

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

6733 Myers Road
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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, Ø 80 mm, and Ø 100 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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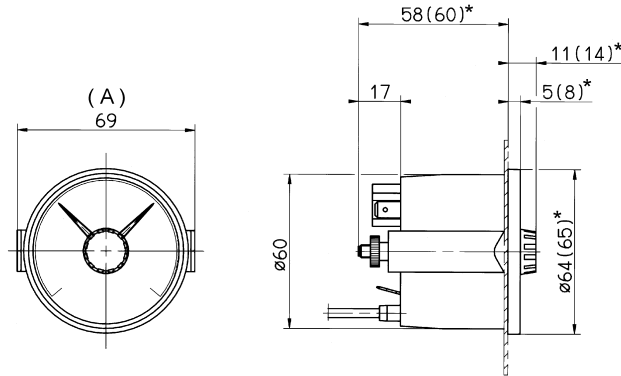
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Dimensions

Types: 608501/2160
 608501/2160 TZ 415

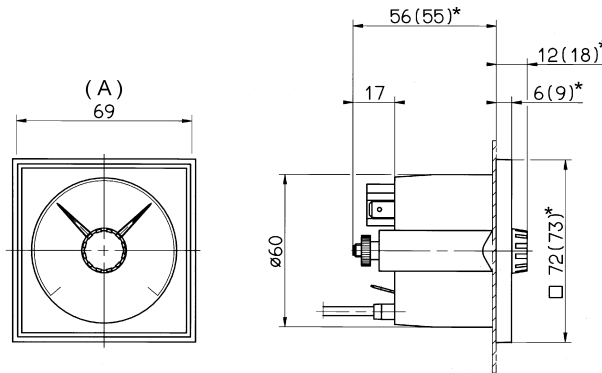


* With sheet steel case
 (extra code TZ 415)

(A) Fastening bar width

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

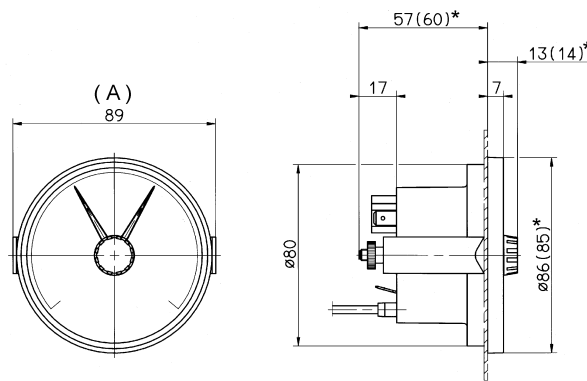
Types: 608501/2572



(A) Fastening bar width

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

Types: 608501/2180
 608501/2180 TZ 415

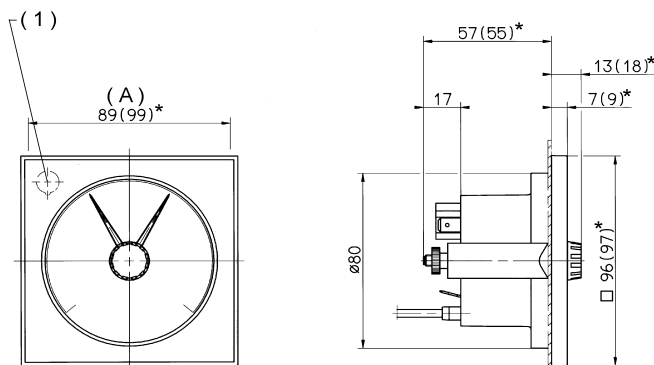


* With sheet steel case
 (extra code TZ 415)

(A) Fastening bar width

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

Types: 608501/2596
 608501/2596 TZ 415



* With sheet steel case
 (extra code TZ 415)

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

(A) Fastening bar width

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

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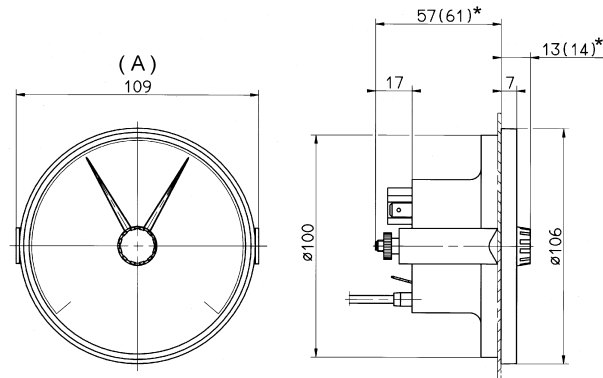
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Dimensions

Types: 608501/2110
 608501/2110 TZ 415

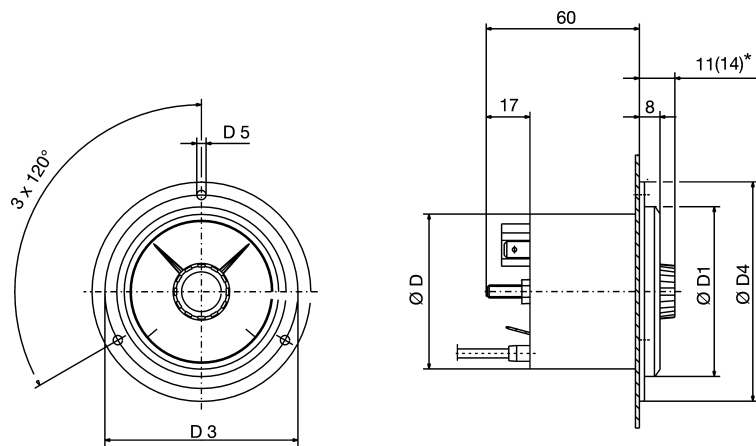


* With sheet steel case
 (extra code TZ 415)

(A) Fastening bar width

Panel cut-out \varnothing 102 $^{+0.5}_0$ mm

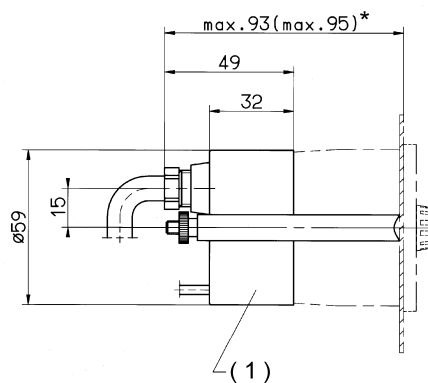
Types: 608501/2060
 608501/2060 TZ 415
 608501/2080 TZ 415
 608501/2010 TZ 415



* With sheet steel case
 (extra code TZ 415)

Type	\varnothing D	\varnothing D1	\varnothing D3	\varnothing D4	\varnothing D5	Panel cut-out \varnothing $^{+0.5}_0$ 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
608501/2010 TZ 415	100	107	116	132	4.8	102

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: ø 60 mm	
608501/2080	Design type: 20; case size: ø 80 mm (only with TZ 415)	
608501/2010	Design type: 20; case size: ø 100 mm (only with TZ 415)	
608501/2160	Design type: 21; case size: ø 60 mm	
608501/2180	Design type: 21; case size: ø 80 mm	
608501/2110	Design type: 21; case size: ø 100 mm (only with TZ 415)	
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. Ø 2.5 mm (up to AB end value +300°C)
11	FL11 Cu capillary with PE coating, approx. ø 3.5 mm (up to AB end value +120°C)
17	FL 17 Stainless steel capillary, Ø 1.5 mm
21	FL21 Cu capillary, Ø 1.0 mm (up to AB end value +300°C)

(4) Capillary length¹

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

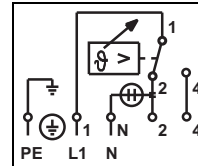
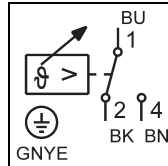
- 00 Without (only TF 01 and TF 11)
- 26 Stainless steel (CrNi, 1.4571)
- 46 Brass (CuZn)

(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 mm² 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 / 000³

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.