



JUMO heatTHERM

Panel-mounted thermostat

Special features

- Stable switching point position due to ambient temperature compensation (standard)
- Max. switching capacity 16 A, 400 V
- Operating life at least 250,000 switching cycles for TR and TW
- Control ranges of up to 500 °C are possible
- STB with extensive setting range: 250 K at 250° (angular degree)
- Switching point deviation during the entire operating life of up to ±5 %

Brief description

Thermostats control and monitor thermal processes.

This thermostat is available as temperature controller TR, temperature monitor TW (type 602030), safety temperature monitor STW (STB), or safety temperature limiter STB (type 602031).

The panel-mounted thermostat operates according to the fluid expansion principle. The electrical switching element is a snap-action switch.

The panel-mounted thermostat is RoHS-compliant and cadmium-free.

Switching functions

Temperature controller TR and Temperature monitor TW

If the temperature on the temperature probe exceeds the setpoint value, the electrical circuit is opened or closed by a microswitch. If the temperature falls below the selected setpoint value (by the switching differential), the microswitch is reset to its initial position.

Restart lock at safety temperature limiter STB

If the temperature at the temperature sensor exceeds the set limit value, the electrical circuit is opened and the microswitch is mechanically locked. After falling below the limit value by approx. 10 % of the temperature range (approx. 15 % of the limit value setting > +350 °C), the switch can be unlocked manually.

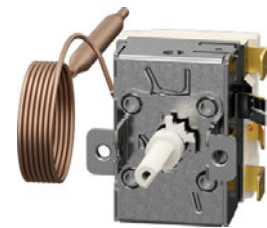
Use of the safety temperature monitor STW as a safety temperature limiter STB

The circuitry used with the thermostat must comply with DIN EN 14597 and VDE 0631.

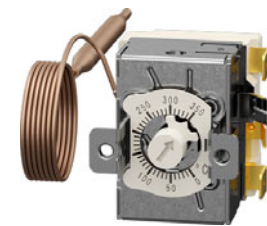
Self-monitoring for safety temperature limiter STB and safety temperature monitor STW (STB)

If the measuring system is destroyed (i.e. if the expansion fluid escapes) the pressure in the membrane of the STB and STW (STB) drops and permanently opens the electrical circuit. Unlocking is then no longer possible.

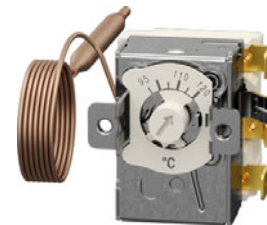
When the STW (STB) and STB sensors cools down to the negative temperature range, the circuit 1 to 2 opens, but must be unlocked manually by the restart knob when the temperature rises. The STW (STB) restarts automatically.



Type 602030/01



Type 602030/02



Type 602031/20, Type 602031/21



Type 602031/80, Type 602031/81

Approvals and approval marks (see technical data)



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Technical data

Electrical data

Switching element	Snap-action switch with single-pole changeover contact		
Max. switching capacity	TW/TR	STW (STB)	STB
	On the N/C contact (contact deck 1 to 2)	AC 400 V +10 %, 16 A, AC 230 V +10 %, 16 (2.5) ^a A, cos φ = 1 (0.6) ^a , DC 230 V +10 %, 0.25 A	
	On the N/O contact (contact deck 1 to 4)	AC 400 V +10 %, 6.3 A, AC 230 V +10 %, 6.3 (2.5) ^a A, cos φ = 1 (0.6) ^a , DC 230 V +10 %, 0.25 A	-
	On the signal contact (contact deck 1 to 4)	-	AC 400 V +10 %, 2 A, AC 230 V +10 %, 2 (0.4) ^a A, cos φ = 1 (0.6) ^a , DC 230 V +10 %, 0.25 A
Electrical connection	A 6.3 to 0.8, according to DIN 46244		
Switching reliability	To ensure the greatest possible switching reliability, we recommend a minimum load of:		
For silver contacts	AC/DC = 24 V, 100 mA		
For gold-plated contacts (extra code 702)	AC/DC = 10 V, 5 mA		

^a Inductive load

Environmental influences

Switching differential in % of the control/limit value range	TR, TW	Rated value		
		2.5	(Standard)	
		7	(auf Anfrage)	
Switching point accuracy in % of the control/limit value range	STW (STB)	7	(Standard)	
	TR, TW	In the upper third of the scale ±3 %, at the beginning of scale ±6 %		
	STW (STB), STB	In the upper third of the scale ±4 %, at the beginning of scale ±8 %		
		Control range	In the „first half“	In the „second half“
		70 to 130 °C 95 to 120 °C 20 to 150 °C 50 to 300 °C	+0/-12 K +0/-5 K +0/-15 K +0/-30 K	+0/-5 K +0/-5 K +0/-10 K +0/-15 K
Ambient temperature influence	Referring to the control/limit value range If the ambient temperature at the switching head and/or the capillary deviates from the calibration ambient temperature 22 °C, a switching point shift occurs.			
Admissible storage temperature	-50 to +50 °C or up to max. admissible ambiente temperature, see nameplate			
Admissible ambiente temperature when in use	See nameplate			
Rated position (NL)	Any			

Housing

Material	
Housing	Sheet steel, galvanized
Capillary	Cu-DHP
Switching socket	Polyester resin molding compound, white
Protection type	IP00, according to DIN EN 60529
Weight	Approx. 120 g
Capillary	2000 mm (standard) inclusive 460 mm protective tubing
Min. bending radius	5 mm

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Approvals and approval marks

DIN Testing agency Certificates/certification numbers Inspection basis Valid for	DIN CERTCO/TÜV Süd STB1169 DIN EN 14597 Type 602031, switching function STB
DIN Testing agency Certificates/certification numbers Inspection basis Valid for	DIN CERTCO/TÜV Süd STW(STB)1190 DIN EN 14597 Type 602031, switching function STW (STB)
DIN Testing agency Certificates/certification numbers Inspection basis Valid for	DIN CERTCO/TÜV Süd TR1168 DIN EN 14597 Type 602030, switching function TR
DIN Testing agency Certificates/certification numbers Inspection basis Valid for	DIN CERTCO/TÜV Süd TW1189 DIN EN 14597 Type 602030, switching function TW
DIN Testing agency Certificates/certification numbers Inspection basis Valid for	DIN CERTCO B _{10d} = 250.000 ^a DIN EN ISO 13849-1 Type 602030, Type 602031
UL Testing agency Certificates/certification numbers Inspection basis Valid for	UL Germany E66358 Vol. 1 UL 873 Type 602030, Type 602031, with switching capacity 230 V, 16 A
UL Testing agency Certificates/certification numbers Inspection basis Valid for	UL Germany MH45736 Vol. 1 UL 353 Type 602031 (STB), with switching capacity 230 V, 16 A
PED Testing agency Certificates/certification numbers Inspection basis Valid for	TÜV Süd Z-IS-TAF-MUC-18-05-2652099-02162623 2014/68/EU Type 602031
EAC ^b Testing agency Certificates/certification numbers Inspection basis Valid for	GOST Norm AG TC TU C-DE.AB98.B.00348 Technical rules of the customs union Russia/Belarus/Kazakhstan Type 602030, Type 602031

^a For further details see safety manual B 602031.9. Switching capacity check implemented at 230 V, 16 A, ohmic load.

^b Russian documentation upon request

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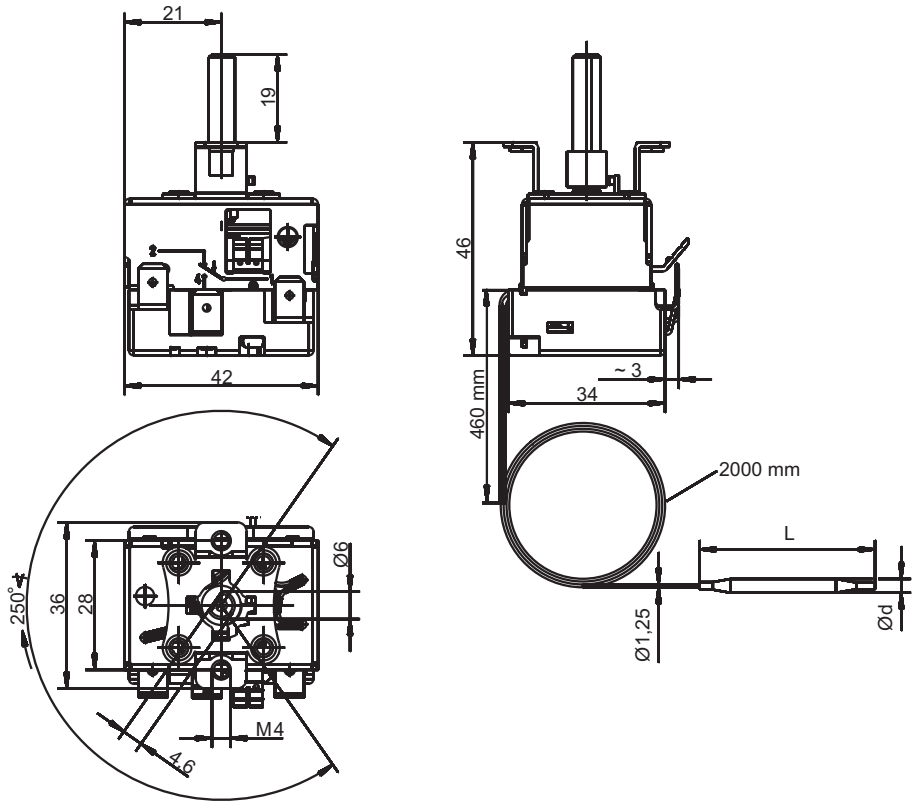
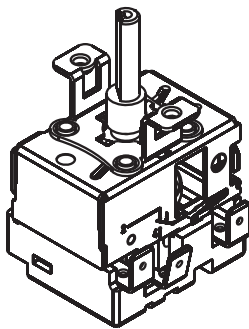
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Dimensions

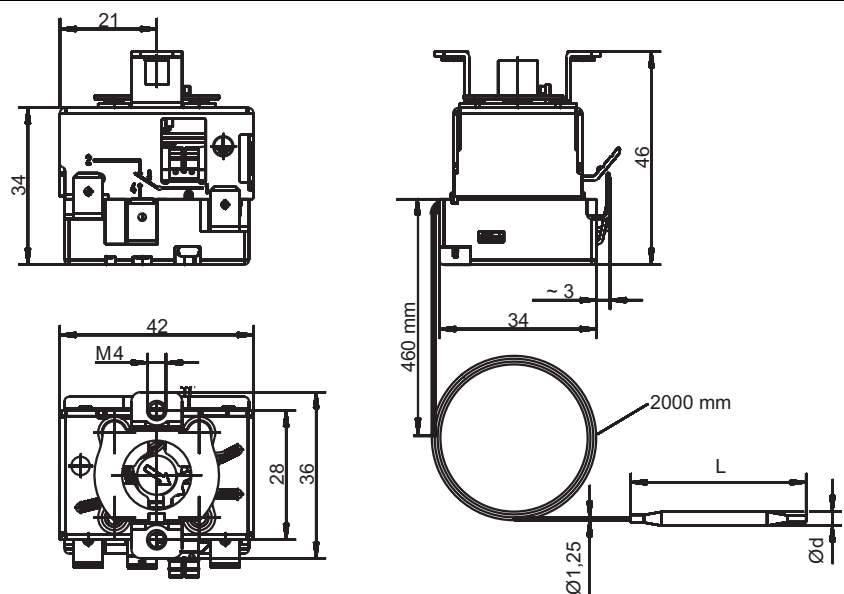
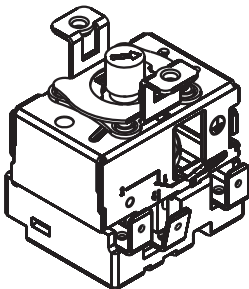
Type 602030/01

- Temperature controller
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V
- Operating life at least 250,000 switching cycles
- Switching point deviation (drift) during the entire operating life of up to $\pm 5\%$



Type 602030/02

- Temperature monitor
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V
- Operating life at least 250,000 switching cycles
- Switching point deviation (drift) during the entire operating life of up to $\pm 5\%$



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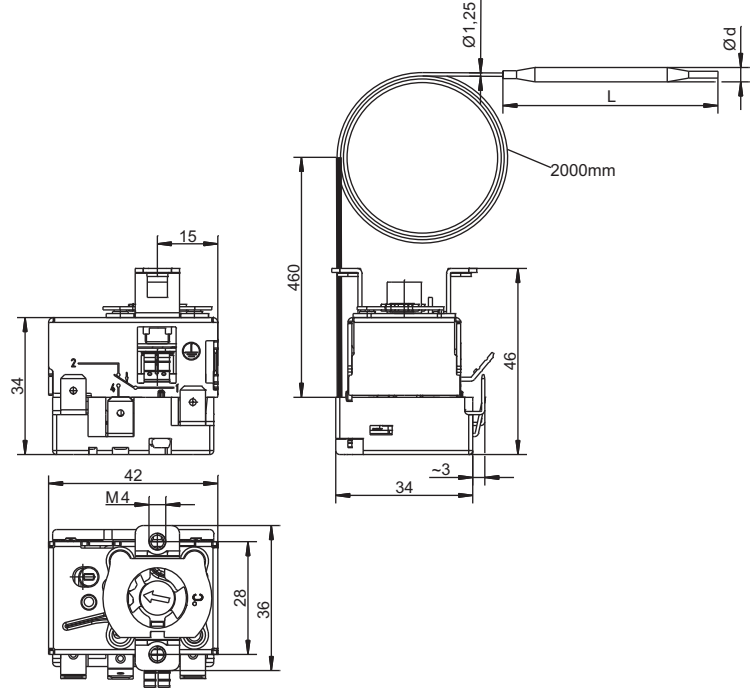
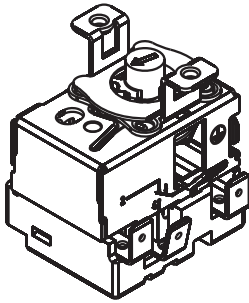
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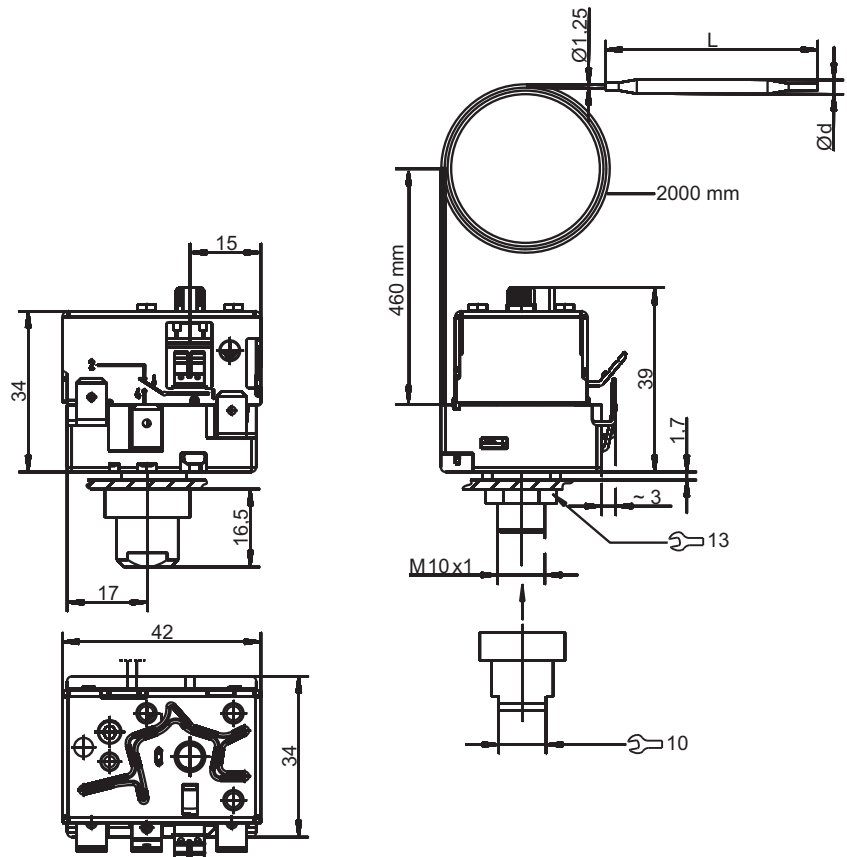
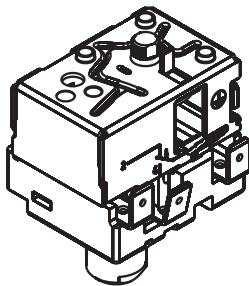
Type 602031/21

- Safety temperature monitor
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V



Type 602031/80

- Safety temperature limiter
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V



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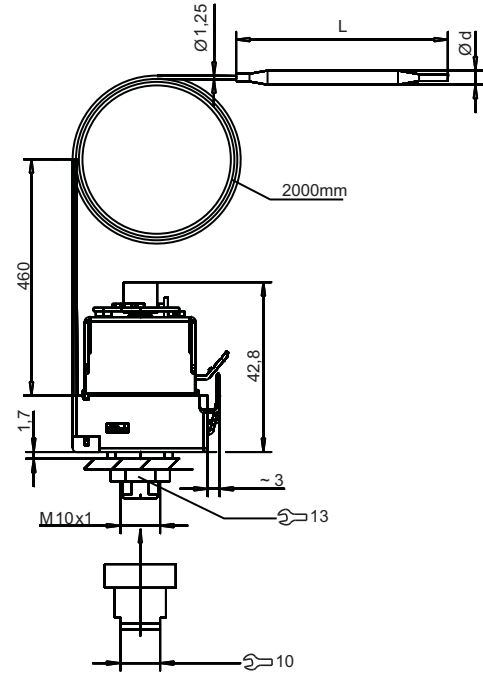
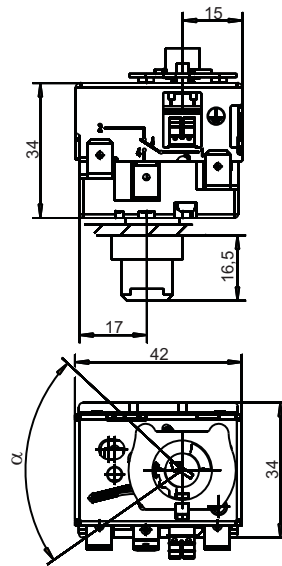
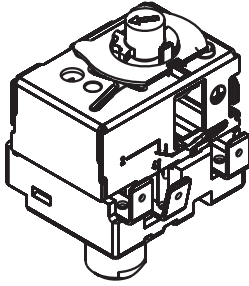
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Type 602031/81

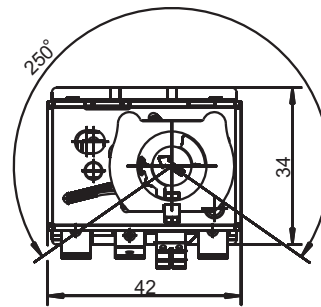
- Safety temperature limiter
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V



+95...120	78°<
+70...130	167°<
RB (°C)	α

Type 602031/81

- Safety temperature limiter
- Compensated ambient temperature (standard)
- Max. switching capacity 16 A, 400 V
- With extra code 749: 250° (angular degree)



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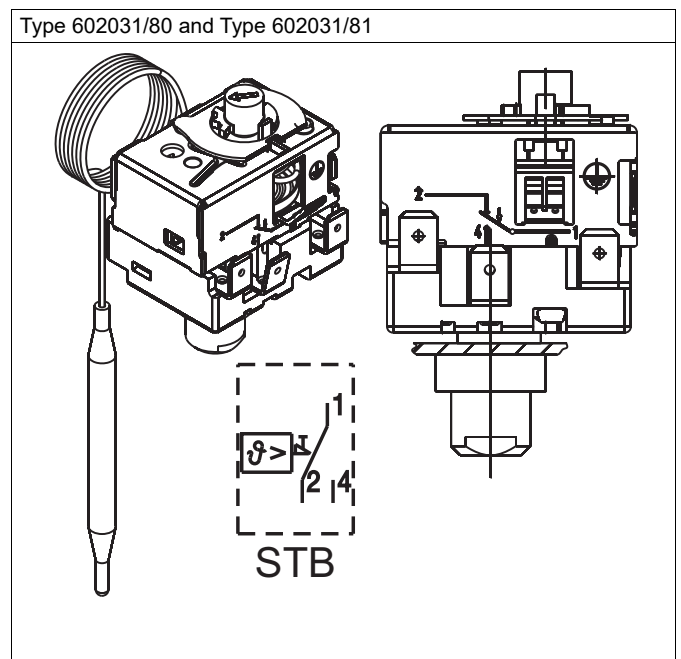
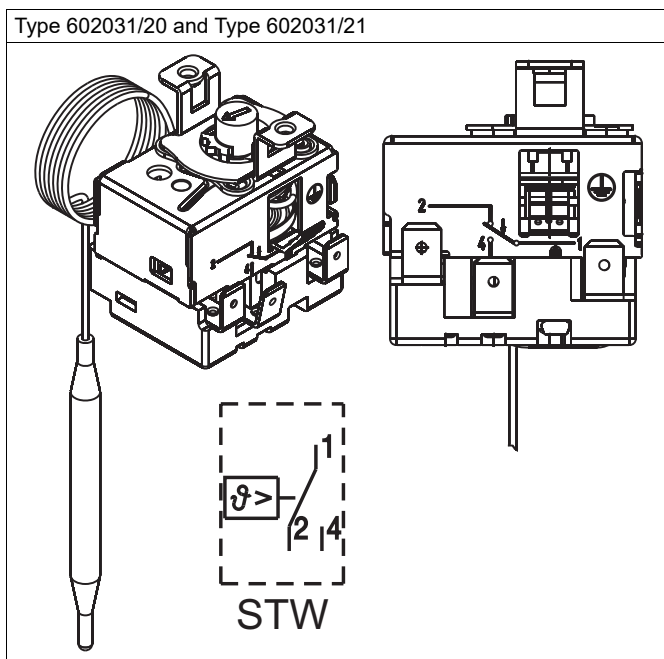
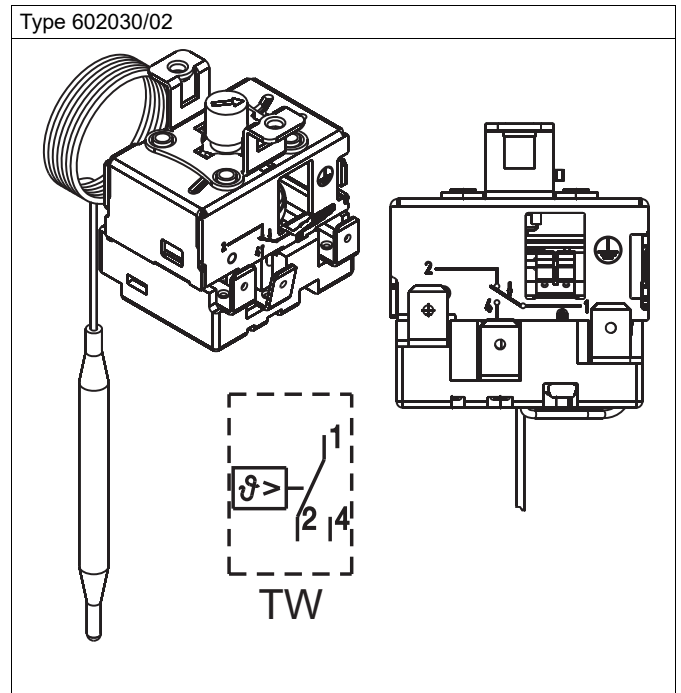
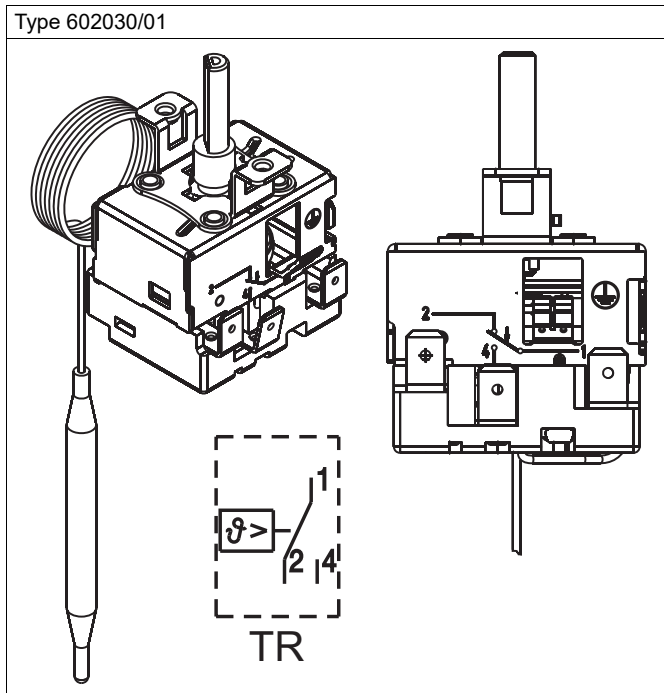


Connection diagram

The connection diagram in the data sheet provides information on product selection.

For the electrical connection, only use the installation instructions or the operating manual.

Wiring diagrams



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Order details

	(1) Basic type	
602030/01	JUMO heatTHERM – Panel-mounted thermostats, temperature controller (TR)	
602030/02	JUMO heatTHERM – Panel-mounted thermostats, temperature monitor (TW)	
602031/20	JUMO heatTHERM – Panel-mounted thermostats, safety temperature monitor (STW), permanently set	
602031/21	JUMO heatTHERM – Panel-mounted thermostats, safety temperature monitor (STW)	
602031/80	JUMO heatTHERM – Panel-mounted thermostats, safety temperature limiter (STB), permanently set	
602031/81	JUMO heatTHERM – Panel-mounted thermostats, safety temperature limiter (STB)	
	(2) Basic type extensions	
000	With permanently set limit value	
026	0 to 120 °C	
028	0 to 200 °C	
041	20 to 90 °C	
043	20 to 150 °C	
064	50 to 300 °C	
640	50 to 300 °C (S)	
666	60 to 130 °C	
671	60 to 130 °C	
	(3) Limit value (STW/STB)	
000	With adjustable control range	
095	95 °C	
100	100 °C	
110	110 °C	
	(4) Switching differential	
00	None	
25	2.5 %	
70	7 %	
	(5) Capillary length	
1000	1,000 mm	
2000	2,000 mm	
3000	3,000 mm	
	(6) Capillary material	
40	Cu (copper), Ø 1.25 mm	
	(7) Process connection	
10	Plain cylindrical probe	
	(8) Probe diameter	
4	4 mm	
6	6 mm	
	(9) Probe material	
20	CrNi (stainless steel)	
40	Cu (copper)	
	(10) Capillary protection hose type	
00	None	
13	PVC hose	
	(11) Protection hose length	
0	None	
460	460 mm	

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(12)	Extra code
000	None
702	Snap-action switch, gold-plated
707	Temperature compensation
742	Tab connector, straight
749	Setting range with 250 angular degrees (only STB/STW)

Order code (1) (2) (3) (4) (5) (6) (7) -

Order example 602031/80 - 000 - 110 - 25 - 2000 - 40 - 10 -

(8) (9) (10) (11) (12)

6 - 40 - 13 - 460 / 000, ...^a

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

Stock versions

JUMO heatTHERM – Temperature controller (TR) with 2,000 mm capillary and probe diameter 6 mm

Order code	Control range	Limit value	Switching differential	Part no.
602030/01-041-000-25-2000-40-10-6-40-13-460/707	20 to 90 °C	With adjustable control range	Approx. 2 K	60003218
602030/01-041-000-70-2000-40-10-6-40-13-460/707	20 to 90 °C		Approx. 5 K	60003280
602030/01-026-000-25-2000-40-10-6-40-13-460/707	0 to 120 °C		Approx. 3 K	60003219
602030/01-028-000-25-2000-40-10-6-40-13-460/707	0 to 200 °C		Approx. 5 K	60003220
602030/01-064-000-25-2000-40-10-6-40-13-460/707	50 to 300 °C		Approx. 6 K	60003221

JUMO heatTHERM – Temperature monitor (TW) with 2,000 mm capillary and probe diameter 6 mm

Order code	Control range	Limit value	Switching differential	Part no.
602030/02-041-000-25-2000-40-10-6-40-13-460/707	20 to 90 °C	With adjustable control range	Approx. 2 K	60003222
602030/02-041-000-70-2000-40-10-6-40-13-460/707	20 to 90 °C		Approx. 5 K	60003281
602030/02-026-000-25-2000-40-10-6-40-13-460/707	0 to 120 °C		Approx. 3 K	60003223
602030/02-028-000-25-2000-40-10-6-40-13-460/707	0 to 200 °C		Approx. 5 K	60003224
602030/02-064-000-25-2000-40-10-6-40-13-460/707	50 to 300 °C		Approx. 6 K	60003225

JUMO heatTHERM – Safety temperature monitor (STW) with 2,000 mm capillary and probe diameter 6 mm

Order code	Control range	Limit value	Switching differential	Part no.
602031/21-671-000-70-2000-40-10-6-40-13-460/707	70 bis 130 °C	With adjustable control range	Approx. 10 K	60003226

JUMO heatTHERM – Safety temperature limiter (STB), permanently set, with 2,000 mm capillary and probe diameter 6 mm

Order code	Control range	Limit value	Switching differential	Part no.
602031/80-000-100-00-2000-40-10-6-40-13-460/707	Limit value permanently set	100 °C	Approx. 10 K	60002994

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JUMO heatTHERM – Safety temperature limiter (STB) with 2,000 mm capillary and probe diameter 6 mm

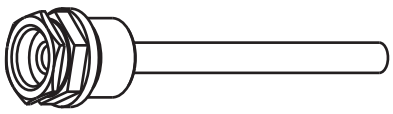
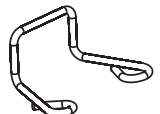
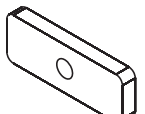

Order code	Control range	Limit value	Switching differential	Part no.
602031/81-666-000-00-2000-40-10-6-40-13-460/707	95 to 120 °C	With adjustable control range	Approx. 10 K	60002995
602031/81-671-000-00-2000-40-10-6-40-13-460/707	70 to 130 °C			60003136
602031/81-043-000-00-2000-40-10-6-40-13-460/707, 749	20 to 150 °C		In the upper third approx. 15 K	60003291
			At the scale beginning approx. 30 K	
602031/81-640-000-00-2000-40-10-6-20-13-460/707, 749	50 to 300 °C (S)	In the upper third approx. 25 K	60003292	
		At the scale beginning approx. 45 K		

Accessories

according to product groups 606710 and 606715

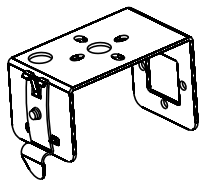


Thermowell set

(according to product group 606710), suitable for type 602030 and type 602031

					
Thermowell with sealing collar		Clamp for strain relief	Plate for surface-mounted thermostat	Screw for surface-mounted thermostat	
Type	Abbreviation	Connection	Insertion length EL in mm	Material	Part no.
Screw-in thermowell with sealing collar	28	G 1/2	100	Brass, nickel-plated	60003177
			150		60003203
			200		60003171
			100	Stainless steel, 1.4571	60003172
			150		60003205
			200		60003173

Mounting set for mounting rail DIN EN 60715 TH 35-7.5

(according to product group 606710)

				
Type		2 screws		Part no.
Adapter set, mounting rail JUMO heatTHERM/EM		M3 × 4	M4 × 5	00511794

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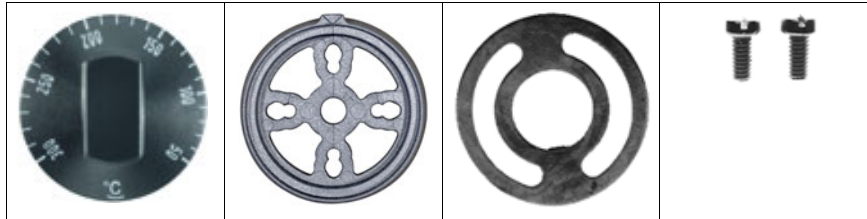
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Setpoint adjuster

(according to product group 606715), suitable for type 602031/01



Type	Control range in °C	Rotary knob 07	Panel 23	Adjustable stop 16	2 Screws	Part no.
W8	20 to 90				M4 × 8	60003091
	0 to 120					60003227
	0 to 200					60003095
	50 to 300					60003098