

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

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Bimetal Temperature Switch

Special features

- Electromechanical temperature switch with a fixed switching temperature
- Protection type IP52, IP65 and IP67
- Simple installation
- Switching capacity up to 10 A



608301/10-...-...-01



608301/30-...-...-36

Brief description

Temperature switches are used in industry in general for limiting temperature. For example, they switch the machine off in the event of overheating or switch a fan on to cool the device.

Function

The temperature measurement is carried out using a bimetal disc that switches when the rated switching temperature is reached. After cooling down to the switchback temperature, the switch returns to its original state. The switchback temperature is typically 15 to 30 K below the switching temperature.

Contact version

The bimetal temperature switches type 608301 are supplied with two switching outputs. An N/C (normally closed) contact opens an electrical circuit and switches a machine off. An N/O (normally open) contact closes an electrical circuit when the switching temperature is reached in order, for example, to activate a fan or a signal lamp. In both cases, the contacts return to their original state after cooling back to below the switchback temperature, so that the monitored device can work again in normal mode.

The bimetal switches are RoHS-compliant and free of cadmium.



608301/10-...-...-11



608301/10-...-...-61

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Technical data

Minimum order quantity 50 items

Snap-action switch 608301/10	Tab connector A 6.3-08	Connecting cable with cable fitting	Potted connecting cable without with protection con- ductor	Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650)	Plug connector M 12 x 1
Fitting	Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring				
Protection type	IP52	IP65	IP67	IP65	IP67
Electrical contact, snap-action switch Connection	A 6.3-0.8 acc. to DIN 46244	Cable diameter approx. 6.5 mm connection cross-section 0.75 mm ²		Cable diameter 6 to 8 mm; Connect terminals 1, 2, and protection conductor	--
Switching capacity	DC 30 V, +10/-15%, max. 5 A				--
	Max. AC 48 V, cos φ = 0.9 10 A	Max. AC 48 V, cos φ = 0.9 10 A		Max. AC 250 V, cos φ = 0.9 10 A	--
Switching capacity with TZ 702	DC 6 to 30 V, AC 6 to 48 V, 10 to 100 mA			DC 6 to 30 V, AC 6 to 120 V, 10 to 100 mA	--
Max. ampacity	--	At ambient temperature on the line/cable Up to 50 °C 10 A Up to 75 °C 7.3 A Up to 85 °C 4.2 A		--	--
Contact resistance	< 30 mΩ				
Dielectric strength	AC 1500 V/1 min				

Minimum order quantity 50 items

Slow-action contact 608301/20	Tab connector A 6.3-08	Connecting cable with cable fitting	Potted connecting cable without with protection con- ductor	Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650)	Plug connector M 12 x 1
Fitting	Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring				
Protection type	IP52	IP65	IP67	IP65	IP67
Electrical contact, slow-action contact Connection	--	Cable diameter approx. 4.5 mm connection cross-section 0.5 mm ²		Cable diameter 6 to 8 mm; connect terminals 1 and 2; Protection conductor not connected	--
Switching capacity	--	DC 12 V, 8 A DC 24 V, 4 A DC 30 V, 3 A Max. AC 48 V, 6 A	--	--	DC 12 V, 8 A DC 24 V, 4 A DC 30 V, 3 A Max. AC 48 V, 6 A
Max. ampacity	--	At ambient temperature on the line/cable Up to 85 °C 8 A Up to 105 °C 3.7 A		--	--

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Technical data

Minimum order quantity 50 items

Compact snap-action switch 608301/30	Tab connector A 6.3-08	Connecting cable with cable fitting	Potted connecting cable without with protection conductor		Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650)	Plug connector M 12 x 1
	Fitting Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring					
Protection type	IP52	IP65	IP67		IP65	IP67
Electrical contact, compact snap-action switch Connection	--	Cable diameter approx. 6.5 mm; Connection cross-section 0.75 mm ²	--	--	Cable diameter 6 to 8 mm; Connect terminals 1, 2, and protection conductor	Connect terminals 1 and 2
Switching capacity	--	N/C contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) N/O contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A	--	--	N/C contact max. AC 250 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) N/O contact max. AC 250 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A	N/C contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) N/O contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A
Cable	--	Ambient temperature on the line/cable Max. 90 °C			--	--
Contact resistance	< 50 mΩ					
Dielectric strength	AC 1500 V/1 min					

	608301/10 Snap-action switch	608301/20 Slow-action contact	608301/30 Compact snap-action switch
Switching temperature Increments 5K	0 °C to +140 °C	+10 °C to +140 °C	+60 °C to +140 °C
Switching differential	Approx. 15 to 30 K below the switching temperature	Approx. 3 to 12 K below the switching temperature	Approx. 20 to 45 K below the switching temperature
Switching cycles	With AC 250 V, 10 A min. 100,000 AC 120 V, 15 A min. 100,000 AC 48 V, 15 A min. 100,000 DC 30 V, 5 A min. 10,000 DC 24 V, 5 A min. 10,000 DC 12 V, 5 A min. 10,000 DC 6 V, 5 A min. 10,000	With AC 48 V, 6 A min. 100,000 DC 30 V, 3 A min. 5,000 DC 24 V, 4 A min. 5,000 DC 12 V, 8 A min. 5,000	With AC 250 V, 2.5 A min. 10,000
Switching point accuracy	Switching temperature: Up to 130 °C ± 5 K, above 130 °C ± 10 K at a temperature change rate of 1 K/min		
Vibration strength According to EN 60068-2-6	10 g (with a frequency of 50 Hz and an amplitude of ± 0.75 mm)	--	10 g (with a frequency of 10 to 1,000 Hz and an amplitude of ± 0.75 mm)
Response time	t0.9 value time approx. 3.5 min	t0.9 value time approx. 3.0 min measured in flowing oil	t0.9 value time approx. 1.5 min,
Switching output (SA)	N/C contact SA01 or N/O contact SA02		
Rated position	Any		
Weight	Approx. 50 g		

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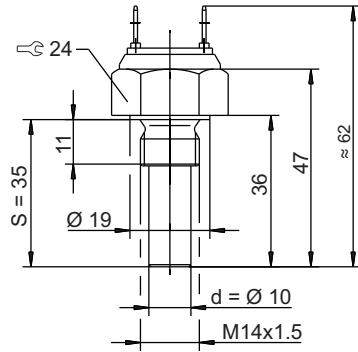
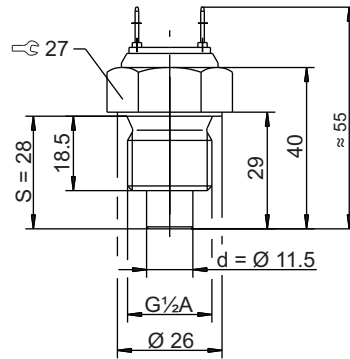
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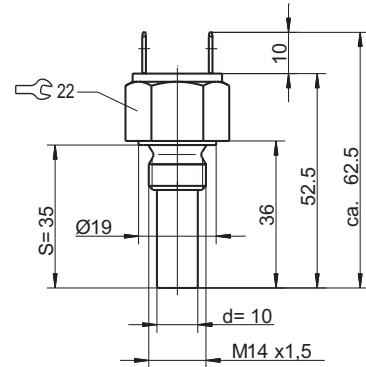
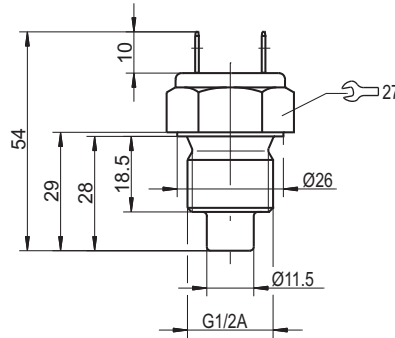


Dimensions

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 608301/10-...-...-01

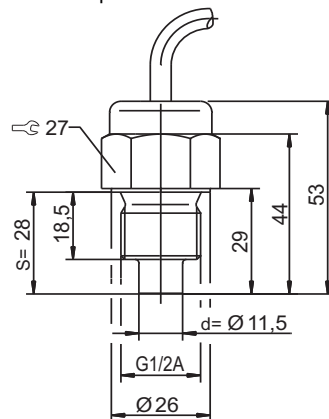


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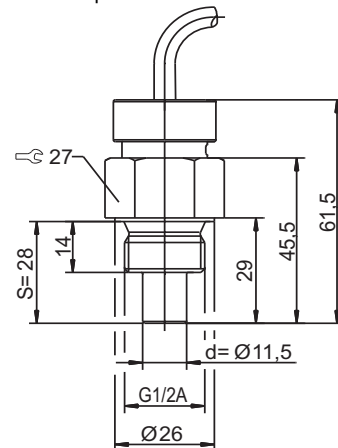


Type:
 608301/10-...-...-11

Version without protection conductor



Version with protection conductor



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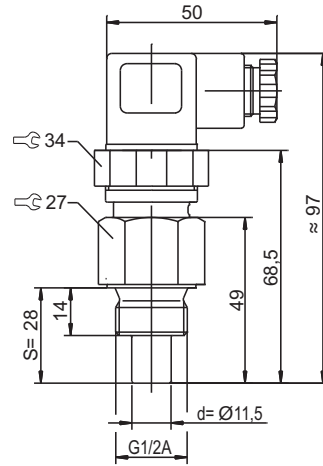
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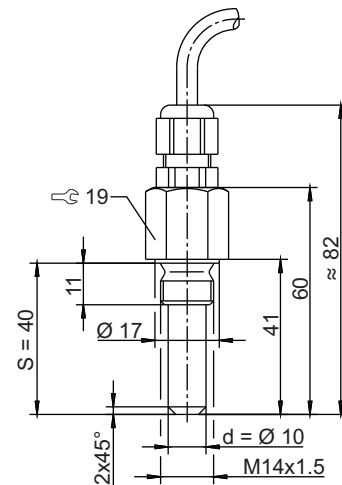
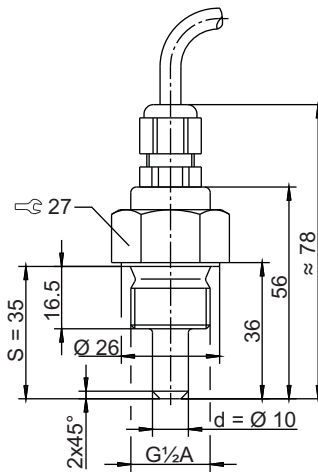


Type:
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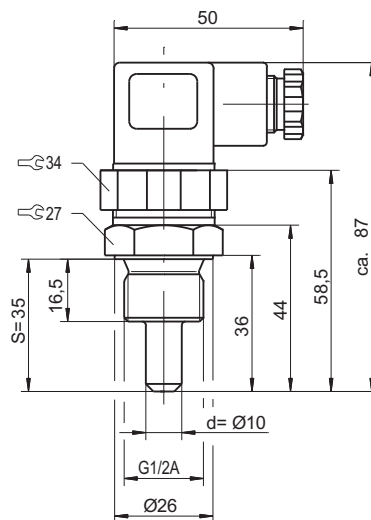
Version with protection conductor



Type:
 608301/20-.....-18



Type:
 608301/20-.....-61



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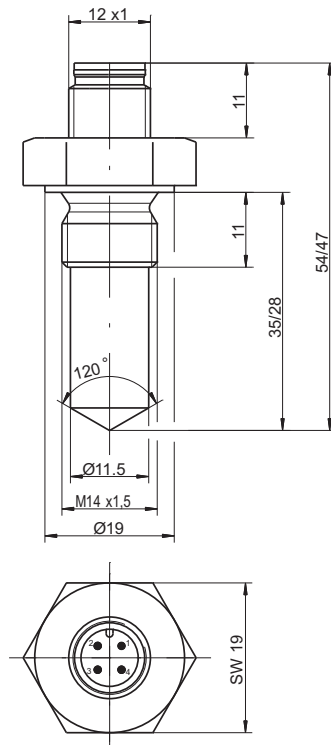
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Dimensions

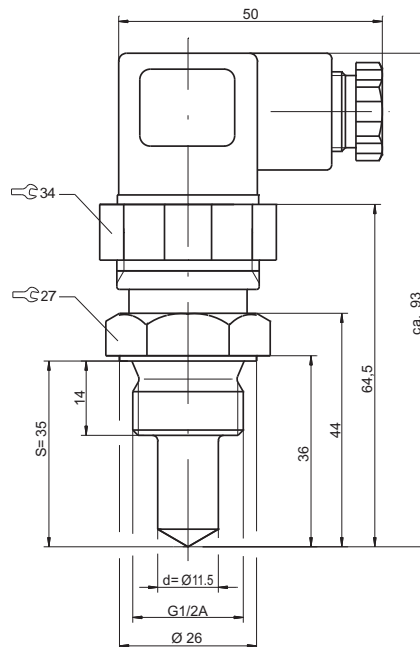
Type:

608301/30-...-...-36



Type:

608301/30-...-...-61



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Order details

Bimetal temperature switch, type 608301

Minimum order quantity 50 items

Order code	(1) Basic type	
608301	Bimetal temperature switches	
	(2) Basic type extension	
10	Snap-action switch	
20	Slow-action contact	
30	Compact snap-action switch	
	(3) Switching temperature	(with cable version, with due consideration of the ambient temperature/ampacity on the cable!)
...	from +0 °C to +140 °C	Increments 5K (with basic type extension 608301/10)
...	from +10 °C to +140 °C	Increments 5K (with basic type extension 608301/20)
...	from +60 °C to +140 °C	Increments 5K (with basic type extension 608301/30)
		(e.g. 85 Δ + 85 °C)
	(4) Switching output	
98	N/C contact (SA01)	
99	N/O contact (SA02)	
	(5) Rated voltage	
50	AC 6 to 48 V	(with basic type extension 608301/10, /20, /30 and /10 with TZ 702)
51	AC 6 to 230 V	(with basic type extension 608301/10 and /30)
52	DC 12 to 30 V	(with basic type extension 608301/20)
53	AC 6 to 120 V	(with basic type extension 608301/10 with TZ 702)
54	DC 6 to 30 V	(with basic type extension 608301/10 with and TZ 702)
	(6) Electrical connection	
01	Tab connector A 6.3 – 0.8 DIN 46244	not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/20 and /30)
02	Tab connector A 6.3 – 0.8 DIN 46244, potted	not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/20 and /30)
61	Plug connector for cable connection acc. to EN 175301-803 (DIN 43650)	
18	Connecting cable with cable fitting	not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/10)
11	Potted connecting cable	(not with basic type extension 608301/20 and /30)
36	Round plug M 12 x 1	(only in connection with basic type extension 608301/30)
	(7) Process connection material	
50	Brass (CuZn)	
78	Stainless steel (CrNi, 1.4305)	
	(8) Diameter of process connection (PC), dimension "d"	
10	10 mm	
11.5	11.5 mm	
	(9) Thread type of process connection (PC)	
121	Screw connection M 14 x 1.5	
104	Screw connection G 1/2	

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(10) Insertion length of process connection (PC), dimension "S"

28	28 mm
35	35 mm
40	40 mm

(11) Cable length

0	None
1000	1000 mm
2000	2000 mm
3000	3000 mm
4000	4000 mm
5000	5000 mm

(12) Extra codes (TZ)

000	Without extra code	
702	Gold-plated snap-action switch for currents from 10 to 100 mA and DC 6 to 30 V / AC 6 to 120 V	(only with basic type extension 608301/10)
840	With integrated Pt100	(only with basic type extension 608301/30)
841	With integrated Pt1000	(only with basic type extension 608301/30)

Other versions (switching temperatures, fittings, etc.) available upon request.

Possible combinations

Basic type extension (2) (5)	Diameter PC (7)	Thread type PC (8)	Insertion length (9)		Nominal voltage	
608301/10-...-...-01	11.5 mm	G 1/2 A	28 mm	27	50	AC 0 to 48 V
	10 mm	M 14 x 1.5	35 mm	24		
608301/10-...-...-61	11.5 mm	G 1/2 A	28 mm	27*	51	AC 0 to 230 V
	10 mm	M 14 x 1.5	35 mm			
608301/10-...-...-11	11.5 mm	G 1/2 A	28 mm	27	50	AC 0 to 48 V
				27*	51	AC 0 to 230 V
	10 mm	M 14 x 1.5	35 mm	22	50	AC 0 to 48 V
				27*	51	AC 0 to 230 V
608301/20-...-...-61	10 mm	G 1/2 A	35 mm	27	52	AC 0 to 30 V
		M 14 x 1.5				
608301/20-...-...-18	10 mm	G 1/2 A	35 mm	27		
		M 14 x 1.5	40 mm	19		
608301/30-...-...-61	11.5 mm	G 1/2 A	35 mm	27*	51	AC 0 to 230 V
		M 14 x 1.5	28 mm			
608301/30-...-...-18	11.5 mm	G 1/2 A	35 mm	27	50	AC 0 to 48 V
		M 14 x 1.5	28 mm	19		
608301/30-...-...-36	11.5 mm	G 1/2 A	35 mm	27	50	AC 0 to 48 V
		M 14 x 1.5	28 mm	19		

* With protection conductor

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)											
Order code	608301	/	..	-	...	-	..	-	..	-	...	-	..	-	/							
Order example	608301	/	10	-	140	-	98	-	50	-	01	-	50	-	10	-	121	-	35	-	0	/	000*

* List extra codes in sequence, separated by commas.