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**JUMO Process Control, Inc.**  
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# Contact Dial Thermometer

## Special features

- Class 1.5
- Display range -40 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 IP65

## 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

<b>Basic type extension</b>	0210, 1010, 2010, 2210, 2310
<b>Case</b>	Stainless steel case with bayonet connection (1.4301)
<b>Protection type</b>	IP65 according to DIN EN 60529
<b>Front pane</b>	Polycarbonate
<b>Scale</b>	White, with black lettering
<b>Display</b>	Class 1.5 similar to DIN EN 13190
<b>Strain relief spring</b>	For capillary devices on the case and the temperature probe
<b>Setpoint value adjustment</b>	By setpoint adjuster in the front pane; with screwdriver, protected by the bolted cover.
<b>Display correction</b>	On the rear, no display correction with design type 20
<b>Limit value temperatures</b>	For transport and storage -20 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)
<b>Rated position (NL)</b>	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
<b>Measuring system</b>	Display range (AB) ≤ 350 °C	Display range (AB) ≥ 400 °C
<b>Time constant <math>t_{0.632}</math></b>	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.
<b>Ambient temperature influence effect</b>	In % of the display range (referring to the deviation from the reference value +23 °C)	
<b>On case</b>	0.15% of the display range per K ambient temperature change	0.05% of the display range per K ambient temperature change
<b>On capillary (per m)</b>	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
<b>Electrical contact</b>	Single-pole microswitch with mechanically actuated changeover contact	
<b>Contact type</b>		
<b>Switching capacity</b>	AC 230V, +10/-15%, 48 to 63Hz, cos φ = 1 (0.6) 5 (1.5) A	10 (3) A
<b>Switching differential</b>	Approx. 1.5% of the display range	1.5 to 3% of the display range
<b>Switching point accuracy</b>	± 0.5% of the display range referring to the switch-off point with rising temperature	
<b>Switching reliability</b>	To ensure a high switching reliability, we recommend a minimum voltage of 24 V and a minimum current of 100 mA	
<b>Electrical connection</b>	Junction box: conductor cross-section up to 2.5 mm <sup>2</sup> , suitable for cable Ø from 6.5 to 13 mm	

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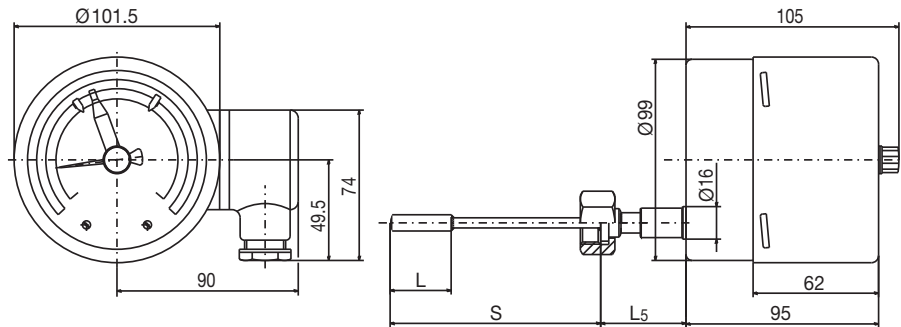
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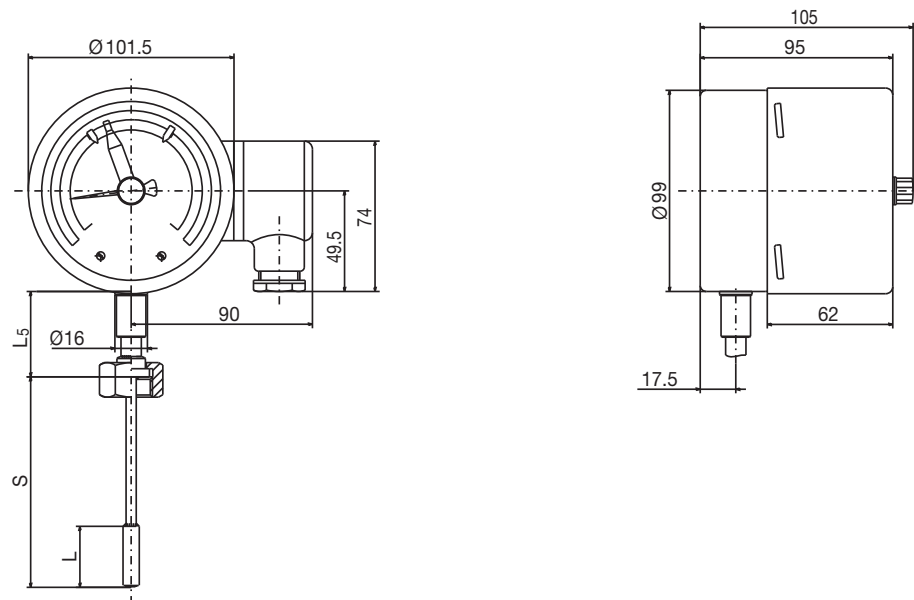


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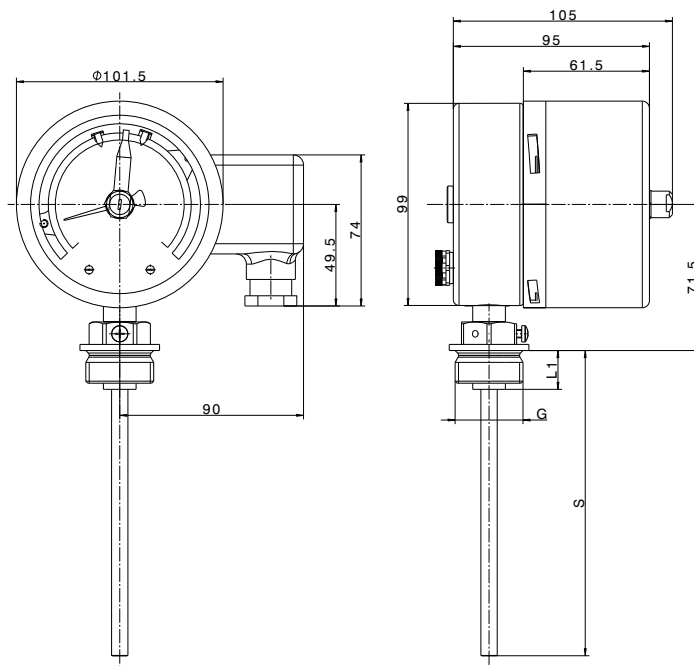
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**Type:**  
 608523/1010



**Type:**  
 608523/1010 + TA24



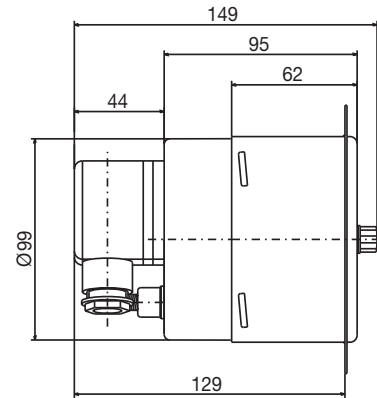
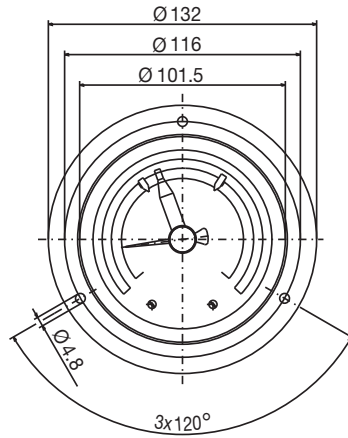
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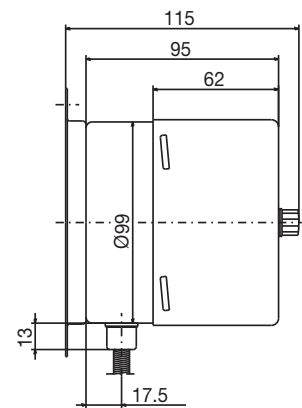
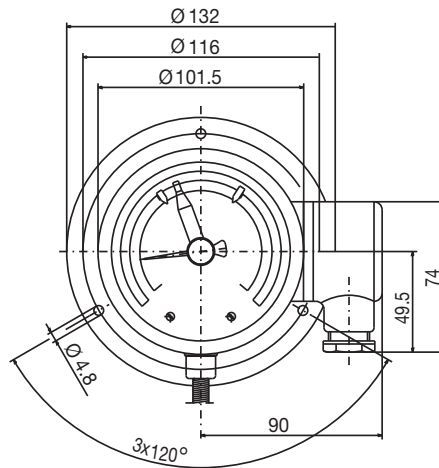


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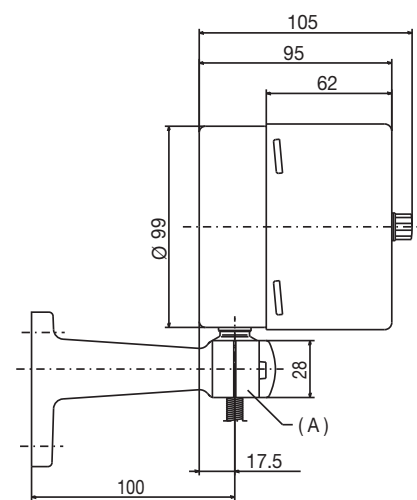
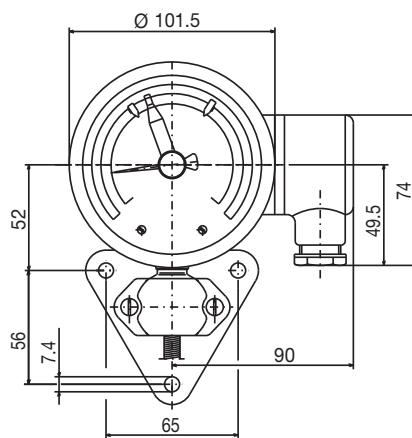
Panel cut-out  $\varnothing 105^{+0.5}$  mm

**Type:**  
 608523/2210



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
$\leq 69$ mm	TA 02
42.5 mm	TA 21
51.5 mm	TA 22, TA 31

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## Order details

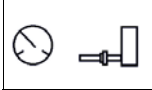

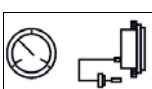


**Order code**

**(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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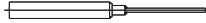
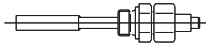





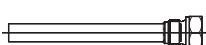


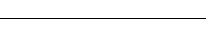


**(4) Capillary type (FL)<sup>a</sup>**

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<sup>b</sup>**

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)<sup>a</sup>**

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 <sup>b</sup>	
161	TA 03	Protection tube with loose screw connection	
847	TA 06	Protection tube with displaceable threaded fitting on support tube <sup>b</sup>	
311	TA 20	Protection tube with loose screw connection and connection collar <sup>b</sup>	
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 <sup>b</sup>	
401	TA 23	Protection tube with pressure screw and contact pressure spring (only M 10x1 possible)	
874	TA 24	Protection tube (CuNi) with screw connection (CuZn), O-ring seal and clamping screw <sup>a b</sup>	
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 <sup>b</sup> (not for FL 21 – welding collar with steel 1.4515)	
876	SH 10	Screw-in protection tube, multi-sectional <sup>b</sup> (suitable for TA 21)	
871	SH 11	Screw-in protection tube, multi-sectional <sup>b</sup> (suitable for TA 21)	

<sup>a</sup> For the description and special features refer to data sheet 608730.

<sup>b</sup> Screw-in spigot according to DIN 3852, form A.

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Order code	( 7 ) Ø Process connection (PC) <sup>a</sup>
6	6 mm
8	8 mm
10	10 mm
11	11 mm
12	12 mm
<b>( 8 ) Thread type of process connection (PC)<sup>a</sup></b>	
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
106	Screw connection G 1
114	Screw connection M 10 x 1 (only with TA 23 and SH 11)
<b>( 9 ) Material, probe / support tube<sup>a</sup></b>	
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)
<b>( 10 ) Material of process connection (PC)<sup>a</sup></b>	
00	Without (only TF 01 and TF 11)
26	Stainless steel (CrNi, 1.4571)
46	Brass (CuZn)
<b>( 11 ) Insertion length, process connection (PC)<sup>a</sup> (dimension "EL" or "S")</b>	
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)

<sup>a</sup> 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<sup>a</sup> , ...

<sup>a</sup> List extra codes in sequence, separated by commas.