*Datasheet*

# HPSAV 3000 Pressure Transducer

## General description

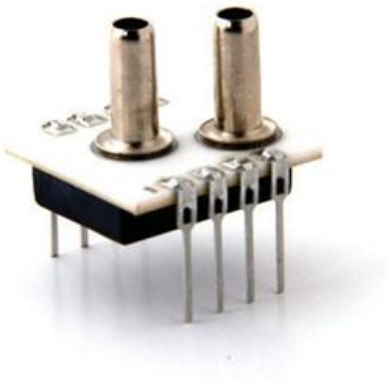
Pressure transducer model HPSAV 3000 is temperature compensated pressure sensing device with zero and span calibrated output.
High performance and accuracy enable use of this transducer in many applications. With its compact and handy design is very suitable for OEM users.
The HPSAV 3000 pressure transducer is constructed on 1 mm thick ceramic substrate with one or two pressure tubes. Thick film resistors printed on the substrate are individually laser trimmed to provide temperature compensation, zero and span calibration.
Pressure media compatible with this transducers family is dry air or non-corrosive gases and liquids.
The model HPSAV 3000 is designed for constant voltage excitation. Whole family includes pressure ranges from 10 mbar up to 7 bar.

## Features

- Constant voltage excitation
- Easy to use DIP package
- Wide compensated range (0 to 70°C)
- Zero and span calibration
- High performance OEM applications
- Differential, gage and absolute configurations
- Wide pressure ranges from 10 mbar up to 7 bar

## Applications

- Medical instrumentation
- Respirators
- HVAC
- Process control
- Leak detection
- Pneumatic controls
- Altimeters





Hyb d.o.o., Levičnikova 34, 8310 Šentjernej, Slovenija
T: +386 (0)7 39 34 800 / F: +386 (0)7 39 34 849 / hybysens@hyb.si, www.hyb.si

## Available types overview

*$T_{AMB}$=25°C, $V_{cc}$ = 10 V unless otherwise noted.*

### Low pressure range

| Pressure range | 10 mbar (0,15 psi) | 20 mbar (0,3 psi) | 50 mbar (0,8 psi) | 100 mbar (1,5 psi) |
|---|---|---|---|---|
| ID group | HPSAV 3000 -010M | HPSAV 3000 -020M | HPSAV 3000 -050M | HPSAV 3000 -100M |
| $V_{OUT}$ [3] | 25±0,5 mV | 25±0,5 mV | 25±0,5 mV | 25±0,5 mV |
| $V_{OFS(MAX)}$ | ±1,0 mV | ±1,0 mV | ±1,0 mV | ±1,0 mV |
| Temp. ranges | Operating: -25 to 85°C, Compensated: 0 to 70°C, Storage: -40 to 125°C | | | |
| Over pressure [1] | 100 mbar | 200 mbar | 500 mbar | 1000 mbar |
| Burst pressure [2] | 150 mbar | 300 mbar | 750 mbar | 1500 mbar |

### High pressure range

| Pressure range | 350 mbar (5 psi) | 1 bar (15 psi) | 2 bar (30 psi) | 4 bar (60 psi) | 7 bar (100 psi) |
|---|---|---|---|---|---|
| ID | HPSAV 3000-350M | HPSAV 3000-001B | HPSAV 3000-002B | HPSAV 3000-004B | HPSAV 3000-007B |
| $V_{OUT}$ [3] | 50±1 mV | 80±1 mV | 80±1 mV | 80±1 mV | 80±1 mV |
| $V_{OFS(MAX)}$ | ±1,0 mV | ±1,0 mV | ±1,0 mV | ±1,0 mV | ±1,0 mV |
| Temp. ranges | Operating: -25 to 85°C, Compensated: 0 to 70°C, Storage: -40 to 125°C | | | | |
| Over pressure [1] | 1 bar | 3 bar | 6 bar | 8 bar | 14 bar |
| Burst pressure [2] | 1,7 bar | 5 bar | 10 bar | 12 bar | 21 bar |

## Performance characteristics

| Parameter | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|
| Input voltage | | 10 | 20 | V |
| Thermal error of span (0 to 70°C) [5, 6] | | ±0,2 | ±1 | %FS |
| Thermal error of offset (0 to 70°C) [4, 6] | | ±0,2 | ±0,5 | mV |
| Combined linearity and hysteresis [8] | | ±0,2 | ±0,5 | %FS |
| Input impedance | 4 | | 25 | kΩ |
| Output impedance | 2 | | 4 | kΩ |
| Repeatability [7] | | ±0,05 | | %FSO |
| Long term stability of offset and span | | ±0,1 | | mV |
| Media compatibility | See spec. note [9,10] | | | |
| Weigth | | 2 | | g |



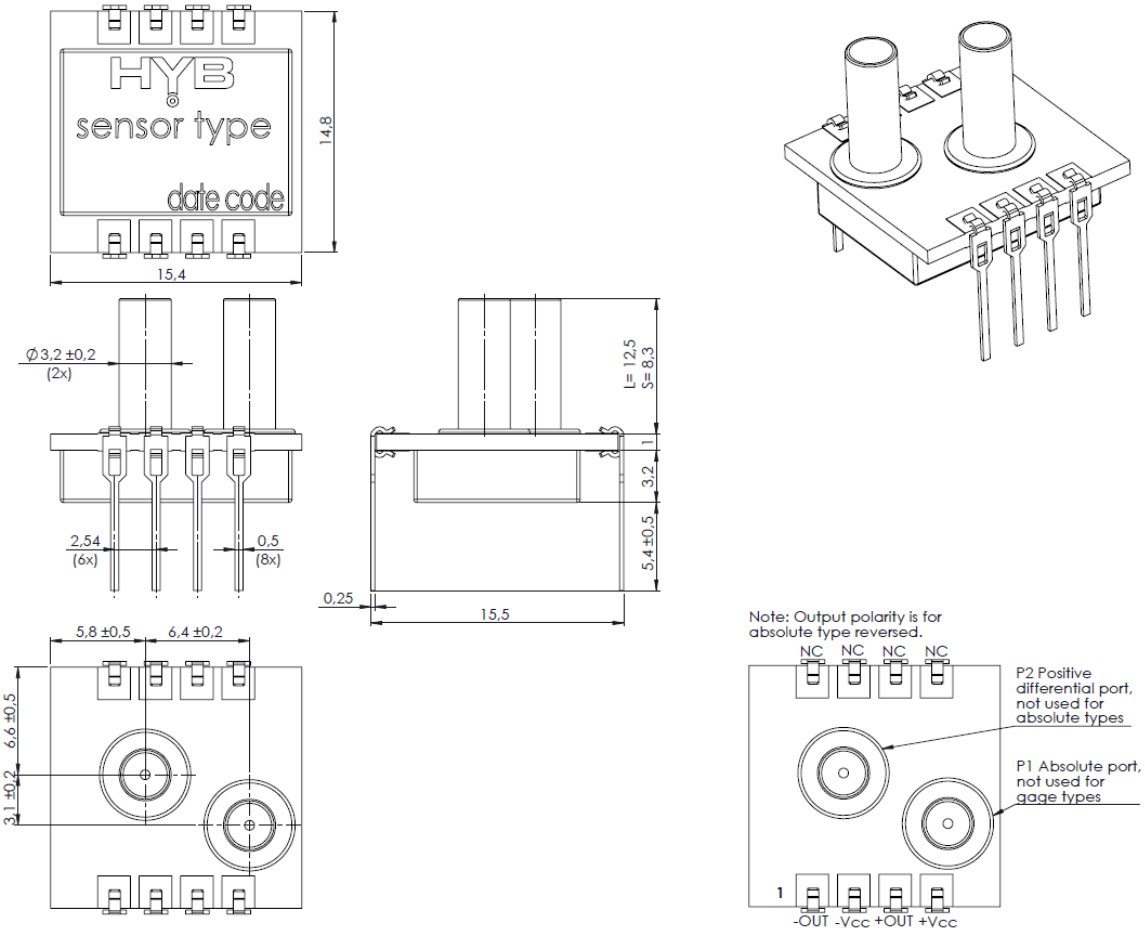
HYB emotional electronics

Hyb d.o.o., Levičnikova 34, 8310 Šentjernej, Slovenija
T: +386 (0)7 39 34 800 / F: +386 (0)7 39 34 849 / hybysens@hyb.si, www.hyb.si

## Specification notes

1) Over pressure is the maximum pressure which may be applied without causing damage to the sensing element.
2) Burst pressure is the maximum pressure which may be applied without causing leakage damage to the sensing element.
3) Analog output signal is ratiometric to input supply voltage $V_{cc}$.
4) Offset voltage is the voltage output at zero pressure.
5) Span is the algebraic difference between the output at full scale pressure range and offset.
6) Thermal error of span and offset represents the maximum deviation of transducer signal (span and offset) through whole compensated temperature range from 0 to 70°C in compare to value at 25°C. For pressure ranges p ≤ 100 mbar this parameter is defined as 0.5 mV max.
7) Repeatability is defined as typical deviation of the output signal after 10 pressure cycles.
8) Nonlinearity is defined as the BFSL (best fit straight line) across entire pressure range, measured on P1 – top die side.
9) Media compatibility: on pressure port P1: clean, dry and noncorrosive gases to silicon, Pyrex, RTV, gold, ceramics $Al_2O_3$, epoxy, tin.
10) Media compatibility: on pressure port P2: noncorrosive gases or liquids to silicon, Pyrex, RTV, ceramics $Al_2O_3$, epoxy, tin.

## Outline dimensions and pinout






HYB emotional electronics

Hyb d.o.o., Levičnikova 34, 8310 Šentjernej, Slovenija
T: +386 (0)7 39 34 800 / F: +386 (0)7 39 34 849 / hybysens@hyb.si, www.hyb.si

## Ordering guide

| Transducer type | Pressure range | Pressure type | Pressure tube |
|---|---|---|---|
| HPSAV 3000 | 010M | D | S |
| | 020M | G | L |
| | 050M | A | |
| | 100M | | |
| | 350M | | |
| | 001B | | |
| | 002B | | |
| | 004B | | |
| | 007B | | |

| Pressure range | |
|---|---|
| 010M | 10 mbar |
| 020M | 20 mbar |
| 050M | 50 mbar |
| 100M | 100 mbar |
| 350M | 350 mbar |
| 001B | 1 bar |
| 002B | 2 bar |
| 004B | 4 bar |
| 007B | 7 bar |

| Pressure type | |
|---|---|
| D | Differential |
| G | Gage |
| A | Absolute (for p≥1 bar) |

| Pressure port | |
|---|---|
| S | Short (8,3 mm) |
| L | Long (12,5 mm) |

Other configurations possible on special request.



HYB emotional electronics

Hyb d.o.o., Levičnikova 34, 8310 Šentjernej, Slovenija
T: +386 (0)7 39 34 800 / F: +386 (0)7 39 34 849 / hybysens@hyb.si, www.hyb.si