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JUMO heatTHERM P300

3-Phase Panel-Mounted Thermostat

Special features

- Safety temperature limiter (STB)
- Max. switching capacity 30 A, AC 480 V
- Different electrical connections are available
- Trip-free function
- Capillary break protection

Brief description

Three-phase thermostats operate according to the principle of thermal expansion. Thermostats control and monitor thermal processes.

The JUMO heatTHERM P300 is available as a safety temperature limiter (STB). In the event of a malfunction, the STB will set the system being monitored to a safe operating status.



Type 602090, standard



Type 602090, central mounting M10 x 1
with acorn nut

Approvals and approval marks (see "Technical data")



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Technical data

Switching functions

Safety temperature limiter (STB)	<p>If the temperature at the temperature probe exceeds the configured setpoint value, then the switching mechanics are actuated, the electrical circuit is opened, and the mechanism is mechanically locked.</p> <p>The unlocking difference denotes the difference between the limit value temperature and the earliest possible unlocking temperature.</p> <p>The electrical circuit NC opens if the probe cools down into the negative temperature range. The mechanism must be manually unlocked once the temperature rises again.</p> <p>If the measuring system is destroyed, i. e., if the expansion medium emerges, the pressure in the membrane drops and permanently opens the electrical circuit. It is no longer possible to unlock the mechanism.</p> <p>With the trip-free function, the temperature switch-off at the limit value – through constant pressing of the reset button – is not disabled. With the heatTHERM P300 the contacts are opened (raised) through constant pressing of the reset button.</p>
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General Information

Limit value setting	Permanently set (upward adjustment)			
Capillary	Capillary diameter 1.25 mm Min. bending radius of capillary 5 mm			
Material	Stainless steel (CrNi) Copper (Cu)			
Length	Variable (200 to 5000 mm)			
Temperature probe	Temperature probe diameter: 4 and 6 mm (other temperature probe diameters available upon request)			
Material	Stainless steel (CrNi) Copper (Cu) (The temperature probe diameter and probe length depend on the control range)			
Process connection	See data sheet 606710 (standard: plain cylindrical probe "10")			
Switching point accuracy Type 602090/080	Part no.	Limit value in °C with indication of tolerance	Capillary mm	Probe diameter (d) × L mm
	60003431	95 (-12)	700	(6) × 85
	60003432	110 (-15)		
	60003433	360 (-30)		
The switching point accuracy is based on the probe volume and limit value! Once the limit value has been undershot by the dangerous temperature, the STB can be unlocked.				
Max. probe temperature	15 % or at least 25 K of the limit value			
Average ambient temperature influence	When the ambient temperature on the switching head and/or the capillary deviates from the calibration ambient temperature of 22 °C, a switching point offset occurs. Higher ambient temperature = lower switching point Lower ambient temperature = higher switching point			
Protection type	IP00 according to DIN EN 60529			
Material of insulating tube	PVC up to 95 °C, others upon request			
Upper part of the housing	Steel sheet, zinc-plated			
Switching socket	Ceramic			
Fastening	2 M4 screws, spacing 28 mm			
Rated position (NL)	Any			
Weight	Approx. 200 g, depending on version			
Protection conductor grounding	Fixing bracket (standard)			
	Tab connector connection (standard)			
	Screw connection (optional extra code)			

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Capillary and temperature probe

Temperature	Capillary	Temperature probe
Up to 200 °C	Copper (Cu) Diameter 1.25 mm	Copper (Cu)
Up to 350 °C		Stainless steel (CrNi)
Up to 365 °C (optional)	Stainless steel (CrNi)	

Electrical connection

STB	Switching capacity AC 40 to 480 V	Overvoltage category	Max. ambient temperature on switching head	Electrical connection	Switching function
Normally closed contact (NC)	0.5 to 20 A (3.3 A) cos φ = 1 (0.6)	III	125 °C	Tab connector 6.3 mm (Standard)	3-pole with 1-pole normally open contact
	0.5 to 30 A (5.0 A) cos φ = 1 (0.6)		80 °C		
	0.5 to 20 A (3.3 A) cos φ = 1 (0.6)		125 °C	Tab connector 6.3 mm (Standard) with plug adapter up to 4 mm ²	3-pole without normally open contact
	0.5 to 30 A (5.0 A) cos φ = 1 (0.6)		80 °C		
	0.5 to 16 A (2.6 A) cos φ = 1 (0.6)		125 °C	Screw connection up to 2.5 mm ²	
Normally open contact (NO)	0.5 to 2 A (0.3 A) cos φ = 1 (0.6)	-	-	Version according to "Normally closed contact"	-
Normally closed contact			Normally closed contact with 1-pole normally open contact		
min. contact capability for switching reliability	type of contact	AC/DC	per switching path		
	silver contact	24 V	0,1 A		
	gold contact	10 V	0,005 A		
Frequency	48 to 63 Hz				
Mode of operation	2BFHKLN	With trip-free function			
	2BFKLN	Without trip-free function			
Pollution degree	2 According to DIN EN 60730-1				
Protection rating	I				

Environmental influences

Max. admissible ambient temperature	For transport and storage -30 to +125 °C		
Time constant $t_{0,632}$	< 45 s, measured in water bath	< 60 s, measured in oil bath	< 120 s, measured in air

Approvals and approval marks

Approval mark	Test facility	Certificates/certification number	Inspection basis
VDE	VDE	40050653	DIN EN 60730-1 DIN EN 60730-2-9
UL	UL	E66358	UL 60730-1 UL 60730-2-9

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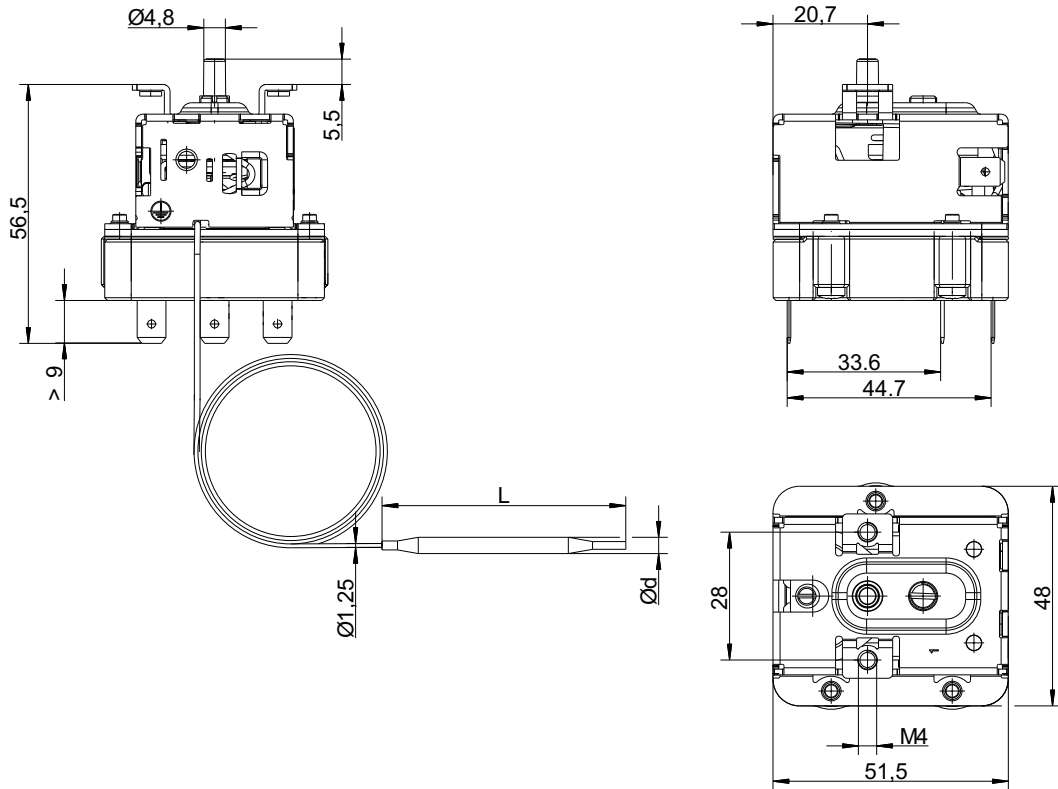
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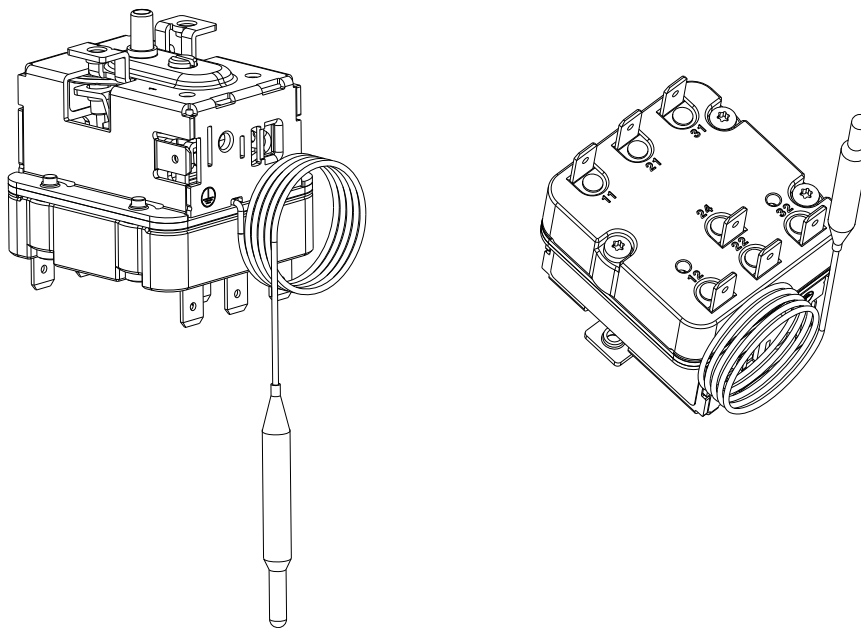


Dimensions

Type 602090



3-pole normally closed contact with 1-pole normally open contact



Electrical connection: tab connector 6.3 mm (standard)

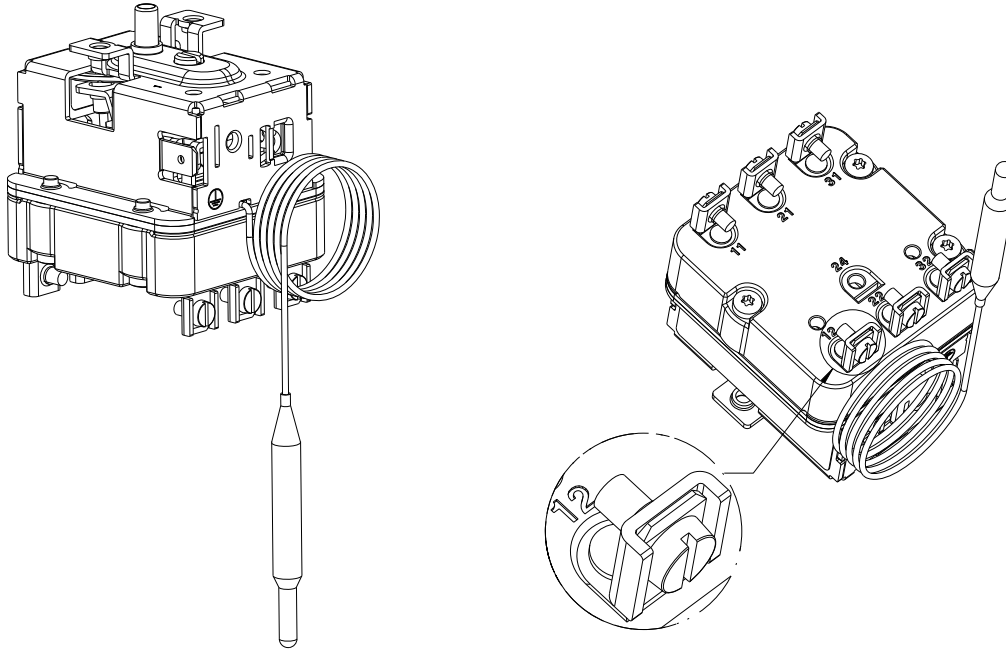
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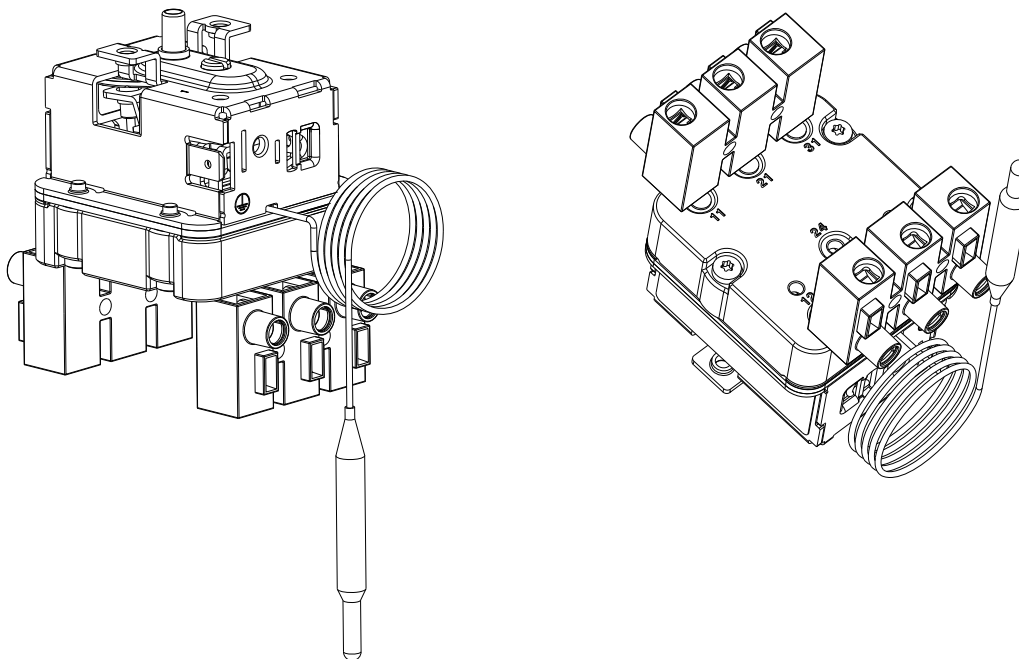
3-pole normally closed contact with screw connection



Electrical connection: screw connection up to 2.5 mm²

3-pole normally closed contact with plug adapter

- Recommended:
- for easy cable assembly
 - at current load >16 A (to reduce contact resistances)



Electrical connection: plug adapter up to 4 mm²

The plug adapter is available as an extra code or as an accessory with the part no. 00689177 (2 pieces are required for each device).

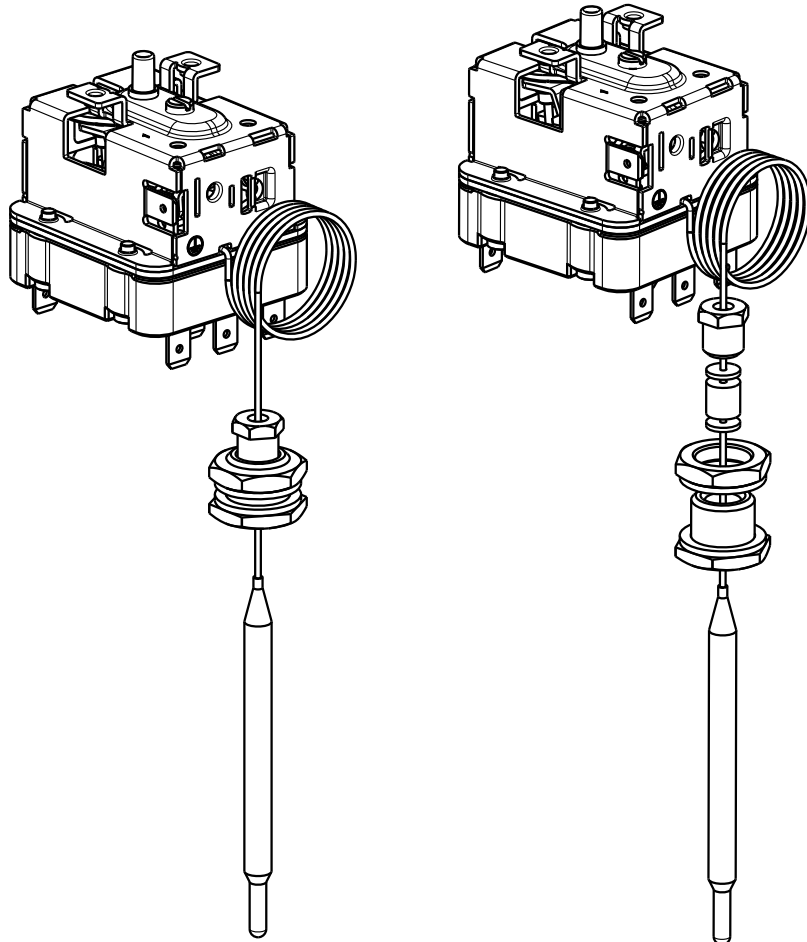
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3-pole normally closed contact with sealing gland, incl. cylindrical probe



Electrical connection: tab connector 6.3 mm (standard)

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Order details

	(1) Basic type
602090	JUMO heatTHERM P300 – 3-phase panel-mounted thermostat
	(2) Basic type extension
080	Safety temperature limiter (STB), permanently set
	(3) Contact combinations – N/C contact and N/O contact
030	3-pole normally closed contact, without normally open contact
031	3-pole normally closed contact, with 1 normally open contact
	(4) Control range, TR
000	None
	(5) Limit value, STB
65	65 °C
...	...
365	365 °C
...	Special limit values, specifications in plain text
	(6) Switching differential, TR
000	None
	(7) Capillary length, TR
0	None
	(8) Capillary length, STB
700	700 mm
1000	1000 mm
	(9) Capillary material
20	CrNi (stainless steel)
40	Cu (copper)
	(10) Capillary insulating tube length
0	0
170	170 mm
...	Special length, provide specifications in plain text
	(11) Capillary insulating tube material
00	None
70	PTFE
86	PVC
	(12) Process connection
10	Plain cylindrical probe
67	Sealing gland M9, nickel-plated brass
69	Sealing gland M14, nickel-plated brass
	(13) Temperature probe diameter, TR
0	None
	(14) Temperature probe diameter, STB
0	None
4	4 mm
6	6 mm
	(15) Temperature probe material
20	CrNi (stainless steel)
40	Cu (copper)

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(16) Extra codes	
000	None
699	Screw connection up to 2.5 mm ²
710	Central mounting M10 × 1 with acorn nut
964	Plug adapter up to 4 mm ²
972	Probe und capillary welded

Order code **(1)** **(2)** **(3)** **(4)** **(5)** **(6)** **(7)** **(8)** **(9)**
 Order example 602090 / 080 - 031 - 000 - 360 - 000 - 0 - 700 - 20

(10) **(11)** **(12)** **(13)** **(14)** **(15)** **(16)**
 120 - 86 - 10 - 0 - 4 - 20 / 972 ^a

^a List extra codes in sequence and separate using commas.

Stock versions

Order code	Limit value, STB	Capillary length, STB	Process-connection	Part no.
602090/080-031-000-95-000-0-700-20-170-86-10-0-6-20/972	95 °C	700 mm	Plain cylindrical probe	60003431
602090/080-031-000-110-000-0-700-20-170-86-10-0-6-20/972	110 °C	700 mm	Plain cylindrical probe	60003432
602090/080-031-000-360-000-0-700-20-170-86-10-0-4-20/972	360 °C	700 mm	Plain cylindrical probe	60003433