

# MINISTAT

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



## Applications

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

## Features

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

## 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

01/2017

Data sheet H72172i

Subject to change

## Ordering information/type code

		XXX	XX	XX	XXX	XX	XXXXXXXXXX	XX	XX	
<b>Custom build code</b>	External adjustment	624								
	Internal adjustment	634								
<b>Microswitch</b>	Small switching differential, not adjustable			10						
	Average switching differential, not adjustable			11						
	With gold plated contacts, not adjustable			21						
	Adjustable large switching differential			24						
	Adjustable standard switching differential			25						
<b>Range</b>	<b>Range</b> [°C]	<b>Sensor max.</b> [°C]			<b>Range</b> [°C]	<b>Sensor max.</b> [°C]				
	-30 ... 40	45	01	-10 ... 80 <sup>4)</sup>	85	95				
	-10 ... 25 <sup>4)</sup>	60	07	5 ... 95	105	20				
	0 ... 35	70	09	20 ... 110 <sup>4)</sup>	115	23				
	10 ... 45	85	11	20 ... 150	165	31				
	10 ... 80 <sup>4)</sup>	100	13	20 ... 230	250	24				
	15 ... 30	60	17	40 ... 300 <sup>4)</sup>	330	53				
	-10 ... 35	70	94	70 ... 350	380	54				
<b>Sensor<sup>1)</sup></b>	<b>Range</b>	<b>Sensor diame- ter</b> [mm]	<b>Sensor material</b>		<b>Range</b>	<b>Sensor diame- ter</b> [mm]	<b>Sensor material</b>			
	24, 53, 54	Ø4.7	Stainless steel	111	01, 07, 09, 11, 13, 17	Ø4.7	Copper	412		
	24, 53, 54	Ø7	Stainless steel	121	01, 07, 09, 11, 13, 17	Ø7	Copper	422		
	24, 53, 54	Ø9	Stainless steel	131	01, 07, 09, 11, 13, 17	Ø9	Copper	432		
	94, 95, 20, 23, 31	Ø4.7	Stainless steel	311	24, 53, 54	Ø4.7	Copper nickel plated	113		
	94, 95, 20, 23, 31	Ø7	Stainless steel	321	24, 53, 54	Ø7	Copper nickel plated	123		
	94, 95, 20, 23, 31	Ø9	Stainless steel	331	24, 53, 54	Ø9	Copper nickel plated	133		
	01, 07, 09, 11, 13, 17	Ø7	Stainless steel	421	94, 95, 20, 23, 31	Ø4.7	Copper nickel plated	313		
	24, 53, 54	Ø4.7	Copper	112	94, 95, 20, 23, 31	Ø7	Copper nickel plated	323		
	24, 53, 54	Ø7	Copper	122	94, 95, 20, 23, 31	Ø9	Copper nickel plated	333		
	24, 53, 54	Ø9	Copper	132	01, 07, 09, 11, 13, 17	Ø4.7	Copper nickel plated	413		
	94, 95, 20, 23, 31	Ø4.7	Copper	312	01, 07, 09, 11, 13, 17	Ø7	Copper nickel plated	423		
	94, 95, 20, 23, 31	Ø7	Copper	322	01, 07, 09, 11, 13, 17	Ø9	Copper nickel plated	433		
	94, 95, 20, 23, 31	Ø9	Copper	332						
	<b>Fixing<sup>2)</sup></b>	Nut M10 (for remote sensing version)								10
		Captive nut (for direct mounting version)								14
		Grubscrew locked, lateral (direct mounting version)								12
		Console (for remote sensing version)								17
		Grubscrew locked with thermal distance piece (for direct mounting version)								18
Console (for remote sensing version)									19	
<b>Protection tube</b>	See data sheet H72114/H72163							XXXX.XXXX		

	XXX	XX	XX	XXX	XX	XXXXXXXXXX	XX	XX
<b>Accessories</b>	Switchpoint locking <sup>4)</sup>							15
	Switchpoint fixed and sealed upon customer's request <sup>4)</sup>							88
	Switchpoint preset upon customer's request, no guarantee on switching accuracy <sup>4)</sup>							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 (UIC 616)							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/N2A							91
Capillary tube protection: PVC tube							92	
<b>Capillary tube length</b>	Capillary tube length up to 5000 mm (no specification required for direct mounting on protection tube) L=XXXX <sup>3)</sup>							

<sup>1)</sup> See data sheet H72114/H72163

<sup>2)</sup> See data sheet H72106

<sup>3)</sup> Overlengths upon request

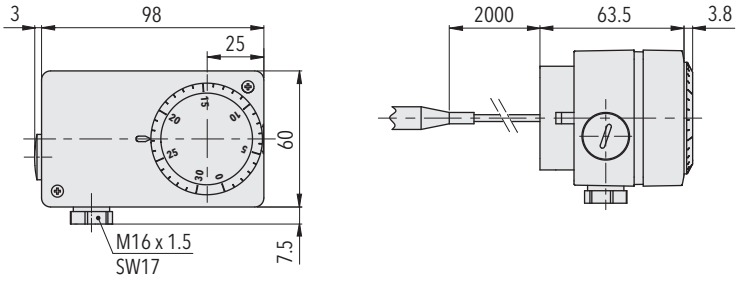
<sup>4)</sup> Only with type 634 internal adjustment

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 322 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165	
M230S	624 2524 121 19	1.4435/316L	+20 ... +230	3 ... 32 (adjustable)	250	
M350S	624 2554 121 19	1.4435/316L	+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 322 19	Copper	+20 ... +150	2.5 ... 16 (adjustable)	165	
MS230S	634 2524 121 19	1.4435/316L	+20 ... +230	3 ... 32 (adjustable)	250	
MS350S	634 2554 121 19	1.4435/316L	+70 ... +350	4 ... 40 (adjustable)	380	

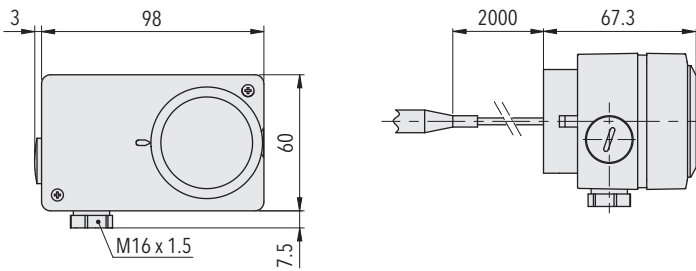
Specifications		
<b>Accuracy</b>	Repeatability	± 0.5 % FS typ.
	Scale accuracy typ.	± 2 % FS typ.
	Switching differential	see table
	Switching point	Temperature compensated with bimetal switch lever
<b>Environmental conditions</b>	Ambient temperature	Range ≤ +45°C: -30...+50°C Range +45...+250°C: -30...+70°C Range > + 250°C: -10...+70°C (Important: Temperature at sensor may not exceed maximum sensor temperature)
	Storage temperature	Range ≤ +45°C: -30 ... +50°C Range > +45°C: -30 ... +85°C
	Protection	IP54
	Humidity	Max. 95 % relative
<b>Mechanical Data</b>	Sensor housing	See ordering information
	Filling	Liquid
	Housing	PC/ABS-Blend V0
	Screwed cable gland	PA, Polyamid
	Installation	Any position
	Weight	~ 380 g
<b>Microswitch</b>	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
<b>Electrical connection</b>	Cable gland	M16x1.5 Cable-Ø 4...9 mm
	Terminal screw	3 x 1...2.5 mm <sup>2</sup>

Additional information		
<b>Documents</b>	Data sheet	<a href="http://www.trafag.com/H72172">www.trafag.com/H72172</a>
	Instructions	<a href="http://www.trafag.com/H73624">www.trafag.com/H73624</a>
	Flyer	<a href="http://www.trafag.com/H70954">www.trafag.com/H70954</a>

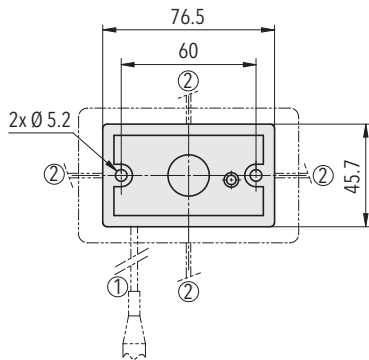
## Dimensions



624.XXXX.XXX.XX...



634.XXXX.XXX.XX...



6X4.XXXX.XXX.19...

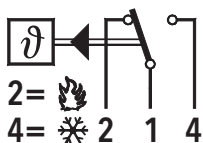
## Switching differential typ.

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
<b>Microswitch 10</b> Switching differential (fixed value, not adjustable)	[°C]	0.3	0.8	1	1.2	2
<b>Microswitch 11/21</b> Switching differential (fixed value, not adjustable)	[°C]	0.7	2	2.5	3	4
<b>Microswitch 24</b> Switching differential (adjustable value)	[°C]	4 ... 21	5.5 ... 26	7 ... 34	15 ... 65	18 ... 84
<b>Microswitch 25</b> Switching differential (adjustable value)	[°C]	0.7 ... 10	2 ... 12	2.5 ... 16	3 ... 32	4 ... 40

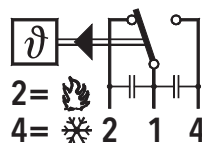
## Electrical data switch

Type	Features	Rating Resistive Load (Inductive Load)	
		AC	DC
<b>10</b>	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
<b>11</b>	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
<b>21</b>	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
<b>25</b>	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
<b>24</b>	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



624/634



with accessory 23