

# Relative and differential pressure transmitter type 402

Pressure range  
0 ... 3 – 50 mbar

Type 402 pressure transmitters are ideally suited to measuring fine air flow in air conditioning systems, and fine pressures in the environmental / medical technology sectors. Individually ranged sensors ensure optimum accuracy and long term stability of measurement. Location is quick and easy, either via a mounting plate or directly onto a PCB.

- Attractive price / performance ratio
- Excellent synergy of diaphragm technology and ceramic elements
- Special adapter for top-hat rail mounting
- Direct pcb mounting with simple snap-on system



**Technical Overview****Pressure range**

Relative and differential 0 ... 3 – 50 mbar

**Operating conditions**

|                    |                                 |                                |
|--------------------|---------------------------------|--------------------------------|
| Medium             |                                 | Air and neutral gases          |
| Temperature        | Medium / ambient<br>Storage     | 0 ... +70 °C<br>-30 ... +70 °C |
| Tolerable overload |                                 | 100 mbar                       |
| Rupture pressure   | at room temperature<br>at 70 °C | 200 mbar<br>150 mbar           |

**Materials in contact with the medium**

|                   |                                              |
|-------------------|----------------------------------------------|
| Case construction | Polycarbonate (PC) / Polyamide (PA)          |
| Diaphragm         | Silicone                                     |
| Sensor            | Ceramic Al <sub>2</sub> O <sub>3</sub> (96%) |

**Electrical overview**

|                               |                                                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Output                        | 0.5 ... 4.5 V                                                                                                     |
| Power supply                  | 10.2 ... 33.0 VDC                                                                                                 |
| Load                          | > 15 kOhm (to GND)                                                                                                |
| Current consumption           | < 8 mA                                                                                                            |
| Polarity reversal protection  | Connector and pcb version mechanically protected                                                                  |
| Electromagnetic compatibility | The product is designed exclusively for installation in equipment. The customer is responsible for CE conformity. |

**Dynamic response**

|               |         |
|---------------|---------|
| Response time | < 10 ms |
| Load cycle    | < 10 Hz |

**Protection standard**

IP 00

**Electrical connections**

|                                 |                      |
|---------------------------------|----------------------|
| Solderable pin in circuit board |                      |
| 3 pole connector RAST 2.5       |                      |
| Adapter plate                   | Mounted and soldered |

**Pressure connection**

Pipe Ø 6.2 mm

**Mounting instruction**

|                          |                      |                                      |
|--------------------------|----------------------|--------------------------------------|
| Installation arrangement | Diaphragm vertical   | Pressure connections facing downward |
|                          | Diaphragm horizontal | Pressure connection P1 upwards       |
| Mounting                 |                      | Snap fitting <sup>1)</sup>           |
|                          |                      | Adapter                              |
|                          |                      | Mounting bracket                     |

**Weight**

~ 28 g

**Packaging**

|                                                                          |
|--------------------------------------------------------------------------|
| Single packaging in cardboard boxes                                      |
| Multiple packaging in cardboard boxes with blister pack inserts (25 pcs) |

**Accuracy**

| Parameter                                        | Unit          | 0 ... 3 mbar | 0 ... 5 mbar | 0 ... 10 mbar | 0 ... 30 mbar | 0 ... 50 mbar |
|--------------------------------------------------|---------------|--------------|--------------|---------------|---------------|---------------|
| Tolerance zero point <sup>2)</sup>               | max. % fs     | ± 0.9        | ± 0.9        | ± 0.9         | ± 0.9         | ± 0.9         |
| Tolerance full scale <sup>2)</sup>               | max. % fs     | ± 1.3        | ± 1.3        | ± 1.3         | ± 0.7         | ± 0.7         |
| Resolution                                       | % fs          | 0.1          | 0.1          | 0.1           | 0.1           | 0.1           |
| Total of linearity, hysteresis and repeatability | max. % fs     | ± 1.0        | ± 1.0        | ± 0.6         | ± 0.6         | ± 0.6         |
| Long term stability acc. to DIN EN 60770         | % fs          | ± 1.0        | ± 1.0        | ± 1.0         | ± 1.0         | ± 1.0         |
| TC zero point <sup>3)</sup>                      | typ. % fs/10K | ± 0.2        | ± 0.2        | ± 0.2         | ± 0.2         | ± 0.2         |
| TC zero point <sup>3)</sup>                      | max. % fs/10K | ± 0.4        | ± 0.4        | ± 0.4         | ± 0.4         | ± 0.4         |
| TC sensitivity <sup>3)</sup>                     | typ. % fs/10K | + 0.3        | + 0.3        | + 0.2         | ± 0.2         | ± 0.2         |
| TC sensitivity <sup>3)</sup>                     | max. % fs/10K | ± 0.6        | + 0.5        | + 0.4         | ± 0.4         | ± 0.4         |

Test conditions: 25 °C, 45% RH, power supply 12 VDC  
TC z.p. / TC s. 0 ... +70 °C

<sup>1)</sup> max. 1.6 mm thickness<sup>2)</sup> For changing diaphragm position from horizontal to vertical, approx. -0.13 mbar<sup>3)</sup>TC = Temperature coefficient

Order code selection table

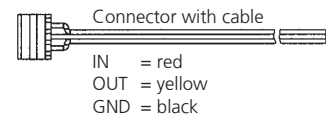
402.9 X X X X X X

|                                       |                                                      |   |   |  |   |  |  |   |
|---------------------------------------|------------------------------------------------------|---|---|--|---|--|--|---|
| Pressure range <sup>1)</sup>          | 0 ... 3 mbar                                         | 1 |   |  |   |  |  |   |
|                                       | 0 ... 5 mbar                                         | 2 |   |  |   |  |  |   |
|                                       | 0 ... 10 mbar                                        | 3 |   |  |   |  |  |   |
|                                       | 0 ... 30 mbar                                        | 4 |   |  |   |  |  |   |
|                                       | 0 ... 50 mbar                                        | 5 |   |  |   |  |  |   |
| ▲ Full scale signal at these pressure |                                                      |   |   |  |   |  |  |   |
| Adjusting position <sup>2)</sup>      | Diaphragm vertical                                   | 0 |   |  |   |  |  |   |
|                                       | Diaphragm horizontal                                 | 1 |   |  |   |  |  |   |
| Diaphragm                             | Silicone                                             |   | 0 |  |   |  |  |   |
| Output / power supply                 | 0.5 ... 4.5 V    10.2 ... 33 VDC                     |   |   |  | 0 |  |  |   |
| Electrical connection                 | Print version                                        |   |   |  |   |  |  | 1 |
|                                       | Connector version Rast 2.5                           |   |   |  |   |  |  | 2 |
|                                       | Print version, mounted and soldered on adapter plate |   |   |  |   |  |  | 3 |
| Pressure connection                   | Pipe Ø 6.2 mm                                        |   |   |  |   |  |  | 1 |

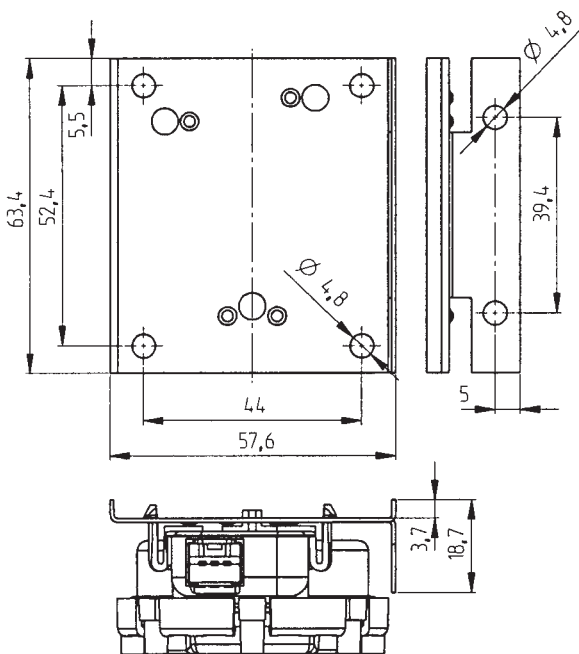
Accessories <sup>3)</sup>

|                                                              |                                             |              |
|--------------------------------------------------------------|---------------------------------------------|--------------|
| Fixing screw for wall thickness 1 – 2 mm                     | Length of screw 6 mm (min. required 2 pcs)  | Order number |
| Fixing screw for wall thickness 4.1 – 6 mm                   | Length of screw 10 mm (min. required 2 pcs) | 102976       |
| Connector Rast 2.5 with cable (110 cm)                       |                                             | 112213       |
| Base plate for rail mounting suitable for bearing rail TS 35 |                                             | 101817       |
| Bracket                                                      |                                             | 110656       |
| Calibration certificate                                      |                                             | 108222       |
|                                                              |                                             | 104551       |

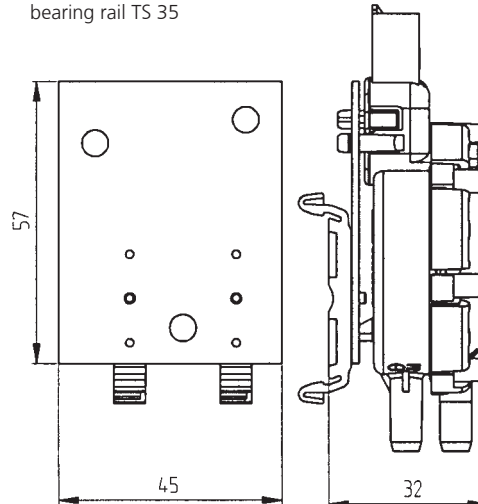
| AMP connector <sup>4)</sup> | Manufacturer's Part No. | Colour | for flexible wire                                                            |
|-----------------------------|-------------------------|--------|------------------------------------------------------------------------------|
|                             | 3-829868-3              | grey   | 7 x 0.20 mm = 0.22 mm <sup>2</sup> or<br>12 x 0.20 mm = 0.35 mm <sup>2</sup> |
|                             | 1-966194-3              | beige  | 7 x 0.25 mm = 0.35 mm <sup>2</sup>                                           |



Mounting Bracket

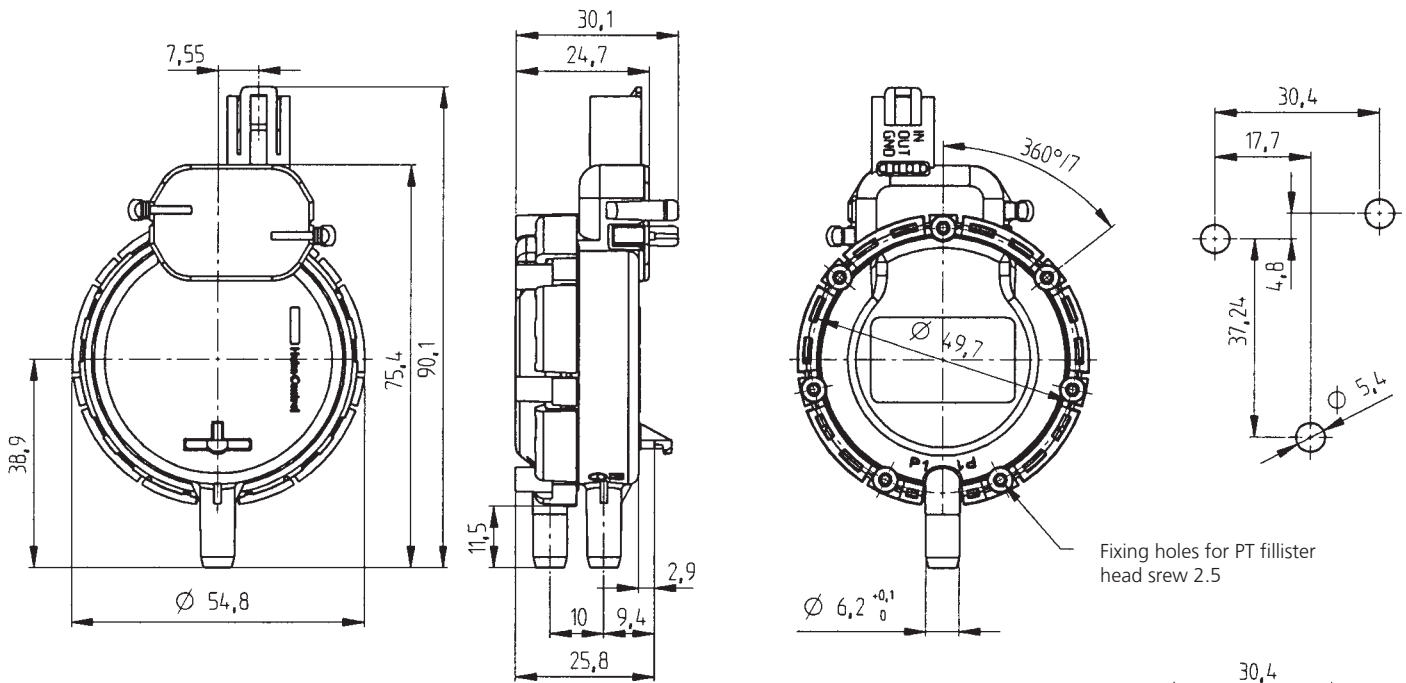


Base plate for rail mounting suitable for bearing rail TS 35

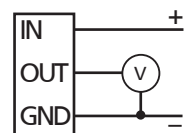
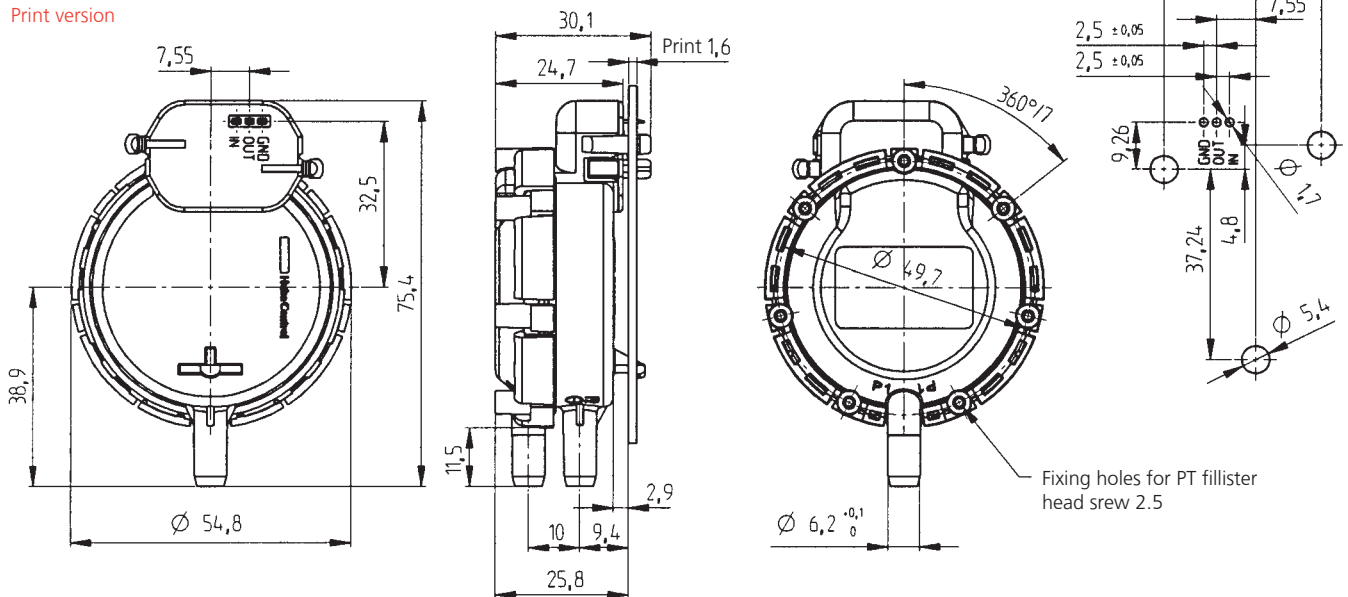


<sup>1)</sup> Other pressure range on request    <sup>2)</sup> For changing diaphragm position from horizontal to vertical, approx. -0.13 mbar.  
<sup>3)</sup> Accessories supplied loose    <sup>4)</sup> To be ordered separately from original manufacturer. Further information can be found in the manufacturer specification No. 114-18049.

Connector version



Print version



# Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT

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