DPS 300

Multi Range Differential Pressure Transmitter for Gas and Compressed Air

Silicon Sensor

accuracy according to IEC 60770:
0.5% FSO BFSL

Differential pressure

from 0 ... 1.6 mbar up to 0 ... 1000 mbar

Output signals

3-wire: 0 ... 10 V, 0 ... 20 mA
(0 ... 5 V, 4 ... 20 mA switchable)

2-wire: 4 ... 20 mA (optional)

Special characteristics

- adjustable ranges
- high overpressure capability
- adjustable damping
- compact form

Optional versions

- LC-display, two-line
- automatic zero adjustment
- contacts
  (only in combination with display)
- square root extraction
  (only in combination with display)

The pressure transmitter DPS 300 was developed for the differential pressure measuring for dry, non aggressive gases and compressed air and can be used for several HVAC applications

The DPS 300 is a multi range transmitter with up to three adjustable ranges.

The device is equipped with a two-line LC display optionally and can be parameterized simply. Values, status of the contact and the unit are shown on the display.

Preferred applications are

HAVC applications
e.g. air conditioning, clean room technology, filter monitoring

Medical

Preferred areas of use are

Gas, compressed air

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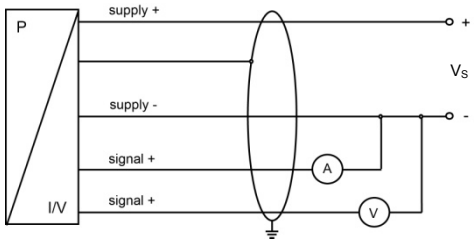
Input pressure range						
Nominal pressure P_N [mbar] (differential, gauge pressure)	1.6	4	10	40	250	1000
Adjustable to [mbar]	1.0	2.5	6	25	60 / 160	400 / 600
Nominal pressure P_N symmetric (differential pressure) [mbar]	±1.6	±4	±10	±40	±250	±1000
Max. static pressure [mbar]	200	200	200	345	1000	3000

Output signal / Supply				
Standard	3-wire:		0 ... 10 V / 0 ... 20 mA	V_S = 19 ... 32 V_{DC}
		switchable on:	0 … 5 V / 4 … 20 mA	
			with automatic zero adjustment:	V_S = 24 ... 32 V_{DC}
Option	2-wire:		4 ... 20 mA	V_S = 11 ... 32 V_{DC}
			with automatic zero adjustment:	V_S = 24 ... 32 V_{DC}
Performance				
Accuracy	for P_N ≥ 6 mbar: ≤ ± 0.5% FSO BFSL		for P_N < 6 mbar: ≤ ± 1% FSO BFSL	
Permissible load	voltage 3-wire: R_{min} = 10 kΩ		current 3-wire: 330 Ω	
	current 2-wire: R_{max} = [(V_S – $V_{S\,min}$) / 0,02 A] Ω			
Influence effects	supply: 0.05 % FSO / 10 V		load: 0.05 % FSO / kΩ	
Response time T_{90}	< 100 msec; adjustable by potentiometer in the range of 0 msec up to 5000 msec			
Turn on time	500 msec			
Long term stability	≤ ± 0.5% FSO / year at reference conditions, for P_N < 6 mbar ≤ ± 0.2% FSO / year at reference conditions, for P_N ≥ 6 mbar			
Measuring rate	12.5 Hz			
Contact (optional)				
	3-wire version		2-wire version	
Number, form	2 x relay-output (NO/NC)		2 x PNP-open-collector-contact	
switching current switching voltage switching capacity	max. 1 A max. 60 V_{DC}; max. 40 V_{AC} max. 60 W		max. 125 mA resistant; short-circuit-proof	
Accuracy of switching points	≤ ± 2 % FSO		≤ ± 2 % FSO	
Accuracy of repeatability	≤ ± 0.5 % FSO		≤ ± 0.5 % FSO	
Switching frequency	5 Hz		5 Hz	
Switching cycles	< 100 x 10^6		< 100 x 10^6	
Thermal effects / Permissible temperatures				
Thermal error (offset and span)	≤ ± 0.5 % FSO / 10 K (typ.) for P_N < 6 mbar		≤ ± 0.3 % FSO / 10 K (typ.) for P_N ≥ 6 mbar	
in compensated range	0 ... 50 °C			
Permissible temperatures	medium: 0 … 50°C	electronics / environment: 0 … 50°C	storage: -10 … 70°C	
Electrical protection				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no function			
Electromagnetic protection	EMC directive: 2014/30/EU		emission and immunity according to EN 61326	
Materials				
Pressure port	brass nickel plated			
Housing	ABS			
Sensor	ceramic, silicon, epoxy, RTV			
Media wetted parts	pressure port, PVC / silicone tube, sensor			
Display (optional)				
Performance	two-line LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, range of indication: ±9999; 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph; accuracy: 0.1% ±1 digit			
Functions	- parameterisation of contacts - selection of units - selection of signal (linear, square root extraction) - cut-off-function (only with square root extraction) - min- / max-value - recalibration - autozeroing - factory setting			

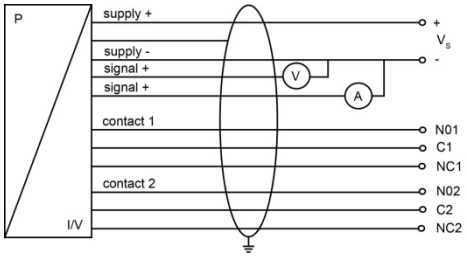
Miscellaneous		
Current consumption	2-wire: max. 22 mA (during automatic zero adjustment: +23 mA)	3-wire: max. 30 mA
Weight	approx. 200 g	
Ingress protection	IP 54	
Installation position	vertical [1]	
Operational life	100 million load cycles	
[1] The devices are calibrated in a vertical position with pressure port down. If this position is changed on installation there can be slight deviations in the zero point.		
Mechanical connections (dimensions in mm)		
Standard	Ø 6.6 x 11 (for flex. tubes Ø 6)	
Option	Ø 4.4 x 10 (for flex. tubes Ø 4)	
Electrical connections (conductor cross-section)		
Without ferrule	1.5 mm²	
With ferrule	1 mm²	
Pin configuration		
Standard	cable gland M16x1.5	
Electrical connections	3-wire	2-wire
supply + supply – signal + (only for 3-wire) contact 1 contact 2	VS + VS - Iout / Vout C1 / NO1 / NC1 C2 / NO2 / NC2	VS + VS - - S1 S2

Wiring diagram

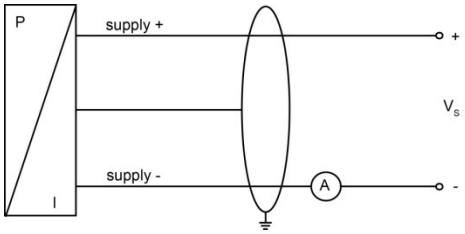
3-wire-system (current / voltage)



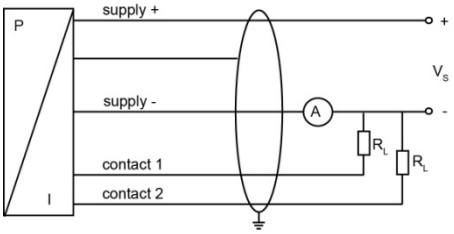
3-wire-system (current / voltage) with 2 contacts



2-wire-system (current

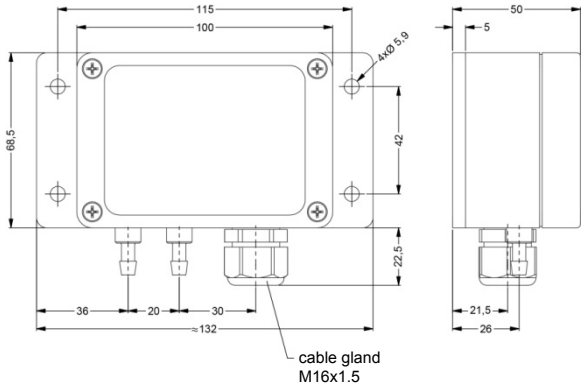


2-wire-system (current) with 2 contacts



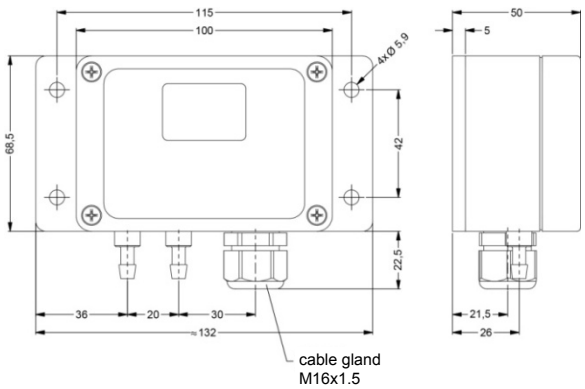
Dimension (in mm)

standard



DPS 300 without display

option



DPS 300 with display

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BD|SENSORS pressure measurement

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Ordering code DPS 300

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Pressure																							
differential pressure		8	1	5																			
gauge pressure		8	1	6																			consult
Input	**[mbar]**																						
1.6					0	0	1	6															
4.0					0	0	4	0															
10					0	1	0	0															
40					0	4	0	0															
250					2	5	0	0															
1000					1	0	0	1															
-1.6 … 1.6					S	1	K	6															
-4 … 4					S	0	0	4															
-10 … 10					S	0	1	0															
-40 … 40					S	0	4	0															
-250 … 250					S	2	5	0															
-1000 … 1000					S	1	0	2															
customer					9	9	9	9															consult
Output																							
3-wire: 0 … 10 V, 0 … 20 mA [1]									3Z														
2-wire: 4 … 20 mA									1														
customer									9														consult
contact																							
without										0													
2 contacts [2]										B													
Accuracy																							
$p_N \geq$ 6 mbar	0,5 % FSO BFSL										8												
$p_N <$ 6 mbar	1,0 % FSO BFSL										G												
Display																							
without display												0											
LC display												C											
customer												9											consult
Front foil																							
BD SENSORS													1										
neutral													N										
customer													9										consult
Mechanical connection																							
Ø6.6 x 11 (for flex. tubes Ø6)														Y	0	0							
Ø4.4 x 10 (for flex. tubes Ø4)														Y	0	2							
														9	9	9							consult
Pressure port																							
brass nickel plated																	M						
customer																	9						consult
Special version																							
standard																		0	0	0			
automatic zeroing																		6	0	0			
square-root extraction [2]																		6	0	5			
customer																		9	9	9			consult

[1] output switchable on 0 … 5 V / 4 … 20 mA

[2] only in combination with display

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