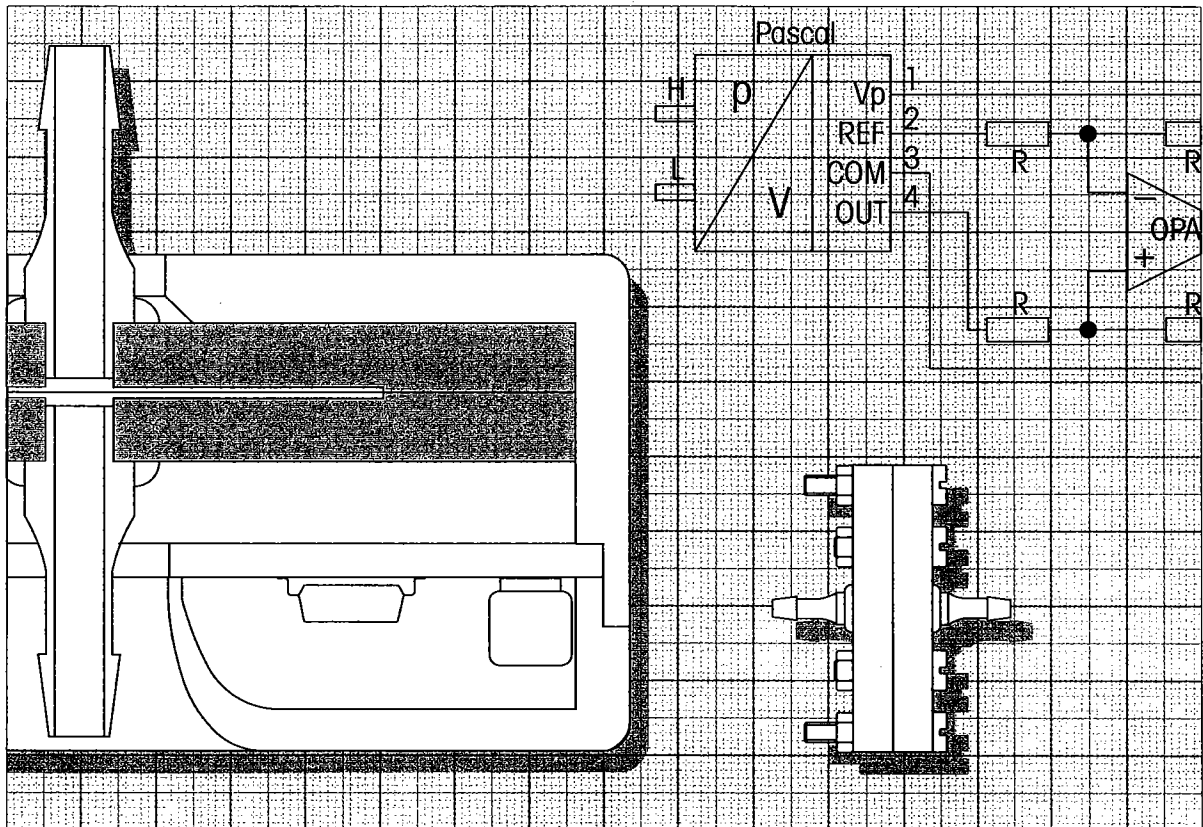


PasCal • CPS

High quality capacitive pressure sensors



Working together with capacities:

- extraordinary resolution
- extreme maximum overload capacity
- highest precision
- simple application

The principle

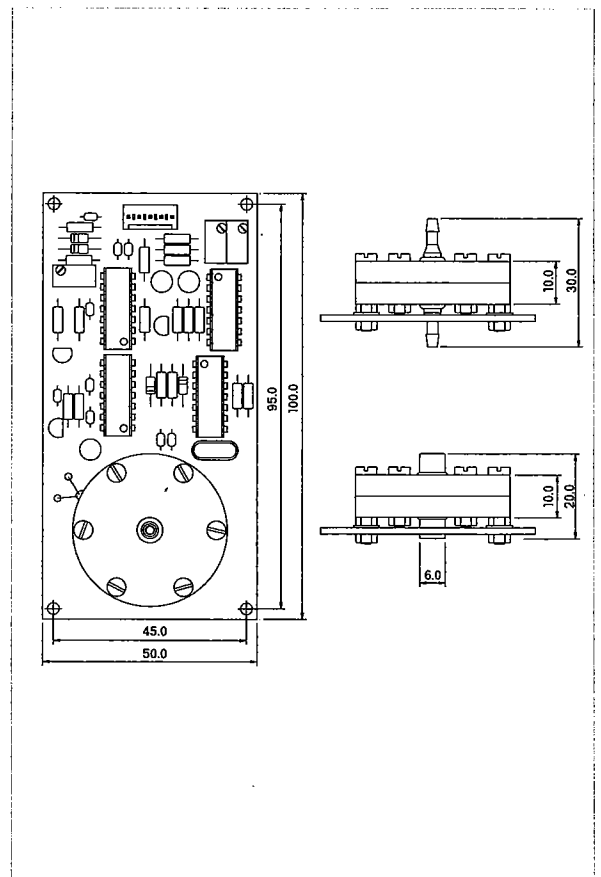
Capacitive pressure sensors consist of two main components: A flexible membrane and a fixed electrode. The pressure to be measured changes the distance between these two electric conductors. For this reason also the value of the system's capacity changes in direct proportion to the pressure.

Condenser systems according to the differential principle ensure a very good linearity of the measuring signal. The extreme low noise level of capacitive pressure sensors enables a resolution of better than 10^{-7} Pa.

The PasCal and CPS pressure sensors are made of a ceramic substrate with silver-palladium or silver-platinum thick layer electrodes. The membrane is made of a special steel or ceramic and is fixed by glass rings.

The strong construction of the PasCal and CPS sensors ensures an extreme high overload capacity.

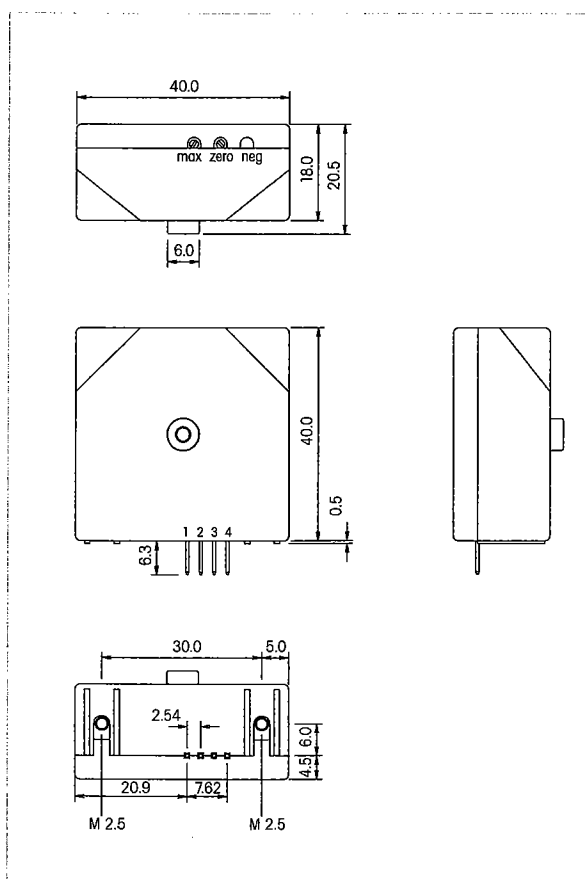
CPS



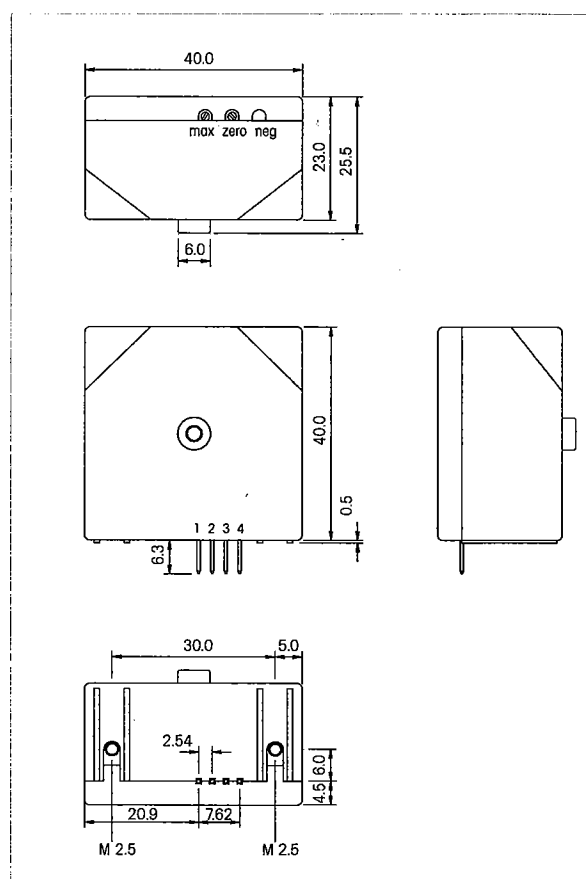
Ranges (Pa)*	50/100/500/1000/2000
Class	—
Pressure connection	T/F
Kind of measurement	D
Output voltage	± 1 V *
Signal to noise ratio	80 dB
Input voltage	± 12 V (optional ± 5 V)
Supply current	+ 3 mA; – 10 mA
Linearity fault	$< \pm 0,2$ %
Hysteresis	$< 0,1$ %
Temperature coefficient: Offset	< 250 ppm/K
Temperature coefficient: Transconductance	< 250 ppm/K
Position dependence	$< 0,15$ %
Chamber volume	$< 25 \mu\text{l}$
Maximum pressure (without destruction)	5×10^5 Pa difference pressure
Destructive pressure	2×10^6 Pa
Mass	75 g
Adjustment	Zero, amplification (pos. and neg. separately adjustable)

*) Other ranges available by inquiry

PasCal small

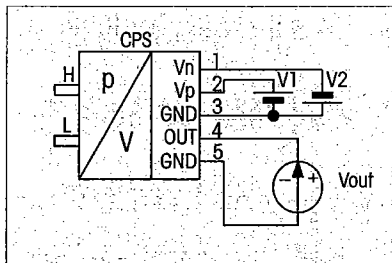


PasCal large

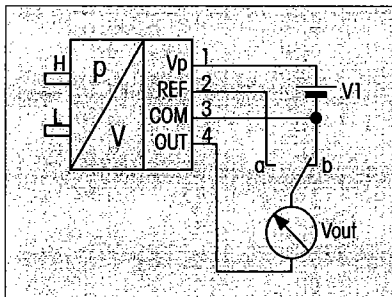


100/500/2000	100/500/2000	100/500/2000	100/200/500
E (Economic)	S (Standard)	S (Standard)	H (High performance)
T/F	T/F	T/F	T/F
D	D	D	D
10 V	10 V	10 V	10 V
74 dB	74 dB	80 dB	94 dB
12 V - 18 V	12 V - 18 V	12 V - 18 V	12 V - 18 V
10 mA	10 mA	10 mA	10 mA
< ± 0,3 %	< ± 0,2 %	< ± 0,2 %	< ± 0,05 %
< 0,2 %	< 0,1 %	< 0,1 %	< 0,1 %
< 400 ppm/K	< 250 ppm/K	< 200 ppm/K	< 50 ppm/K
< 400 ppm/K	< 250 ppm/K	< 250 ppm/K	< 100 ppm/K
< 0,25 %	< 0,15 %	< 0,15 %	< 0,1 %
< 25µl	< 25µl	< 25µl	< 25µl
2 x 10 ⁵ Pa diff. press.	2 x 10 ⁵ Pa diff. press.	5 x 10 ⁵ Pa diff. press.	5 x 10 ⁵ Pa diff. press.
10 ⁶ Pa	10 ⁶ Pa	2 x 10 ⁶ Pa	2 x 10 ⁶ Pa
42 g	42 g	62 g	62 g
Zero, amplification	Zero, amplification	Zero, amplification	Zero, amplification

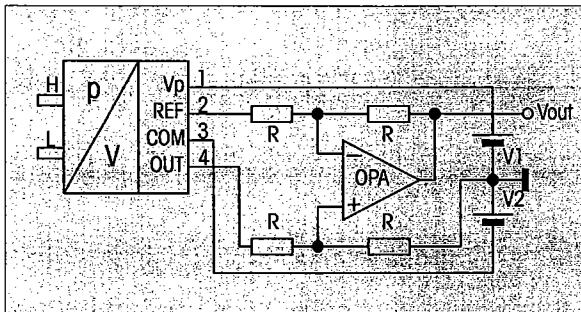
Application



CPS: Application without additional components.
 $V1 = -V2 = 5 \pm 0,25 \text{ V}$ or $V1 = -V2 = 12 \pm 2 \text{ V}$
 $V_{out} = \pm 1 \text{ V}$

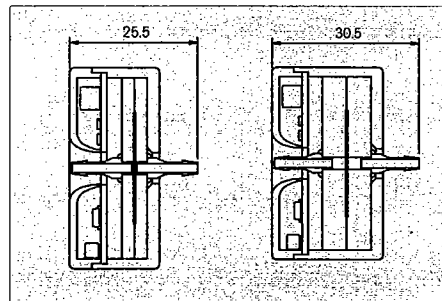


PasCal: Application without additional components.
 $V1 = 12 \text{ V} \dots 18 \text{ V}$
 a: bipolar operating, $V_{out} = \pm 5 \text{ V}$
 b: unipolar operating, $V_{out} = 0 \text{ V} \dots 10 \text{ V}$

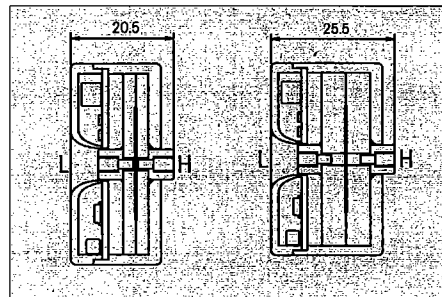


PasCal: Application with additional components.
 Transition to a dual voltage supply system.
 $V1 = 5 \text{ V} \dots 9 \text{ V}$; $V2 = -5 \text{ V} \dots -9 \text{ V}$
 $(V1) + (V2) \geq 12 \text{ V}$; $V_{out} = \pm 5 \text{ V}$

Pressure connections



2 mm tube connector



M 3 female thread for 2 mm tube-coupling,
 L-Side straight, H-Side straight or angle

Specification code of the PasCal sensors:

PC

1	2	3	4	5
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1: Value of the range (Pa)		
2: Housing		
S = Small	L = Large	C = Ceramic
3: Kind of measurement		
D = Differential pressure		A = Absolute pressure
4: Class		
E = Economic	S = Standard	H = High performance
5: Pressure connection		
T = Tube connector		F = Female thread

Code example:

PC

500	L	D	S	T
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This example specifies the following PasCal sensor:

- 500 Pa pressure range
- Large housing
- Differential pressure measurement
- Standard quality
- Tube connector

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