

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

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MICROSTAT-M

Type 608501

Special features

- Class 2
- Display ranges from -40°C to +600°C
- Temperature controller with actual value display as built-in device in a plastic case
- With a microswitch
- Case sizes: Ø 60 mm and Ø 80 mm
front panel: 72 x 72 mm and 96 x 96 mm

Brief description

The MICROSTAT-M is a universally applicable electromechanical temperature controller with actual value display. The device comes in a plastic case with a liquid- or gas-filled measuring system.

The temperature-dependent volume change in a measuring system filled with liquid or the temperature-dependent pressure change in a measuring system filled with gas is converted to a rotational movement of the actual value indicator by a bourdon tube; no transmission gear is required. The microswitch is actuated by the rotational movement of the indicator shaft via a tap system.



Type 608501/2160



Type 608501/2572

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Technical data

Case and/or front panel	Plastic, black; sheet steel case (extra code 415)		
Protection type	On the front: IP 53 according to DIN EN 60529 On the rear: IP 00 according to DIN EN 60529 (IP 54 with extra code 426)		
Scale	White, with black lettering		
Display	Class 2 according to DIN EN 13190		
Measuring system	Liquid filling		Gas filling
	AB ≤ 350 °C		AB ≥ 400 °C
Time constant $t_{0,632}$	Approx. 12 s, measured in water, with a probe Ø of 6 mm made of Cu.		Approx. 4 s, measured in oil, with a probe Ø of 10 mm made of stainless steel.
Influential effect of the ambient temperature On case	In % of the display range (referring to the deviation from the reference value +23°C)		
	0.15% of the display range per K ambient temperature change		0.05% of the display range per K ambient temperature change
On capillary (per m)	0.03% of the display range per K ambient temperature change		No influence
	At higher ambient temperature – higher temperature display – lower switching point		
Electrical contact Contact type	Standard	Extra code (TZ) 651	Extra code (TZ) 650
	Single-pole microswitch with mechanically actuated changeover contact		
Switching capacity	AC 230 V, +10/-15%, 48 to 63 Hz, cos φ = 1 (0.6)		
	5 (1.5) A	3 (1) A	10 (3) A
Switching differential	Approx. 2% of the display range		2 to 4% of the display range
Switching point accuracy	± 0.5% of the display range referring to the switch-off point with rising temperature		
Switching reliability	To ensure a high switching reliability, we recommend a minimum voltage of 24 V and a minimum current of 100 mA.		
Electrical connection	Standard	Extra code (TZ) 507	
	Tab connector A 6.3x0.8 according to DIN 46244	Screw terminals: conductor cross-section up to 1.5 mm ²	
Setpoint value adjustment	By setpoint adjuster in the front pane		
Limit value temperatures	For transport and storage: -20°C to +70°C (for display range -40 to +40°C up to max. 50°C; for display range -30 to +50°C up to max. 60°C)		
Rated position	Any		

Display range (AB)	Display range in °C	Measuring range in °C	Tolerance in K (+/-)
469	-40 to + 40	-40 to + 40	2.0
566	-30 to + 50	-30 to + 50	2.0
643	-20 to +120	-20 to +120	4.0
807	0 to + 60	0 to + 60	2.0
810	0 to + 80	0 to + 80	2.0
814	0 to +100	0 to +100	2.0
818	0 to +120	0 to +120	4.0
826	0 to +160	0 to +160	4.0
832	0 to +200	0 to +200	4.0
834	0 to +250	0 to +250	5.0
926	+50 to +250	+50 to +250	4.0
840	0 to +300	0 to +300	10.0
927	+50 to +300	+50 to +300	5.0
843	0 to +350	0 to +350	10.0
932	+50 to +350	+50 to +350	10.0
848	0 to +400	0 to +400	10.0
851	0 to +450	0 to +450	10.0
854	0 to +500	0 to +500	10.0
858	0 to +600	0 to +600	15.0

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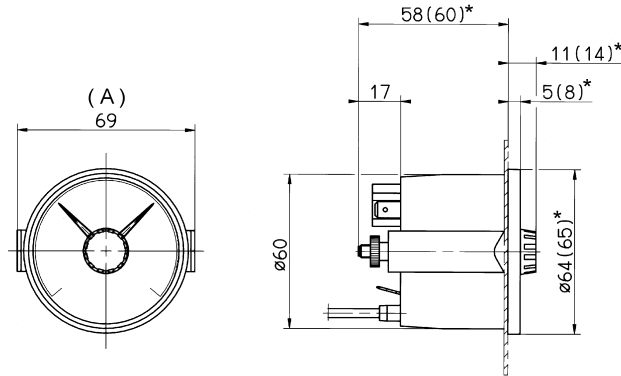
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Dimensions

Types: 608501/2160
 608501/2160 TZ 415

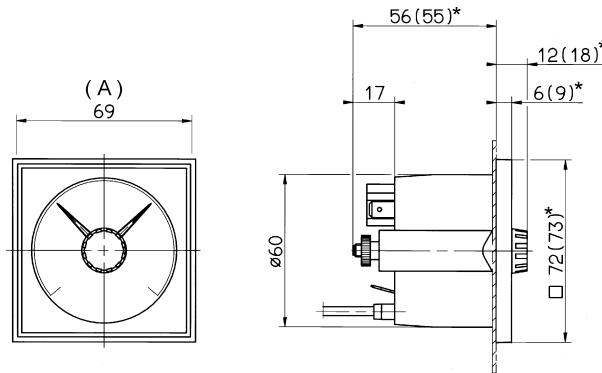


Panel cut-out $\varnothing 62$ $^{+0.5}_0$ mm

* With sheet steel case
 (extra code TZ 415)

(A) Fastening bar width

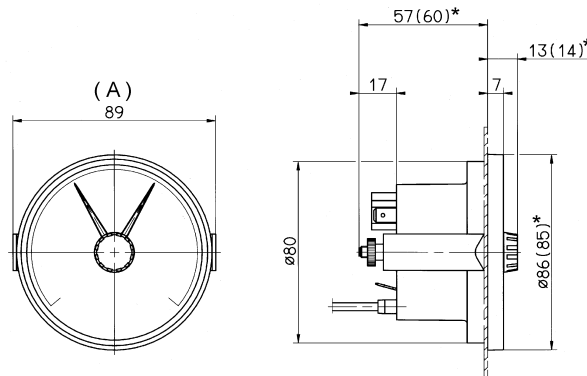
Types: 608501/2572



Panel cut-out $\varnothing 62$ $^{+0.5}_0$ mm

(A) Fastening bar width

Types: 608501/2180
 608501/2180 TZ 415

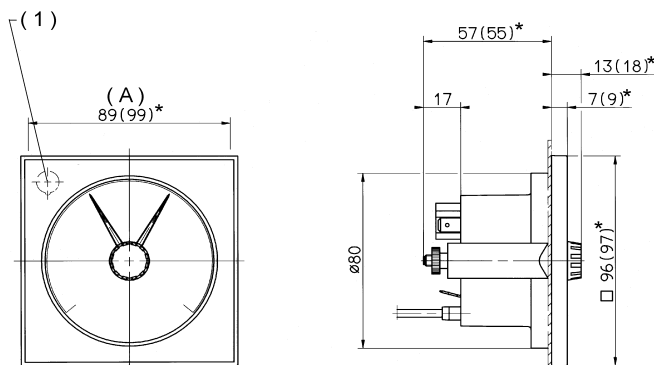


Panel cut-out $\varnothing 82$ $^{+0.5}_0$ mm

* With sheet steel case
 (extra code TZ 415)

(A) Fastening bar width

Types: 608501/2596
 608501/2596 TZ 415



Panel cut-out $\varnothing 82$ $^{+0.5}_0$ mm or 92 x 92 $^{+0.8}_0$ mm (TZ 460)

* With sheet steel case
 (extra code TZ 415)

(1) TZ 572 (control lamp)
 only with panel cut-out
 92 x 92 $^{+0.8}_0$ mm

(A) Fastening bar width

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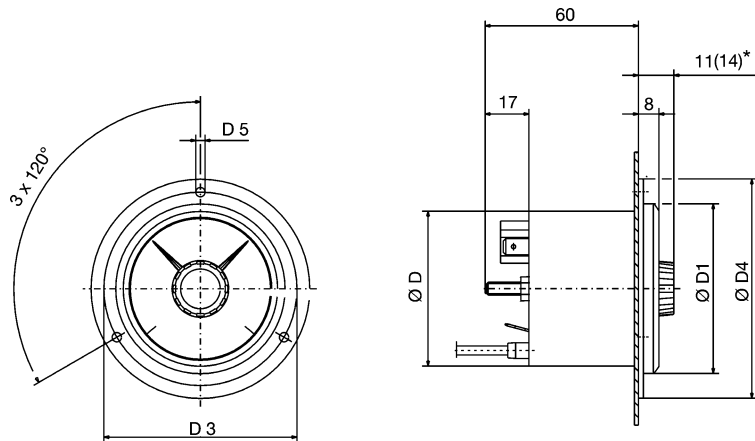
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Dimensions

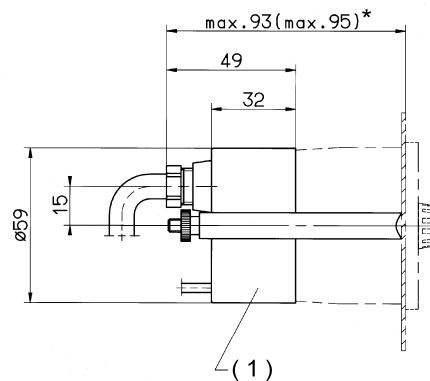
Types: 608501/2060
 608501/2060 TZ 415
 608501/2080 TZ 415



* With sheet steel case
 (extra code TZ 415)

Type	Ø D	Ø D1	Ø D3	Ø D4	Ø D5	Panel cut-out Ø $^{+0.5}_0$ mm
608501/2060 608501/2060 TZ 415	60	66	75	85	3.6	62
608501/2080 TZ 415	80	86	95	110	4.8	82

Extra code 426



* With sheet steel case
 (extra code TZ 415)

(1) Extra code TZ 426

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Order details

MICROSTAT-M Type 608501

Order code	(1) Basic type
	Mechanical temperature controller MICROSTAT-M class 2 with a microswitch
608501/2060	Design type: 20; case size: \varnothing 60 mm
608501/2080	Design type: 20; case size: \varnothing 80 mm (only with TZ 415)
608501/2160	Design type: 21; case size: \varnothing 60 mm
608501/2180	Design type: 21; case size: \varnothing 80 mm
608501/2572	Design type: 25; case size: 72 x 72 mm
608501/2596	Design type: 25; case size: 96 x 96 mm
	(2) Display range (AB)
	Display range °C
469	-40 to + 40
566	-30 to + 50
643	-20 to +120
807	0 to + 60
810	0 to + 80
814	0 to +100
818	0 to +120
826	0 to +160
832	0 to +200
834	0 to +250
926	+50 to +250
840	0 to +300
927	+50 to +300
843	0 to +350
932	+50 to +350
848	0 to +400
851	0 to +450
854	0 to +500
858	0 to +600
	(3) Capillary type (FL) ¹
02	FL 02 Cu capillary with Cu textile braiding, approx. \varnothing 2.5 mm (up to AB end value +300°C)
11	FL11 Cu capillary with PE coating, approx. \varnothing 3.5 mm (up to AB end value +120°C)
17	FL 17 Stainless steel capillary, \varnothing 1.5 mm
21	FL21 Cu capillary, \varnothing 1.0 mm (up to AB end value +300°C)
	(4) Capillary length ¹
1000	1000 mm
2000	2000 mm
3000	3000 mm
4000	4000 mm
5000	5000 mm
...	Special length (specifications in plain text: 1,000 mm increments, maximum length 10,000 mm)

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Order details

MICROSTAT-M Type 608501

Order code (5) Process connection (PC)¹

750	TF 01; Temperature probe with stepped support tube	
752	TF 11; Temperature probe without support tube	
843	TA 02; Protection tube with union nut and loose screw connection ²	
161	TA 03; Protection tube with loose union nut	
847	TA 06; Displaceable threaded fitting on support tube ²	
311	TA 20; Protection tube with loose screw connection and connection collar ²	
872	TA 21; Protection tube with loose pressure screw and conical seal	
873	TA 22; Protection tube with loose pressure screw, conical seal and loose screw connection ²	
401	TA 23; Protection tube with pressure screw and contact pressure spring	
913	SH 07; Screw-in sleeve, multi-sectional, with clamping piece and fixing screw ²	
820	SH 09; Weld-in sleeve, multi-sectional, with clamping piece and fixing screw (not with FL21 – weld collar with steel 1.4515)	
876	SH 10; Screw-in sleeve, multi-sectional ²	
871	SH 11; Screw-in sleeve, multi-sectional ²	

(6) Diameter of process connection (PC)¹

6	Ø 6 mm
8	Ø 8 mm
10	Ø 10 mm
11	Ø 11 mm
12	Ø 12 mm

(7) Thread type of process connection (PC)¹

000	Without thread (for TF 01 and TF 11)
103	Screw connection G ³ / ₈
104	Screw connection G ¹ / ₂
105	Screw connection G ³ / ₄
114	Screw connection M 10 × 1 (only for TA 23 and SH 11)

(8) Material, probe / support tube¹

26	Stainless steel (CrNi, 1.4571)
96	Copper (Cu) / brass (CuZn) (up to 200 °C)
95	Stainless steel (CrNi, 1.4571) – probe / brass (CuZn) – support tube (from 250 °C)

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Order details

MICROSTAT-M Type 608501

Order code (9) Material of process connection (PC)¹

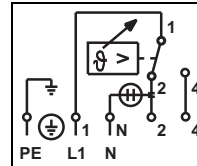
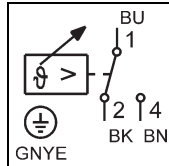
00	Without (only TF 01 and TF 11)
26	Stainless steel (CrNi, 1.4571)
46	Brass (CuZn)

(10) Insertion length, process connection (PC)¹ (dimension "EL" or "S")

0	Minimum insertion length TF 11 (active probe dimension)
50	50 mm
100	100 mm
150	150 mm
200	200 mm
...	Special length (specifications in plain text – 50 mm increments)

(11) Switching output (SA)

20 SA 20 One contact



Standard connection diagram Connection diagram with control lamp (TZ 572)

(12) Extra codes (TZ)

000	Without extra code
315	Strain relief spring for capillary on case and probe (not with FL 21)
411	Bezel, front panel or flange ring made of metal (not with basic type extension 2080 and 2180)
415	Sheet steel case with metal bezel, front panel, or flange ring
426	Plastic cover cap to protect the tab connector or screw terminals against contact and spray water, IP 54, with cable fitting, suitable for cable Ø of 6-8 mm
460	Device centering for panel cut-out 68 x 68 mm and 92 x 92 mm (only for basic type extension 2572 and 2596)
477	Setpoint adjustment protected by the bolted cover. adjustment with tools (only with case size Ø 60 mm in the plastic case)
507	Electrical connection by screw terminals up to 1.5 mm ² cable cross-section
510	Stop for Min. — or Max. — setpoint value limitation, factory set
520	Switching point is a permanent default setting
522	Customized scale
572	Control lamp (only with types: 608501/2572 TZ 460, 415 and 608501/2596 TZ 460, 415)
650	Microswitch 10 (3) A (AC/DC 230 V, +10/-15%, 48 to 63 Hz, cos φ = 1 (0.6)) (not with TZ 577)

Special versions upon request!

Order code

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)						
608501/...	-	...	-	..	-	-	...	-	..	-	...	-	..	/	...	, ...

Order example

608501/2060	-	818	-	21	-	2000	-	750	-	8	-	000	-	96	-	00	-	100	-	20	/	000 ³
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¹ For description and special features refer to data sheet 608730.

³ Screw-in spigot according to DIN 3852 form A.

List extra codes in sequence, separated by commas.