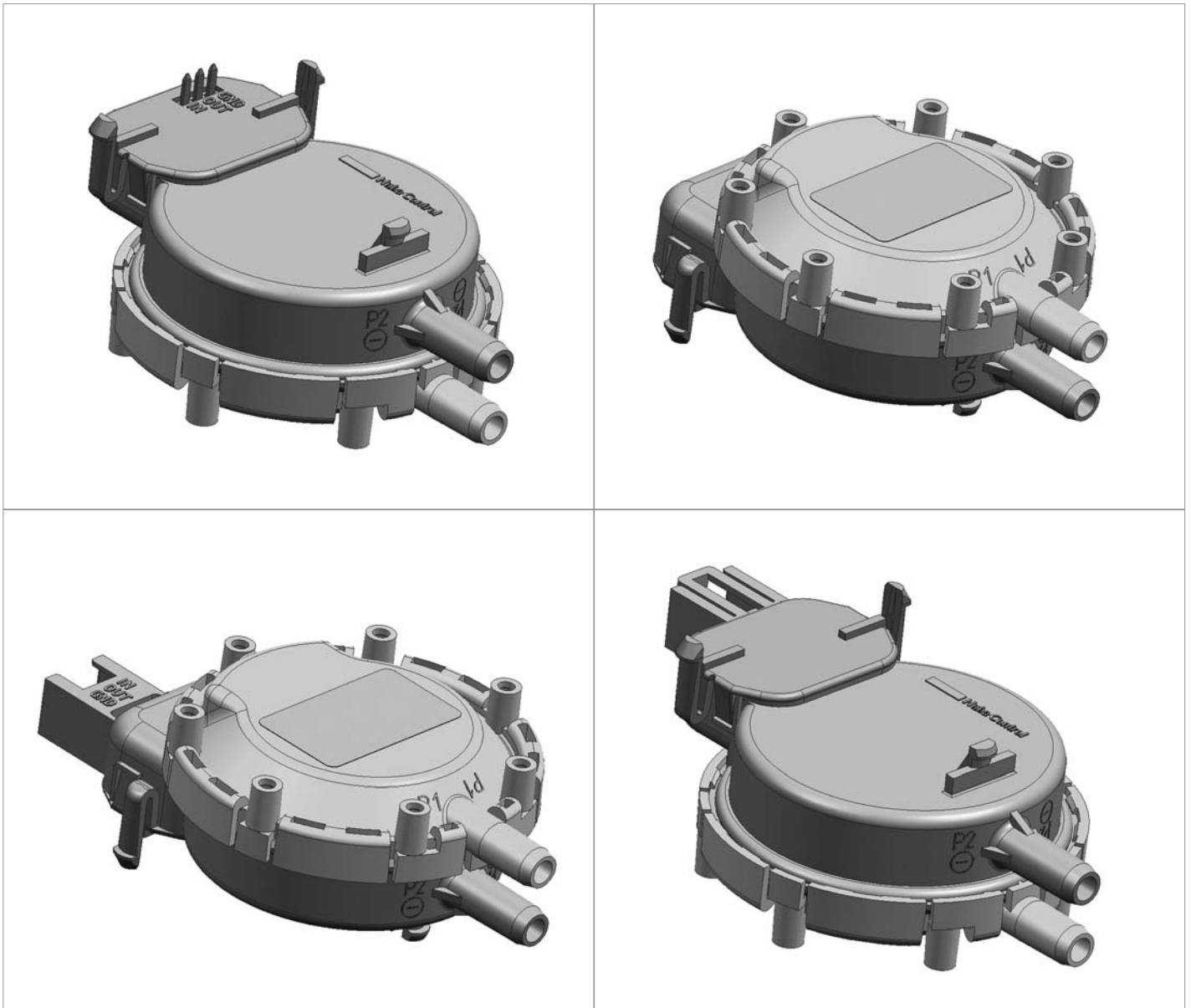


## Pressure, vacuum and differential pressure transmitter

0 – 3 / 5 / 10 / 30 / 50 mbar

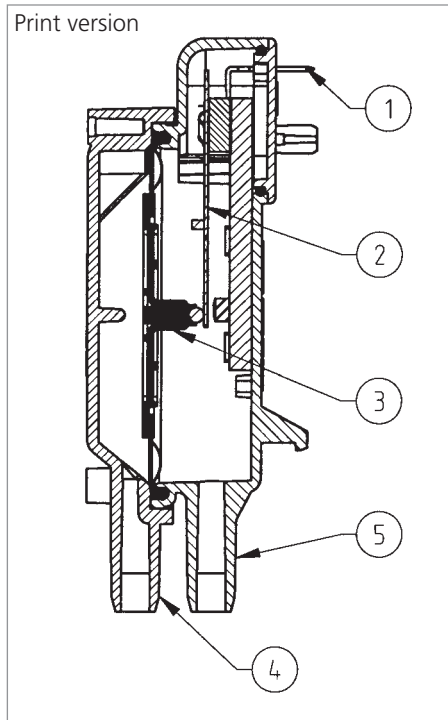


EDITION 12/2005

## Technical overview

The differential pressure transmitters of type 402 with their proven ceramic fulcrum lever technology have calibrated, temperature-compensated sensor signals that are available with voltage outputs.

They are ideally suited for registering fine air flow in air conditioning technology and for measuring fine pressures in the environmental / medical technology sectors.



## Legend to cross-section drawing

- 1 Electrical connection
- 2 Ceramic fulcrum lever with electronic circuitry
- 3 Diaphragm
- 4 Connection port P1  
higher pressure/lower vacuum
- 5 Connection port P2  
lower pressure /higher vacuum

## The distinct advantages

- 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

## Medium

Air, neutral gases

## Pressure ranges

Pressure ranges see order code selection table, other pressure ranges on request.

## Tolerable overload

100 mbar

## Rupture pressure

200 mbar at room temperature  
150 mbar at 70 °C

## Case construction

Polycarbonate PC / Polyamide PA

## Diaphragm

Silicone

## Accuracy

Medium and ambient temperature  
0 ... 70 °C

TC sensitivity and TC zero point see parameter table

## Storage temperature

- 30 ... + 70 °C

## Dynamic response

Suitable for static and dynamic measurements.

Response time: < 10 ms

Load cycle: < 10 Hz

## Weight

approx. 28 g

## Installation arrangement

Diaphragm vertical, pressure connections facing downward,  
diaphragm horizontal, P1 upwards

Adjusting position see order code selection table

## Power supply / Output

Power supply 12 V (10.2 – 33.0 VDC)  
Output 0.5 – 4.5 VDC

## Load

> 15 kOhm (to GND)

## Protection standard

IP 00

## Current consumption

max. 8 mA

## Electrical connections

Solderable pin on circuit board

3-pole plug connector RAST 2.5 mm  
(AMP / Lumberg / Stocko)

Adapter plate

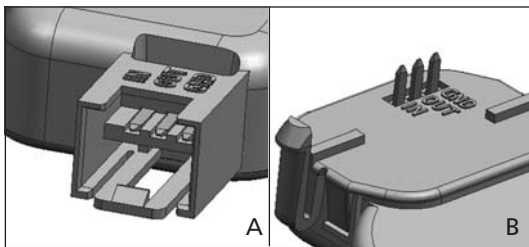
Phase-reversal protection: Connector and pcb version protected mechanically.

## Packaging

In cartons with blister inserts, returnable

## Accessories

See order code selection table  
(supplied loose with consignment)



## Versions

A – Connector version

B – Print version (for soldering customer sides)

## Accuracy

Transmitter-Type Parameter	Unit	0 ... 3 mbar	0 ... 5 mbar	0 ... 10 mbar	0 ... 30 mbar	0 ... 50 mbar
Zero point <sup>1)</sup> (at 0.5 V)	V	+/- 0.025	+/- 0.025	+/- 0.025	+/- 0.025	+/- 0.025
Final value <sup>1)</sup> (at 4.5 V)	V	+/- 0.050	+/- 0.050	+/- 0.050	+/- 0.025	+/- 0.025
Linearity typ.	% fs	+/- 0.3	+/- 0.3	+/- 0.2	+/- 0.2	+/- 0.2
Linearity max.	% fs	+/- 0.5	+/- 0.5	+/- 0.3	+/- 0.3	+/- 0.3
Hysteresis typ.	% fs	0.2	0.2	0.2	0.1	0.1
Hysteresis max.	% fs	0.5	0.4	0.3	0.2	0.2
Long-term stability <sup>2)</sup>	% fs	+/- 1.0	+/- 1.0	+/- 1.0	+/- 1.0	+/- 1.0
TC zero point <sup>3)</sup> typ.	% fs/K	+/- 0.02	+/- 0.02	+/- 0.02	+/- 0.02	+/- 0.02
TC zero point <sup>3)</sup> max.	% fs/K	+/- 0.04	+/- 0.04	+/- 0.04	+/- 0.04	+/- 0.04
TC sensitivity <sup>3)</sup> typ.	% fs/K	+/- 0.03	+/- 0.03	+/- 0.02	+/- 0.02	+/- 0.02
TC sensitivity <sup>3)</sup> max.	% fs/K	+/- 0.06	+/- 0.05	+/- 0.04	+/- 0.04	+/- 0.04
Positional error <sup>1)</sup>	mbar	approx. -0.13	approx. -0.13	approx. -0.13	approx. -0.13	approx. -0.13

Test conditions: 25 °C, 45 % RH  
TC z. p. / TC s. 0–70 °C

## Order code selection table

		402.	9	X	X	X	X	X	X
Pressure ranges <sup>1</sup>	0 ... + 3 mbar		1						
	0 ... + 5 mbar		2						
	0 ... + 10 mbar		3						
	0 ... + 30 mbar		4						
	0 ... + 50 mbar		5						
Adjusting position	Diaphragm vertical, pressure connections downwards			0					
	Diaphragm horizontal, P1 upwards			1					
Diaphragm	Silicone				0				
Output and power supply	0.5 ... 4.5 V	12 VDC (10.2 ... 33 VDC)					0		
Electrical connections	Print version								1
	Connector version (RAST 2.5 mm)								2
	For direct pcb mounting, mounted and soldered on adapter plate (compatible for types 696/697)								3
Pressure connection	Pipe Ø 6.2								1

## Accessories

Fixing screw for wall thickness	Length of screw	1	0	2	9	7	6
1 – 2 mm	6 mm	1	0	2	9	7	6
4.1 – 6 mm	10 mm	1	0	2	9	7	8
AMP Connector with cable (110 cm)		1	0	1	8	1	7
Base plate for rail mounting suitable for bearing rail TS 35		1	1	0	6	5	6
Bracket		1	0	8	2	2	2
Adapter (compatible for types 696/697)		1	1	0	9	1	0
Connecting cable for connector version (compatible for types 696/697)		1	1	1	7	0	7
AMP Connector	Manufacturer's Part No.	Colour	for cable				
	3-829868-3	grey	7-wire	0.22 – 0.25 mm <sup>2</sup> or			
			12-wire	0.32 – 0.35 mm <sup>2</sup>			
	1-966194-3	beige	7-wire	0.32 – 0.35 mm <sup>2</sup>			

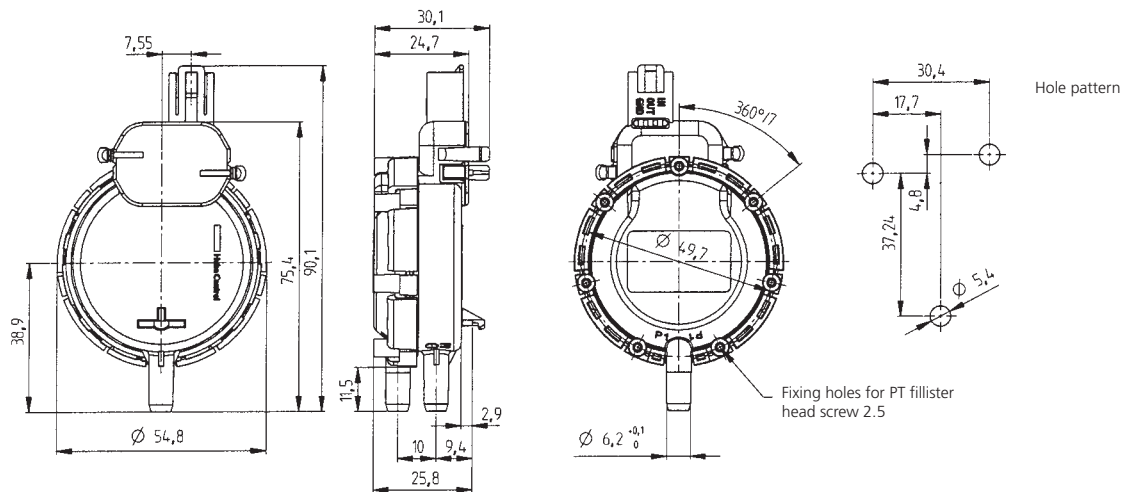
1) For changing diaphragm position from horizontal to vertical, approx. -13 Pascal

2) Long-term stability acc. to DIN IEC 770

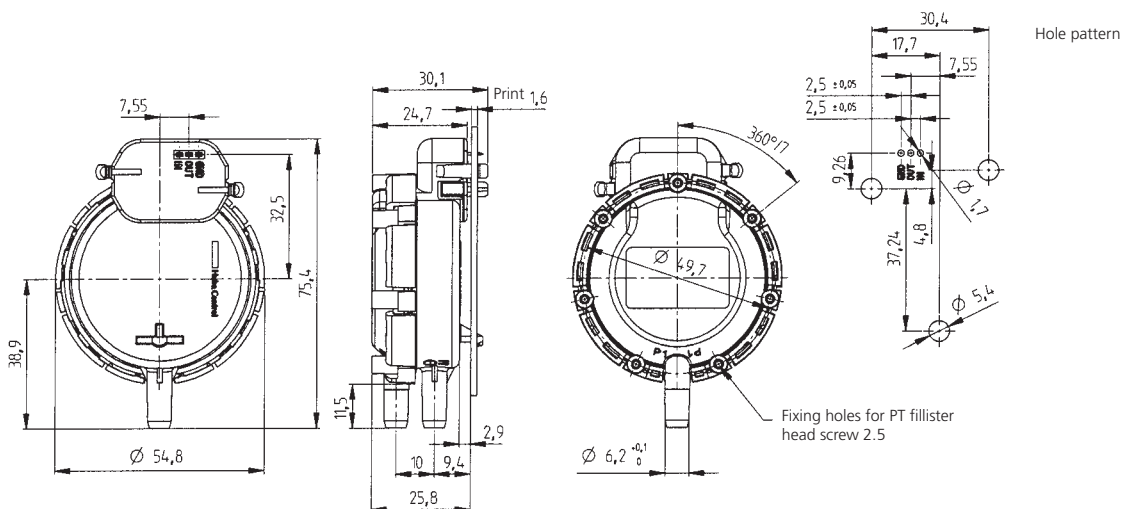
3) TC = Temperature coefficient

4) Other pressure ranges on request

Connector version

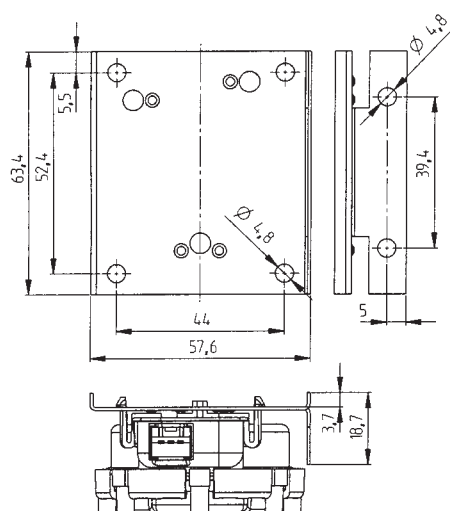


Print version

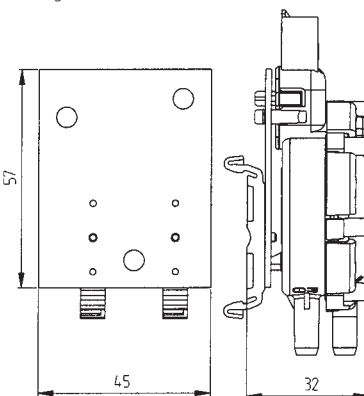


Accessories

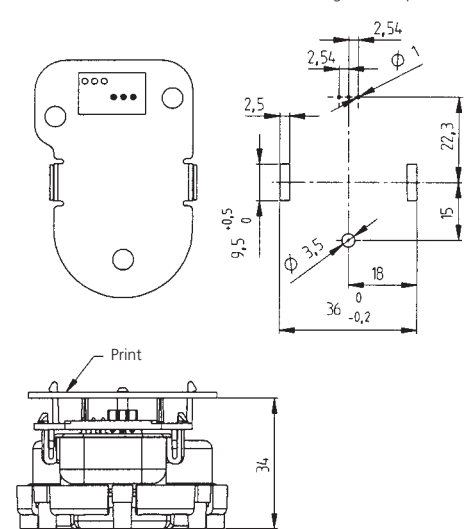
Bracket



Base plate for railmounting suitable for bearing rail TS 35



Adapter



**Electromagnetic compatibility:** CE conformity (EMC) by application of harmonized standards: Interference stability EN 61000-6-2, EN 61000-6-3 and EN 61326-1

Interference stability	Test standard		Effect
Electrostatic discharge (ESD)	EN 61000-4-2	8 kV air	no effect
High-frequency electromagnetic radiation (HF)	EN 61000-4-3	10 V/m, 80 ... 1000 Mz	no effect
Conducted HF interference	EN 61000-4-6	10 V, 0.15 ... 80 MHz	no effect
Fast transients (burst)	EN 61000-4-4	4 kV	no effect

Interference emit	Test standard		Effect
Conducted interference	EN 55022 (CISPR 22)	0.15 ... 30 MHz	no emission
Radiation from housing		30 ... 1000 MHz, 10 m	no emission

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