

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

6733 Myers Road
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1-800-554-5866
Fax: 315-437-5860
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Contact Thermometer Transformer and industry version

Special features

- Class 1.5
- Display ranges -40° C to +600° C
- Electromechanical temperature controller as add-on device with actual value indicator in polyamide (PAC) case
- With one or two microswitches
- Case size: Ø 80 mm

Brief description

Contact 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.



Type 608540/1080

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Technical data

Case, bezel, and cover cap	Plastic (PA 6), gray, UV-stabilized	
Protection type	IP 54 according to DIN EN 60529	
Front pane	PMMA (Plexiglas)	
Scale	White, with black lettering	
Accuracy class	Class 1.5 similar to EN 13190	
	Liquid filling	Gas filling
Measuring system	Display range (AB) $\leq 350^{\circ}\text{C}$	Display range (AB) $\geq 400^{\circ}\text{C}$
Time constant $t_{0.632}$	Approx. 12 s, measured in water, with a probe \varnothing of 6 mm made of Cu.	Approx. 4 s, measured in oil, with a probe \varnothing of 10 mm made of stainless steel.
Influential effect of the ambient temperature	In % of the display range (referring to the deviation from the reference value $+23^{\circ}\text{C}$)	
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, $\cos \varphi = 1$ (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	$\pm 0.5\%$ 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 20 mA	
Electrical connection	Screw terminals: conductor cross-section 2.5 mm^2 , protected by cover cap with cable fitting. Suitable for cable diameter from 6.5 to 16 mm.	
Setpoint value adjustment	With a screwdriver, protected by a cover.	
Limit value temperatures	-30 to $+70^{\circ}\text{C}$ (storage and transport -30 to $+70^{\circ}\text{C}$)	
Rated position (NL)	NL90, position symbol \perp	

Note:

Physical and toxicological properties of the expansion medium that could escape in the event of a measuring system break.

Control range with scale limit value	Hazardous reactions	Fire and explosion hazard		Hazardous to waters	Toxicological specifications		
		Ignition temperature	Explosion limit		Irritant	Dangerous to health	Toxic
$< +200^{\circ}\text{C}$	No	$+ 355^{\circ}\text{C}$	0.6 to 8 V%	Yes	Yes	¹⁾	No
$\geq 200^{\circ}\text{C} \leq +350^{\circ}\text{C}$	No	$+ 490^{\circ}\text{C}$	--	Yes	Yes	¹⁾	No
$> 350^{\circ}\text{C} \leq +500^{\circ}\text{C}$	No	No	No	No	No	No	No

¹⁾ At present, no statement concerning health hazards in the event of short-term exposure and low concentration (e.g. measuring system rupture) has been made by the health authority

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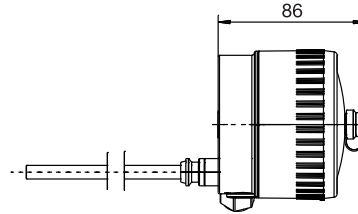
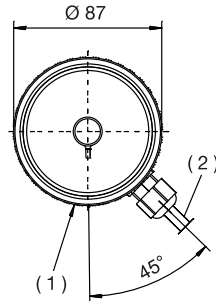
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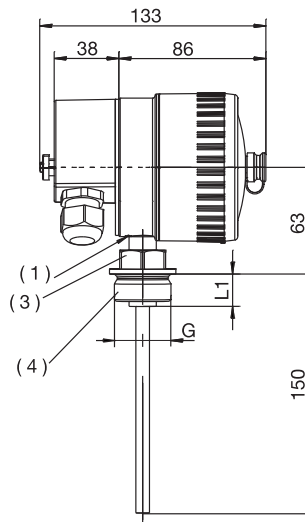
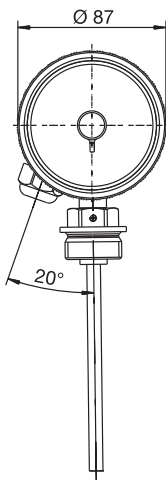
Dimensions

Type 608540/0280



- (1) Ventilation aperture
- (2) Connecting cable, 0.5 m long

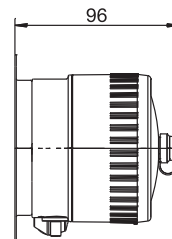
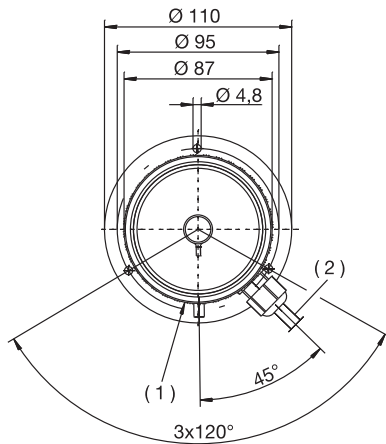
Type 608540/1080
 (Transformer version)



G 1/2 A	27	14
G 3/4A	32	16
G 1A	27	16
G	Width across flats	L1

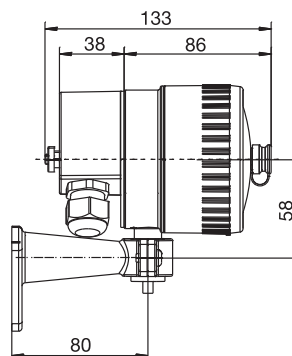
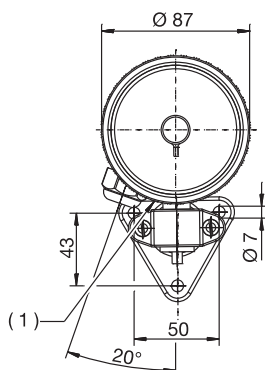
- (1) Ventilation aperture
- (3) Width across flats
- (4) Screw-in spigot DIN 3852, form A

Type 608540/2280



- (1) Ventilation aperture
- (2) Connecting cable, 0.5 m long

Type 608540/2380



- (1) Ventilation aperture

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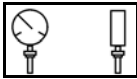



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Order details:

Contact thermometer, type 608540

Order code:	(1) Basic type
608540	Mechanical contact thermometer, industrial version
	(2) Basic type extension
1080	Design type: 10; case size: \varnothing 80 mm 
0280	Design type: 02; case size: \varnothing 80 mm 
2280	Design type: 22; case size: \varnothing 80 mm 
2380	Design type: 23; case size: \varnothing 80 mm 
	(3) Display range (AB)
469	-40 to + 40°C; measuring range -30 to + 30°C Error limit 1.5°C
566	-30 to + 50°C; measuring range -20 to + 40°C Error limit 1.5°C
643	-20 to +120°C; measuring range 0 to +100°C Error limit 3.0°C
807	0 to + 60°C; measuring range +10 to + 50°C Error limit 1.5°C
810	0 to + 80°C; measuring range +10 to + 70°C Error limit 1.5°C
814	0 to +100°C; measuring range +10 to + 90°C Error limit 1.5°C
818	0 to +120°C; measuring range +20 to +100°C Error limit 3.0°C
921	+20 to +120°C; measuring range +38 to +104°C Error limit 3.0°C
826	0 to +160°C; measuring range +20 to +140°C Error limit 3.0°C
832	0 to +200°C; measuring range +20 to +180°C Error limit 3.0°C ⁴
834	0 to +250°C; measuring range +30 to +220°C Error limit 4.0°C ⁴
926	+50 to +250°C; measuring range +70 to +230°C Error limit 3.0°C ⁴
840	0 to +300°C; measuring range +30 to +270°C Error limit 6.0°C ⁴
927	+50 to +300°C; measuring range +80 to +270°C Error limit 4.0°C ⁴
843	0 to +350°C; measuring range +50 to +300°C Error limit 6.0°C ⁴
932	+50 to +350°C; measuring range +80 to +320°C Error limit 6.0°C ⁴
848	0 to +400°C; measuring range +50 to +350°C Error limit 6.0°C ⁴
851	0 to +450°C; measuring range +50 to +400°C Error limit 6.0°C ⁴
854	0 to +500°C; measuring range +50 to +450°C Error limit 8.0°C ⁴
858	0 to +600°C; measuring range +100 to +500°C Error limit 10.0°C ⁴
	(4) Capillary type (FL)¹
00	Without (with rigid connection)
02	FL 02 Cu capillary with Cu textile braiding, approx. \varnothing 2.5 mm (up to AB end value +300°C)
11	FL 11 Cu capillary with PE coating, approx. \varnothing 3.5 mm (up to AB end value +120°C)
17	FL 17 Stainless steel capillary, \varnothing 1.5 mm
21	FL 21 Cu capillary, \varnothing 1.0 mm (up to AB end value +300°C)
	(5) Capillary length¹
0	Without (with rigid connection)
1000	1000 mm
2000	2000 mm
3000	3000 mm
4000	4000 mm
5000	5000 mm
...	Special length (specifications in plain text: 1,000 mm increments, maximum length 10,000 mm)

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Order details:

Contact thermometer, type 608540.

Order code:	(6) Process connection (PC)¹	
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 ²	
161	TA 03; Protection tube with loose union nut	
847	TA 06; Displaceable threaded fitting on support tube ²	
311	TA 20; Protection tube with loose screw connection and connection collar ²	
872	TA 21; Protection tube with loose pressure screw and conical seal	
873	TA 22; Protection tube with loose pressure screw, conical seal, and loose screw connection ²	
401	TA 23; Protection tube with pressure screw and contact pressure spring	
874	TA 24; Protection tube (CuNi) with screw connection (CuZn), O ring seal and clamping screw ^{2, 5}	
913	SH 07; Screw-in sleeve, multi-sectional, with clamping piece and fixing screw ² (with TF 01)	
820	SH 09; Weld-in sleeve, multi-sectional, with clamping piece and fixing screw (not with FL 21 – weld collar with steel 1.4515) (with TF 01)	
876	SH 10; Screw-in sleeve, multi-sectional ²	
871	SH 11; Screw-in sleeve, multi-sectional ²	
	(7) Diameter of process connection (PC)¹	
6	Ø 6 mm	
8	Ø 8 mm	
10	Ø 10 mm	
12	Ø 12 mm	
	(8) Thread type of process connection (PC)¹	
000	Without thread (for TF 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 G1	
114	Screw connection M 10 × 1 (only for TA 23 and SH 11)	
	(9) Material, 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 (from 250°C)	
	(10) Material of process connection (PC)¹	
00	Without (only TF 01 and TF 11)	
26	Stainless steel (CrNi, 1.4571)	
46	Brass (CuZn)	
	(11) Insertion length, process connection (PC)¹ (dimension "EL" or "S")	
0	Minimum insertion length TF 11 (active probe dimension)	
100	100 mm	
150	150 mm	
200	200 mm	
...	Special length (specifications in plain text – 50 mm increments)	

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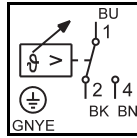


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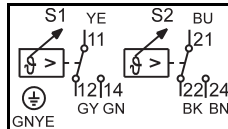
Contact thermometer, type 608540

Order code: **(12) Switching output**

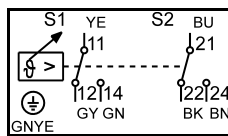
20 1 switch



21 2 switches



22 2 switches in fixed sequence



(13) Extra codes (TZ)

- 000 Without extra code
- 430 Drag indicator
- 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

Order code:

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13)
 608540 / [] - [] - [] - [] - [] - [] - [] - [] - [] - [] - [] - [] / [] , ...

Order example:

608540 / [2280] - [818] - [02] - [2000] - [843] - [8] - [104] - [96] - [46] - [100] - [20] / [000³]

¹ For description and special features refer to data sheet 608730.
² Screw-in spigot according to DIN 3852 form A.
³ List extra codes in sequence, separated by commas.
⁴ Not with design types 02 and 10.
⁵ Material, probe / support tube: design types 02 and 10: stainless steel
 design types 22 and 23: brass

Stock versions

(Delivery within 3 working days after receipt of order)

Transformer version

Sales no.	Type	Display range °C / °F	Switching output (SA)	Temperature probe Process connection	Protection tube "S"
60/00491256	608540/1080-643-00-0-874-8-106-26-46-150-21/430, 522, 477 with drag indicator	-20 to +120°C	21	TA 24, G1" CuZn	150 mm
60/00512083	608540/1080-643-00-0-874-8-106-26-46-150-20/430, 522, 477 with drag indicator		2 switches		
			20		
			1 switch		