

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



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:	switchable on:	0 ... 10 V / 0 ... 20 mA 0 ... 5 V / 4 ... 20 mA with automatic zero adjustment:	$V_S = 19 \dots 32 V_{DC}$ $V_S = 24 \dots 32 V_{DC}$		
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: 330Ω			
	current 2-wire: $R_{max} = [(V_S - V_{Smin}) / 0,02 \text{ A}] \Omega$					
Influence effects	supply: 0.05 % FSO / 10 V		load: 0.05 % FSO / $\text{k}\Omega$			
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	$\leq \pm 0.5\%$ FSO / year at reference conditions, for $P_N < 6$ mbar $\leq \pm 0.2\%$ FSO / year at reference conditions, for $P_N \geq 6$ 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	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	< 100×10^6			< 100×10^6		
Thermal effects / Permissible temperatures						
Thermal error (offset and span)	$\leq \pm 0.5\%$ FSO / 10 K (typ.) for $P_N < 6$ mbar		$\leq \pm 0.3\%$ FSO / 10 K (typ.) for $P_N \geq 6$ 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: $0.1\% \pm 1$ digit					
Functions	<ul style="list-style-type: none"> - 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 					

DPS 300

Differential Pressure Transmitter

Technical Data

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 mm ²																		
With ferrule	1 mm ²																		
Pin configuration																			
Standard	cable gland M16x1.5																		
Electrical connections	<table border="1"> <thead> <tr> <th></th> <th>3-wire</th> <th>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 diagram																			
<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>																		
Dimension (in mm)																			
<p>standard</p> <p>DPS 300 without display</p>	<p>option</p> <p>DPS 300 with display</p>																		

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Ordering code DPS 300

DPS 300



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 ≥ 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

output switchable on 0 ... 5 V / 4 ... 20 mA
only in combination with display

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