Differential pressure transmitter

Huba Control

In Proud Partnership with Huba Control

PAQUiN SENSORS

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Relative and differential pressure transmitter

Type 450

The pressure transmitter type 450 is a robust sensor integrated in a compact housing for the use in various applications with air or neutral gases. Pollutions with small particles do not harm the function of this pressure transmitter.
The type 450 is ideal for HVAC applications.

Additionally to the analogue output the pressure transmitter type has a digital output I^2C. These output signals are temperature compensated, linear and reinforced.
The transmitter is fitted directly on a PCB.

Pressure range

-1.5 ... 1.5 mbar /
0 ... 3 – 100 mbar

+ Suitable for low pressure measurements
+ Excellent accuracy and long term stability at whole measuring range
+ Output sensor signal temperature compensated from -10 °C ... +80 °C

Technical overview

Pressure range		
Relative and differential	-1.5 ... 1.5 mbar / 0 ... 3 – 100 mbar	

Operating conditions		
Medium		Air and neutral gases
Rupture pressure	< 50 mbar	100 mbar
	≥ 50 mbar	3 x FS
Temperature	Medium and ambient	-20 ... +85 °C
	Compensated	-10 ... +80 °C
	Storage	-40 ... +100 °C

Materials in contact with the medium	
Case	Polyamid (PA)
Sensor	Ceramic Al_2O_3 (96%)
Sealing	TPE
Membrane	Silicone

Electrical overview			
	Output	Power supply	Current consumption
3 wire	0.5 … 4.5 V	7 … 33 VDC	< 5 mA
	ratiom. 10 ... 90%	2.7 ... 5.5 VDC	< 5 mA
	Digital ZACWire™ 10 ... 90% of 2^{14} digits	2.7 ... 5.5 VDC	< 5 mA
4 wire	Digital I²C 10 ... 90% of 2^{14} digits	2.7 ... 5.5 VDC	< 5 mA
Polarity reversal protection			mechanically protected

I²C Specification
Clock- and Dataline Pull-up-Resistor ≥≥ 1 kΩ to VDD, Capacity ≤ ≤ 200 pF (user specification)
Clock frequency ≤ 100 kHz (Standard 100 kbit/s)

Dynamic Response	
Response time	< 2ms

Pressure connection
Tube connector

Electrical connection	Protection standard	Protection class
PCB	IP 00	III

Adjusting position	Depency on fitting position (≤ 10mbar)
Pressure connections lateral	Pressure connections on top +4.5 Pa
	Pressure connections at bottom -4.5 Pa
Pressure connections on top	Pressure connections lateral -4.5 Pa
	Pressure connections at bottom -9 Pa
Pressure connections below	Pressure connections lateral +4.5 Pa
	Pressure connections on top +9 Pa

Mounting instruction	
Mounting	PCB mounting
Soldering process	suitable for wave soldering (process time < 3 minutes, temperature peak top side PCB < 145°C)
	suitable for manual soldering
	not suitable for reflow soldering

Tests / Admissions	
UL	UL 60730-1 acc. E334896
Electromagnetic compatibility	CE conformity acc. EN 61326-2-3

Weight
~ 12 g

Packaging
Multiple packaging in cardboard boxes with blister 70 pieces

Accuracy

Test conditions: 25 °C, 45% RH

Parameter Pressure < 5 mbar		Unit	
Characteristic line (-10 ... +80 °C)[1), 2)]		% fs	± 1.5
Long term stability acc. IEC EN 60770-1	max.	% fs	± 0.25

Parameter Pressure ≥ 5 mbar		Unit	
Characteristic line (-10 ... +80 °C)[1), 2)]		% fs	± 1.0
Long term stability acc. IEC EN 60770-1	max.	% fs	± 0.25

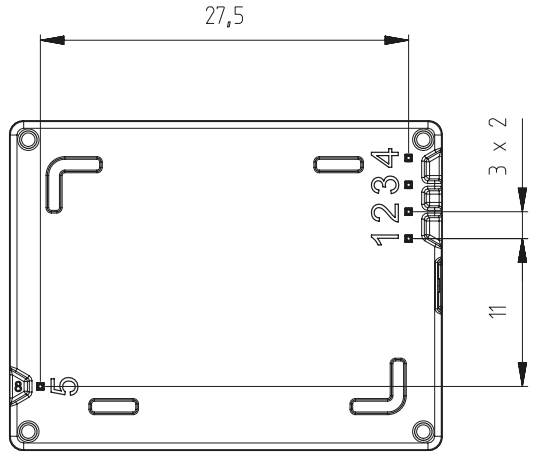
[1)] incl. zero point, full scale, linearity, hysteresis and repeatability

[2)] ratiom. 10 ... 90 %: Calibrated at 5 VDC. Other power supplies may influence the accuracy.

Order code selection table

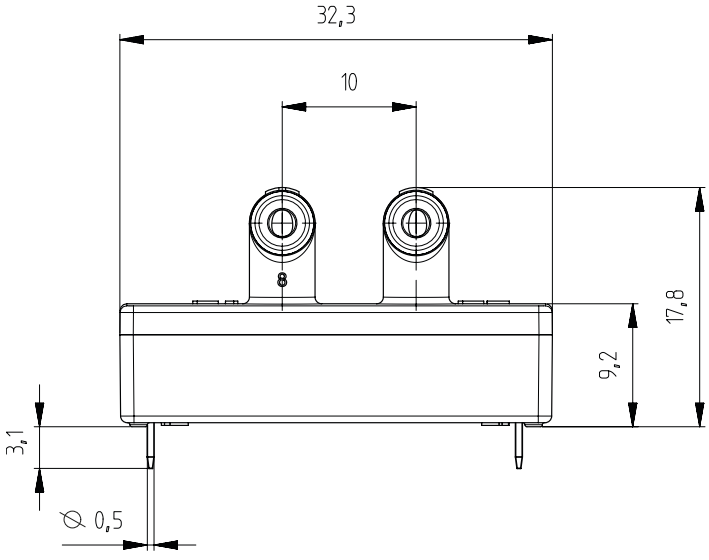
			1	2	3	4	5	6	7	8
	450.		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Pressure range	-1.5 ... 1.5 mbar		9	0						
	0 ... 3 mbar		9	1						
	0 ... 5 mbar		9	2						
	0 ... 10 mbar		9	3						
	0 ... 30 mbar		9	4						
	0 ... 50 mbar		9	5						
	0 ... 100 mbar		9	6						
Adjusting position	Pressure connections lateral				0					
	Pressure connections on top				1					
	Pressure connections below				2					
Diaphragm	Silicone					0				
Output / power supply	0.5 ... 4.5 V	7 ... 33 VDC					0			
	ratiom. 10 ... 90%	2.7 ... 5.5 VDC					1			
	Digital ZAC wire™ 10 ... 90% of 2^{14} digits	2.7 ... 5.5 VDC					3			
	Digital I²C 10 ... 90% of 2^{14} digits	2.7 ... 5.5 VDC					4			
Electrical connection	PCB							1		
Pressure connection	Tube connector								1	
Pressure range variation (optional)	Indicate W and state range on order (e.g.: W 0 ... +9 mbar/OUT 0.5 ... 4.5 V)									W

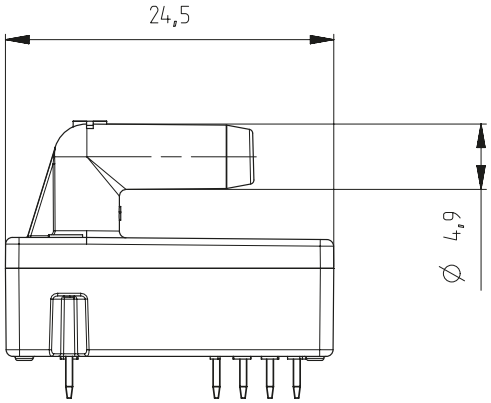
Dimensions in mm / Electrical connections



pin assignment

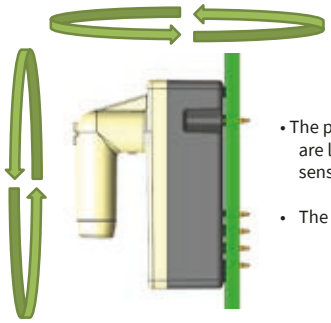
	Analog output / ZAC wire	Digital output
1:	GND	GND
2:	OUT	IN
3:	IN	SDA
4:	no pin	SCL
5:	NC	NC





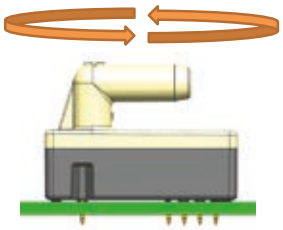
Adjusting position

Pressure connections lateral

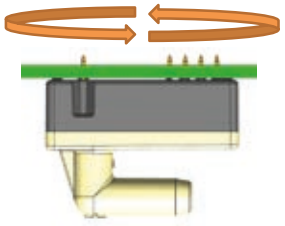


- The pressure connections are located lateral to the sensor body
- The PCB is vertical

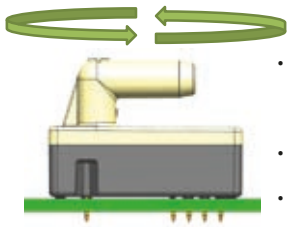
+ 4.5 Pa



- 4.5 Pa

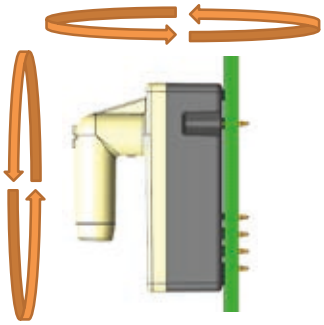


Pressure connections on top

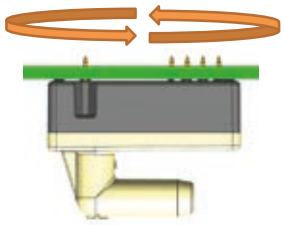


- The pressure connections are located on the top of the sensor body
- The PCB is horizontal
- The sensor is over the PCB

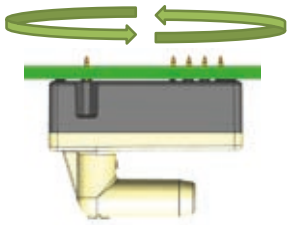
- 4.5 Pa



- 9 Pa

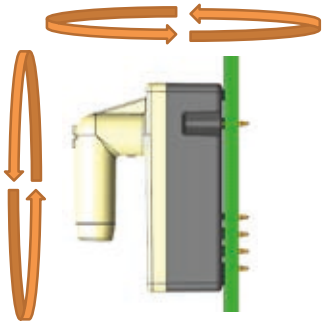


Pressure connections below



- The pressure connections are located at the bottom of the sensor body.
- The PCB is horizontal.
- The sensor is under the PCB.

+ 4.5 Pa



+ 9 Pa