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



Type 602090, standard

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) and temperature limiter (TB).
In the event of a malfunction, the STB will set the system being monitored to a safe operating status.

Switching functions

Safety temperature limiter (STB)
If the temperature at the temperature probe exceeds the configured setpoint value, hen the switching mechanics are actuated, the electrical circuit is opened, and the mechanism is mechanically locked.
The unlocking difference denotes the difference between the limit value temperature and the earliest possible unlocking temperature.
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.
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.
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.

Temperature limiter (TB)
If the temperature at the temperature probe exceeds the configured setpoint value, hen the switching mechanics are actuated, the electrical circuit is opened, and the mechanism is mechanically locked.

The NC circuit does not open:

- when the sensor cools down into the negative temperature range
- in case of a capillary break



Type 602090, central mounting M10 × 1 with acorn nut

Approvals and approval marks (see "Technical data")

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

Technical data

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)		(4) × 85
	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),

Capillary and temperature probe

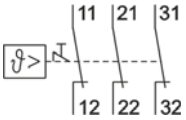
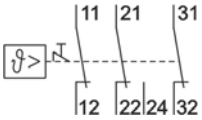
Temperature	**Capillary**		**Temperature probe**
Up to 200 °C	Copper (Cu)	Diameter 1.25 mm	Copper (Cu)
Up to 350 °C			Stainless steel (CrNi)
Up to 365 °C (optional)	Stainless steel (CrNi)		

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

Electrical data

	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)[a] cos φ = 1 (0.6)	III	125 °C	Tab connector 6.3 mm (standard)	3-pole with 1-pole normally open contact (NO)
	0.5 to 30 A (5.0 A)[a] cos φ = 1 (0.6)		80 °C		
	0.5 to 20 A (3.3 A)[a] cos φ = 1 (0.6)		125 °C	Tab connector 6.3 mm (standard) with plug adapter up to 4 mm²	3-pole without normally open contact (NO)
	0.5 to 30 A (5.0 A)[a] cos φ = 1 (0.6)		80 °C		
	0.5 to 16 A (2.6 A)[a] cos φ = 1 (0.6)		125 °C	Screw connection up to 2.5 mm²	
Normally open contact (NO)	0.5 to 2 A (0.3 A)[a] cos φ = 1 (0.6)	-	-	-	-
Normally closed contact (NC)			Normally closed contact (NC) with 1-pole normally open contact (NO)		

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 STB	2BFHKLN	With trip-free function	
	2BFKLN	Without trip-free function	
Pollution degree	2	According to DIN EN 60730-1	
Protection rating	I		

[a] Inductive load

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

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

Approvals and approval marks

VDE	
Testing agency	VDE Offenbach (Germany)
Certificate/certification numbers	40050653
Inspection basis	DIN EN 60730-1, DIN EN 60730-2-9 The product also fullfills the requirements according to IEC 60730-1.
Valid for	Type 602090/080
UL	
Testing agency	UL Germany
Certificate/certification numbers	E66358
Inspection basis	UL 60730-1, UL 60730-2-9, CAN/CSA E60730-1, CSA E60730-2-9
Valid for	Type 602090/080
EAC[a]	
Testing agency	-
Certificate/certification numbers	0198420
Inspection basis	TR ZU 004/2011 (LVD)
Valid for	Type 602090/080

[a] Russian documentation upon request

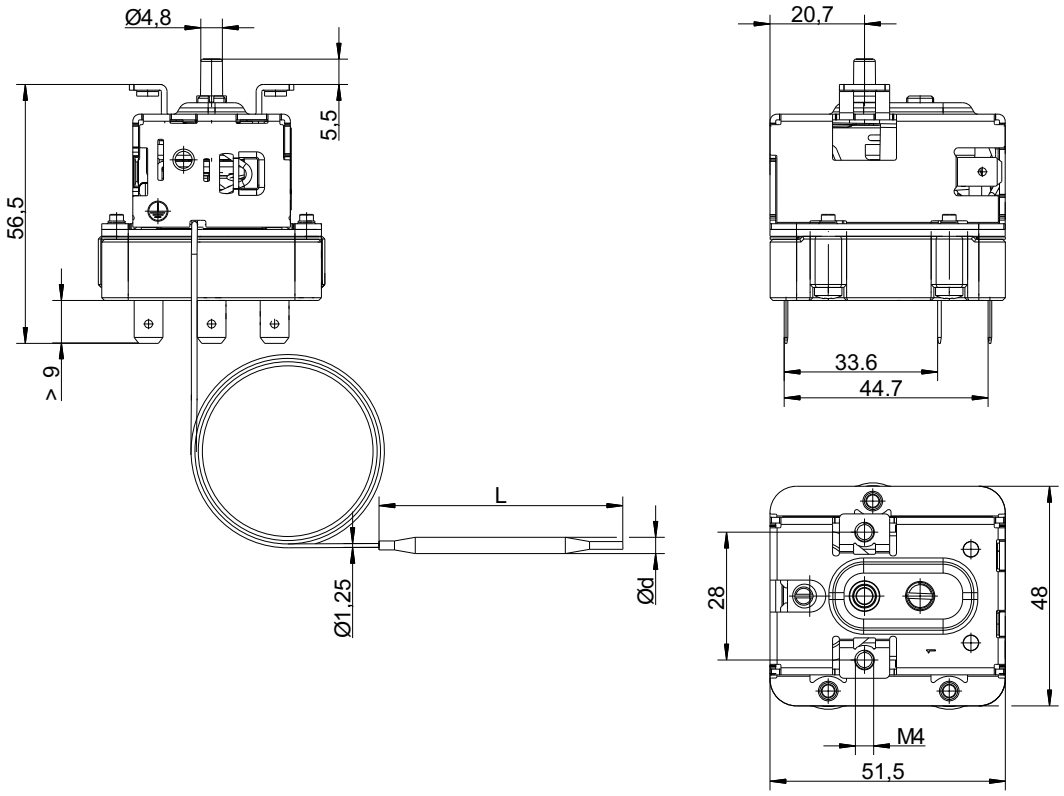
JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

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

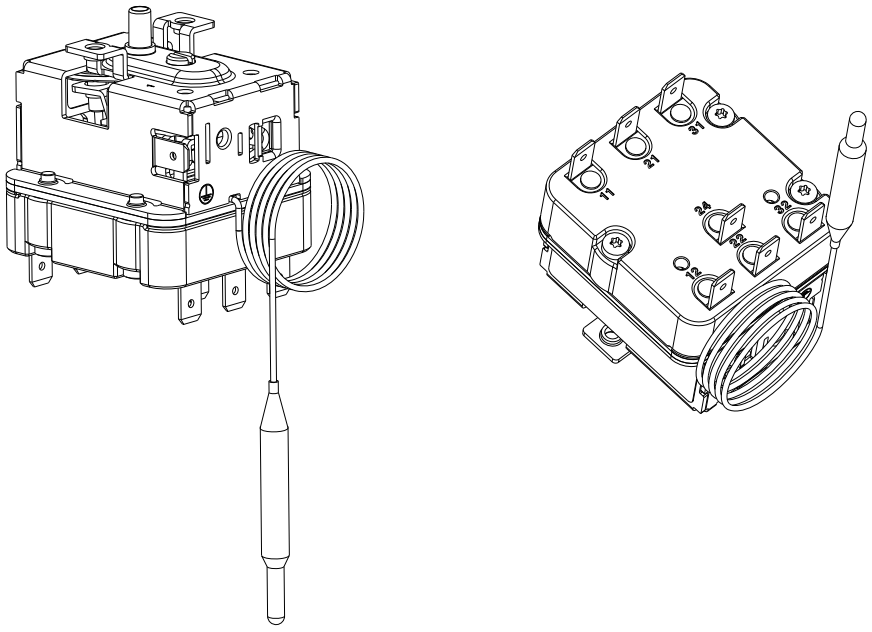
JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Dimensions

Type 602090



3-pole normally closed contact (NC) with 1-pole normally open contact (NO)



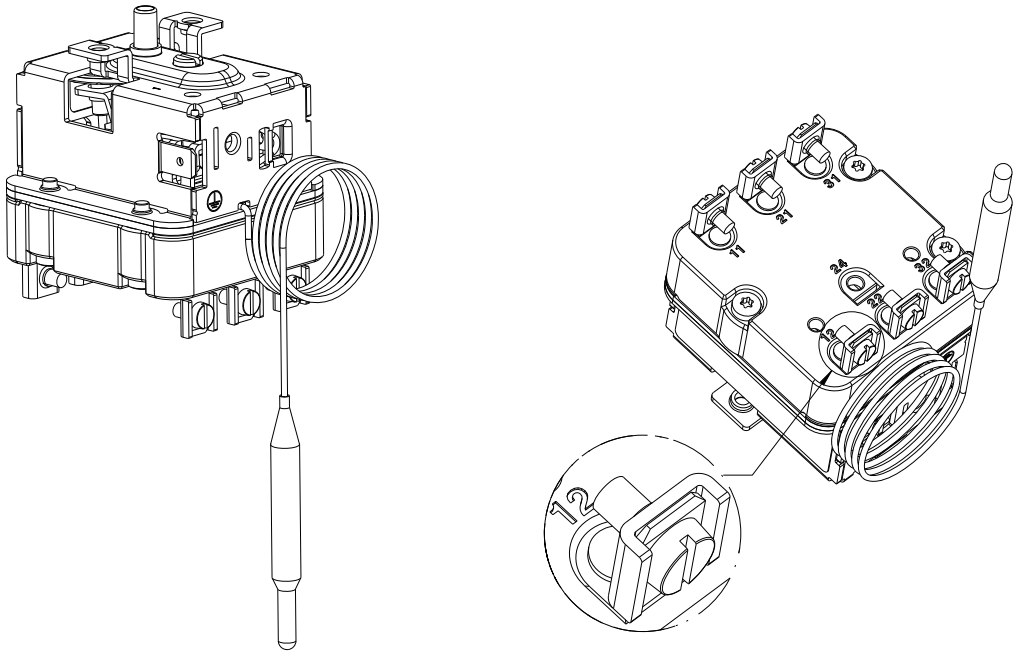
Electrical connection: tab connector 6.3 mm (standard)

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

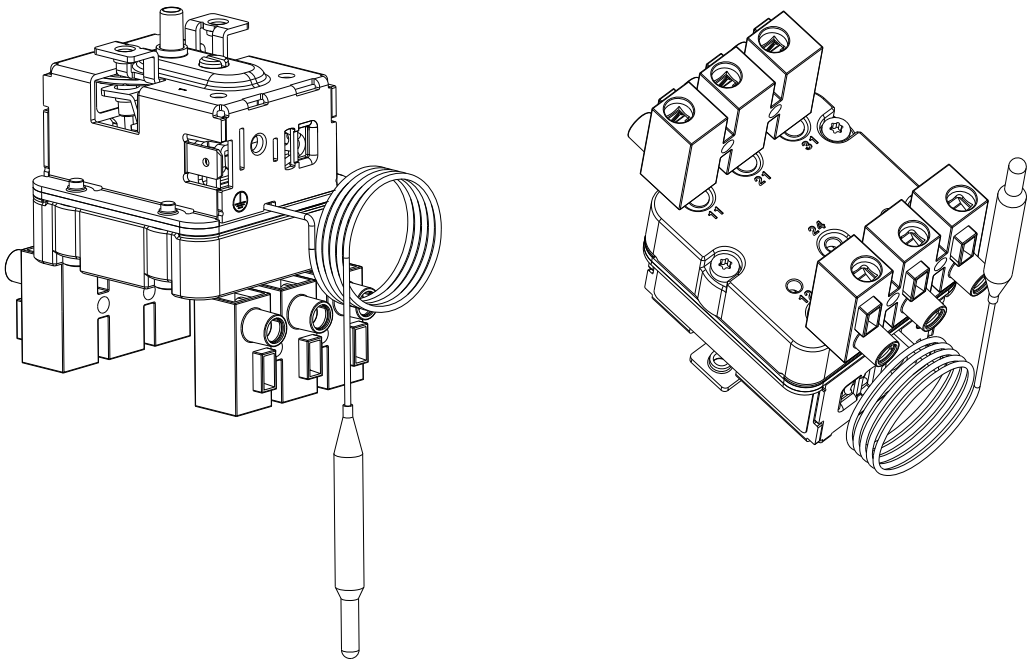
3-pole normally closed contact (NC) with screw connection



Electrical connection: screw connection up to 2.5 mm²

3-pole normally closed contact (NC) 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

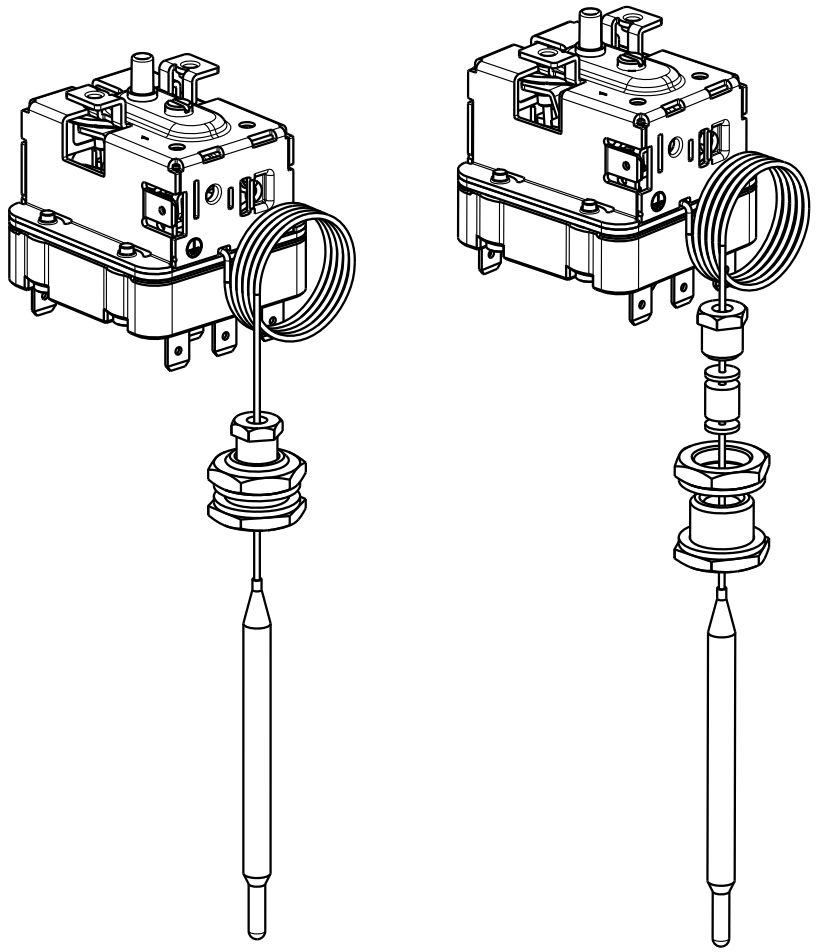
The plug adapter is available as an extra code or as an accessory with the part no. 00689177 (2 pieces are required for each device).

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

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



Electrical connection: tab connector 6.3 mm (standard)

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

Order details

	(1)	**Basic type**
602090		JUMO heatTHERM P300 – 3-phase panel-mounted thermostat
	(2)	**Basic type extension**
007		Temperature limiter (TB), permanently set
080		Safety temperature limiter (STB), permanently set
	(3)	**Contact combinations – normally closed contact (NC) and normally open contact (NO)**
030		3-pole normally closed contact (NC), without normally open contact (NO)
031		3-pole normally closed contact (NC), with 1 normally open contact (NO)
	(4)	**Control range**
60		60 °C
...		...
365		365 °C
	(5)	**Limit value**
000		None
	(6)	**Switching differential**
700		700 mm
1000		1000 mm
...		Special length upon request
	(7)	**Capillary length**
20		CrNi (stainless steel)
40		Cu (copper)
	(8)	**Capillary insulating tube length**
0		0
170		170 mm
...		Special length, specifications in plain text
	(9)	**Capillary insulating tube material**
00		None
70		PTFE
86		PVC
	(10)	**Process connection**
10		Plain cylindrical probe
67		Sealing gland M9, nickel-plated brass
69		Sealing gland M14, nickel-plated brass
	(11)	**Temperature probe diameter**
4		4 mm
6		6 mm
	(12)	**Temperature probe material**
20		CrNi (stainless steel)
40		Cu (copper)
	(13)	**Extra codes**
000		None
699		Screw connection up to 2.5 mm²
710		Central mounting M10 × 1
964		Plug adapter up to 4 mm²
972		Probe und capillary welded

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

	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Order code		/		-		-		-		-		-		-
Order example	602090	/	080	-	031	-	365	-	000	-	700	-	0	-

	(8)		(9)		(10)		(11)		(12)		(13)	
		-		-		-		-		/		[a]
	120	-	86	-	10	-	4	-	20	/	972	

[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