

# MINISTAT

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



## Applications

- Machine tools
- HVAC
- Process technology
- Water treatment

## Features

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

05/2020

Data sheet H72174n

## Technical Data

|                            |                                     |                        |                                   |
|----------------------------|-------------------------------------|------------------------|-----------------------------------|
| Designation of application | Direct mounting 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 |

Subject to change

## Ordering information/type code

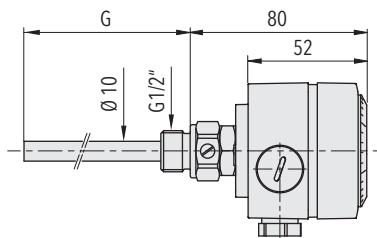
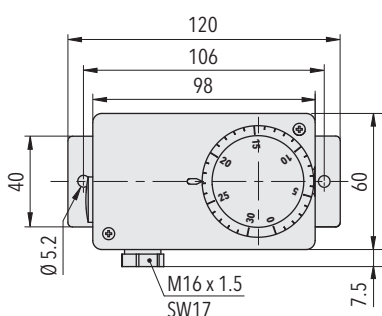
|                               |                                                                                              |                             |                   |                                    | XXX | XX | XXXXXXXXXX | XXXX | XXXX | XX |
|-------------------------------|----------------------------------------------------------------------------------------------|-----------------------------|-------------------|------------------------------------|-----|----|------------|------|------|----|
| <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, switching differential not adjustable                             |                             |                   |                                    |     | 21 |            |      |      |    |
|                               | Adjustable large switching differential                                                      |                             |                   |                                    |     | 24 |            |      |      |    |
|                               | Adjustable standard switching differential                                                   |                             |                   |                                    |     | 25 |            |      |      |    |
| <b>Range</b>                  | <b>Sensor material</b>                                                                       | <b>Sensor diameter [mm]</b> | <b>Range [°C]</b> | <b>Sensor max. [°C]</b>            |     |    |            |      |      |    |
|                               | Cu                                                                                           | 7                           | -30...+40         | 45                                 |     |    | 01.422.12  |      |      |    |
|                               | Cu <sup>2)</sup>                                                                             | 7                           | -10...+25         | 50                                 |     |    | 07.422.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | 0...+35           | 50                                 |     |    | 09.422.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | +10...+45         | 85                                 |     |    | 11.422.12  |      |      |    |
|                               | Cu <sup>2)</sup>                                                                             | 7                           | +10...+80         | 100                                |     |    | 13.422.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | +15...+30         | 60                                 |     |    | 17.422.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | -10...+35         | 50                                 |     |    | 94.322.12  |      |      |    |
|                               | Cu <sup>2)</sup>                                                                             | 7                           | -10...+80         | 85                                 |     |    | 95.322.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | +5...+95          | 105                                |     |    | 20.322.12  |      |      |    |
|                               | Cu <sup>2)</sup>                                                                             | 7                           | +20...+110        | 115                                |     |    | 23.322.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | +20...+150        | 165                                |     |    | 31.122.12  |      |      |    |
|                               | Cu                                                                                           | 7                           | +20...+230        | 250                                |     |    | 24.022.35  |      |      |    |
|                               | Cu <sup>2)</sup>                                                                             | 7                           | +30...+300        | 330                                |     |    | 53.022.35  |      |      |    |
|                               | Cu                                                                                           | 7                           | +70...+350        | 380                                |     |    | 54.022.35  |      |      |    |
| <b>Protection tube</b>        | For fixing option 12, brass nickel plated, G1/2" <sup>1)</sup>                               |                             |                   |                                    |     |    |            | 1216 |      |    |
|                               | For fixing option 12, stainless steel, G1/2" <sup>1)</sup>                                   |                             |                   |                                    |     |    |            | 1211 |      |    |
|                               | For fixing option 35, brass nickel plated, G1/2" <sup>1)</sup>                               |                             |                   |                                    |     |    |            | 8316 |      |    |
|                               | For fixing option 35, stainless steel, G1/2" <sup>1)</sup>                                   |                             |                   |                                    |     |    |            | 8411 |      |    |
| <b>Protection tube length</b> | <b>Suitable for sensor</b>                                                                   |                             |                   | <b>Protection tube length [mm]</b> |     |    |            |      |      |    |
|                               | XX.122.XX <sup>1)</sup>                                                                      |                             |                   | 110                                |     |    |            | 0110 |      |    |
|                               | XX.122.XX; XX.322.XX <sup>1)</sup>                                                           |                             |                   | 150                                |     |    |            | 0150 |      |    |
|                               | XX.122.XX; XX.322.XX; XX.422.XX <sup>1)</sup>                                                |                             |                   | 200                                |     |    |            | 0200 |      |    |
|                               | XX.122.XX; XX.322.XX; XX.422.XX <sup>1)</sup>                                                |                             |                   | 400                                |     |    |            | 0400 |      |    |
| <b>Accessories</b>            | Switchpoint locking <sup>2)</sup>                                                            |                             |                   |                                    |     |    |            |      |      | 15 |
|                               | Switchpoint fixed and sealed upon customer's request <sup>2)</sup>                           |                             |                   |                                    |     |    |            |      |      | 88 |
|                               | Switchpoint preset upon customer's request, no guarantee on switching accuracy <sup>2)</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 IEC 61373, category 2                                                        |                             |                   |                                    |     |    |            |      |      | 28 |
|                               | Outdoor application (vented)                                                                 |                             |                   |                                    |     |    |            |      |      | 44 |
|                               | Cover with window                                                                            |                             |                   |                                    |     |    |            |      |      | 77 |

<sup>1)</sup> See data sheet [www.trafag.com/H72114](http://www.trafag.com/H72114) and [www.trafag.com/H72163](http://www.trafag.com/H72163)<sup>2)</sup> Only with type 634 internal adjustment

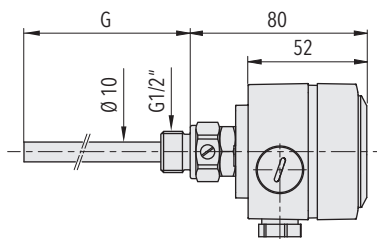
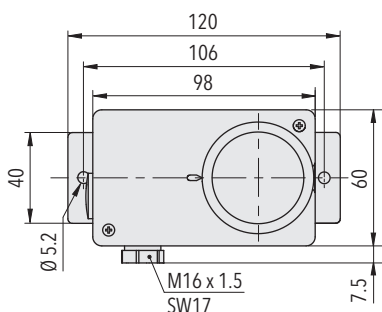
## Standard products (extra short lead time)

| Product No. | Type Code                 | Temperature range [°C] | Protection tube length [mm] | Switching differential [°C] | Sensor max. [°C] |
|-------------|---------------------------|------------------------|-----------------------------|-----------------------------|------------------|
| MST8015     | 634 2595 322 12 1216 0150 | -10 ... +80            | 150                         | 2 ... 12 (adjustable)       | 85               |
| MST8040     | 634 2595 322 12 1216 0400 | -10 ... +80            | 400                         | 2 ... 12 (adjustable)       | 85               |
| MST9511     | 634 2520 332 12 1217 0110 | +5 ... +95             | 110                         | 2 ... 12 (adjustable)       | 105              |
| MST9515     | 634 2520 322 12 1216 0150 | +5 ... +95             | 150                         | 2 ... 12 (adjustable)       | 105              |
| MST9540     | 634 2520 322 12 1216 0400 | +5 ... +95             | 400                         | 2 ... 12 (adjustable)       | 105              |
| MST15015    | 634 2531 122 12 1216 0150 | +20 ... +150           | 150                         | 2.5 ... 16 (adjustable)     | 165              |
| MST15040    | 634 2531 122 12 1216 0400 | +20 ... +150           | 400                         | 2.5 ... 16 (adjustable)     | 165              |

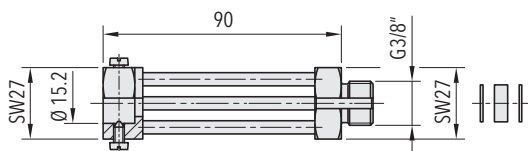
## Dimensions



624.XXXX.X22.12...



634.XXXX.X22.12...



Fixation 35

| 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<br>Range +45°C ... +250°C: -30°C ... +70°C<br>Range > + 250°C: -10°C ... +70°C<br>(Important: Temperature at sensor may not exceed maximum sensortemperature) |
|                          | Storage temperature      | Range ≤ +45°C: -30°C ... +50°C<br>Range > +45°C: -30°C ... +85°C                                                                                                                             |
|                          | Protection               | IP54                                                                                                                                                                                         |
|                          | Humidity                 | Max. 95 % relative                                                                                                                                                                           |
| Mechanical Data          | Sensor housing           | See ordering information                                                                                                                                                                     |
|                          | Filling                  | Liquid                                                                                                                                                                                       |
|                          | Protection tube          | See ordering information                                                                                                                                                                     |
|                          | Housing                  | PC/ABS-Blend V0                                                                                                                                                                              |
|                          | Screwed cable gland      | Polyamide (PA)                                                                                                                                                                               |
|                          | Installation             | any position                                                                                                                                                                                 |
|                          | Weight                   | ~ 430 g                                                                                                                                                                                      |
| Microswitch              | Rating                   | See table                                                                                                                                                                                    |
|                          | Resistance of insulation | > 2 MΩ                                                                                                                                                                                       |
|                          | Dielectric strength      | U ≤ 250V: 1.45 kV<br>U ≤ 500V: 2 kV<br>terminal ground                                                                                                                                       |
|                          | Life time (mechanical)   | Microswitch 10/11/25: 20 Mio. cycles<br>Microswitch 21: 0.5 Mio. cycles<br>Microswitch 24: 0.3 Mio. cycles                                                                                   |
| Electrical connection    | Cable gland              | M16x1.5<br>Cable-Ø 4...9 mm                                                                                                                                                                  |
|                          | Terminal screw           | 3 x 1 ... 2.5 mm²                                                                                                                                                                            |

| Additional information |              |                                                                  |
|------------------------|--------------|------------------------------------------------------------------|
| Documents              | Data sheet   | <a href="http://www.trafag.com/H72174">www.trafag.com/H72174</a> |
|                        | Instructions | <a href="http://www.trafag.com/H73624">www.trafag.com/H73624</a> |
|                        | Flyer        | <a href="http://www.trafag.com/H70955">www.trafag.com/H70955</a> |

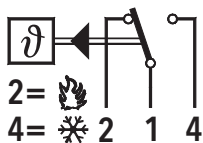
## Switching differential typ.

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

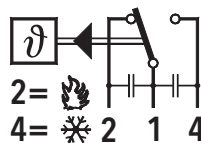
## Electrical data switch

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

## Electrical Connection



624/634



with accessory 23