

# IMPRESS

## SENSORS & SYSTEMS

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Pressure - Temperature - Level - Flow - Analytical - Control - Indication - Data logging



## DPS 100

### Gauge- / Differential- / Absolute Pressure Transmitter

- ▶ for very low pressure starting at 0.1 mbar
- ▶ inductive pressure sensor
- ▶ for use in industry and laboratory
- ▶ differential pressure ranges from 0 ... 0.1 mbar up to 0 ... 1000 mbar

The pressure transmitter DPS 100 is suited for measurement of gauge pressure, vacuum, and differential pressure of non-aggressive gases.

Basic element of the DPS 100 is a wearless inductive pressure sensor, that ensures almost no maintenance. The DPS 100 can be supplied alternatively with 24 V<sub>DC</sub> (reverse polarity protection) or 230 V<sub>AC</sub> (optional 110 V<sub>AC</sub>, 24 V<sub>AC</sub>).

In addition to the different output signals (current or voltage) the customer has the possibility to allow for up to 2 limit contacts. Optional can be integrated a LC display for representing the pressure value. Additional the DSP 100 is available for the customer with an accuracy of 0.2 % FSO.

Preferred areas of use are:

- ▶ heating and air conditioning
- ▶ clean room technology
- ▶ medical equipment
- ▶ filter technology, flow measurement
- ▶ level measurement (via air column)
- ▶ flow velocity measurement
- ▶ pitot tube, orifice plate

- ▶ versions for gauge, differential, and absolute pressure
- ▶ high overpressure; optional overpressure protection 2 bar
- ▶ excellent long term stability
- ▶ high electrical operational reliability (reverse polarity and short-circuit protection)
- ▶ short reaction time
- ▶ long operating life
- ▶ option: LC display
- ▶ option: limit contacts
- ▶ option: automatic zero adjustment

Characteristics

CE

DPS 100  
Differential Pressure Transmitter

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# DPS 100

## Differential Pressure Transmitter

Input pressure range												
Nominal pressure P <sub>N</sub> [mbar] (gauge, vacuum, diff. pressure)	0.1 <sup>1</sup>	0.5 <sup>1</sup>	0.6	1	1.6	2.5	4	5	6	10	16	
Option P <sub>N</sub> absolute <sup>2</sup> [mbar]	900 .. 1100			800 ... 1200				0 ... 1000				
Permissible overpressure	< 400 mbar: 5 x				≥ 400 mbar: 2 x <sup>3</sup>				Δp measurement: p <sub>max</sub> = 1 bar			

Output signal / Supply	
Standard	3-wire: 0 ... 10 V / V <sub>S</sub> = 19 ... 31 V <sub>DC</sub>
Optional	2-wire: 4 ... 20 mA / V <sub>S</sub> = 12 ... 31 V <sub>DC</sub>
	3-wire: 0 ... 20 mA / V <sub>S</sub> = 19 ... 31 V <sub>DC</sub>
	3-wire: 4 ... 20 mA / V <sub>S</sub> = 19 ... 31 V <sub>DC</sub>
	4-wire: 0 ... 20 mA
	4-wire: 4 ... 20 mA
Supply options	4-wire: 230 V <sub>AC</sub> / 110 V <sub>AC</sub> / 24 V <sub>AC</sub> (± 10 % tolerance)

Performance			
Non-linearity		IEC 60770	BFSL
	standard:	≤ ± 1 % FSO	≤ ± 0.50 % FSO
	optional: P <sub>N</sub> ≥ 1 mbar:	≤ ± 0.5 % FSO	≤ ± 0.25 % FSO
	P <sub>N</sub> ≥ 4 mbar:	≤ ± 0.2 % FSO	≤ ± 0.10 % FSO
Hysteresis	≤ ± 0.1 % FSO		
Permissible load	voltage 3-/ 4-wire:	R <sub>min</sub> = 2 kΩ	
	current 3-/ 4-wire:	R <sub>max</sub> = 500 Ω	
	current 2-wire:	R <sub>max</sub> = [(V <sub>S</sub> - V <sub>Smin</sub> ) / 0.02] Ω	
Influence effects	supply:	≤ ± 0.5 % FSO	
Long term stability	≤ ± 0.5 % FSO / year		
Reaction time	T <sub>90</sub> approx. 0.02 s		

Thermal effects	
Thermal error for offset and span in compensated range	≤ ± 0.3 % FSO / 10 K
	10 ... 50 °C

Electrical protection	
Reverse polarity protection (DC power supply)	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Permissible temperatures	
Specified range	10 ... 50 °C
Storage	-10 ... 70 °C

<sup>1</sup> transmitters in pressure ranges ≤ 0.5 mbar are equipped with „automatic zero adjustment“ and „overpressure protection 2 bar“ as a standard

<sup>2</sup> only possible with accuracy 1 % FSO

<sup>3</sup> higher overpressure possible on request

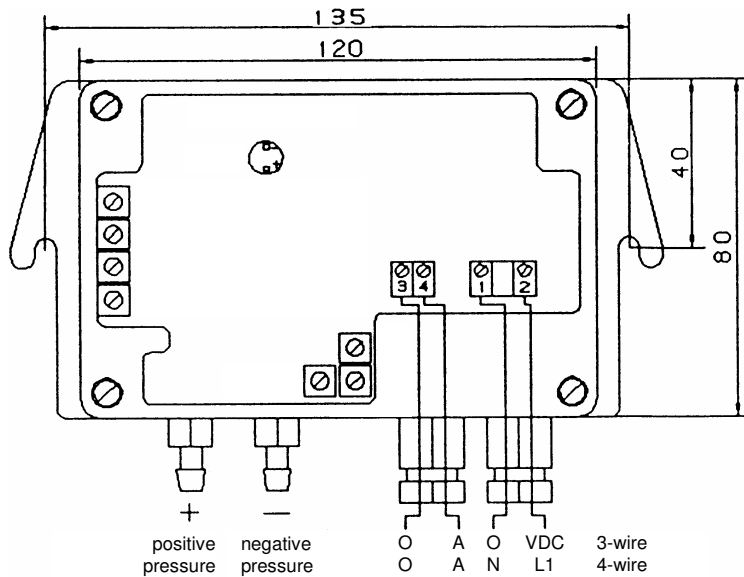
# DPS 100

Differential Pressure Transmitter

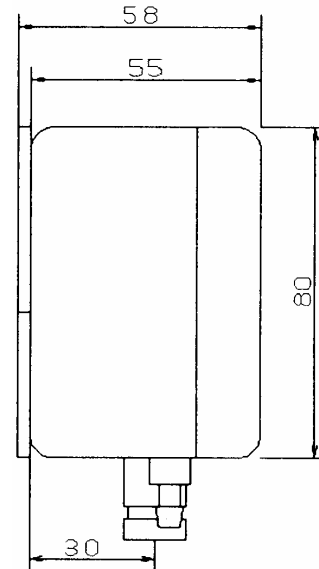
Technical Data

## Dimensions (standard version)

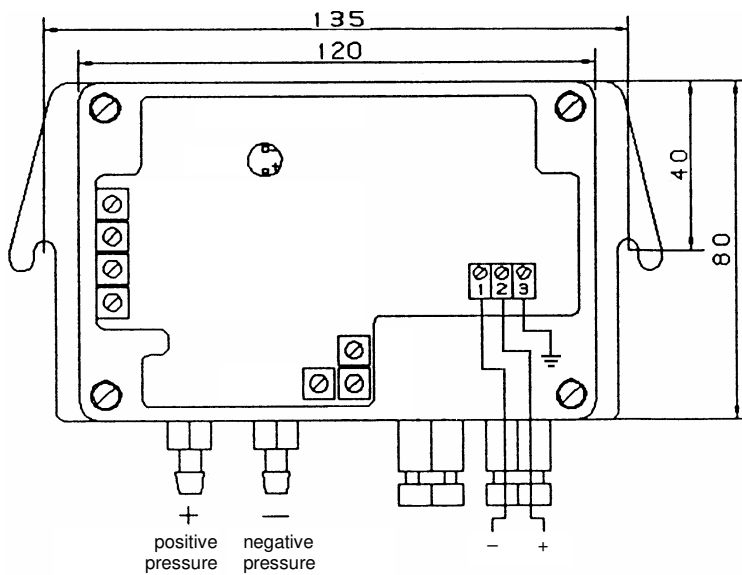
### 3-/ 4-wire



### Side view



### 2-wire



## Electrical connection

Standard	screw terminals max. 1.5 mm <sup>2</sup> cable gland M12x1
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## Mechanical connection

Standard	Ø6.6 x 11 (for flex. tubes Ø6)
Option	Clamp ring tube fitting 1/8" Ms

# DPS 100

## Differential Pressure Transmitter

## Technical Data

Materials	
Housing	ABS
Media wetted parts	Ni, Al, CuBe, PU, silicon rubber

Pressure sensor	
Media	non-aggressive gases
Principle of measurement	inductive
Sensor volume	approx. 3 ml
Volume increase	approx. 0.2 ml at nominal pressure

Miscellaneous	
Current consumption (without contacts)	signal output voltage: approx. 10 mA
Dimensions	depends on product version; standard: 120 x 80 x 55; max. 122 x 120 x 105 (L x W x H)
Weight	approx. 300 g / approx. 400 g with power supply unit
Installation position	any
Ingress protection	IP 54

Options	
Display	LCD 3 1/2-digits
Zero adjustment <sup>4</sup>	automatic zero adjustment (housing 122 x 120 x 75)
Limit contacts	1 or 2 limit contacts relay output with two-way contacts: 6 A / 230 V <sub>AC</sub>
Square-root extraction output signal <sup>5</sup>	for output signals 0 ... 10 V or 0(4) ... 20 mA $U_R = \sqrt{10 \times U_L}$ ( $U_L$ = linear output 0 ... 10 V) $I_R = \sqrt{20 \times I_L}$ ( $I_L$ = linear output 0 ... 20 mA)
Overpressure capability	10 x (max. 2 bar)
Overpressure protection	2 bar (one sided)

Pin configuration		terminals
2-wire-system (DC supply 12 .. 31 V <sub>DC</sub> )	Supply +	2
	Supply -	1
	Ground	3
3-wire-system (DC supply 19 ... 31 V <sub>DC</sub> )	Supply +	2
	Supply -	1
	Signal +	4
	Signal -	3
3-wire-system (AC supply 230, 110 or 24 V <sub>AC</sub> )	Supply L1	2
	Supply N	1
	Signal +	4
	Signal -	3



This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

<sup>4</sup> only possible for nominal pressure range  $P_N \leq 0.5$  mbar and 3-wire version

<sup>5</sup> non-linearity is 1 % FSO