MINISTAT

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature.

Applications

- Railways
- Machine tools
- HVAC
- Refrigeration
- Process technology

Features

- Short response time
- Protection IP54
- Electrical connection on terminal screw

02/2021
Data sheet H72172n
Subject to change

Technical Data			
Designation of application	Remote sensing thermostat	Switching differential	Adjustable / not adjustable
Measuring range	-30°C ... +40°C to +70°C ... +350°C	Repeatability	± 0.5 % FS typ.
Output signal	Floating change-over contact	Approval / conformity	EN60730-1/ EN60730-2-9: Typ 2.B.H

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trafag
sensors controls

Ordering information/type code

		XXX	XX	XX	XXX	XX	XXXXXXXXX	XX	XX
Custom build code	External adjustment	**624**							
	Internal adjustment	**634**							
Microswitch	Small switching differential, not adjustable		**10**						
	Average switching differential, not adjustable		**11**						
	With gold plated contacts, switching differential not adjustable		**21**						
	Adjustable large switching differential		**24**						
	Adjustable standard switching differential		**25**						

Range

Range [°C]	Sensor max. [°C]		Range [°C]	Sensor max. [°C]	
-30 ... 40	45	**01**	5 ... 95	105	**20**
-10 ... 25 [4]	60	**07**	20 ... 110 [4]	115	**23**
0 ... 35	70	**09**	20 ... 150	165	**31**
10 ... 45 [4]	85	**11**	20 ... 230	250	**24**
10 ... 80 [4]	100	**13**	40 ... 300 [4]	330	**53**
-10 ... 35 [4]	70	**94**	70 ... 350 [4]	380	**54**
-10 ... 80 [4]	85	**95**			

Sensor [1]	See table "Ordering-no. for sensors"				**XXX**				
Fixing [2]	Nut M10 (for remote sensing version)					**10**			
	Grubscrew locked, lateral (direct mounting version) [5]					**12**			
	Cap nut (for direct mounting version) [5]					**14**			
	Angle bracket (for remote sensing version)					**17**			
	Grubscrew locked with spacer (cooling element) (for direct mounting version)					**18**			
	Mounting bracket (for remote sensing version)					**19**			
Protection tube	See data sheet www.trafag.com/H72114 and www.trafag.com/H72163						**XXXX.XXXX**		
Accessories	Switchpoint locking [4]							**15**	
	Switchpoint fixed and sealed upon customer's request [4]							**88**	
	Switchpoint preset upon customer's request, no guarantee on switching accuracy [4]							**83**	
	Switchpoint adjustment please indicate when ordering: - Switchpoint [°C] - Increasing or decreasing								
	Condensator over Pin 1-2							**12**	
	Condensator over Pin 1-3							**13**	
	Condensators over Pin 1-2 / 1-3							**23**	
	Railway version IEC 61373, category 2							**28**	
	Outdoor application (vented)							**44**	
	Cover with window							**77**	
	Capillary tube protection: Flexible metal tube, brass nickel-plated							**90**	
	Capillary tube protection: Flexible metal tube 1.4541/V2A							**91**	
	Capillary tube protection: PVC tube							**92**	
Capillary tube length	Capillary tube length up to 5000 mm (no specification required for direct mounting on protection tube) **L=XXXX** [3]								

[1] See data sheet www.trafag.com/H72114 and www.trafag.com/H72163
[2] See data sheet www.trafag.com/H72106
[3] Overlengths upon request
[4] Only with type 634 internal adjustment
[5] Media max. 150°C in continuous operation

Ordering no. for sensors

		Sensor material		
Range	Sensor-Ø	Stainless steel	Copper	Copper nickel plated
01, 07, 09, 11, 13, 17	4.7 mm		412	413
	7.0 mm	421	422	423
	9.0 mm		432	433
94, 95, 20, 23	4.7 mm	311	312	313
	7.0 mm	321	322	323
	9.0 mm	331	332	333
31	4.7 mm	111	112	113
	7.0 mm	121	122	123
	9.0 mm	131	132	133
24, 53, 54	4.7 mm	011	012	013
	7.0 mm	021	022	023
	9.0 mm	031	032	033

Standard products (extra short lead time)

Product No.	Type Code	Sensor material	Temperature range [°C]	Switching differential [°C]	Sensor max. [°C]
M35	624 2509 422 19	Copper	0 ... +35	0.7 ... 10 (adjustable)	70
M40	624 2501 422 19	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
M95	624 2520 322 19	Copper	+5 ... +95	2 ... 12 (adjustable)	105
M150	624 2531 122 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
M230S	624 2524 021 19	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
M350S	624 2554 021 19	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380
MS35	634 2509 422 19	Copper	0 ... +35	0.7 ... 10 (adjustable)	70
MS40	634 2501 422 19	Copper	-30 ... +40	0.7 ... 10 (adjustable)	45
MS95	634 2520 322 19	Copper	+5 ... +95	2 ... 12 (adjustable)	105
MS150	634 2531 122 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165
MS230S	634 2524 021 19	1.4435 (AISI316L)	+20 ... +230	3 ... 32 (adjustable)	250
MS350S	634 2554 021 19	1.4435 (AISI316L)	+70 ... +350	4 ... 40 (adjustable)	380

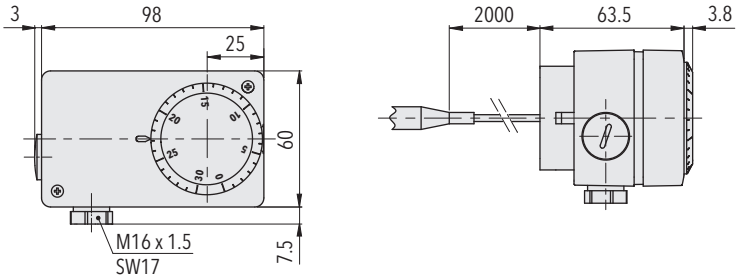
Specifications

Accuracy	Repeatability	± 0.5 % FS typ.
	Scale accuracy typ.	± 2 % FS typ.
	Switching differential	See table
	Switching point	Temperature compensated with bimetal switch lever
Environmental conditions	Ambient temperature	Range ≤ +45°C: -30°C ... +50°C Range +45°C ... +250°C: -30°C ... +70°C Range > + 250°C: -10°C ... +70°C (Important: Temperature at sensor may not exceed maximum sensortemperature)
	Storage temperature	Range ≤ +45°C: -30°C ... +50°C Range > +45°C: -30°C ... +85°C
	Protection	IP54
	Humidity	Max. 95 % relative
Mechanical Data	Sensor housing	See ordering information
	Filling	Liquid
	Housing	PC/ABS-Blend V0
	Screwed cable gland	Polyamide (PA)
	Installation	any position
	Weight	~ 380 g
Microswitch	Rating	See table
	Resistance of insulation	> 2 MΩ
	Dielectric strength	U ≤ 250V: 1.45 kV U ≤ 500V: 2 kV terminal ground
	Life time (mechanical)	Microswitch 10/11/25: 20 Mio. cycles Microswitch 21: 0.5 Mio. cycles Microswitch 24: 0.3 Mio. cycles
Electrical connection	Cable gland	M16x1.5 Cable-Ø 4...9 mm
	Terminal screw	3 x 1 ... 2.5 mm²

Additional information

Documents	Data sheet	www.trafag.com/H72172
	Instructions	www.trafag.com/H73624
	Flyer	www.trafag.com/H70954

Dimensions



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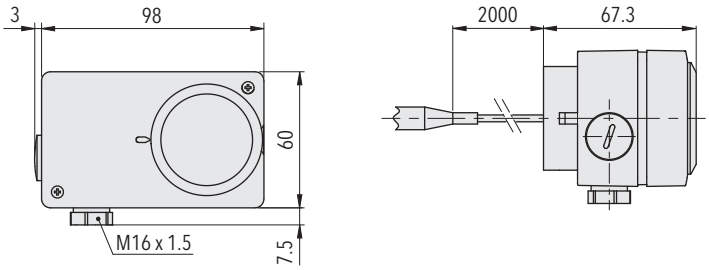

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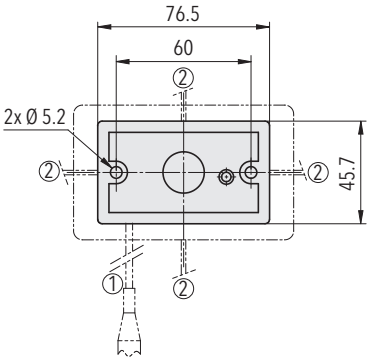

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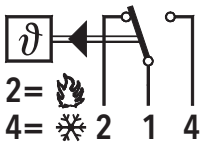
Switching differential typ.						
Measuring range	**[°C]**	–30 ... +40 –10 ... +25 0 ... +35 +15 ... +30 +10 ... +45 +10 ... +80	–10 ... +35 –10 ... +80 +5 ... +95 +20 ... +110	+20 ... +150	+20 ... +230	+40 ... +300 +70 ... +350
Microswitch 10: Switching differential not adjustable	**[°C]**	0.3	0.8	1	1.2	2
Microswitch 11/21: Switching differential not adjustable	**[°C]**	0.7	2	2.5	3	4
Microswitch 24: Switching differential adjustable	**[°C]**	4 ... 21	5.5 ... 26	7 ... 34	15 ... 65	18 ... 84
Microswitch 25: Switching differential adjustable	**[°C]**	0.7 ... 10	2 ... 12	2.5 ... 16	3 ... 32	4 ... 40

Electrical data switch			
		Rating Resistive Load (Inductive Load)	
Type	**Features**	**AC**	**DC**
10	Small switching differential, not adjustable	125 V, 10 (1.5) A 250 V, 10 (1.25) A	250 V, 0.2 (0.02) A 125 V, 0.4 (0.03) A 30 V, 2 (1) A 14 V, 15 (2.5) A
11	Average switching differential, not adjustable	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.25(0.03) A 125 V, 0.5(0.05) A 30 V, 6 (1.5) A 14 V, 15 (1.5) A
21	Gold plated contacts, not adjustable	24 V, 0.1(0.1)A 12 V, 1 (1) A 5 V, 2 (2) A	24 V, 0.1(0.1)A 12 V, 1 (1) A 5 V, 2 (2) A
25	Adjustable standard switching differential	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.25(0.03) A 125 V, 0.5(0.05) A 30 V, 6 (1.5) A 14 V, 15 (2.5) A
24	Adjustable large switching differential	125 V, 15 (1.5) A 250 V, 15 (1.25) A 500 V, 10 (0.75) A	250 V, 0.3 (0.2) A 125 V, 0.75 (0.4) A 30 V, 15 (1.5) A 14 V, 15 (1.5) A

Electrical connection



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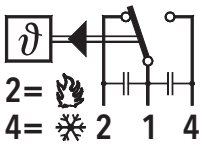

with accessory **23**