

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com



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 × 1
with acorn nut

Approvals and approval marks (see "Technical data")



*

* in development

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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

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) × 75
	60003432	110 (-15)		(6) × 75
	60003433	360 (-30)		(4) × 75
	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 ground- ing	Fixing bracket As a standard feature			
	Tab connector connection			
	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 con- tact
	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 con- tact
	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 con- tact"	--
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Normally closed contact</p> </div> <div style="text-align: center;"> <p>Normally closed contact with 1-pole normally open contact</p> </div> </div>					
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/ approval marks	Approval mark	Test facility	Certificates/certification num- ber	Inspection basis
	VDE	VDE	40050653	DIN EN 60730-1 DIN EN 60730-2-9
(in development)	UL	UL	--	UL 60730-1 UL 60730-2-9

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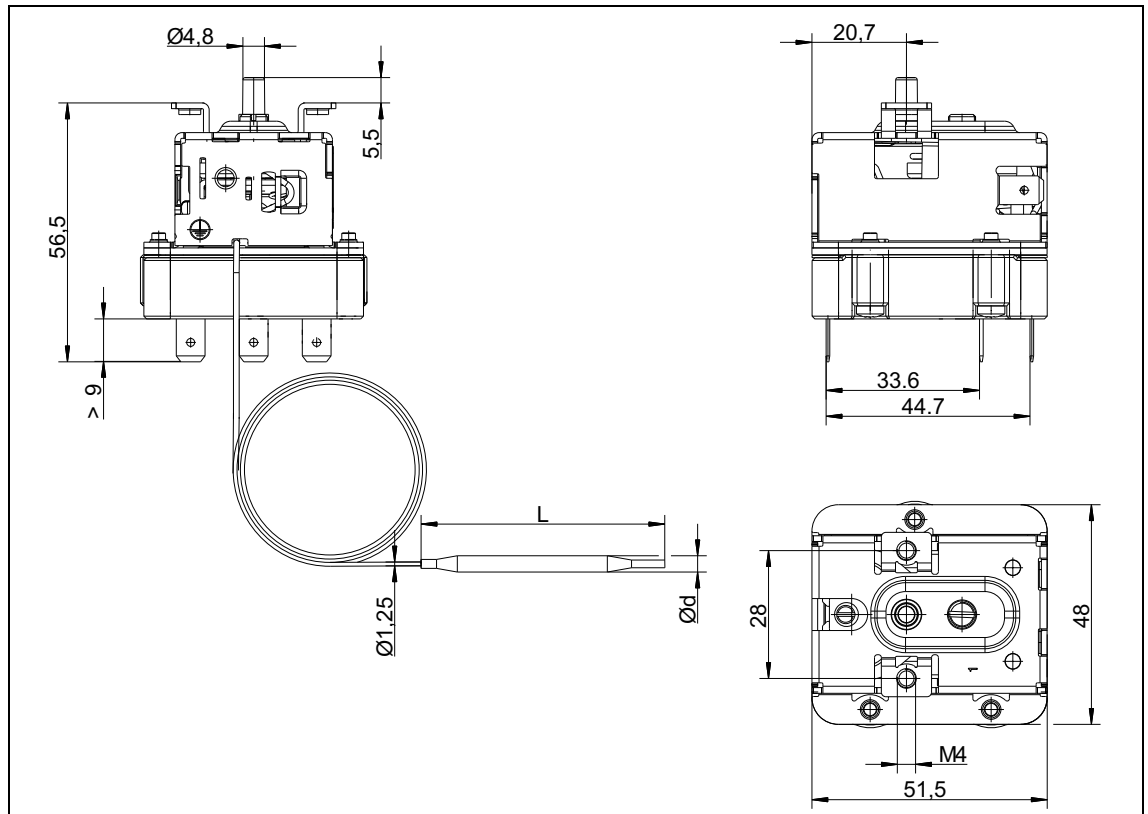
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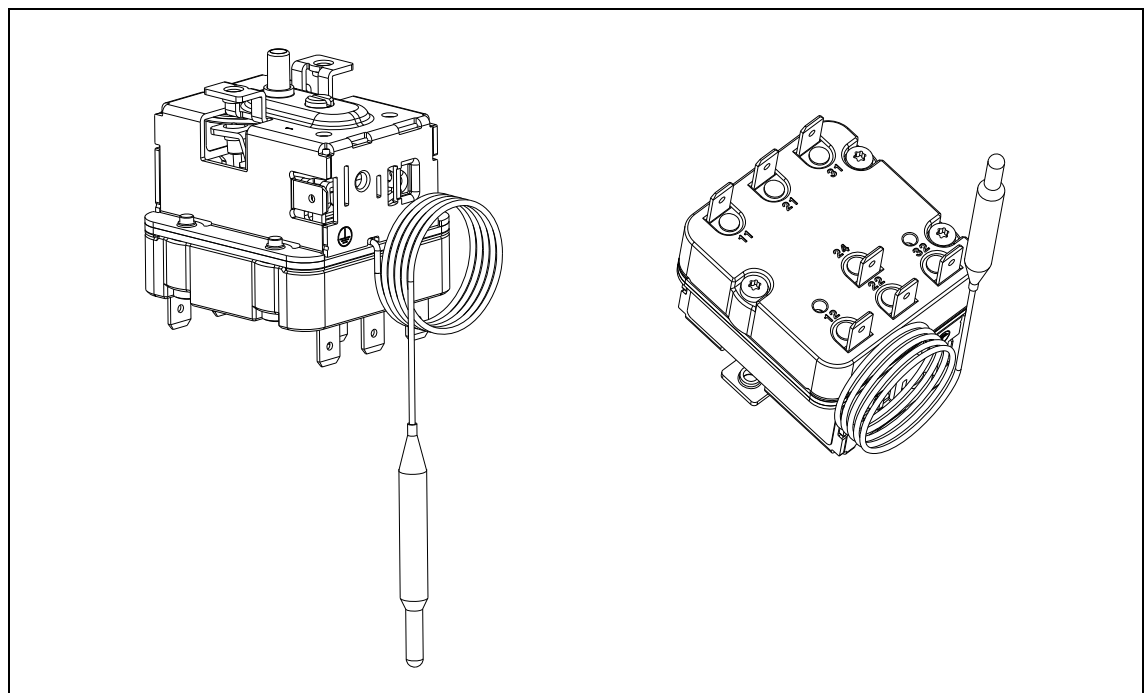


Dimensions

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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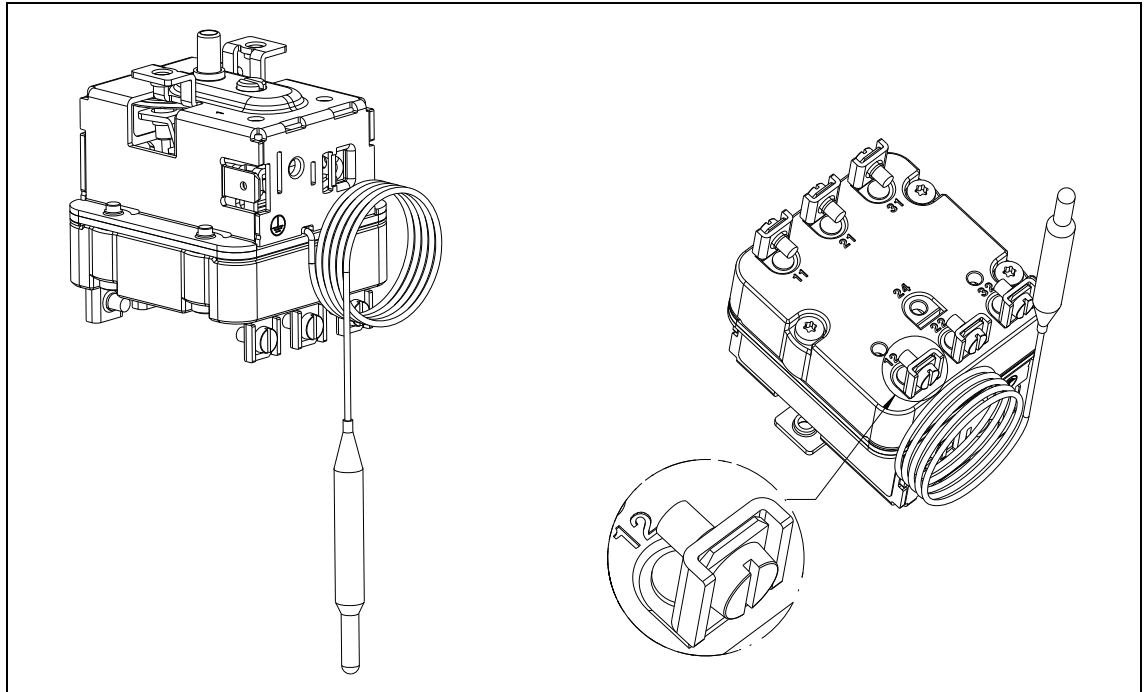
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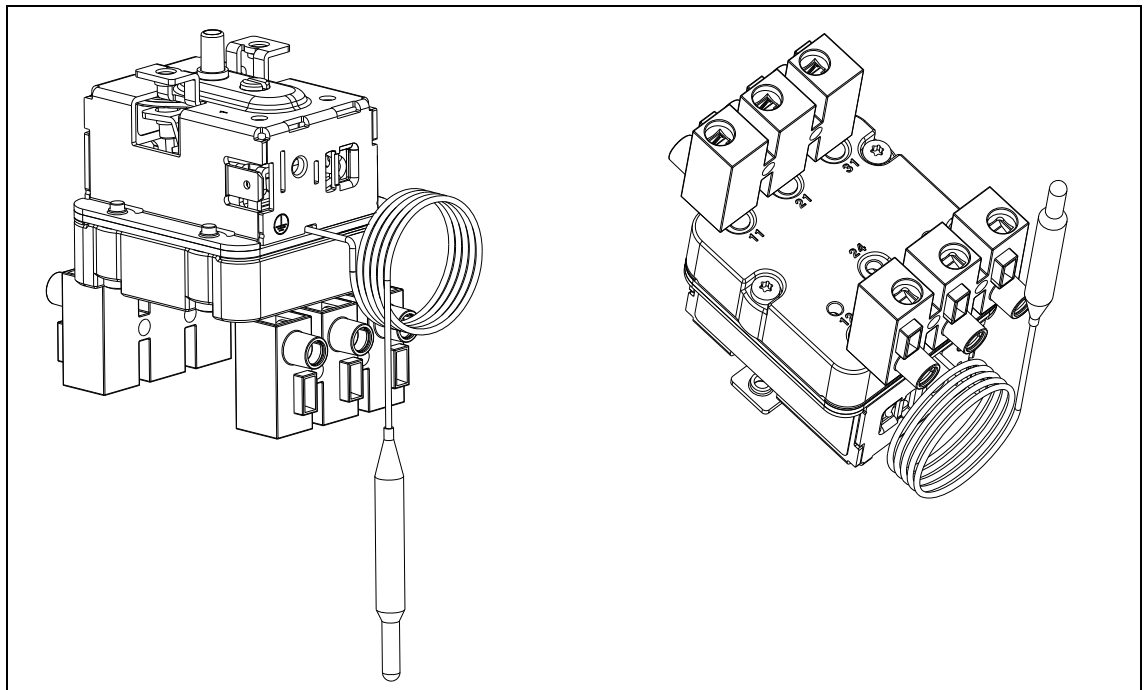


3-pole normally closed
contact
with
screw
connection



Electrical connection: screw connection up to 2.5 mm²

3-pole normally closed
contact
with
plug adapter



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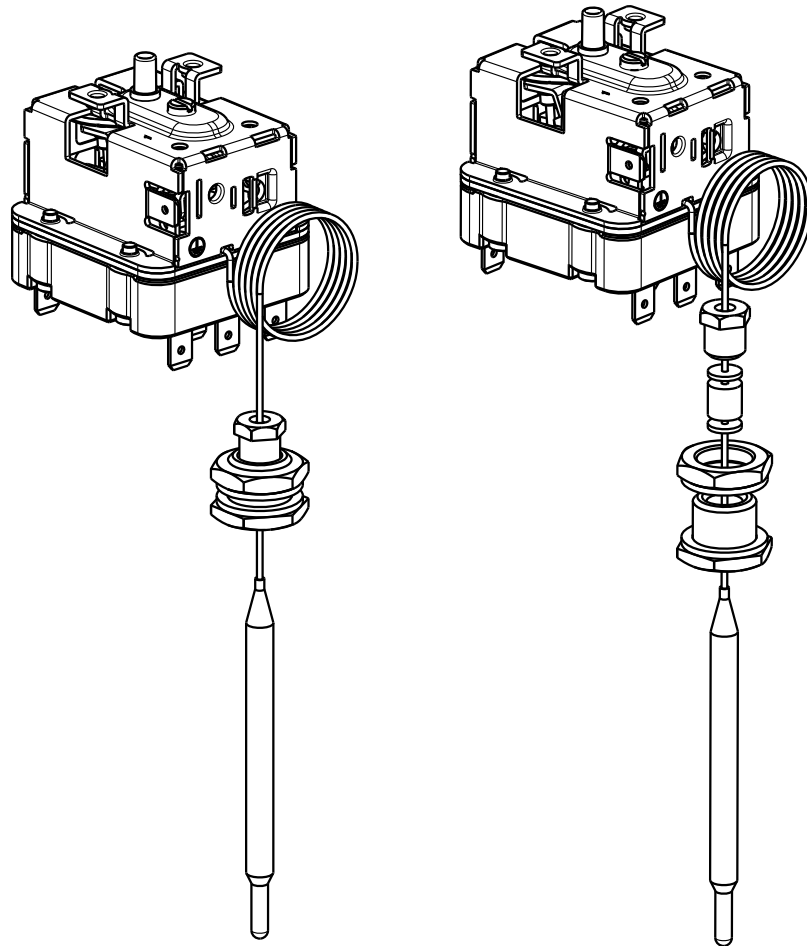
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3-pole normally closed
contact
with sealing gland, in-
cl. cylindrical probe



Electrical connection: tab connector 6.3 mm (standard)

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Order details

JUMO heatTHERM P300, 3-phase panel-mounted thermostat

Order code	(1)	Basic type	
602090		3-phase panel-mounted thermostat	
	(2)	Basic type extension	
001		Temperature controller (TR) with N/C contact	In development
080		Safety temperature limiter (STB), permanently set	
180		Temperature controller (TR) / safety temperature limiter (STB), permanently set	In development
	(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 in °C, STB	
000		None	
95		+95	
100		+100	
110		+110	
360		+360	
...		Special limit values, specifications in plain text	
	(6)	Switching differential, TR	
000		No switching differential	
	(7)	Capillary length, TR	
0		None	
	(8)	Capillary length in mm, STB	
00		None	
700		700	
1000		1000	
...		Special length, specifications in plain text	
	(9)	Capillary material	
20		Stainless steel (CrNi)	
40		Copper (Cu)	
...			
	(10)	Capillary insulating tube length in mm	
000		None	
170		170	
...		Special length, provide specifications in plain text	
	(11)	Capillary insulating tube material	
00		None	
86		PVC tube	
...		Special types upon request	

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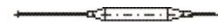
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(12) Process connection (PC)

10	Plain cylindrical probe	
66		M9, stainless steel
67	Sealing	M9, nickel-plated brass
68	gland	M14, stainless steel
69		M14, nickel-plated brass



(13) Temperature probe diameter in mm, TR

0	None
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(14) Temperature probe diameter in mm, STB

0	None
4	4.0
6	6.0

(15) Temperature probe material

20	Stainless steel (CrNi)
40	Copper (Cu)

(16) Extra codes (TZ)

000	No extra code
699	Screw connection up to 2.5 mm ²
710	Central mounting M10 × 1 with acorn nut
918	Without trip-free function
964	Plug adapter up to 4 mm ²
972	Probe und capillary welded
981	Protection conductor (grounding) with screw connection

Special versions upon request!

Order code

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	a

Order example

602090	/	080	-	031	-	000	-	360	-	000	-	0	-	700	-	20	-	120	-	86	-	10	-	0	-	4	-	20	/	972	,
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^a State extra codes one after another, separated by commas.

Stock version

Type	Capillary mm	Probe diameter (d) × L mm	Limit value in °C with indication of tolerance	Electrical connection	Part no.
602090/080	700	(6) × 75	95 (-12)	Tab connector 6.3 mm	60003431
			110 (-15)		60003432
		(4) × 75	360 (-30)		60003433

Type	Part no.
602090/080-031-000-95-000-0-700-20-170-86-10-0-6-20/972	60003431
602090/080-031-000-110-000-0-700-20-170-86-10-0-6-20/972	60003432
602090/080-031-000-360-000-0-700-20-170-86-10-0-4-20/972	60003433

(Delivery within 3 working days after receipt of order)

Accessories	Part no.
1 plug adapter (2 pieces are required for each device)	00689177