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JUMO Instrument Co. Ltd.
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JUMO Process Control, Inc.
 6733 Myers Road
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Contact Dial Thermometer

Special features

- Class 1.5
- Display range -40° C to +600° C
- Temperature controller with actual value display as built-in or add-on device in the stainless steel case with a bayonet connection
- Case size Ø: 100 mm
- Protection type IP 65

Brief description

Contact dial thermometers are devices with an actual value display for temperature measurement, control, and monitoring and can be used universally.

The temperature-dependent volume change in a measuring system filled with liquid or the temperature-dependent pressure change in a measuring system filled with gas is converted to a rotational movement of the actual value indicator by a bourdon tube; no transmission gear is required. The microswitch is actuated by the rotational movement of the indicator shaft via a tap system.



Technical data

Basic type extension	0210, 1010, 2010, 2210, 2310
Case	Stainless steel case with bayonet connection (1.4301)
Protection type	IP 65 according to DIN EN 60529
Front pane	Polycarbonate
Scale	White, with black lettering
Display	Class 1.5 similar to DIN EN 13190
Strain relief spring	For capillary devices on the case and the temperature probe
Setpoint value adjustment	By setpoint adjuster in the front pane; with screwdriver, protected by the bolted cover.
Display correction	On the rear, no display correction with design type 20
Limit value temperatures	For transport and storage -20°C to +70°C (for display range 0 to +60°C up to max. 65°C; -40 to +40°C up to max. 50°C; -30 to +50°C up to max. 60°C)
Rated position (NL)	Any

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Technical data

Display range (AB)	Display range in °C	Measuring range in °C	Tolerance in °C (+/-)
469	-40 to +40	-30 to +30	1.5
566	-30 to +50	-20 to +40	1.5
643	-20 to +120	0 to +100	3.0
807	0 to +60	+10 to +50	1.5
810	0 to +80	+10 to +70	1.5
814	0 to +100	+10 to +90	1.5
818	0 to +120	+20 to +100	3.0
826	0 to +160	+20 to +140	3.0
832	0 to +200	+20 to +180	3.0
834	0 to +250	+30 to +220	4.0
926	+50 to +250	+70 to +230	3.0
840	0 to +300	+30 to +270	6.0
927	+50 to +300	+80 to +270	4.0
843	0 to +350	+50 to +300	6.0
932	+50 to +350	+80 to +320	6.0
848	0 to +400	+50 to +350	6.0
851	0 to +450	+50 to +400	6.0
854	0 to +500	+50 to +450	8.0
858	0 to +600	+100 to +500	10.0

	Liquid filling	Gas filling
Measuring system	Display range (AB) ≤ 350°C	Display range (AB) ≥ 400°C
Time constant $t_{0.632}$	Approx. 12 s, measured in water, with a probe Ø of 6 mm made of Cu.	Approx. 4 s, measured in oil, with a probe Ø of 10 mm made of stainless steel.
Ambient temperature influence effect	In % of the display range (referring to the deviation from the reference value +23°C)	
On case	0.15% of the display range per K ambient temperature change	0.05% of the display range per K ambient temperature change
On capillary (per m)	0.03% of the display range per K ambient temperature change	No influence
	At higher ambient temperature – higher temperature display – lower switching point	

	Standard	Extra code (TZ) 650
Electrical contact	Single-pole microswitch with mechanically actuated changeover contact	
Contact type		
Switching capacity	AC 230V, +10/-15%, 48 to 63Hz, cos φ = 1 (0.6) 5 (1.5) A	10 (3) A
Switching differential	Approx. 1.5% of the display range	1.5 to 3% of the display range
Switching point accuracy	± 0.5% of the display range referring to the switch-off point with rising temperature	
Switching reliability	To ensure a high switching reliability, we recommend a minimum voltage of 24 V and a minimum current of 100 mA	
Electrical connection	Junction box: conductor cross-section up to 2.5 mm ² , suitable for cable Ø from 6.5 to 13 mm	

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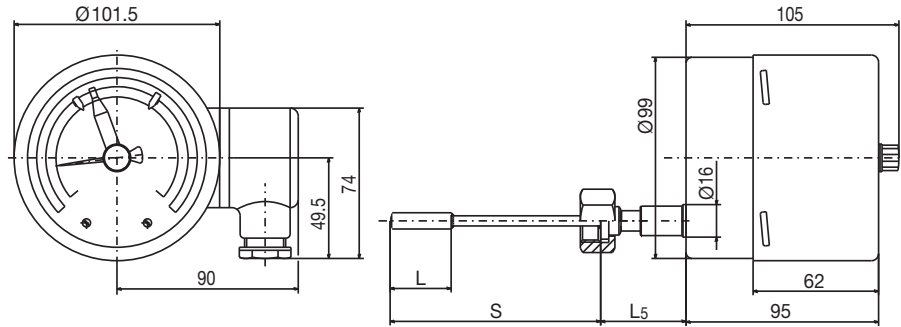
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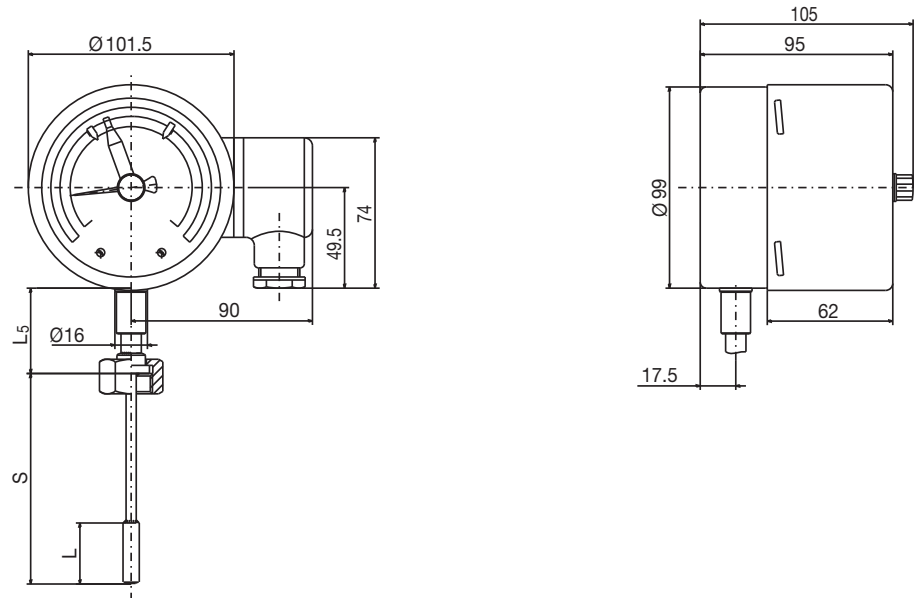


Dimensions

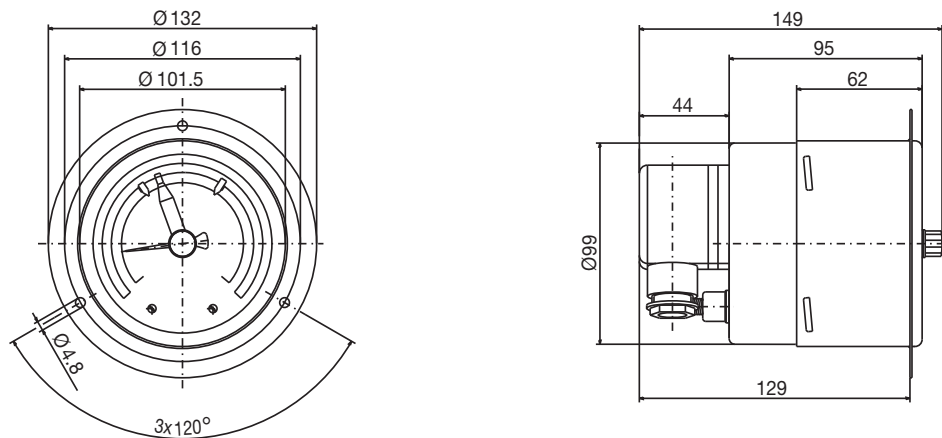
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 608523/0210



Type:
 608523/1010



Type:
 608523/2010



Panel cut-out Ø 105 ^{+0.5} mm

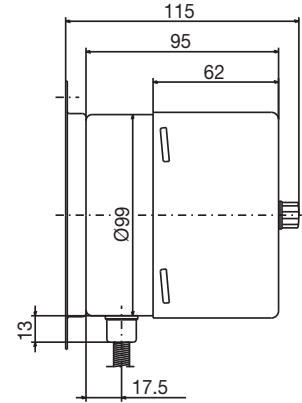
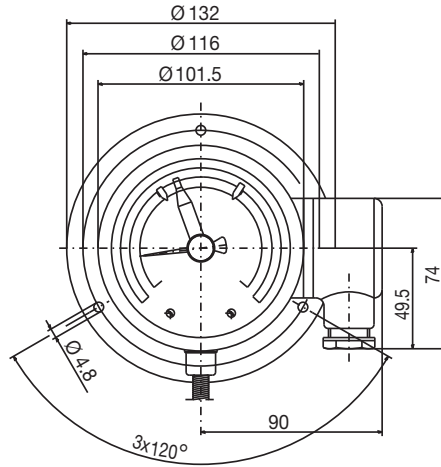
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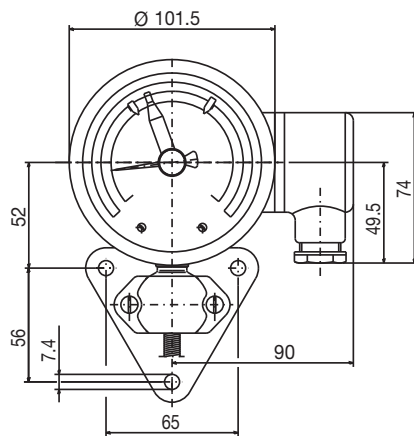


Type:
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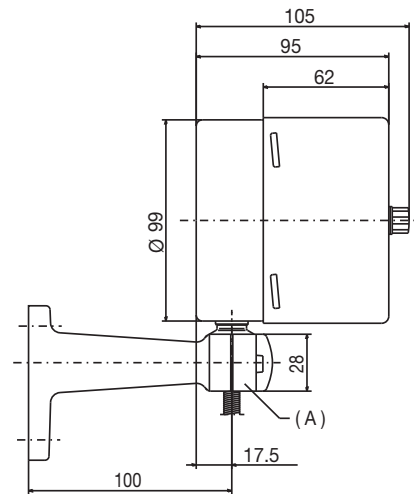


Panel cut-out $\varnothing 105^{+0.5}$ mm

Type:
 608523/2310



Bracket for measuring device according to DIN 16281



(A) Spigot $\varnothing 26$ mm

L_5	Protection tube connection type
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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Order details

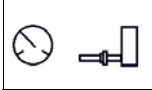

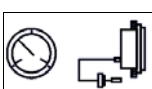


Order code

(1) Basic type

608523 Mechanical contact dial thermometer class 1.5

(2) Basic type extension

Case size Ø

0210	Design type 02		100 mm
1010	Design type 10		100 mm
2010	Design type 20		100 mm
2210	Design type 22		100 mm
2310	Design type 23		100 mm

(3) Display range in °C

469	-40 to +40
566	-30 to +50
643	-20 to +120
807	0 to +60
810	0 to +80
814	0 to +100
818	0 to +120
826	0 to +160
832	0 to +200
834	0 to +250
926	+50 to +250
840	0 to +300
927	+50 to +300
843	0 to +350
932	+50 to +350
848	0 to +400
851	0 to +450
854	0 to +500
858	0 to +600

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Order code

(4) Capillary type (FL)^a

00	Without (with rigid connection)
02	FL 02 Cu capillary with Cu textile braiding, approx. Ø 2.5 mm (up to AB end value +300°C)
11	FL 11 Cu capillary with PE coating, approx. ø 3.5 mm (up to AB end value +120°C)
17	FL 17 Stainless steel capillary, approx. Ø 1.5 mm
21	FL 21 Cu capillary, approx. Ø 1.0 mm (up to AB end value +300°C)

(5) Capillary length^b

0	Without (with rigid connection)
1000	1000 mm
2000	2000 mm
3000	3000 mm
4000	4000 mm
5000	5000 mm
...	Special length (specification in plain text: 1,000 mm increments, maximum length 10,000 mm), additional lengths upon request

(6) Process connection (PC)^a

750	TF 01	Temperature probe with stepped support tube	
752	TF 11	Temperature probe without support tube	
843	TA 02	Protection tube with union nut and loose screw connection ^b	
161	TA 03	Protection tube with loose screw connection	
847	TA 06	Protection tube with displaceable threaded fitting on support tube ^b	
311	TA 20	Protection tube with loose screw connection and connection collar ^b	
872	TA 21	Protection tube with loose pressure screw and conical seal (only G 3/8 possible)	
873	TA 22	Protection tube with loose pressure screw, conical seal, and loose screw connection ^b	
401	TA 23	Protection tube with pressure screw and contact pressure spring (only M 10x1 possible)	
913	SH 07	Screw-in protection tube, multi-sectional, with clamping piece and fixing screw (suitable for TF 01 and TF 11)	
820	SH 09	Weld-in protection tube, multi-sectional, with clamping piece and fixing screw ^b (not for FL 21 – welding collar with steel 1.4515)	
876	SH 10	Screw-in protection tube, multi-sectional ^b (suitable for TA 21)	
871	SH 11	Screw-in protection tube, multi-sectional ^b (suitable for TA 21)	

^a For the description and special features refer to data sheet 608730.

^b Screw-in spigot according to DIN 3852, form A.

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Order code	(7) Ø Process connection (PC) ^a
6	6 mm
8	8 mm
10	10 mm
11	11 mm
12	12 mm
(8) Thread type of process connection (PC)^a	
000	Without thread (for TA 01 and TF 11)
103	Screw connection G 3/8
104	Screw connection G 1/2
105	Screw connection G 3/4
114	Screw connection M 10 x 1 (only with TA 23 and SH 11)
(9) Material, probe / support tube^a	
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 from 250°C
(10) Material of process connection (PC)^a	
00	Without (only TF 01 and TF 11)
26	Stainless steel (CrNi, 1.4571)
46	Brass (CuZn)
(11) Insertion length, process connection (PC)^a (dimension "EL" or "S")	
0	Minimum insertion length TF 11 (active probe dimension)
50	50 mm
100	100 mm
150	150 mm
200	200 mm
...	Special length (specifications in plain text – 50 mm increments)

^a For the description and special features refer to data sheet 608730.

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Order code

(12) Switching output

28	1 switch	
27	2 switches	
19	2 switches in fixed sequence	

(13) Extra codes (TZ)

000	Without extra code
434	Drag indicator can be adjusted with a screwdriver, protected by a cover
650	Microswitch 10 (3) A (AC/DC 230 V, +10/-15%, 48 to 63 Hz, cos φ = 1 (0.6))
518	Stop for Min. — or Max. — setpoint value limitation, default setting
522	Customized scale

Special versions upon request!

Order code

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

Order example

608523 / 2010 - 818 - 21 - 2000 - 750 - 10 - 000 - 26 - 00 - 100 - 28 / 000^a , ...

^a List extra codes in sequence, separated by commas.