

# PICOSTAT PRESSURE SWITCH

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The 9K4 of the Picostat series is based on our long lasting experience in the shipbuilding and railway sector. This further improved version offers high vibration resistance within a compact body and is suitable for a wide temperature range.



## Applications

- Shipbuilding
- Engine manufacturing
- Railways
- Machine tools
- Hydraulics



## Features

- Compact design
- Rugged housing
- Protection IP65 (with plug connector)
- Any mounting position possible


09/2024

Data sheet H72369h

| Technical Data         |  |                       |   |
|------------------------|--|-----------------------|---|
| Measuring principle    | Piston   | Repeatability         | ± 1.0 % FS typ.   |
| Measuring range        | 1 ... 10 to 40 ... 400 bar<br>14 ... 150 to 580 ... 5800 psi | Media temperature     | -25°C ... +125°C  |
| Output signal          | 1 Floating change-over contact (SPDT)                        | Ambient temperature   | -25°C ... +85°C   |
| Switching differential | Not adjustable   | Approval / conformity | ABS, BV, CCS, DNV-GL, KRS, LRS, RINA, EN60730-1/ EN60730-2-6: Typ 2.B.H |

Subject to change

## Ordering information/type code

|  |   |   |            | 9K4 .              | XX                         | XX  | XXX | XX | XX |
|--|---|---|------------|--------------------|----------------------------|-----|-----|----|----|
| <b>Microswitch</b>                                 | Standard <sup>1)</sup>  |   |            |                    | 42                         |     |     |    |    |
|  | Standard  <sup>1)</sup>                                    |   |            |                    | 33                         |     |     |    |    |
|  | Gold plated contacts <sup>1)</sup>  |   |            |                    | 84                         |     |     |    |    |
| <b>Range</b>                                       | <b>Range [bar]</b>  | <b>Over pressure [bar]</b>                |            | <b>Range [psi]</b> | <b>Over pressure [psi]</b> |     |     |    |    |
|  | 1 ... 10  | 100                                       | 78         | 14 ... 150         | 1450                       | G8  |     |    |    |
|  | 1 ... 16  | 100                                       | 79         | 14 ... 250         | 1450                       | G9  |     |    |    |
|  | 2 ... 25  | 100                                       | 80         | 30 ... 400         | 1450                       | H0  |     |    |    |
|  | 4 ... 40  | 100                                       | 81         | 60 ... 500         | 1450                       | H1  |     |    |    |
|  | 6 ... 60  | 200                                       | 82         | 85 ... 850         | 2900                       | H2  |     |    |    |
|  | 10 ... 100  | 200                                       | 83         | 150 ... 1500       | 2900                       | H3  |     |    |    |
|  | 16 ... 160  | 400                                       | 84         | 250 ... 2500       | 5800                       | H4  |     |    |    |
|  | 25 ... 250  | 400                                       | 85         | 350 ... 3500       | 5800                       | H5  |     |    |    |
|  | 40 ... 400  | 600                                       | 86         | 580 ... 5800       | 8700                       | H6  |     |    |    |
| <b>Sensor</b>                                      | <b>Sensor material</b>  | <b>Sensor housing material</b>            |            | <b>Range</b>       |                            |     |     |    |    |
|  | Piston 1.4035, sealing PTFE <sup>2)</sup>   | Aluminium EN AW-6026 AlMgSiPb0.4 anodized |            | 78, 79             |                            | 756 |     |    |    |
|  | Piston 1.4035, sealing PTFE <sup>2)</sup>   | Aluminium EN AW-6026 AlMgSiPb0.4 anodized |            | 80, 81             |                            | 757 |     |    |    |
|  | Piston 1.4035, sealing PTFE   | Aluminium EN AW-6026 AlMgSiPb0.4 anodized |            | 82, 83             |                            | 758 |     |    |    |
| Piston 1.4035, sealing PTFE                        | Aluminium EN AW-6026 AlMgSiPb0.4 anodized   |   | 84, 85, 86 |                    | 759                        |     |     |    |    |
| <b>Pressure connection</b>                         | G1/8" female  |   |            |                    |                            |     |     |    | 02 |
|  | G1/4" female  |   |            |                    |                            |     |     |    | 04 |
|  | M10x1 female <sup>2)</sup>  |   |            |                    |                            |     |     |    | 03 |
| <b>Accessories</b>                                 | Flange with O-Ring <sup>3)</sup>  |   |            |                    |                            |     |     |    | 11 |
|  | Female electrical connector EN 175301-803-A (DIN43650-A)  |   |            |                    |                            |     |     |    | 46 |
|  | Welsh plug G1/4"  |   |            |                    |                            |     |     |    | 74 |
|  | Fixing set  |   |            |                    |                            |     |     |    | V3 |
|  | Covering cap  |   |            |                    |                            |     |     |    | 15 |
|  | Lead seal (manipulation protection)   |   |            |                    |                            |     |     |    | 16 |
|  | Switch point adjustment on customers request  |   |            |                    |                            |     |     |    |    |
|  | Please indicate when ordering:<br>- Switchpoint including measurement unit (kPa, bar, MPa, psi, abs. or rel.)<br>- Increasing or decreasing |   |            |                    |                            |     |     |    |    |
| Damping elements and snubber see data sheet H72258 |   |   |            |                    |                            |     |     |    |    |

<sup>1)</sup> Switching differential not adjustable

<sup>2)</sup> Please ask us

<sup>3)</sup> Only with pressure connection 04 (G1/4"), others upon request

## Standard products (extra short lead time)

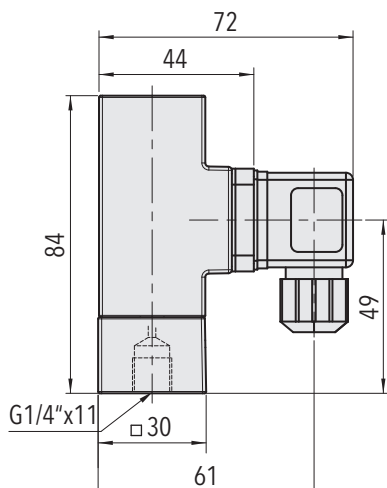
| Product No. | Type Code                                | Pressure range [bar] | Over pressure max. [bar] | Switching differential [bar] |
|-------------|--|----------------------|--------------------------|------------------------------|
| PST4K164    | 9K4 4279 756 04 0000 0000 15 46 V3       | 1 ... 16             | 100                      | 0.4 ... 2.4 (fixed)          |
| PST4K404    | 9K4 4281 757 04 0000 0000 15 46 V3       | 4 ... 40             | 100                      | 1 ... 6 (fixed)              |
| PST4K1004   | 9K4 4283 758 04 0000 0000 15 46 V3       | 10 ... 100           | 200                      | 5 ... 15 (fixed)             |
| PST4K2504   | 9K4 4285 759 04 0000 0000 15 46 V3       | 25 ... 250           | 400                      | 12 ... 40 (fixed)            |
| PST4K4004   | 9K4 4286 759 04 0000 0000 15 46 V3       | 40 ... 400           | 600                      | 15 ... 50 (fixed)            |
| PST4K16F4   | 9K4 4279 756 04 0000 0000 11 15 46 74 V3 | 1 ... 16             | 100                      | 0.4 ... 2.4 (fixed)          |
| PST4K40F4   | 9K4 4281 757 04 0000 0000 11 15 46 74 V3 | 4 ... 40             | 100                      | 1 ... 6 (fixed)              |
| PST4K100F4  | 9K4 4283 758 04 0000 0000 11 15 46 74 V3 | 10 ... 100           | 200                      | 5 ... 15 (fixed)             |
| PST4K250F4  | 9K4 4285 759 04 0000 0000 11 15 46 74 V3 | 25 ... 250           | 400                      | 12 ... 40 (fixed)            |
| PST4K400F4  | 9K4 4286 759 04 0000 0000 11 15 46 74 V3 | 40 ... 400           | 600                      | 15 ... 50 (fixed)            |

| Specifications                  |  |  |
|---------------------------------|--|--|
| <b>Accuracy</b>                 | Repeatability                              | ± 1.0 % FS typ.  |
|                                 | Switching differential                     | See table  |
|                                 | Adjustment range switchpoint <sup>2)</sup> | 10 % ... 90 % FS   |
|                                 | Temperature dependence switching point     | approx. + 0.1% FS/°C typ.  |
| <b>Environmental conditions</b> | Ambient temperature                        | -25°C ... +85°C  |
|                                 | Media temperature                          | -25°C ... +125°C   |
|                                 | Storage temperature                        | -40°C ... +85°C  |
|                                 | Protection <sup>1)</sup>                   | IP65   |
|                                 | Humidity                                   | Max. 95 % relative   |
|                                 | Vibration                                  | Switch IEC/EN 60068-2-6:<br>10...59 Hz: ±0.75 mm Ampl.<br>59...500 Hz: 5 g             |
|                                 | Shock                                      | 50 g / 3 ms  |
| <b>Mechanical Data</b>          | Sensor                                     | See ordering information   |
|                                 | Housing                                    | Aluminium EN AW-6026 AlMgSiPb0.4 anodized  |
|                                 | Sealing                                    | PTFE   |
|                                 | Housing seal                               | EPDM 75 Sh   |
|                                 | Male electrical plug                       | Polyamide (PA)   |
|                                 | Mounting torque                            | G 1/4": M <sub>A</sub> = 32 ... 40 Nm  |
|                                 | Installation                               | any position   |
|                                 | Weight                                     | ~ 200 g  |
| <b>Microswitch</b>              | Rating                                     | See table  |
|                                 | Resistance of insulation                   | 500 VDC > 10 MΩ  |
|                                 | Dielectric strength                        | (IEC/EN 60730-1)<br>>1.5 kV AC/60 s terminal ground<br>>500 VAC/60 s via open contacts |
| <b>Electrical connection</b>    | Electrical connections                     | EN175301-803-A (DIN43650-A)  |
|                                 | Female electrical connector                | Cable-Ø: 4...9 mm<br>Terminal screw: 4 x 0.5...1.5 mm <sup>2</sup>                     |

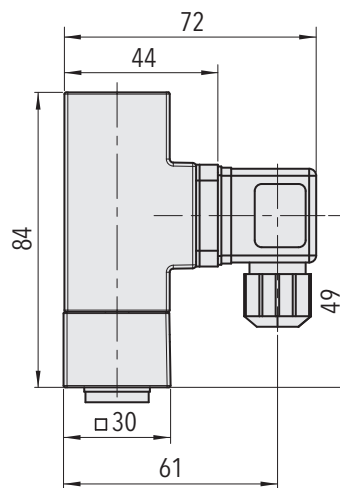
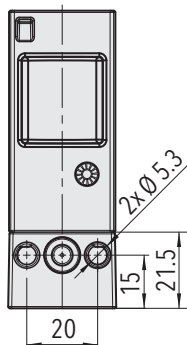
<sup>1)</sup> Provided female connector is mounted according to instructions

<sup>2)</sup> Other adjustment ranges upon request

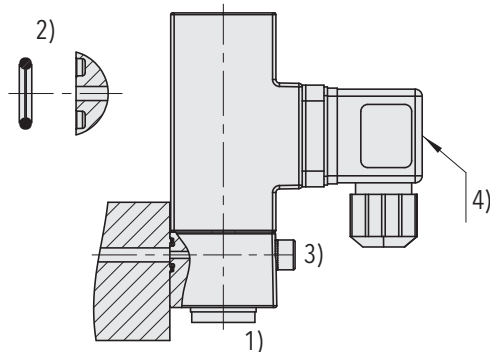
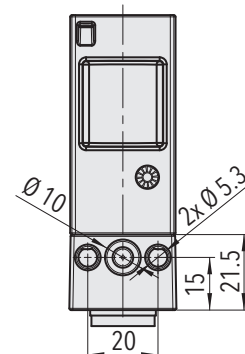
## Dimensions



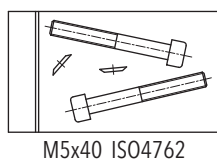
9K4.XXXX.7XX.04.46.V3



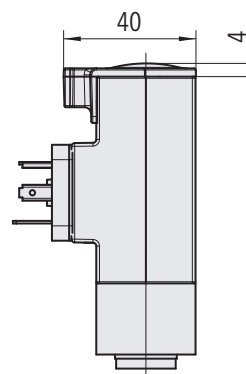
9K4.XXXX.7XX.04.11.46.74.V3



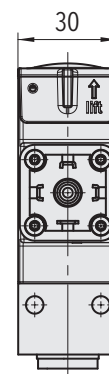
9K4.XXXX.XXX.XX.11



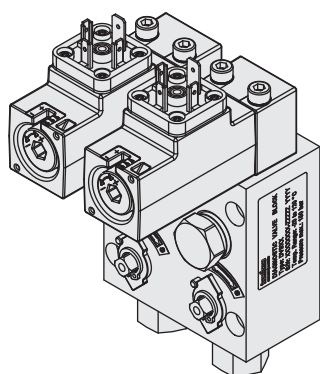
9K4.XXXX.XXX.XX.V3



9K4.XXXX.XXX.XX.15



- 1) Torque: G 1/4":  $M_A = 32 \dots 40 \text{ Nm}$
- 2) O-Ring:  $\varnothing 6.75 \times 1.78$  NBR 90 Sh
- 3) Fixing screw: M5; property class: 8.8; torque:  $4.5 \dots 6 \text{ Nm}$
- 4) Torque connector center screw: max.  $0.4 \text{ Nm}$



Diagnostic Valve Bloc (DVB)  
see specification sheet H72361

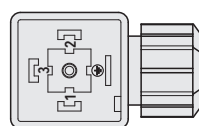
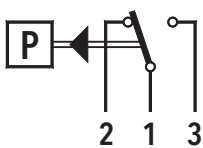
## Switching differential typ. @ 25°C

|   |       |              |              |              |              |            |
|---|-------|--------------|--------------|--------------|--------------|------------|
| <b>Measuring range piston sensor</b>                                  | [bar] | 1 ... 10     | 1 ... 16     | 2 ... 25     | 4 ... 40     | 6 ... 60   |
|   | [psi] | 14 ... 150   | 14 ... 250   | 30 ... 400   | 60 ... 500   | 85 ... 850 |
| <b>Microswitch 42/84/33:</b><br>Switching differential not adjustable | [bar] | 0.4 ... 2.4  | 0.4 ... 2.4  | 1 ... 6      | 1 ... 6      | 5 ... 15   |
|   | [psi] | 6 ... 35     | 6 ... 35     | 14.5 ... 88  | 14.5 ... 88  | 73 ... 218 |
|   |       |              |              |              |              |            |
| <b>Measuring range piston sensor</b>                                  | [bar] | 10 ... 100   | 16 ... 160   | 25 ... 250   | 40 ... 400   |            |
|   | [psi] | 150 ... 1500 | 250 ... 2500 | 350 ... 3500 | 580 ... 5800 |            |
| <b>Microswitch 42/84/33:</b><br>Switching differential not adjustable | [bar] | 5 ... 15     | 12 ... 40    | 12 ... 40    | 15 ... 50    |            |
|   | [psi] | 73 ... 218   | 174 ... 580  | 174 ... 580  | 218 ... 725  |            |

## Electrical data switch

| Type                       | Features   | Rating                                   |  |
|----------------------------|--|--|--|
|                            |  | Resistive Load (Inductive Load)          |  |
|                            |  | AC                                       | DC   |
| <b>42/33</b><br>(Standard) | Silver contacts  | 250 V, 6 (1) A                           | 220 V, 0.25 (0.1) A<br>110 V, 0.5 (0.2) A<br>60 V, 1 (0.5) A<br>24 V, 3 (2) A<br>12 V, 6 (6) A |
| <b>84</b>                  | Gold plated contacts, suitable for intrinsically safe control circuits | max. 30 V, 0.1 (0.1) A<br>min. 5 V, 5 mA |  |

## Electrical Connection



EN175301-803-A

## Additional information

|                  |              |  |
|------------------|--------------|--|
| <b>Documents</b> | Data sheet   | <a href="http://www.trafag.com/H72369">www.trafag.com/H72369</a> |
|                  | Instructions | <a href="http://www.trafag.com/H73367">www.trafag.com/H73367</a> |