

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14,
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 e-mail: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM 20 2TT, UK
 Phone: +44 1279 635533
 Fax: +44 1279 635262
 e-mail: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 8 Technology Boulevard
 Canastota, NY 13032, USA
 Phone: 315-697-JUMO
 1-800-554-JUMO
 Fax: 315-697-5867
 e-mail: info@jumo.us
 Internet: www.jumo.us



Contact Dial Thermometer

- Temperature controller with indication, panel mounting or self-supporting
- Class 1.5
- Protection IP65
- Housing size 100mm dia.

Brief description

Contact dial thermometers are universal instruments with indication for temperature measurement, control and monitoring.

The volume change with temperature of a liquid-filled measuring system, or the change of pressure with temperature inside a gas-filled system, is converted by a Bourdon tube into a rotation of the pointer without transmission gearing. The movement of the pointer spindle operates a microswitch through a lever system.



Type 608523/2210

Technical data

Housing	housing with bayonet lock in stainless steel (1.4301)	
Enclosure protection	IP65 to EN 60 529	
Window	polycarbonate	
Scale	white, black lettering	
Accuracy class	Class 1.5 to EN 13190	
Capillary reinforcement	for instruments with capillary: on housing and temperature probe	
Setpoint adjustment	by setting knob on window using a screwdriver, protected by screw cap	
Indication correction	at the rear, no indication correction on style 20	
Limit temperatures	for transport and storage -20°C to +70°C (for indication range: 0 to +60°C up to 65°C; -40 to +40°C up to 50°C; -30 to +50°C up to 60°C)	
Nominal position (NL)	unrestricted	
	liquid-filled	gas-filled
Measuring system	indication range (AB) ≤ 350°C	indication range (AB) ≥ 400°C
Time constant t _{0.632}	approx. 12 sec, measured in water bath, with a 6 mm dia. copper probe	approx. 4 sec, measured in oil bath, with a 10 mm dia. stainless steel probe
Ambient temperature effect	in % of indication range (referred to the deviation from the reference value +23°C)	
on housing	0.15% of indication range per °C change in ambient temperature	0.05% of indication range per °C change in ambient temperature
on capillary (per m)	0.03% of indication range per °C change in ambient temperature	no effect
	higher ambient temperature – higher temperature indication – lower switching point	
	standard	extra code (TZ) 650
Electrical contact	single-pole microswitch with mechanically operated changeover contact	
contact rating	230V AC +10/-15%, 48 – 63Hz, p.f. = 1 (0.6)	
	5 (1.5) A	10 (3) A
switching differential	approx. 1.5% of indication range	1.5 to 3% of indication range
switching point accuracy	± 0.5% of indication range span referred to the switch-off point with rising temperature	
switching reliability	To ensure maximum switching reliability, we recommend a minimum voltage of 24 V and a minimum current of 20 mA.	
Electrical connection	terminal box: conductor cross-section up to 2.5 mm ² suitable for cable diameters from 6.5 to 13 mm	

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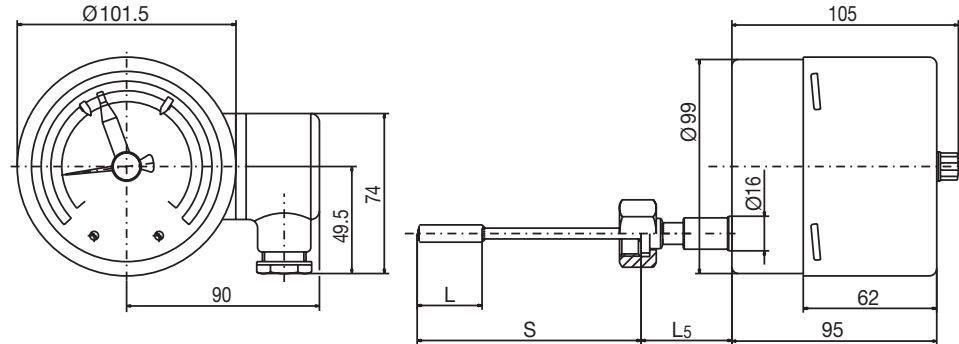
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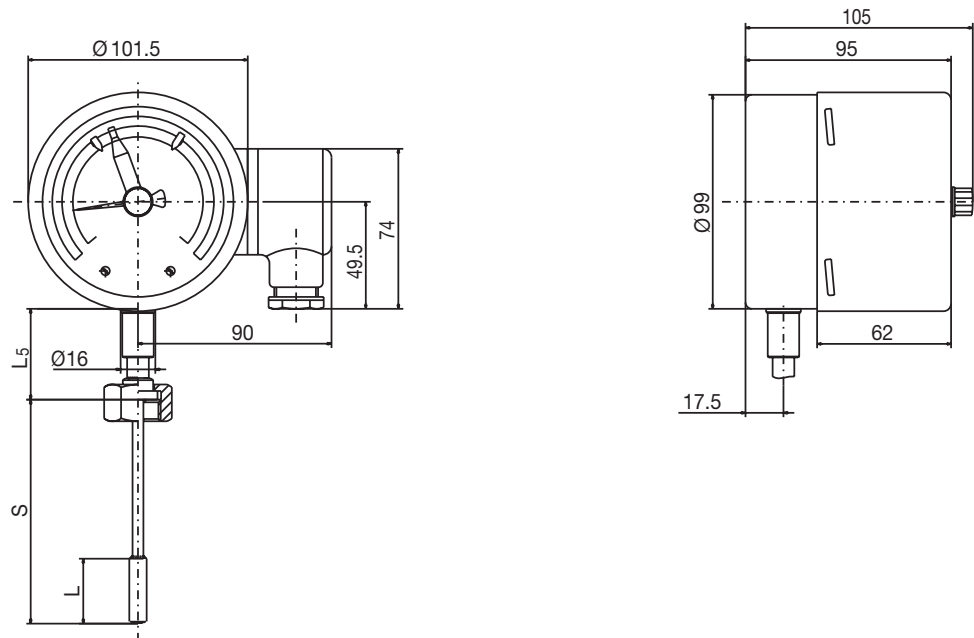


Dimensions

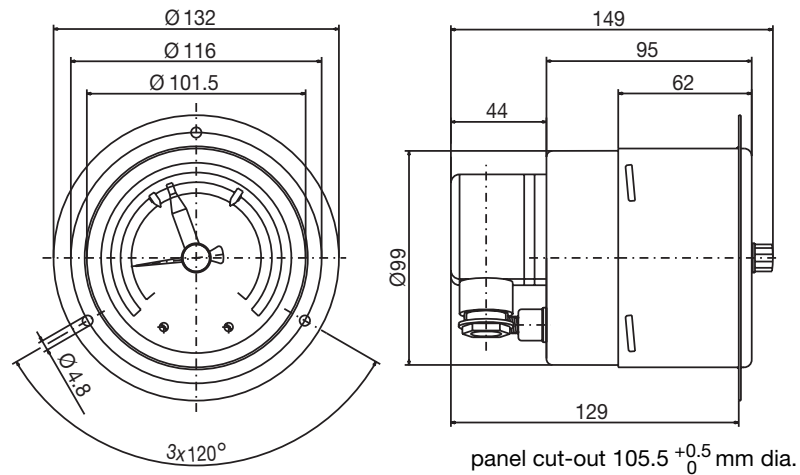
Type: 608523/0210



Type: 608523/1010



Type: 608523/2010



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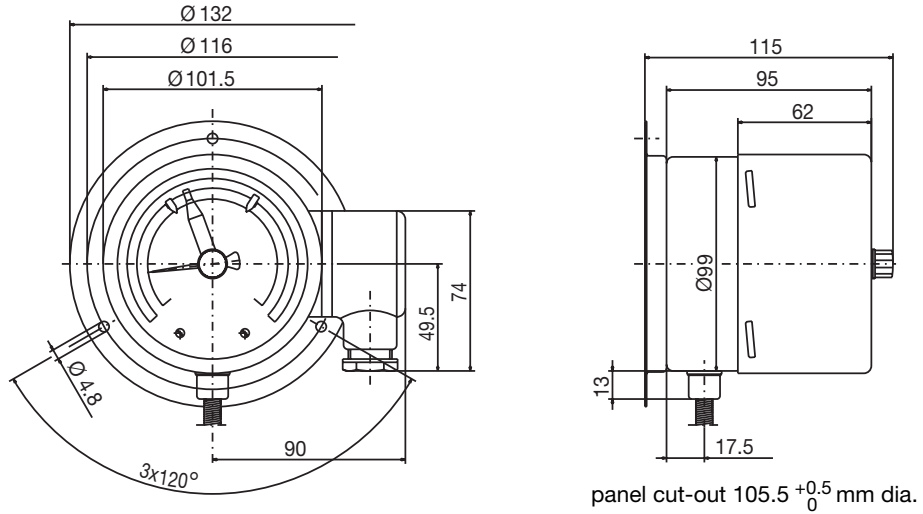
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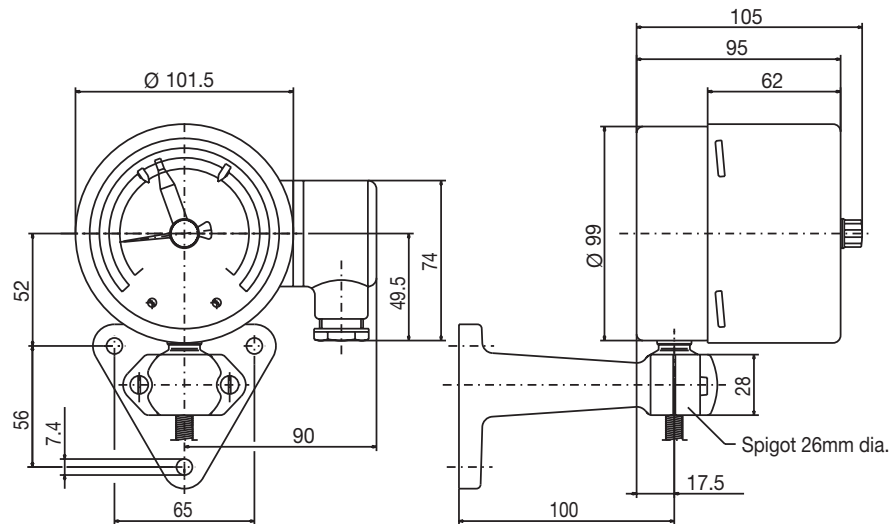


Dimensions

Type: 608523/2210



Type: 608523/2310



Instrument mounting to DIN 16281

L_5	Probe mounting
40 mm	TA 03, TA 30
≤ 69 mm	TA 02
42.5 mm	TA 21
51.5 mm	TA 22, TA 31

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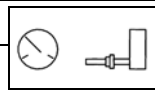
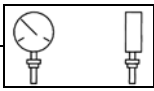
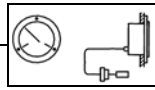
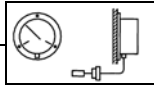

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Order details

Contact dial thermometer Class 1.5, Type 608523

Order code	(1) Basic type
608523	Mechanical contact dial thermometer Class 1.5
(2) Basic type extension	
0210	Style: 02; housing size: 100 mm dia. 
1010	Style: 10; housing size: 100 mm dia. 
2010	Style: 20; housing size: 100 mm dia. 
2210	Style: 22; housing size: 100 mm dia. 
2310	Style: 23; housing size: 100 mm dia. 
(3) Indication range (AB)	
469	-40 to + 40°C; measuring range -30 to + 30°C, accuracy 1.5°C
566	-30 to + 50°C; measuring range -20 to + 40°C, accuracy 1.5°C
643	-20 to +120°C; measuring range 0 to +100°C, accuracy 3.0°C
807	0 to + 60°C; measuring range +10 to + 50°C, accuracy 1.5°C
810	0 to + 80°C; measuring range +10 to + 70°C, accuracy 1.5°C
814	0 to +100°C; measuring range +10 to + 90°C, accuracy 1.5°C
818	0 to +120°C; measuring range +20 to +100°C, accuracy 3.0°C
826	0 to +160°C; measuring range +20 to +140°C, accuracy 3.0°C
832	0 to +200°C; measuring range +20 to +180°C, accuracy 3.0°C
834	0 to +250°C; measuring range +30 to +220°C, accuracy 4.0°C
926	+50 to +250°C; measuring range +70 to +230°C, accuracy 3.0°C
840	0 to +300°C; measuring range +30 to +270°C, accuracy 6.0°C
927	+50 to +300°C; measuring range +80 to +270°C, accuracy 4.0°C
843	0 to +350°C; measuring range +50 to +300°C, accuracy 6.0°C
932	+50 to +350°C; measuring range +80 to +320°C, accuracy 6.0°C
848	0 to +400°C; measuring range +50 to +350°C, accuracy 6.0°C
851	0 to +450°C; measuring range +50 to +400°C, accuracy 6.0°C
854	0 to +500°C; measuring range +50 to +450°C, accuracy 8.0°C
858	0 to +600°C; measuring range +100 to +500°C, accuracy 10.0°C
(4) Capillary type (FL)¹	
00	none (with rigid connection)
02	FL02 copper capillary with copper braiding, approx. 2.5 mm dia. (up to +300°C top of range)
11	FL11 copper capillary with PE sleeve, approx. 3.5 mm dia. (up to +120°C top of range)
17	FL17 stainless steel capillary, 1.5 mm dia.
21	FL21 copper capillary, 1.0 mm dia. (up to +300°C top of range)
(5) Capillary length¹	
0	none (with rigid connection)
1000	1000 mm
2000	2000 mm
3000	3000 mm
4000	4000 mm
5000	5000 mm
...	special length (details in plain text: in 1000 mm steps, up to 10000 mm length)

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Order details

Contact dial thermometer Class 1.5, Type 608523

Order code

(6) Process connection (PA)¹		
750	TF 01; temperature probe with stepped support tube	
752	TF 11; temperature probe without support tube	
843	TA 02; immersion tube with union nut and loose nipple ²	
161	TA 03; immersion tube with loose union nut	
311	TA 20; immersion tube with loose nipple and shoulder ²	
872	TA 21; immersion tube with loose plug and conical seal	
873	TA 22; immersion tube with loose plug, conical seal and loose nipple ²	
401	TA 23; immersion tube with plug and spring clip	
251	TA 25; sliding clamp fitting on support tube ²	
913	SH 07; screw-in pocket, assembled, with clamping clip and fixing screw ²	
820	SH 09; weld-in pocket, assembled, with clamping clip and fixing screw (not with FL21 - welding shoulder with steel 1.4515)	
876	SH10; screw-in pocket, assembled ²	
871	SH11; screw-in pocket, assembled ²	
(7) Diameter of process connection (PA)¹		
6	Ø 6 mm	
8	Ø 8 mm	
10	Ø 10 mm	
11	Ø 11 mm	
12	Ø 12 mm	
(8) Type of thread for process connection (PA)¹		
000	no thread (with TF 01 and TF 11)	
103	thread G ³ / ₈	
104	thread G ¹ / ₂	
105	thread G ³ / ₄	
114	thread M 10 x 1 (TA 23 and SH 11 only)	
(9) Material of probe / support tube¹		
26	stainless steel (CrNi, 1.4571)	
96	copper (Cu) / brass (CuZn) (up to 200°C)	
95	stainless steel (CrNi, 1.4571) — probe / brass (CuZn) — support tube (above 250°C)	
(10) Material of process connection (PA)¹		
00	none (TF01 and TF11 only)	
01	steel (St)	
26	stainless steel (CrNi, 1.4571)	
46	brass (CuZn)	

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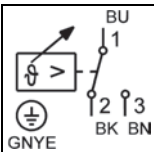
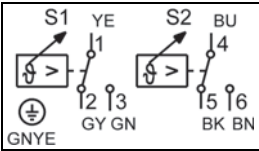
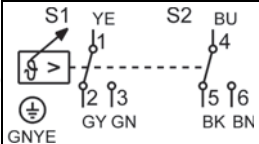


Order details

Contact dial thermometer Class 1.5, Type 608523

Order code

(11) Fitting length of process connection (PA) ¹ (dimension EL or S)	
0	minimum fitting length TF 11 (active probe dimension)
50	50 mm
100	100 mm
150	150 mm
200	200 mm
...	special length (details in plain text — in 50 mm steps)

(12) Switch output (SA)	
28	SA 28 one contact 
27	SA 27 two contacts 
19	SA 19 two contacts (sequential contacts) 

(13) Extra codes (TZ)	
000	no extra code
430	peak-reading pointer
650	microswitch 10 (3) A (230 V AC/DC +10/-15%, 48 — 63 Hz, p.f. = 1 (0.6))
518	stop for min. or max. setpoint limit, factory-set
522	customized scale

special versions on request!

Order code

(1) 608523 / (2) - (3) ... - (4) .. - (5) - (6) ... - (7) .. - (8) ... - (9) .. - (10) .. - (11) ... - (12) .. / (13) , ...

Order example

608523 / 2010 - 818 - 21 - 2000 - 750 - 8 - 000 - 26 - 00 - 100 - 28 / 000³

¹ see Data Sheet 60.8730 for description and features

² screw-in spigot to DIN 3852 Form A

³ List extra codes in sequence, separated by commas.