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JUMO Panel-Mounted Thermostats EM

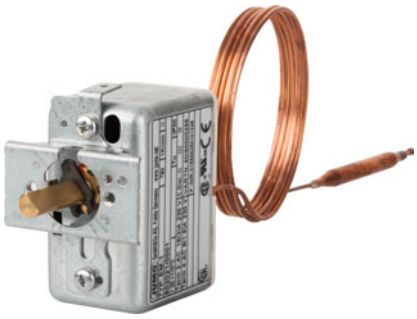
with 1, 2, 3, or 4 single-pole snap-action switches

Description

Thermostats control and monitor thermal processes. The devices of the EM series are available as temperature controllers (TR), temperature monitors (TW), and temperature limiters (TB). The TB places the monitored system into a safe operating condition in the event of malfunctions.

Panel-mounted thermostats operate according to the fluid expansion principle – a microswitch is used as an electrical switching element.

The current safety thermostats STB and STW are listed in data sheet 602026.



Areas of application

- Plastics industry
- Heating industry
- Mechanical engineering
- Baking ovens
- Air-conditioning technology

Special features

- Temperature ranges up to 500 °C with DIN and UL certification, technically up to 650 °C
- Batch size according to customer requirements

Switching functions

Temperature controller TR and temperature monitor TW
If the temperature on the temperature probe exceeds the setpoint value, the electrical circuit is opened or closed by a microswitch. If the temperature falls below the selected setpoint value (by the switching differential), the microswitch is reset to its initial position.

Temperature limiter TB
If the temperature at the temperature sensor exceeds the set limit value, the electrical circuit is opened or closed by a microswitch.

After the temperature has fallen below the limit value by approx. 10 % of the scale range (approx. 15 % with setpoint setting >350 °C), the microswitch can be unlocked manually.

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Approval marks and certificates

	Designation	DIN
	Testing agency	DIN CERTCO/TÜV Süd
	Certificates/certification numbers	TR777
	Inspection basis	DIN EN 14597
	Valid for	Type 602021/0001 (EM-1 up to 500 °C)
	Designation	DIN
	Testing agency	DIN CERTCO/TÜV Süd
	Certificates/certification numbers	TW778
	Inspection basis	DIN EN 14597
	Valid for	Type 602021/0002 (EM-2), Type 602021/0003 (EM-3 up to 500 °C)
	Designation	DIN
	Testing agency	DIN CERTCO/TÜV Süd
	Certificates/certification numbers	TB780
	Inspection basis	DIN EN 14597
	Valid for	Type 602021/0004 (EM-4), Type 602021/0005 (EM-5 up to 500 °C)
	Designation	DIN
	Testing agency	DIN CERTCO/TÜV Süd
	Certificates/certification numbers	STW(STB)775 S
	Inspection basis	DIN EN 14597
	Valid for	Type 602021/0020 (EM-20), Type 602021/0030 (EM-30 up to 500 °C)
	Designation	DIN
	Testing agency	DIN CERTCO/TÜV Süd
	Certificates/certification numbers	STB782
	Inspection basis	DIN EN 14597
	Valid for	Type 602021/0040 (EM-40), Type 602021/0050 (EM-50 up to 500 °C)
	Designation	B10d
	Testing agency	TÜV Süd
	Certificates/certification numbers	C-T 1370-01/11[a]
	Inspection basis	DIN EN 14597, DIN EN ISO 13849-1, draft DIN EN 13611 A2
	Valid for	Type 602021/0020 (EM-20), Type 602021/0030 (EM-30), Type 602021/0040 (EM-40), Type 602021/0050 (EM-50)
	Designation	UL
	Testing agency	UL
	Certificates/certification numbers	E66358
	Inspection basis	UL 873, CSA-22.2 No. 24
	Valid for	Type 602021/0001 (EM-1), Type 602021/0002 (EM-2), Type 602021/0003 (EM-3), Type 602021/0004 (EM-4), Type 602021/0005 (EM-5), Type 602021/0020 (EM-20), Type 602021/0030 (EM-30), Type 602021/0040 (EM-40), Type 602021/0044 (EM-44), Type 602021/0050 (EM-50), Type 602021/0133 (EM-133 up to 500 °C)
	Designation	UL
	Testing agency	UL
	Certificates/certification numbers	MH45736
	Inspection basis	UL 353, CSA-22.2 No. 24
	Valid for	Type 602021/... (EM-....up to 500 °C)

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PED	Designation	PED
	Testing agency	TÜV Süd
	Certificates/certification numbers	Z-IS-TAF-MUC-18-06-2652099-07102504
	Inspection basis	2014/68/EU, DIN EN 14597
	Valid for	Type 602021/0020 (EM-20), Type 602021/0030 (EM-30), Type 602021/0040 (EM-40), Type 602021/0050 (EM-50 up to 500 °C)
EN 50155	Designation	Railway application
	Testing agency	JUMO
	Certificates/certification numbers	–
	Inspection basis	EN 50155
	Valid for	Type 602021/... (EM-...) with extra code 950

[a] For detailed information please refer to safety manual JUMO EM602021.

Russian documentation available upon request.

Types and DIN registry numbers

DIN-tested up to max. 500 °C.

The DIN registration number becomes invalid if protective sleeves are used that do not match the specified combination of material, sensor diameter, and protective tube diameter.

Version	Types	Switching function	DIN registry numbers
1 pole snap-action switches	EM-1	TR	TR777
	EM-2	TW	TW778
	EM-3[a]	TW	TW778
	EM-4[a]	TB	TB780
	EM-5	TB	TB780
2 single-pole snap-action switches	EM-13	TR/TW	TR777
	EM-23[a]	TW/TW	TW778
	EM-33	TW/TW	TW778
	EM-14	TR/TB	TR777
	EM-24	TW/TB	TW778
	EM-44[a]	TB/TB	TB780
	EMF-54	TB/TB	TB780
3 single-pole snap-action switches	EMF-133	TR/TW/TW	TR777
	EMF-134	TR/TW/TB	TR777
	EMF-233	TW/TW/TW	TW778
	EMF-234	TW/TW/TB	TW778
	EMF-333[a]	TW/TW/TW	TW778
	EMF-444[a]	TB/TB/TB	TB780
	EMF-544	TB/TB/TB	TB780
4 single-pole snap-action switches	EMF-1333	TR/TW/TW/TW	TR777
	EMF-2333	TW/TW/TW/TW	TW778
	EMF-3333[a]	TW/TW/TW/TW	TW778

[a] Setpoint value or limit value permanently factory-set according to customer specifications.

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Technical data

Control ranges and probe table

For TR, TW, TB – liquid-filled

Control range/ limit value range	Switching differential	Max. probe temperature	Max. switching head temperature	Max. capillary length	Max. sequence contact gap	Probe length "L", probe Ø "d" in mm	
°C	%	°C	°C	in mm	K	Ø 6 (Standard)	Ø 8
-20 to +40	1 2.5 5 7	50 50 95 100	50	5000	5 8 25 50	245 245 138 103	145 145 91 73
0 to 50	1 2.5 5 7	60 60 105 110	60		5 10 25 50	283 283 159 117	165 165 101 80
20 to 90	1 2.5 5 7	115 115 140 175	80		7 14 35 70	210 210 121 91	127 127 82 67
0 to 100	1 2.5 5 7	125 125 165 200	80		10 20 50 100	157 157 94 73	100 100 68 58
30 to 110	1 2.5 5 7	135 135 170 200	80		8 16 40 80	188 188 110 84	116 116 76 63
0 to 150	1 2.5 5	173 173 200	80		15 30 75	113 113 72	78 78 57
0 to 200	1 2.5	230 230	80		20 40	113	78
50 to 200	1 2.5	230 230	80		15 30	139	92
50 to 250	1 2.5 5	288 288 300	80		20 40 100	105 105 64	70 70 49
50 to 300	1 2.5	345 345	80		25 50	87	61

For TR, TW, TB – gas-filled

Control range/ limit value range	Switching differential	Max. probe temperature	Max. switching head temperature	Max. capillary length	Max. sequence contact gap	Probe length "L", probe Ø "d" in mm	
°C	%	°C	°C	in mm	K	Ø 6 (Standard)	Ø 8
20 to 400	5 10	460 500	80	5000	75 200	237 127	137 81
20 to 500	3/5 6 10	575	80	3000 5000 5000	48 95 250	278 276 95	158 106 65

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Capillary and temperature probe

Scale limit value	Capillary	Probe
Up to 200 °C	Copper (Cu), mat. no. Cu-DHP, Ø 1.5 mm	Copper (Cu), mat. no. Cu-DHP, hard soldered
Up to 350 °C	Copper (Cu), mat. no. Cu-DHP, Ø 1.5 mm	Stainless steel (CrNi), mat. no. 1.4571, hard soldered
Up to 500 °C	Stainless steel (CrNi), Ø 1.5 mm	Stainless steel (CrNi), mat. no. 1.4571, welded
Up to 350 °C	Stainless steel (CrNi), Ø 1.5 mm	Stainless steel (CrNi), mat. no. 1.4571, welded
Up to 650 °C	Stainless steel (CrNi), Ø 1.5 mm	Stainless steel (CrNi), mat. no. 1.4841, welded
Capillary length	Standard 1,000 mm, max. 5,000 mm	
Bending radius of capillary	Min. 5 mm	

NOTE:
Upon request the capillary length can be increased up to a maximum of 5,000 mm if the allowable temperature on the sensor, capillary, and switching head is not reached.
Please state the actual temperature values occuring at the thermostat.

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Electrical data

Switching element	Snap-action switch with single-pole changeover contact
Max. switching capactiy	
On the NC contact (contact deck 1 to 2)	
TR,TW, STW (STB), STB, TB	AC 24...400 V +10 %, 0,1...10 A, AC 24...230 V +10 %, 0,1...16 (3)a A, cos φ= 1 (0,6) DC 24...230 V +10 %, 0,25 A
On the NO contact (contact deck 1 to 2)	
TR,TW, STW (STB)	AC 24...400 V +10 %, 0,1...2 A, AC 24...230 V +10 %, 0,1...8 (1,5) A, cos φ= 1 (0,6) DC 24...230 V +10 %, 0,25 A
STB, TB	AC 24...230 V +10 %, 0,1...2 (1) A, cos φ = 1 (0,6) DC 24...230 V +10 %, 0,25 A, (only with extra code 574)
With switching differential	
TR,TW 1 %, 3 %	AC 24...230 V +10 %, 0,1...6 (2) A, cos φ = 1 (0,6) DC 24...230 V +10 %, 0,25 A
TR, TW, 2,5 % TB, STB with microswitches with gold-plating (type suffix 702)	AC/DC 10...24 V, 0,005...0,1 A
Rated surge voltage	2500 V (via the switching contacts 400 V)
Overvoltage category	II
Required fuse protection	Refer to maximum switching capacity
Electrical connection	
Standard	Tab connector A 6.3 – 0.8 DIN 46244
Extra code 699	Screw connection up to 2.5 mm2 cable cross-section (can be retrofitted)

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Operating data

Switching differential in % from the control range/limit value range	Measuring system				
	Liquid-filled		Gas-filled		
	Nominal value	Possible actual value	Nominal value	Possible actual value	
Switching function					
TR, TW, TB	2.5	Approx. 2.5 to 3.5	5	Approx. 5 to 11	Standard
	5	Approx. 5 to 6	6	Approx. 6 to 14	Upon request
	7	Approx. 7 to 8	10	Approx. 10 to 16	Upon request
	1	Approx. 1 to 2	3	Approx. 2.5 to 4	Extra cost

Sequence contact gap in multi-pole versions	Switching differential	Sequence contact gap from the scale range		Switching point accuracy of the sequential gaps from the scale range
		Minimum	Maximum	
	1 %	1 %	As per control range table	≤ 1 %
	2.5 %	1 %		≤ 1 %
	3 %, 5 %	2 %		≤ 1 %
	6 %, 7 %, 10 %	3 %		≤ 1 %
	The sequence contact gap is specified in K relative to the setpoint of contact path I. (The contact track no. is stamped on the back of the housing par.)			
	Prefix - = switching before reaching the setpoint value Prefix + = switching after reaching the setupoint value For the synchrozized version, specify "0" as the sequence contact gap.			

Switching point accuracy in % of control range/limit value range	Switching differential		In the upper third of the scale or limit value
	Liquid-filled	Gas-filled	
Switching function			
TR	1 %, 2.5 %	-	±1.5 %
	5 %	3 %, 5 %	±3 %
	7 %	6 %, 10 %	±4 %
TW	1 %, 2.5 %	-	±1.5 %
	5 %	3 %, 5 %	±3 %
	7 %	6 %, 10 %	±4 %
TB	-	-	+0 %
			-5 %

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Medium ambient temperature influence	Deviation of the ambient temperature at the switching head and/or capillary from the 22 °C calibration ambient temperature produces a switching point offset. Higher ambient temperature = low switching point Lower ambient temperature = higher switching point									
	TR, TW, TB			STW, STB	TR, TW, TB		STW, STB	TR, TW, TB, STW, STB		
For temperatures with scale limit value/ limit value	< 200 °C				≥ 200 °C ≤ 350 °C			≥ 400 °C ≤ 500 °C		
Switching differential in %	1/2.5	5	7	7/-	1/2.5	5	7/-	3/5	6	10
Ambient temperature influenceon the switching head in %/K	0.15	0.26	0.34	0.43	0.12	0.21	0.35	0.12	0.17	0.24
Ambient temperature influenceon the capillary in %/m	0,05 · K · m		0,09 · K · m		0,09 · K · m		0,07 · K· m	0,05 · K · m		
Temperature compensation (**TK**)	For detailed information see diagram.									
Temperatures										
Admissible storage temperature	-50 bis +50 °C									
Admissible ambient temperature for use	Max. 80 °C									
Nominal position (**NL**)	Any									
Operating medium	Water, oil, air, superheated steam									
Time constant $t_{0.632}$										
In water	≤ 45 s									
In oil	≤ 60 s									
In air or superheated steam	≤ 120 s									

Mode of operation	According to DIN EN 14597 (DIN EN 60730-2-9)
TR, TW	2 BL
TB	2 BFHLPV
STW (STB)	2 BKLNP
STB	2 BFHKLNPV

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Housing

Material	Galvanized sheet steel
Fastening	
Standard	With 2 M3 screws, spaced 22 mm
Extra code 704	Switching head mounting with 2 M4 screws, spaced 28 mm
Extra code 705	Switching head mounting with 2 M3 screws, spaced 33 mm
Extra code 710	Central mounting M10 × 1 with acorn nut (for TB and STB only)
Setpoint value adjustment	
TR	Switching point adjustable from outside with rotary knob.
TW, TB, STB, STW (STB)	Switching point adjustable with screwdriver.
Type EM-3, EM-4, EM-33, EM-44, EM-444, EM-3333	Permanently factory-set
Setpoint adjuster	See data sheet 606715
Scale range	Standard 250°∠ (for STB and STW (STB)), see table for control ranges and probes
Protection type	IP00 according to EN 60529
Weight	Approx. 300 g

Process connection

Material	
Protection tube up to 150 °C	CuZn (standard)
Protection tube above 150 °C	CrNi
Capillary	Plain cylindrical probe (standard) Screw-in protection tube (upon request) Screw-in sleeve with screw-in spigot G 1/2, form A, according to DIN 3852/2 and clamping piece with fixing screw for securing the probe
Insertion length S	
Standard	100, 120, 150, 200, or 300 mm (other lengths upon request)
Protection tube Ø	D = 8 mm, D = 10 mm

For further process connections and protection tubes see data sheet 606710.

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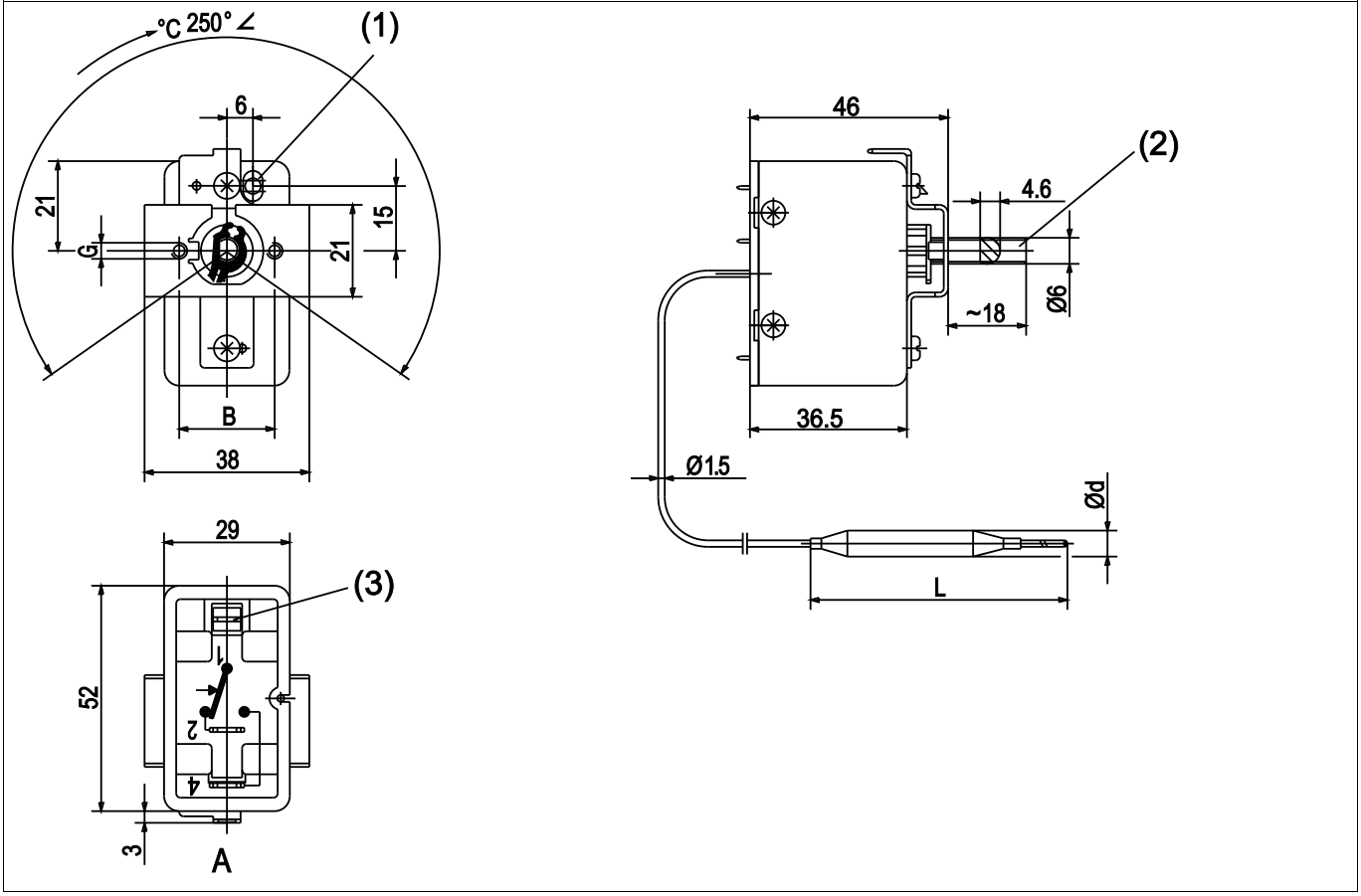
Dimensions

EM-1, EM-2, EM-3, EM-4, EM-5



1 Restart knob only for EM-4 and EM-5
2 Not applicable for EM-2, EM-3, EM-4, EM-5
3 Tab connector DIN 46244-A6,3-0,8
A Rear view

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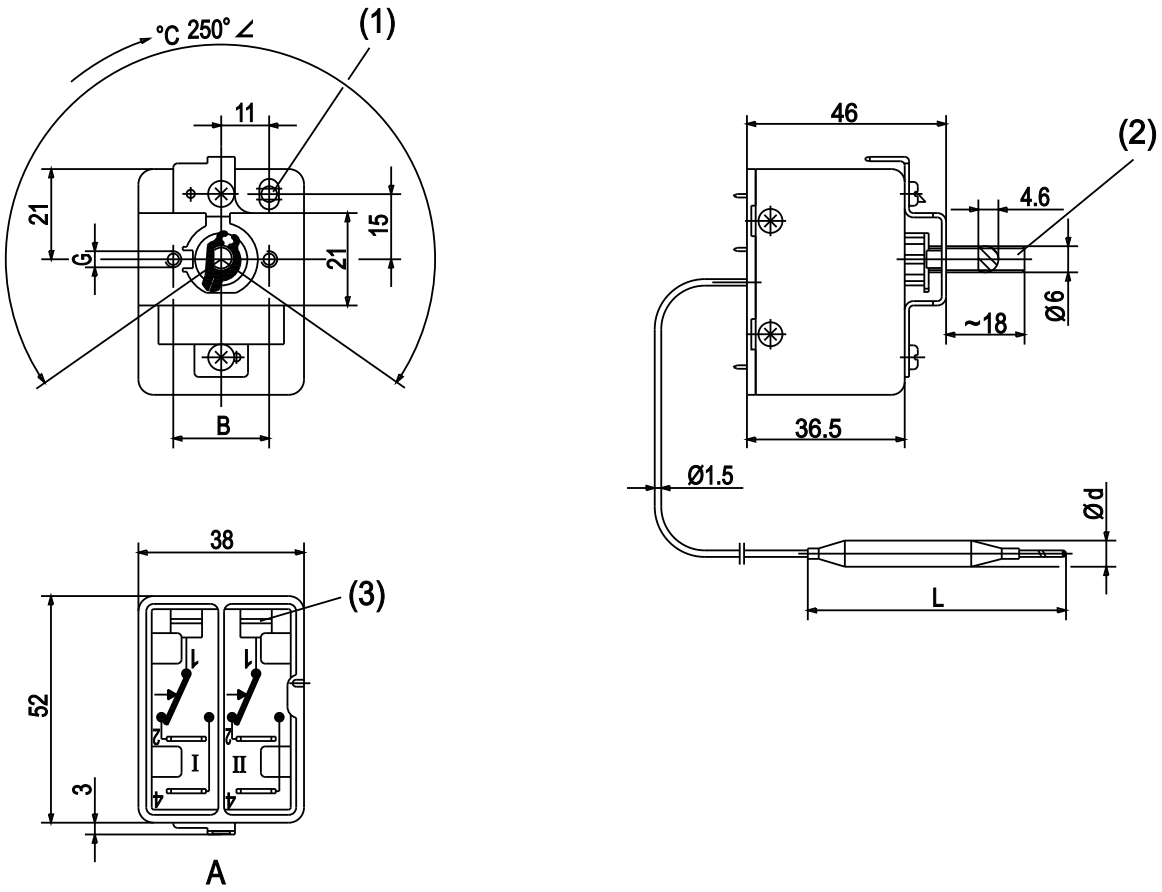
EM-13, EM-14, EM-23, EM-24, EM-33, EM-44, EM-54



1 Restart knob only for EM-14, EM-24, EM-44, EM-50 and EM-54

2 Not applicable for EM-23, EM-24, EM-33, EM-44 and EM-54

3 Tab connector DIN 46244-A6,3-0,8

A Rear view

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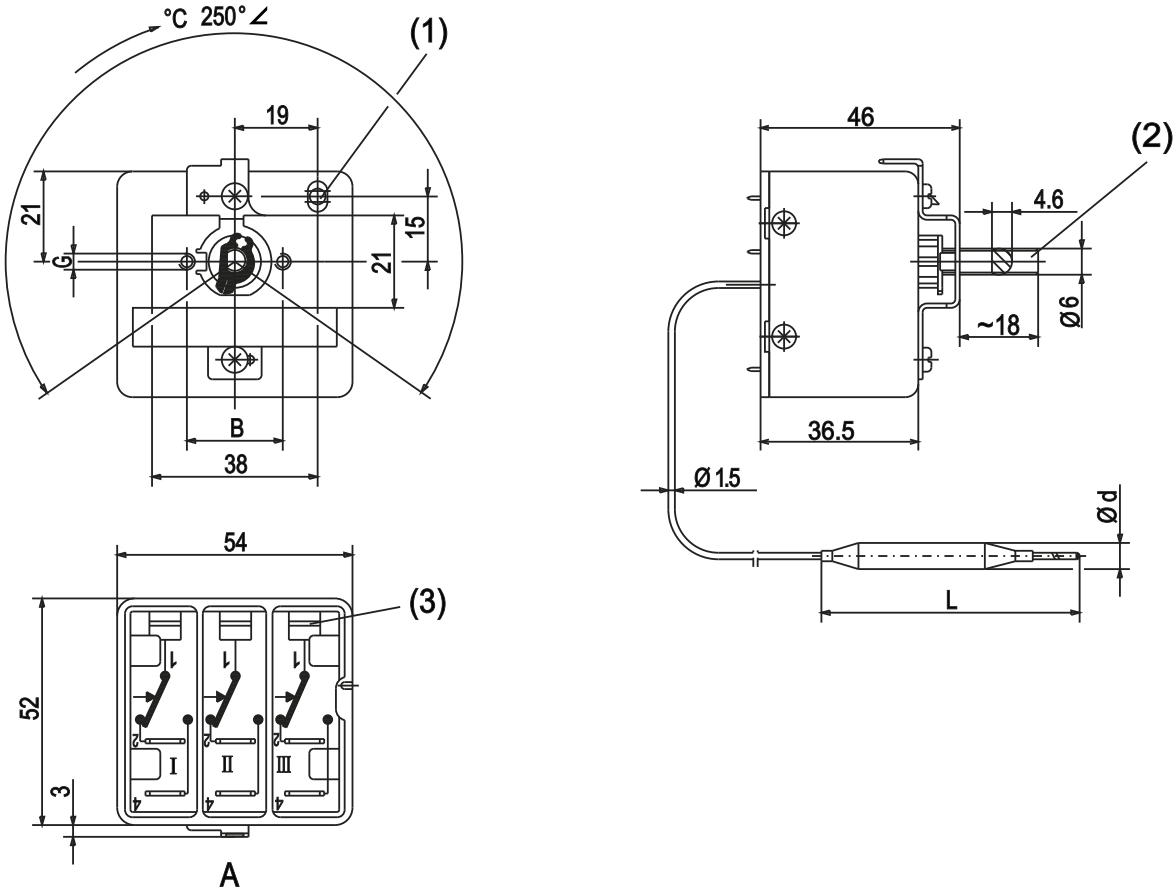
EM-133, EM-134, EM-233, EM-234, EM-333, EM-444, EM-544



1 Restart knob only for EM-134, EM-234, EM-444, EM-544

2 Not applicable for EM-233, EM-234, EM-333, EM-444, EM-544

3 Tab connector DIN 46244-A6,3-0,8

A Rear view

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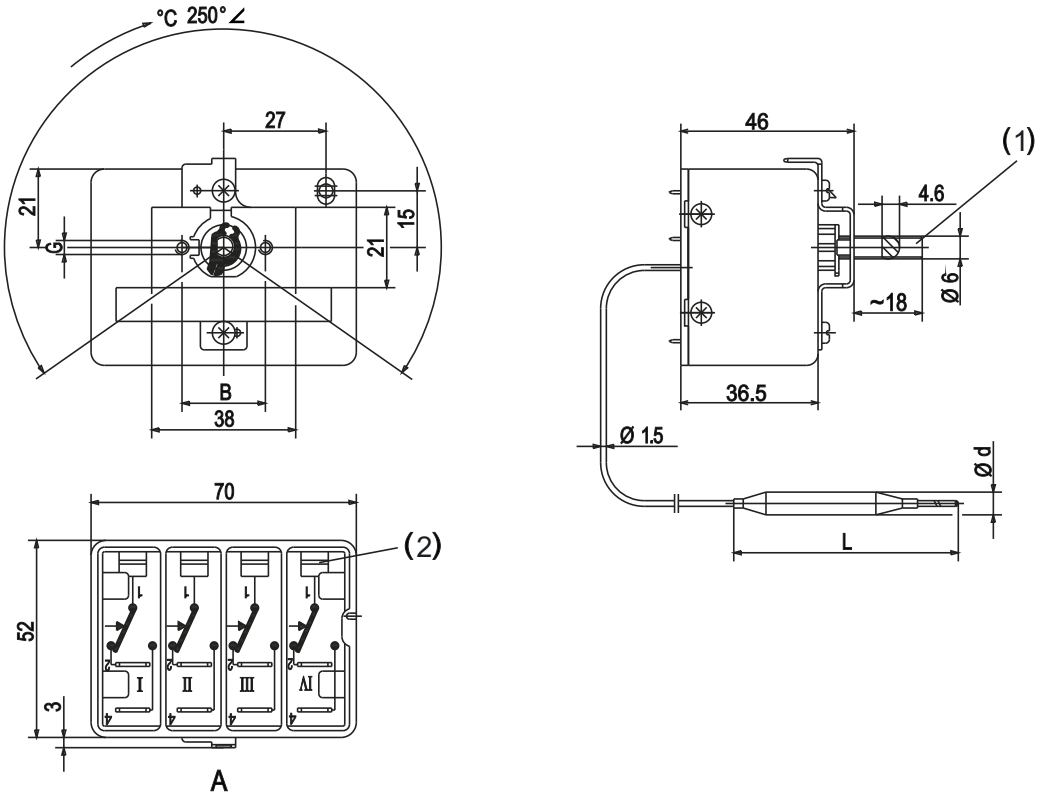
EM-1333, EM-2333, EM-3333



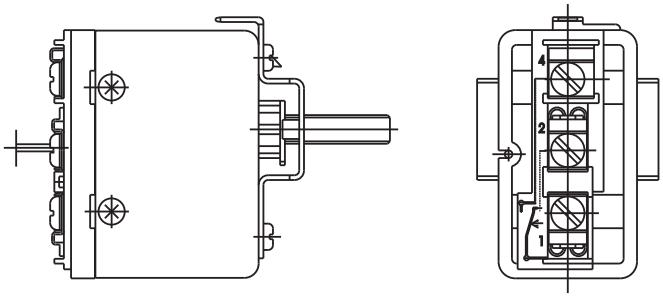
1 Not applicable for EM-2333, EM-3333

2 Tab connector DIN 46244-A6,3-0,8

A Rear view

	B	G
Standard	22	M3
Extra code 704	28	M4
Extra code 705	33	M3

Screw connection EM-1, extra code 699



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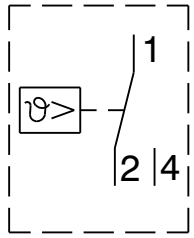
Connection diagram

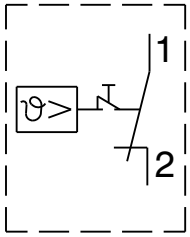
The connection diagram in the data sheet provides information on product selection.

For the electrical connection, only use the installation instructions or the operating manual.

EM-1, EM-2, EM-3

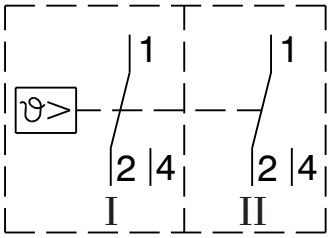


EM-4, EM-5

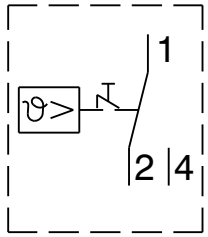


EM-13, EM-23, EM-33

I: Setpoint
II: Squence contact

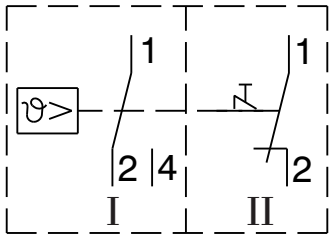


EM-4/574, EM-5/574



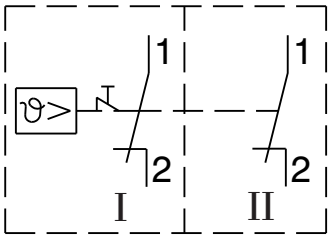
EM-24

I: Setpoint
II: Squence contact



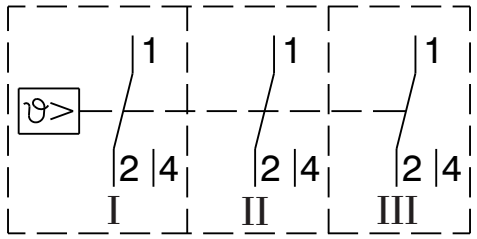
EM-44, EM-54

I: Setpoint
II: Squence contact



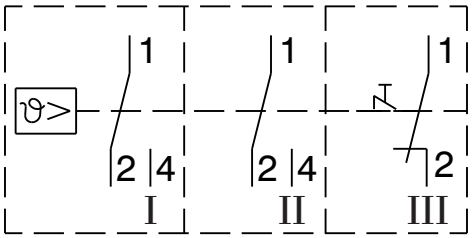
EM-133, EM-233, EM-333

I: Setpoint
II, III: Squence contact



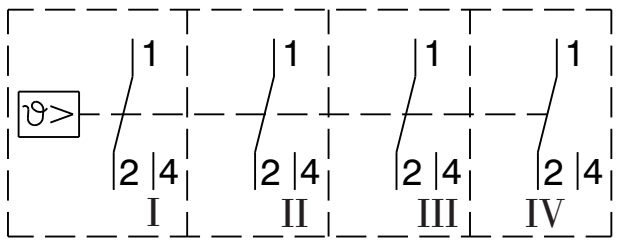
EM-134

I: Setpoint
II, III: Squence contact



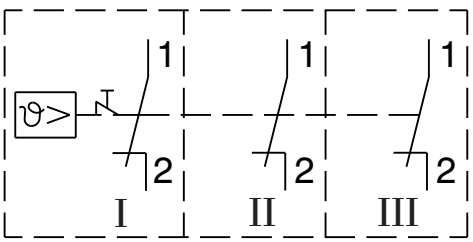
EM-1333, EM-2333, EM-3333

I: Setpoint
II, III, IV: Squence contact



EM-444, EM-544

I: Setpoint
II, III: Squence contact



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Temperature compensation

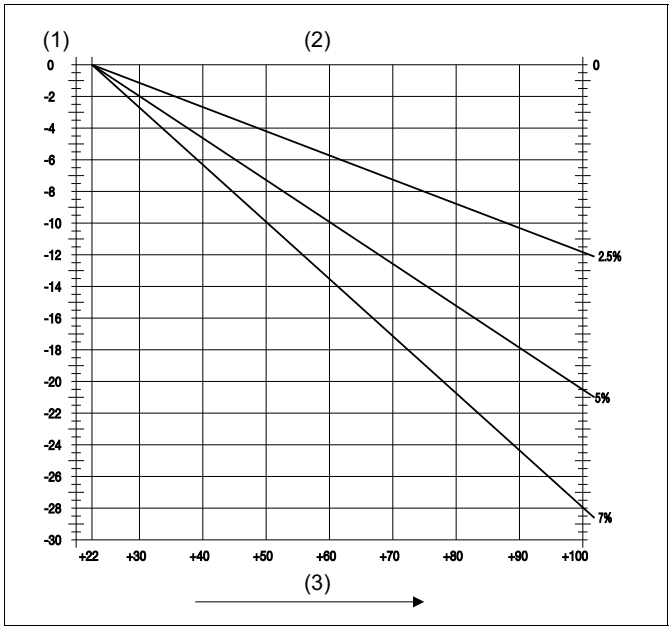
Any change in the temperature at the switching head from the 22 °C calibration ambient temperature will produce a deviation of the switching point. For ambient temperatures that fluctuate strongly, it is advisable to use thermostats with temperature compensation (TK; extra code 707).

The switching point deviation depends on the ambient temperature at the switching head and takes the switching differential into consideration. **The temperature influence on the capillary is not yet taken into account and can result in an additional error.**

Version **without** temperature compensation

Scale limit value < 200 °C

EM 1-pole, EM 2-pole

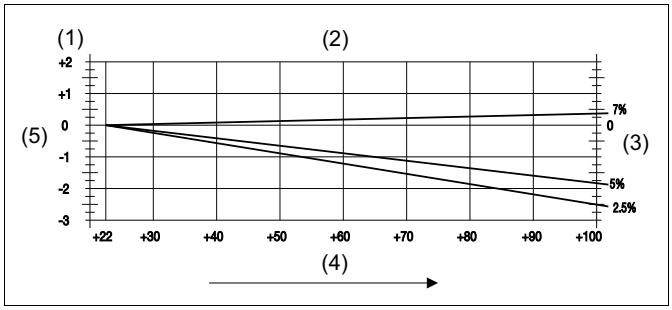


1 % of the control range
2 Without temperature compensation
3 Ambient temperature [°C]

Version **with** temperature compensation

Scale limit value < 200 °C

EM 1-pole temperature compensation TK



Note:

Additional graphs of the temperature compensation TK with higher scale limit values and for the EM 2-pole version are available upon request.

1 % of the control range
2 With temperature compensation
3 Switching differential
4 Ambient temperature [°C]
5 Switching point deviation

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Order details

	(1)	Basic type	
602021		JUMO Panel-Mounted Thermostats EM	
	(2)	Basic type extension	
0001		EM-1	Temperature controller (TR), 1-pole
0002		EM-2	Temperature monitor (TW), 1-pole
0003		EM-3	Temperature monitor (TW), permanently set, 1-pole
0004		EM-4	Temperature limiter (TB), permanently set, 1-pole
0005		EM-5	Temperature limiter (TB), 1-pole
0013		EM-13	Temperature controller (TR/TW), 2-pole
0014		EM-14	Temperature controller (TR/TB), 2-pole
0023		EM-23	Temperature monitor (TW/TW), 2-pole
0024		EM-24	Temperature monitor (TW/TB), 2-pole
0033		EM-33	Temperature monitor (TW/TW), 2-pole, permanently set
0044		EM-44	Temperature limiter (TB/TB), 2-pole, permanently set
0054		EM-54	Temperature limiter (TB/TB), 2-pole
0133		EM-133	Temperature controller (TR/TW/TW), 3-pole
0134		EM-134	Temperature controller (TR/TW/TB), 3-pole
0233		EM-233	Temperature monitor (TW/TW/TW), 3-pole
0333		EM-333	Temperature monitor (TW/TW/TW), 3-pole, permanently set
0444		EM-444	Temperature limiter (TB/TB/TB), 3-pole, permanently set
0544		EM-544	Temperature limiter (TB/TB/TB), 3-pole
1333		EM-1333	Temperature controller (TR/TW/TW/TW), 4-pole
2333		EM-2333	Temperature monitor (TW/TW/TW/TW), 4-pole
3333		EM-3333	Temperature monitor (TW/TW/TW), 4-pole, permanently set
	(3)	Control range 1	
000		With permanently set limit value	
013		-20 to +40 °C	
021		0 to 50 °C	
025		0 to 100 °C	
027		0 to 150 °C	
028		0 to 200 °C	
041		20 to 90 °C	
045		20 to 400 °C	
046		20 to 500 °C	
052		30 to 110 °C	
062		50 to 200 °C	
063		50 to 250 °C	
064		50 to 300 °C	
093		230 to 650 °C (without DIN and UL certification)	
	(4)	Limit value	
000		With adjustable control range	
100		100 °C	
95		95 °C	

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	(5)	**Switching differential**
00		None
01		10 %
10		1 %
25		2.5 %
30		3 %
50		5 %
60		6 %
70		7 %
	(6)	**Capillary length**
0		None
1000		1000 mm
2000		2000 mm
3000		3000 mm
4000		4000 mm
5000		5000 mm
	(7)	**Capillary material**
20		CrNi (stainless steel 1.4571)
40		Copper (Cu)
	(8)	**Process connection**
10		Plain cylindrical probe
20		Screw-in thermowell
	(9)	**Process connection**
00		None
13		G 1/2
	(10)	**Process connection material**
00		None
20		CrNi (stainless steel)
46		CuZn (brass)
	(11)	**Insertion length**
000		None
100		100 mm
120		120 mm
150		150 mm
200		200 mm
300		300 mm
	(12)	**Immersion tube diameter**
00		None
10		10 mm
8		8 mm
	(13)	**Probe diameter**
6		6 mm
8		8 mm
	(14)	**Extra codes**
000		None
025		Central mounting M10 × 1, metall
574		Microswitch with N/C contact, restart lock, and additional signal contact (only for STB)

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699	Screw connection up to 2.5 mm²
702	Snap action contact with gold-plating
704	Switching head mounting with 2 M4 screws, spaced 28 mm
705	Switching head mounting with 2 M3 screws, spaced 33 mm
707	Temperature compensation
710	Central mounting M10 × 1
950	Railway application

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
Order code		/		-		-		-		-		-		-		-
Order example	602021	/	0005	-	052	-	000	-	00	-	2000	-	40	-	10	-

	(9)		(10)		(11)		(12)		(13)		(14)	
Order code		-		-		-		-		/		, ...[a]
Order example	00	-	00	-	000	-	00	-	6	/	574	

[a] List extra codes in sequence, separated by commas.

Sequence contact gap for 2-pole, 3-pole, and 4-pole devices: Specify in plain text (e.g. +2 °C, +5 °C, +8 °C)

Further process connections and protection tubes see data sheet 606710.

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Stock versions

Order code	Control range (TW)	Capillary length	Probe-Ø	Part no.
602021/0001-013-000-25-2000-40-10-00-00-000-00-6/000	-20 to +40 °C	2000 mm	6 mm	60001231
602021/0001-021-000-25-1000-40-10-00-00-000-00-6/000	0 to 50 °C	1000 mm	6 mm	60000492
602021/0001-041-000-70-1000-40-10-00-00-000-00-6/000	20 to 90 °C	1000 mm	6 mm	60000493
602021/0001-025-000-25-1000-40-10-00-00-000-00-6/000	0 to 100 °C	1000 mm	6 mm	60000494
602021/0001-025-000-25-2000-40-10-00-00-000-00-6/000	0 to 100 °C	2000 mm	6 mm	60000219
602021/0001-052-000-70-1000-40-10-00-00-000-00-6/000	30 to 110 °C	1000 mm	6 mm	60000285
602021/0001-027-000-25-1000-40-10-00-00-000-00-6/000	0 to 150 °C	1000 mm	6 mm	60000921
602021/0001-027-000-25-2000-40-10-00-00-000-00-6/000	0 to 150 °C	2000 mm	6 mm	60000217
602021/0001-028-000-25-1000-40-10-00-00-000-00-6/000	0 to 200 °C	1000 mm	6 mm	60001141
602021/0001-028-000-25-2000-40-10-00-00-000-00-6/000	0 to 200 °C	2000 mm	6 mm	60000220
602021/0001-064-000-25-1000-40-10-00-00-000-00-6/000	50 to 300 °C	1000 mm	6 mm	60000495
602021/0001-064-000-25-2000-40-10-00-00-000-00-6/000	50 to 300 °C	2000 mm	6 mm	60000923
602021/0001-046-000-50-1000-20-10-00-00-000-00-8/000	20 to 500 °C	1000 mm	8 mm	60002083
602021/0002-021-000-25-1000-40-10-00-00-000-00-6/000	0 to 50 °C	1000 mm	6 mm	60000214
602021/0002-027-000-25-1000-40-10-00-00-000-00-6/000	0 to 150 °C	1000 mm	6 mm	60000497
602021/0002-027-000-25-2000-40-10-00-00-000-00-6/000	0 to 150 °C	2000 mm	6 mm	60000213
602021/0002-028-000-25-1000-40-10-00-00-000-00-6/000	0 to 200 °C	1000 mm	6 mm	60001263
602021/0002-064-000-25-1000-40-10-00-00-000-00-6/000	50 to 300 °C	1000 mm	6 mm	60001380
602021/0002-046-000-50-1000-20-10-00-00-000-00-8/000	20 to 500 °C	1000 mm	8 mm	60002084
602021/0002-046-000-50-2000-20-10-00-00-000-00-8/000	20 to 500 °C	2000 mm	8 mm	60002112
602021/0005-027-000-25-1000-40-10-00-00-000-00-6/000	0 to 150 °C	1000 mm	6 mm	60000924
602021/0005-028-000-25-1000-40-10-00-00-000-00-6/000	0 to 200 °C	1000 mm	6 mm	60000929
602021/0005-064-000-25-1000-40-10-00-00-000-00-6/000	50 to 300 °C	1000 mm	6 mm	60000211
602021/0005-046-000-50-1000-20-10-00-00-000-00-8/000	20 to 500 °C	1000 mm	8 mm	60002085