

# DUCT THERMOSTAT

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



## Applications

- HVAC

## Features

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

05/2020

Data sheet H72177i

## Technical Data

|                            |                                     |                        |                                   |
|----------------------------|-------------------------------------|------------------------|-----------------------------------|
| Designation of application | Duct thermostat                     | Switching differential | Adjustable / not adjustable       |
| Measuring range            | -30°C ... +40°C to +20°C ... +110°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                   | XX              | XXX | 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, not adjustable                                                    |                      |                 |             |                        | 21                   |                 |     |    |    |
|                          | Adjustable large switching differential                                                      |                      |                 |             |                        | 24                   |                 |     |    |    |
|                          | Adjustable standard switching differential                                                   |                      |                 |             |                        | 25                   |                 |     |    |    |
| Range                    | Range                                                                                        |                      |                 | Sensor max. |                        |                      |                 |     |    |    |
|                          | [°C]                                                                                         |                      |                 | [°C]        |                        |                      |                 |     |    |    |
|                          | -30 ... 40                                                                                   |                      |                 | 45          |                        |                      |                 | 01  |    |    |
|                          | -10 ... 25 <sup>3)</sup>                                                                     |                      |                 | 50          |                        |                      |                 | 07  |    |    |
|                          | 0 ... 35                                                                                     |                      |                 | 50          |                        |                      |                 | 09  |    |    |
|                          | 15 ... 30                                                                                    |                      |                 | 60          |                        |                      |                 | 17  |    |    |
|                          | 10 ... 45                                                                                    |                      |                 | 85          |                        |                      |                 | 11  |    |    |
|                          | 10 ... 80 <sup>3)</sup>                                                                      |                      |                 | 100         |                        |                      |                 | 13  |    |    |
|                          | 5 ... 95                                                                                     |                      |                 | 105         |                        |                      |                 | 20  |    |    |
| 20 ... 110 <sup>3)</sup> |                                                                                              |                      | 115             |             |                        |                      | 23              |     |    |    |
| Sensor <sup>1)</sup>     | Range                                                                                        | Sensor diameter [mm] | Sensor material |             | Range                  | Sensor diameter [mm] | Sensor material |     |    |    |
|                          | 20,23                                                                                        | Ø7                   | Copper          | 322         | 01, 07, 09, 11, 13, 17 | Ø7                   | Copper          | 422 |    |    |
|                          | 20,23                                                                                        | Ø9                   | Copper          | 332         | 01, 07, 09, 11, 13, 17 | Ø9                   | Copper          | 432 |    |    |
|                          |                                                                                              |                      |                 |             |                        |                      |                 |     |    |    |
| Fixing <sup>2)</sup>     | With spring tube and flange, for direct mounting, Ø 16.5 x 200mm                             |                      |                 |             |                        |                      |                 |     | 30 |    |
|                          |                                                                                              |                      |                 |             |                        |                      |                 |     |    |    |
| Accessories              | Switchpoint locking <sup>3)</sup>                                                            |                      |                 |             |                        |                      |                 |     |    | 15 |
|                          | Switchpoint fixed and sealed upon customer's request <sup>3)</sup>                           |                      |                 |             |                        |                      |                 |     |    | 88 |
|                          | Switchpoint preset upon customer's request, no guarantee on switching accuracy <sup>3)</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)

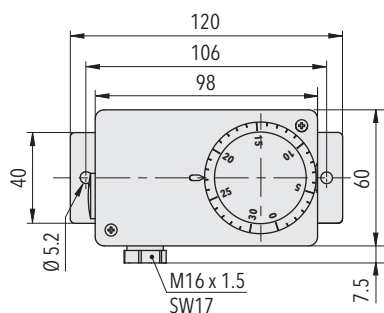
<sup>2)</sup> See data sheet [www.trafag.com/H72106](http://www.trafag.com/H72106)

<sup>3)</sup> Only with type 634 internal adjustment

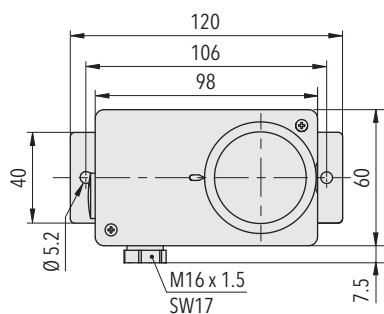
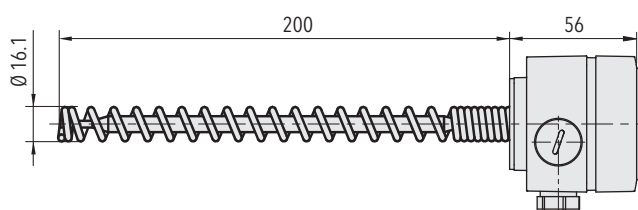
## Standard products (extra short lead time)

| Product No. | Type Code       | Sensor material | Temperature range<br>[°C] | Switching differential<br>[°C] | Sensor max.<br>[°C] |
|-------------|-----------------|-----------------|---------------------------|--------------------------------|---------------------|
| MSK35       | 634 2509 432 30 | Copper          | 0 ... +35                 | 0.7 ... 10 (adjustable)        | 50                  |
| MSK40       | 634 2501 432 30 | Copper          | -30 ... +40               | 0.7 ... 10 (adjustable)        | 45                  |
| MSK80       | 634 2513 432 30 | Copper          | +10 ... +80               | 0.7 ... 10 (adjustable)        | 100                 |

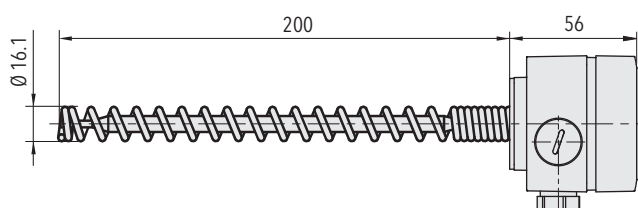
## Dimensions



624.XXXX.XXX.XX.XX



634.XXXX.XXX.XX.XX



| Specifications                  |                          |                                                                                                             |
|---------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Accuracy</b>                 | Repeatability            | $\pm 0.5 \% \text{ FS typ.}$                                                                                |
|                                 | Scale accuracy typ.      | $\pm 2 \% \text{ FS typ.}$                                                                                  |
|                                 | Switching differential   | see table                                                                                                   |
|                                 | Switching point          | Temperature compensated with bimetal switch lever                                                           |
| <b>Environmental conditions</b> | Ambient temperature      | -30 ... +70°C<br>(important: Temperature at sensor may not exceed maximum sensor temperature)               |
|                                 | Storage temperature      | Range $\leq +45^\circ\text{C}$ : -30...+50°C<br>Range $> +45^\circ\text{C}$ : -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                   | ~ 220 g                                                                                                     |
| <b>Microswitch</b>              | Rating                   | See table                                                                                                   |
|                                 | Resistance of insulation | $> 2 \text{ M}\Omega$                                                                                       |
|                                 | Dielectric strength      | $U \leq 250\text{V}$ : 1.45 kV<br>$U \leq 500\text{V}$ : 2 kV<br>terminal ground                            |
|                                 | Life time (mechanical)   | Microrupteur 10/11/25: 20 Mio. cycles<br>Microswitch 21: 0.5 Mio. cycles<br>Microswitch 24: 0.3 Mio. cycles |
| <b>Electrical connection</b>    | Cable gland              | M16x1.5<br>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/H72177">www.trafag.com/H72177</a> |
|                        | Instructions | <a href="http://www.trafag.com/H73624">www.trafag.com/H73624</a> |
|                        | Flyer        | <a href="http://www.trafag.com/H70957">www.trafag.com/H70957</a> |

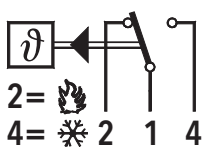
## Switching differential typ.

| Range                                                                            | [°C] | -30 ... +40<br>-10 ... +25<br>0 ... +35<br>+15 ... +30<br>+10 ... +45<br>+10 ... +80 | +5 ... +95<br>+20 ... +110 |
|----------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------|----------------------------|
| <b>Microswitch 10</b><br>Switching differential (fixed value, not adjustable)    | [°C] | 0.3                                                                                  | 0.8                        |
| <b>Microswitch 11/21</b><br>Switching differential (fixed value, not adjustable) | [°C] | 0.7                                                                                  | 2                          |
| <b>Microswitch 24</b><br>Switching differential (adjustable value)               | [°C] | 4 ... 21                                                                             | 5.5 ... 26                 |
| <b>Microswitch 25</b><br>Switching differential (adjustable value)               | [°C] | 0.7 ... 10                                                                           | 2 ... 12                   |

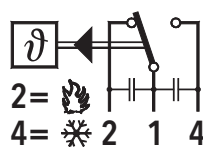
## Electrical data switch

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