

# 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

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

 Medical

### Preferred areas of use are

 Gas, compressed air



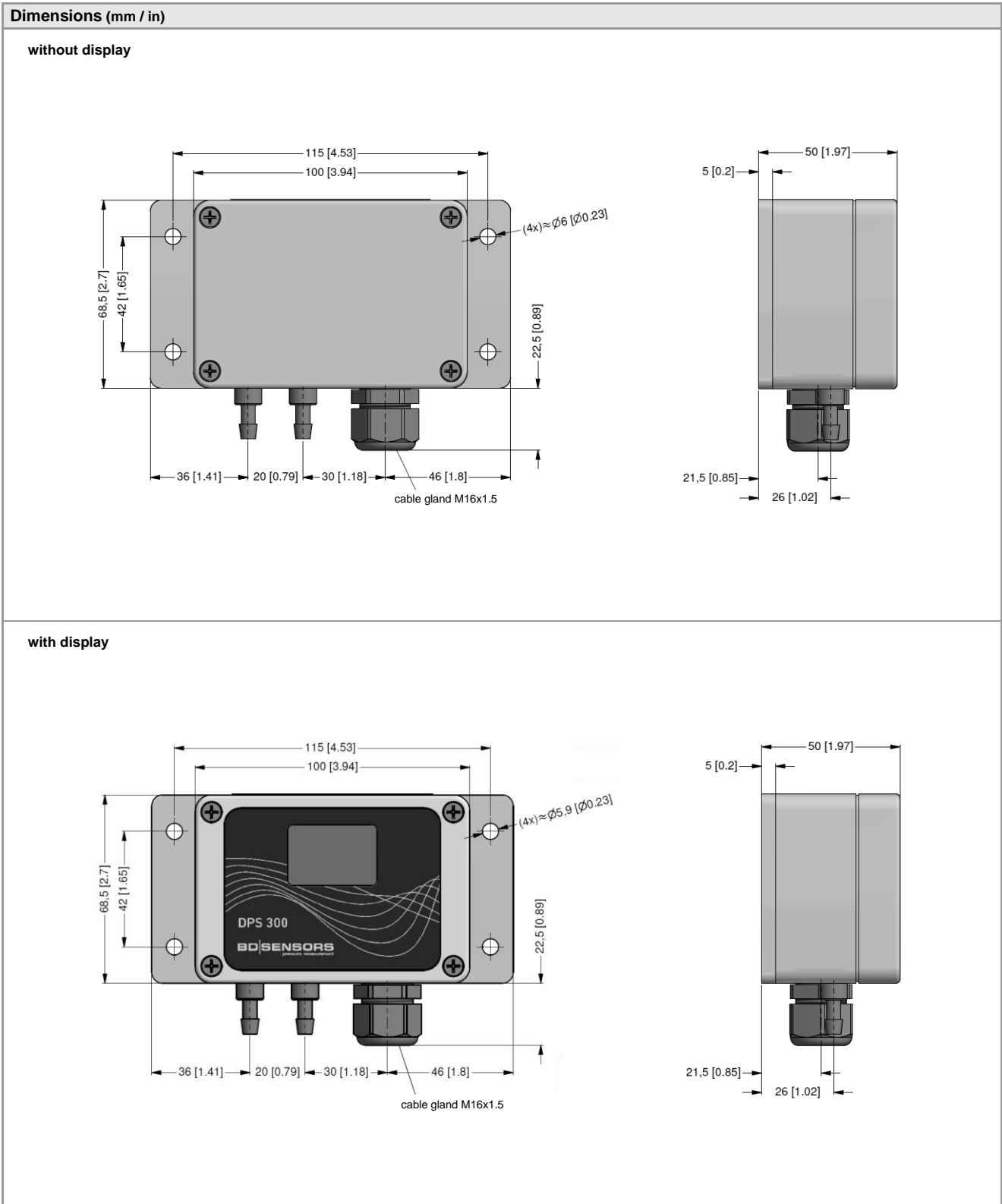
Input pressure range							
Nominal pressure $p_N$ [mbar] (differential, gauge pressure)	1.6	4	10	40	250	1000	
Adjustable to [mbar]	1.0	2.5	6	25	60 / 160	400 / 600	
Nominal pressure $p_N$ symmetric (differential pressure) [mbar]	$\pm 1.6$	$\pm 4$	$\pm 10$	$\pm 40$	$\pm 250$	$\pm 1000$	
Max. static pressure [mbar]	200	200	200	345	1000	3000	
Output signal / Supply							
Standard	3-wire:	switchable on: 0 ... 10 V / 0 ... 20 mA 0 ... 5 V / 4 ... 20 mA with automatic zero adjustment:				$V_S = 19 \dots 32 V_{DC}$	
Option	2-wire:	4 ... 20 mA with automatic zero adjustment:				$V_S = 11 \dots 32 V_{DC}$ $V_S = 24 \dots 32 V_{DC}$	
Performance							
Accuracy	for $p_N \geq 6$ mbar:	$\leq \pm 0.5\%$ FSO BFSL					
	for $p_N < 6$ mbar:	$\leq \pm 1\%$ FSO BFSL					
Permissible load	voltage 3-wire:	$R_{min} = 10 \text{ k}\Omega$		current 3-wire: 330 $\Omega$			
	current 2-wire:	$R_{max} = [(V_S - V_{S min}) / 0,02 \text{ A}] \Omega$					
Influence effects	supply:	0.05 % FSO / 10 V					
	load:	0.05 % FSO / k $\Omega$					
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	for $p_N < 6$ mbar:	$\leq \pm 0.5\%$ FSO / year at reference conditions					
	for $p_N \geq 6$ mbar:	$\leq \pm 0.2\%$ FSO / year at reference conditions					
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	max. 1 A			max. 125 mA resistant; short-circuit-proof			
switching voltage	max. 60 $V_{DC}$ ; max. 40 $V_{AC}$						
switching capacity	max. 60 W						
Accuracy of switching points	$\leq \pm 2\%$ FSO			$\leq \pm 2\%$ FSO			
Accuracy of repeatability	$\leq \pm 0.5\%$ FSO			$\leq \pm 0.5\%$ FSO			
Switching frequency	5 Hz			5 Hz			
Switching cycles	< 100 x 10 <sup>6</sup>			< 100 x 10 <sup>6</sup>			
Thermal effects (offset and span)							
Thermal error	for $p_N < 6$ mbar:	$\leq \pm 0.5\%$ FSO / 10 K (typ.)					
	for $p_N \geq 6$ mbar:	$\leq \pm 0.3\%$ FSO / 10 K (typ.)					
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: $\pm 9999$ 8-digit 14-segment-additional display, digit size 5 mm 52-segment-bargraph accuracy: 0.1% $\pm 1$ digit																		
Functions	<ul style="list-style-type: none"> <li>- parameterisation of contacts</li> <li>- selection of units</li> <li>- selection of signal (linear, square root extraction)</li> <li>- cut-off-function (only with square root extraction)</li> <li>- min- / max-value</li> <li>- recalibration</li> <li>- autozeroing</li> <li>- factory setting</li> </ul>																		
Miscellaneous																			
Current consumption	2-wire: max. 22 mA 3-wire: max. 30 mA (during automatic zero adjustment: +23 mA)																		
Weight	approx. 200 g																		
Ingress protection	IP 54																		
Installation position	vertical <sup>1</sup>																		
Operational life	100 million load cycles																		
<sup>1</sup> 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	$\varnothing 6.6 \times 11$ (for flex. tubes $\varnothing 6$ )																		
Option	$\varnothing 4.4 \times 10$ (for flex. tubes $\varnothing 4$ )																		
Electrical connections (conductor cross-section)																			
Without ferrule	1.5 mm <sup>2</sup>																		
With ferrule	1 mm <sup>2</sup>																		
Pin configuration																			
Standard	cable gland M16x1.5																		
Electrical connections	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">3-wire</th> <th style="width: 35%;">2-wire</th> </tr> </thead> <tbody> <tr> <td>supply +</td> <td>VS +</td> <td>VS +</td> </tr> <tr> <td>supply -</td> <td>VS -</td> <td>VS -</td> </tr> <tr> <td>signal + (only for 3-wire)</td> <td>Iout / Vout</td> <td>-</td> </tr> <tr> <td>contact 1</td> <td>C1 / NO1 / NC1</td> <td>S1</td> </tr> <tr> <td>contact 2</td> <td>C2 / NO2 / NC2</td> <td>S2</td> </tr> </tbody> </table>		3-wire	2-wire	supply +	VS +	VS +	supply -	VS -	VS -	signal + (only for 3-wire)	Iout / Vout	-	contact 1	C1 / NO1 / NC1	S1	contact 2	C2 / NO2 / NC2	S2
	3-wire	2-wire																	
supply +	VS +	VS +																	
supply -	VS -	VS -																	
signal + (only for 3-wire)	Iout / Vout	-																	
contact 1	C1 / NO1 / NC1	S1																	
contact 2	C2 / NO2 / NC2	S2																	
Wiring diagrams																			
<p>3-wire-system (current / voltage)</p>	<p>3-wire-system (current / voltage) with 2 contacts</p>																		
<p>2-wire-system (current)</p>	<p>2-wire-system (current) with 2 contacts</p>																		

# DPS 300

Differential Pressure Transmitter

Technical Data



© 2022 BD|SENSORS GmbH – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

