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Contact Thermometer-TF Transformer and industrial versions

- Electromechanical temperature controller, with indication of actual value
- Class 1.5
- IP54 protection
- One or two contacts; contact rating 5 or 10 A
- Housing size: 80mm dia.

for stock items
 see price catalog



Type 608540/1080

Brief description

The contact thermometer-TF is a universally applicable instrument with indication of the actual value, for temperature measurement, control and monitoring.

The temperature-dependent change in volume of a liquid-filled measuring system (or the temperature-dependent change of pressure in a gas-filled system) is converted into a rotary movement of the pointer by a Bourdon tube, without any intermediate gearing. The rotary movement of the pointer spindle operates the microswitch through a lever system.

Technical data

Housing, bezel and protective cap	plastic (PA 6), gray UV-stabilized	
Enclosure protection	IP54 to EN 60 529	
Window	PMMA (Plexiglas)	
Scale	white, black lettering	
Accuracy class	Class 1.5 similar to EN 13 190	
	liquid-filled	gas-filled
Measuring system	indication range (AB) $\leq 350^{\circ}\text{C}$	indication range (AB) $\geq 400^{\circ}\text{C}$
Time constant $t_{0.632}$	approx. 12 sec, measured in a water bath, with a 6 mm dia. copper probe	approx. 4 sec, measured in an 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 $+23^{\circ}\text{C}$)	
on housing	0.15% of indication range per $^{\circ}\text{C}$ change in ambient temperature	0.05% of indication range per $^{\circ}\text{C}$ change in ambient temperature
on capillary (per meter)	0.03% of indication range per $^{\circ}\text{C}$ 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 a mechanically operated changeover contact	
Contact type		
Contact rating	230V AC $\pm 10\%$, 48 – 63Hz, p.f = 1 (0.6)	
	5 (1.5) A	10 (3) A
Switching differential	approx. 1.5% of indication range	
Switching point accuracy	$\pm 0.5\%$ of indication range 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	screw terminals: for conductor cross-section up to 2.5 mm^2 , protected by cap with cable gland Suitable for cable diameters from 6.5 to 16 mm.	
Setpoint adjustment	with screwdriver, protected by cap.	
Limit temperatures	-30 to $+70^{\circ}\text{C}$ (storage and transport -30 to $+70^{\circ}\text{C}$)	
Nominal position (NL)	NL90, symbol \perp	

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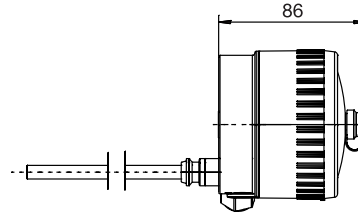
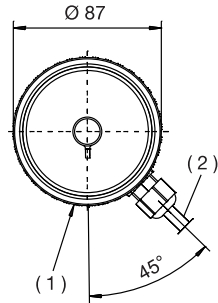
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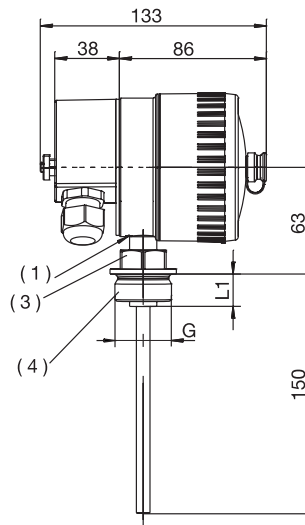
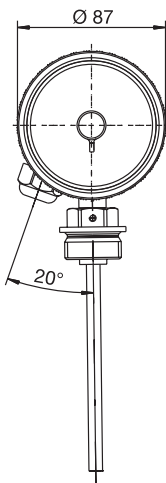
Dimensions

Type 608540/0280



- (1) Vent opening
- (2) Connecting cable, 0.5 m long

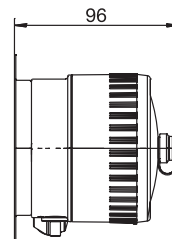
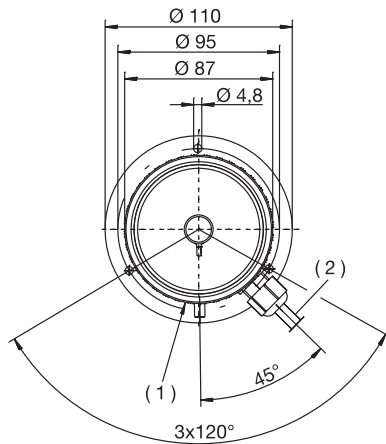
Type 608540/1080
 (transformer version)



G 1/2A	27	14
G 3/4A	32	16
G 1A	27	16
G	a/f	L1

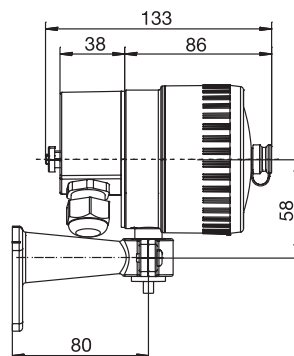
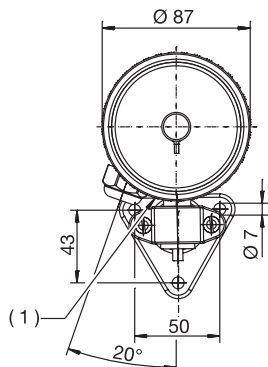
- (1) Vent opening
- (3) a/f
- (4) Screw-in spigot DIN 3852 Form A

Type 608540/2280



- (1) Vent opening
- (2) Connecting cable, 0.5 m long

Type 608540/2380



- (1) Vent opening

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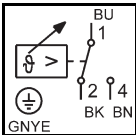
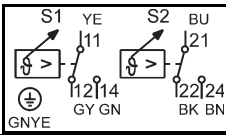
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Order details: Transformer version

Contact thermometer-TF, type 608540

Order code	(1) Basic type
608540	Mechanical contact thermometer, transformer version
	(2) Basic type extensions
1080	Style: 10; housing size: Ø 80 mm dia. 
	(3) Indication range (AB)
643	-20 to +120°C; range 0 to +100°C accuracy 3.0°C
818	0 to +120°C; range +20 to +100°C accuracy 3.0°C
921	+20 to +120°C; range +38 to +104°C accuracy 3.0°C
	(4) Capillary type (FL)¹
00	none (with rigid connection)
	(5) Capillary length¹
0	none (with rigid connection)
	(6) Process connection (PA)¹
874	TA 24; immersion tube with screw fitting, O ring seal and clamping screw 
	(7) Diameter of process connection (PA)¹
8	8 mm dia.
	(8) Thread for process connection (PA)¹
104	G ¹ / ₂ (1/2" pipe) thread
105	G ³ / ₄ (3/4" pipe) thread
106	G 1 (1" pipe) thread
	(9) Material of probe / support tube¹
26	stainless steel (CrNi 1.4571)
	(10) Material of process connection (PA)¹
46	brass (CuZn)
	(11) Fitting length of process connection (PA)¹ (dimension S)
150	150 mm
	(12) Switching output (SA)
20	SA 20 one contact 
21	SA 21 two contacts 
	(13) Extra codes
000	no extra code
430	peak-reading pointer
522	customized scale

Order code	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
608540	608540	...	...	..	.	...	.	...	..	..	...	..	..
Order example	608540	1080	921	00	0	874	8	106	26	46	150	20	000 ³

¹ See data sheet 60.8730 for description and features.

³ List extra codes in sequence, separated by commas.

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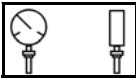
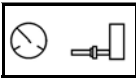
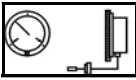

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Order details: Industrial version

Contact thermometer-TF, type 608540

Order code	(1) Basic type	
608540	Mechanical contact thermometer, industrial version	
(2) Basic type extensions		
1080	Style: 10; housing size: Ø 80 mm dia.	
0280	Style: 02; housing size: Ø 80 mm dia.	
2280	Style: 22; housing size: Ø 80 mm dia.	
2380	Style: 23; housing size: Ø 80 mm dia.	
(3) Indication range (AB)		
469	-40 to + 40°C; range -30 to + 30°C	accuracy 1.5°C
566	-30 to + 50°C; range -20 to + 40°C	accuracy 1.5°C
643	-20 to +120°C; range 0 to +100°C	accuracy 3.0°C
807	0 to + 60°C; range +10 to + 50°C	accuracy 1.5°C
810	0 to + 80°C; range +10 to + 70°C	accuracy 1.5°C
814	0 to +100°C; range +10 to + 90°C	accuracy 1.5°C
818	0 to +120°C; range +20 to +100°C	accuracy 3.0°C
921	+20 to +120°C; range +38 to +104°C	accuracy 3.0°C
826	0 to +160°C; range +20 to +140°C	accuracy 3.0°C
832	0 to +200°C; range +20 to +180°C	accuracy 3.0°C ⁴
834	0 to +250°C; range +30 to +220°C	accuracy 4.0°C ⁴
926	+50 to +250°C; range +70 to +230°C	accuracy 3.0°C ⁴
840	0 to +300°C; range +30 to +270°C	accuracy 6.0°C ⁴
927	+50 to +300°C; range +80 to +270°C	accuracy 4.0°C ⁴
843	0 to +350°C; range +50 to +300°C	accuracy 6.0°C ⁴
932	+50 to +350°C; range +80 to +320°C	accuracy 6.0°C ⁴
848	0 to +400°C; range +50 to +350°C	accuracy 6.0°C ⁴
851	0 to +450°C; range +50 to +400°C	accuracy 6.0°C ⁴
854	0 to +500°C; range +50 to +450°C	accuracy 8.0°C ⁴
858	0 to +600°C; range +100 to +500°C	accuracy 10.0°C ⁴
(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 indication range)	
11	FL11 copper capillary with PE sleeve, approx. 3.5 mm dia. (up to +120°C top of indication range)	
17	FL17 stainless steel capillary, 1.5 mm dia.	
21	FL21 copper capillary, 1.0 mm dia. (up to +300°C top of indication 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 (specify in plain text: in 1000 mm steps, maximum length: 10000 mm)	

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Order details: Industrial version

Contact thermometer-TF, type 608540

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	
847	TA 06; sliding clamp fitting on support tube ²	
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	
874	TA 24; immersion tube with screw fitting, O ring seal and clamping screw ^{2, 5}	
913	SH 07; screw-in pocket, assembled, with clamping clip and fixing screw ² (with TF 01)	
820	SH 09; weld-in pocket, assembled, with clamping clip and fixing screw (not with FL21 - welding shoulder with steel 1.4515) (with TF 01)	
876	SH10; screw-in pocket, assembled ²	
871	SH11; screw-in pocket, assembled ²	
	(7) Diameter of process connection (PA)¹	
6	6 mm dia.	
8	8 mm dia.	
10	10 mm dia.	
12	12 mm dia.	
	(8) Thread for process connection (PA)¹	
000	no thread (with TF 01 and TF 11)	
103	G ^{3/8} (3/8" pipe) thread	
104	G ^{1/2} (1/2" pipe) thread	
105	G ^{3/4} (3/4" pipe) thread	
106	G1 (1" pipe) thread	
114	M 10 x 1 thread (with TA 23 and SH 11 only)	

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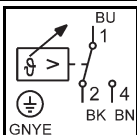
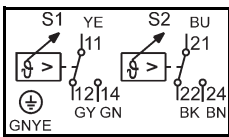
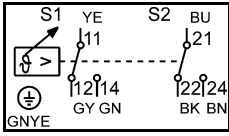
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Order details: Industrial version

Contact thermometer-TF, type 608540

Order code	(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)
26	stainless steel (CrNi, 1.4571)
46	brass (CuZn)
	(11) Fitting length of process connection (PA)¹ (dimension EL or S)
0	minimum fitting length TF 11 (active probe dimension)
100	100 mm
150	150 mm
200	200 mm
...	special length (specify in plain text, in 50 mm steps)
	(12) Switching output (SA)
20	SA 20 one contact 
21	SA 21 two contacts 
22	SA 22 two contacts - sequential switch 
	(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 upper or lower limit of setpoint adjustment, factory-set
522	customized scale

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

Order example
 608540 / 2280 - 818 - 02 - 2000 - 843 - 8 - 104 - 96 - 46 - 100 - 20 / 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.
⁴ Not on styles 02 and 10.
⁵ Material of probe / support tube: styles 02 and 10: stainless steel
 styles 22 and 23: brass