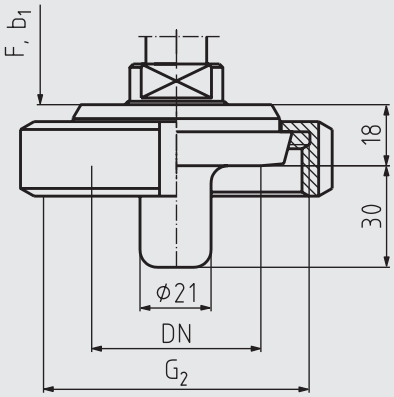
Process connection with grooved union nut DIN 11851



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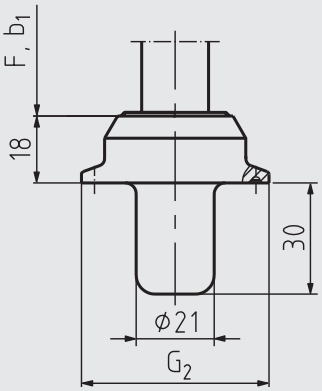
Process connection Tri-clamp



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Process connection	Dimensions in mm					Weight in kg
	G_2	G_3	Ø d_2	b_1	F	
VARIVENT® form N	68	-	-	80	82	1.90
VARIVENT® form F	50	-	-	80	82	1.80
NEUMO BioControl® size 50	50	90	4 x Ø 9	80	82	1.95
NEUMO BioControl® size 65	68	120	4 x Ø 11	80	82	2.60
Grooved union nut DIN 11851, DN 40	Rd 65 x 1/6	-	-	80	82	2.05
Grooved union nut DIN 11851, DN 50	Rd 78 x 1/6	-	-	80	82	2.10
Tri-clamp, DN 1 ½"	50	-	-	80	82	1.90
Tri-clamp, DN 2"	64	-	-	80	82	2.05

Ordering information

Model / Nominal size / Type of contact and switching function / Scale range / Surface of the wetted parts / Process connection / Options

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