

Bimetal thermometer with switch contacts Model 55, stainless steel version

WIKA data sheet TV 25.01



Applications

- Control and regulation of industrial processes
- Monitoring of plant and switching of electric circuits
- Chemical industry, petrochemical industry, process technology and food industry
- For aggressive medium

Special features

- High reliability and long service life
- Universal application
- Case and stem material stainless steel
- Gauges with inductive contacts for use in hazardous areas with ATEX approval
- Gauges with electronic contacts for PLC applications



Bimetal thermometer with switch contact, model 55

Description

Wherever the process temperature has to be indicated locally, and, at the same time, circuits are to be made or broken, the bimetal thermometer with switch contact can be used.

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 extent of the scale range. The instrument pointer (actual value pointer) moves freely across the entire scale range, independent of the setting.

The set pointer can be adjusted using a detachable adjustment key (mounted to the junction box) in the window.

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

As switch contacts sliding contacts, inductive contacts - for requirements to ATEX - or electronic contacts for triggering a PLC are available.

For further information on the different switch contacts please see data sheet AC 08.01.

Standard version

Temperature element

Bimetal helix

Nominal size in mm

100, 160

Design of connection

S Standard (male thread connection)

- 1 Plain stem (without thread)
- 2 Male nut
- 3 Union nut
- 4 Compression fitting (sliding on stem)
- 5 Union nut with fitting

Instrument version

- Centre back (axial)
- Bottom (radial)
- Centre back, adjustable stem and dial

Accuracy class

DIN 16196

Working range

Normal (1 year): Measuring range (DIN 16196)

Short time (24 h max.): Scale range (DIN 16196)

Case and cam ring (bayonet type)

Stainless steel 1.4301

Stem and process connection

Stainless steel 1.4571

Dial

Aluminium white, lettering black

Window

Instrument glass

Pointer

Aluminium, black, adjustable pointer

Electrical connection

Junction box

Pressure rating of stem

max. 25 bar, static

Ambient temperature limit at the case

+60 °C max. (others on request)

Storage and transport temperature

max. -20 ... +60 °C (DIN EN 13190)

Ingress protection

IP 65 per IEC 529

Switch contacts

Sliding contact model 811

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

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 reaction on the display 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 reaction on the display accuracy
- Fail-safe switching at high switching rates
- Insensitive to corrosion
- Up to 3 switch 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 rotary motion of the pointer)

Model 8xx.2: Contact breaks (clockwise rotary motion of the pointer)

Model 8xx.3: Change over; one contact breaks and one contact makes simultaneously when pointer reaches set point

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

Options

- Nominal size NS 63
- Scale range °F, °C / °F (dual scale)
- Liquid damping to max. 250 °C (at stem), IP 65
- Laminated safety glass, acrylic plastic
- Stem diameter 6, 10, 12 mm
- Special temperature range or dial printing to customer specifications (on request)
- Inductive contacts also in safety version
- Case and cam ring (bayonet type) stainless steel 1.4571
- Version per ATEX Ex II 2 GD c TX

Scale range, measuring range, error limit (DIN 16196)

Scale graduation per WIKA standard

Scale range in °C	Scale spacing in °C	Measuring range ¹⁾ in °C	Error limit in °C	
			Class 1	Class 2
-70 ... +30	1	-60 ... +20	1,5	3,0
-50 ... +50	1	-40 ... +40	1,5	3,0
-30 ... +50	1	-20 ... +40	1,5	3,0
-20 ... +60	1	-10 ... +50	1,5	3,0
0 ... 60	1	10 ... 50	1,5	3,0
0 ... 80	1	10 ... 70	1,5	3,0
0 ... 100	1	10 ... 90	1,5	3,0
0 ... 120	2	10 ... 110	3,0	6,0
0 ... 160	2	20 ... 150	3,0	6,0
0 ... 200	2	20 ... 180	3,0	6,0
0 ... 250	5	30 ... 220	3,75	7,0
0 ... 300	5	30 ... 270	7,5	15,0
0 ... 400	5	50 ... 350	7,5	15,0
0 ... 500	5	40 ... 450	7,5	15,0
0 ... 600	10	100 ... 500	15,0	30,0

1) The measuring range is limited by two triangular marks on the dial. Within this range the specified error limit applies per DIN 16 196.

Please indicate switch points!

Unless otherwise specified, the instrument will be delivered with the adjustable switching points factory-set as follows:

- Single contact lower limit of the measuring range
- Double contact lower and upper limit of the measuring range

Accuracy

Nominal size	Stem Ø	Number of contacts		Triple contact or double changeover
		Single contact	Double contact	
100, 160	6 mm	Class 2	Class 2	not possible but for model 73 (see data sheet TV 27.01)
	8 mm	Class 1	Class 2	
	≥ 10 mm	Class 1	Class 1	

Note: Instruments with adjustable stem and dial only available in Class 2

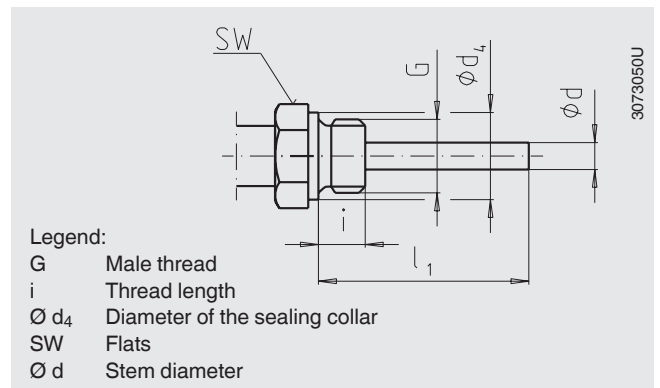
Design of connection

Design standard

Connection, male: G ½ B, G ¾ B, ½ NPT, ¾ NPT

Stem lengths: $l_1 = 63, 100, 160, 200, 250$ mm

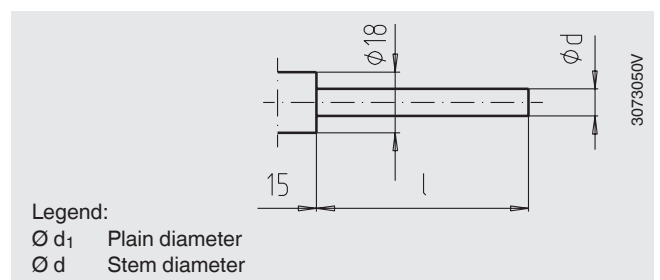
Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
63, 100, 160	G ½ B	14	27	26	8
	G ¾ B	16	32	32	8
	½ NPT	19	22	-	8
	¾ NPT	20	30	-	8



Design 1, plain stem (without thread)

Stem lengths: $l = 140, 200, 240, 290$ mm

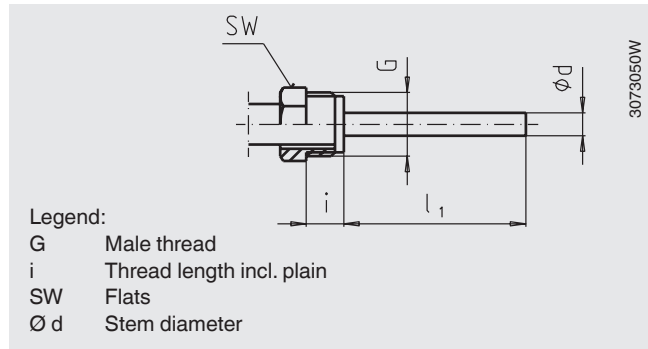
Nominal size NS	Dimensions in mm	
	d_1	$\varnothing d$
63	14	8
100, 160	18	8



Design 2, male nut

Stem lengths: $l_1 = 80, 140, 180, 230$ mm

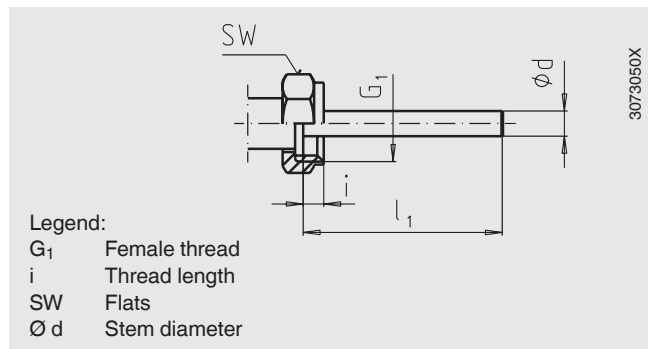
Nominal size NS	Process connection		Dimensions in mm		
	G	i	SW	ϕd	
63, 100, 160	G 1/2 B	20	27	8	



Design 3, union nut

Stem lengths: $l_1 = 89, 126, 186, 226, 276$ mm

Nominal size NS	Process connection		Dimensions in mm		
	G ₁	i	SW	ϕd	
63, 100, 160	G 1/2	8.5	27	8	
	G 3/4	10.5	32	8	
	M24 x 1.5	13.5	32	8	



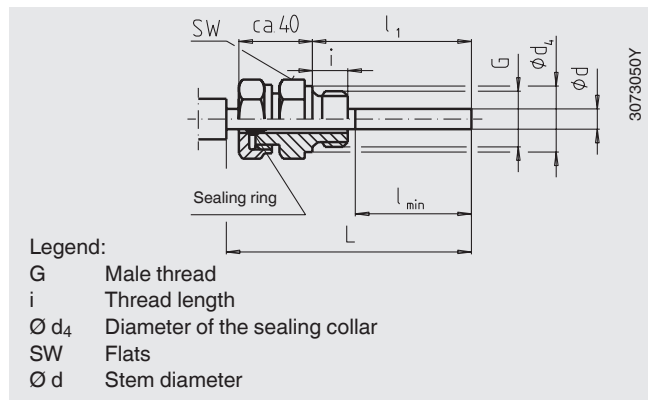
Design 4, compression fitting (sliding on stem)

Minimum insertion depth l_{min} approx. 60 mm

Standard stem lengths: $l_1 = 63, 100, 160, 200, 250$ mm

Lengths $L = l_1 + 40$ mm

Nominal size NS	Process connection		Dimensions in mm			
	G	i	SW	d_4	ϕd	
63, 100, 160	G 1/2 B	14	27	26	8	
	G 3/4 B	16	32	32	8	
	M18 x 1.5	12	24	23	8	
	1/2 NPT	19	22	-	8	
	3/4 NPT	20	30	-	8	



Design 5, union nut with fitting

G 1/2 B, G 3/4 B, M18 x 1.5 as well as 1/2 NPT, 3/4 NPT

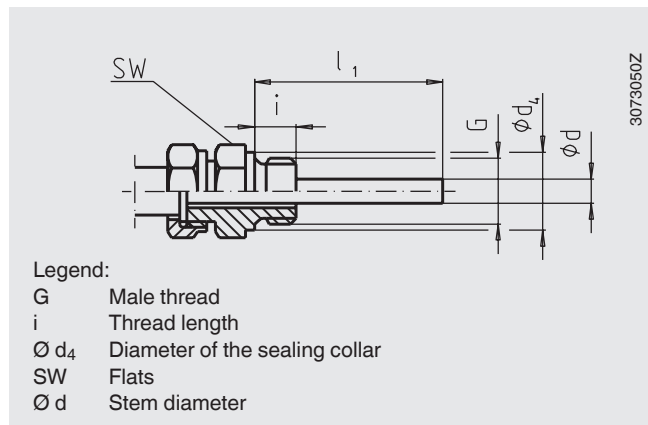
Minimum insertion depth l_{min} approx. 60 mm

Stem lengths $l_1 =$ variable

Lengths $L = l_1 + 40$ mm

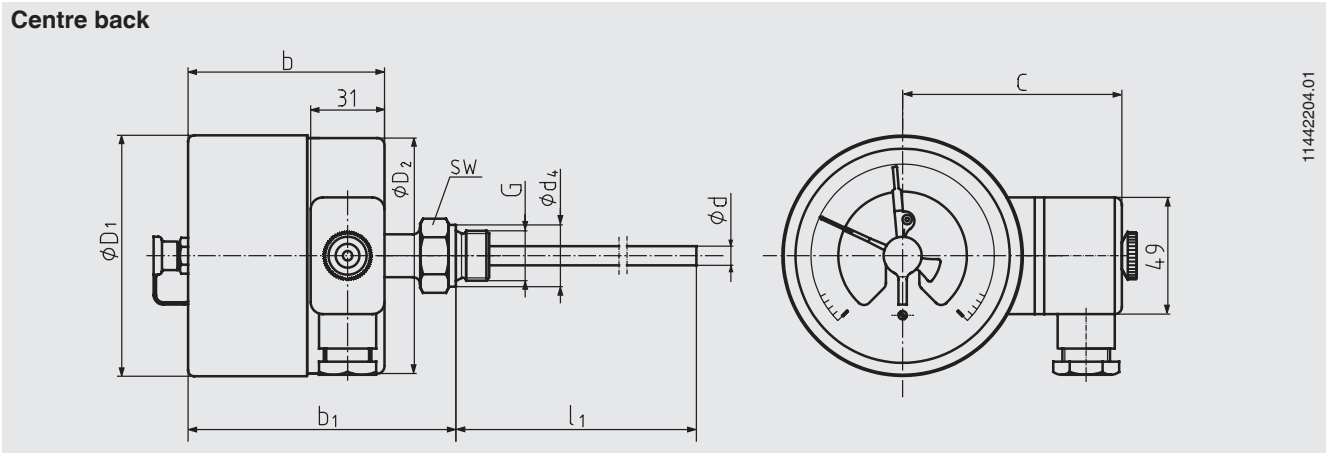
Stainless steel 1.4571

Nominal size NS	Process connection		Dimensions in mm			
	G	i	SW	d_4	ϕd	
63, 100, 160	G 1/2 B	14	27	26	8	
	G 3/4 B	16	32	32	8	
	M18 x 1.5	12	24	23	8	
	1/2 NPT	19	22	-	8	
	3/4 NPT	20	30	-	8	



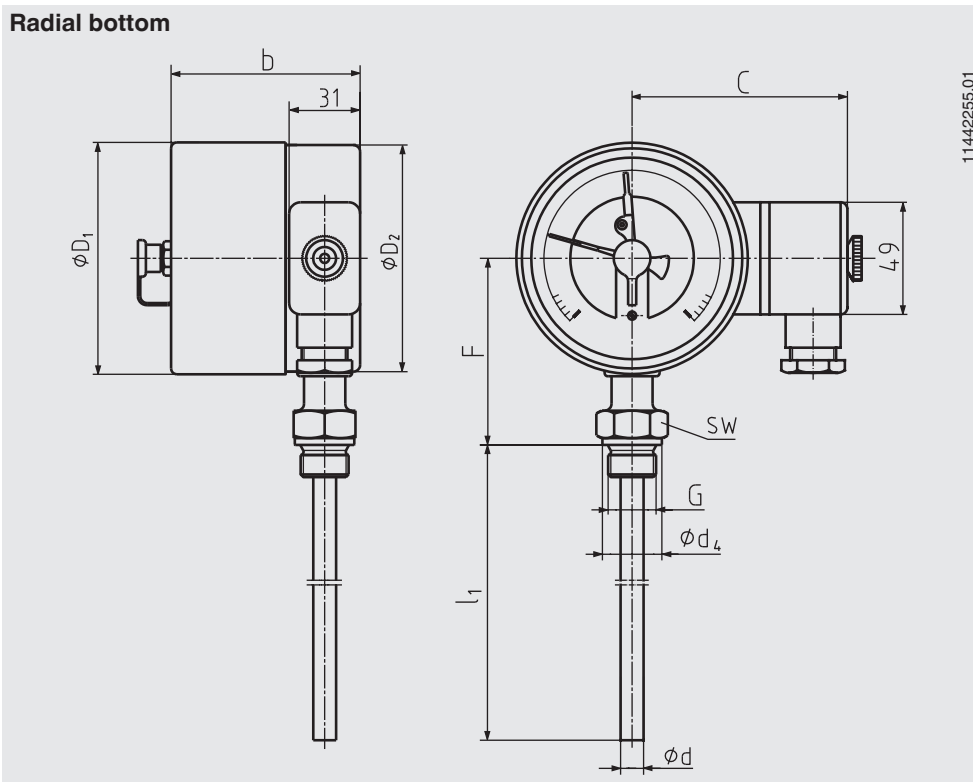
Dimensions in mm

Centre back



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Radial bottom



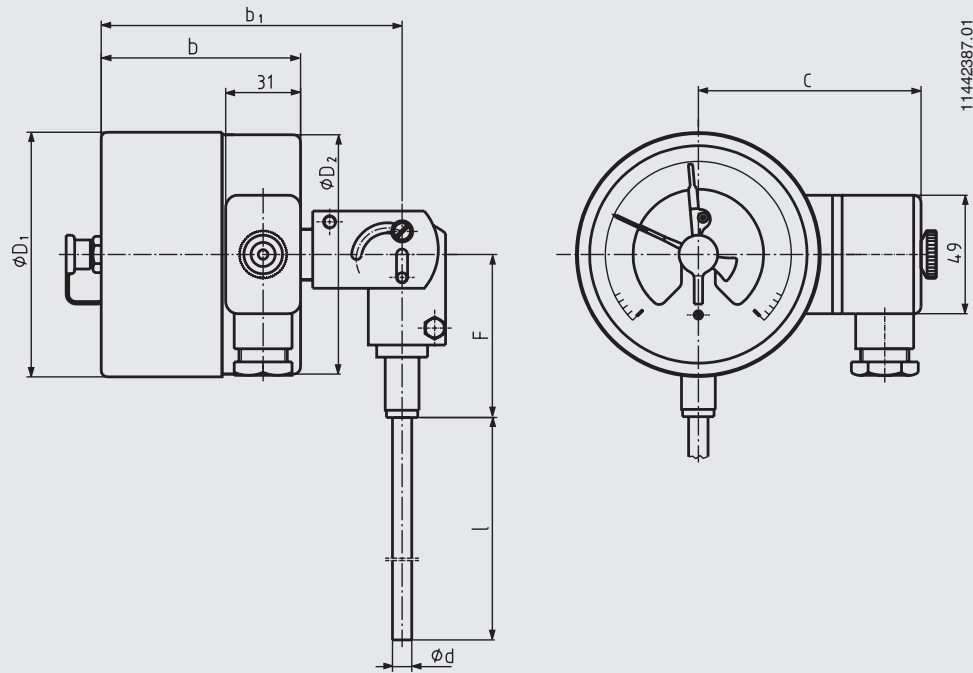
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NS	Dimensions in mm								Weight in kg		
	$\varnothing d$ ¹⁾	$\varnothing d_4$	$\varnothing D_1$	$\varnothing D_2$	F	G	C	SW	centre back	radial bottom	adjustable stem and dial
100	8	26	101	99	83	G 1/2 B	94	27	1.0	1.1	0.7
160	8	26	161	159	113	G 1/2 B	124	27	1.3	1.3	0.9

1) Option: Stem diameter 6, 10, 12 mm

NS	Dimensions in mm			
	Switch contacts models 811 or 831 1- or 2-way		Switch contacts models 831.11 or 831.22	
	b	b ₁	b	b ₁
100	88	121	88	121
160	100	133	115	148

Adjustable stem and dial



Attention: For this version, a fixed design is not possible.

NS	Dimensions in mm				Weight in kg
	$\varnothing d$ ¹⁾	$\varnothing D_1$	$\varnothing D_2$	F	
100	8	101	99	68	0.7
160	8	161	159	68	0.9

1) Option: Stem diameter 6, 10, 12 mm

NS	Dimensions in mm			
	Switch contacts model 811 or 831 1- or 2-way		Switch contacts model 831.11 or 831.22	
	b	b ₁	b	b ₁
100	88	131	88	131
160	100	143	115	158

Ordering information

Model / Nominal size / Type of contact and switching function / Scale range / Connection size / Connection location / Options

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