

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]	±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 ... 32 V _{DC} V _S = 24 ... 32 V _{DC}	
Option	2-wire:	4 ... 20 mA with automatic zero adjustment:				V _S = 11 ... 32 V _{DC} 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 _{Smin}) / 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	max. 2 A			max. 125 mA resistant; short-circuit-proof			
switching voltage	max. 220 V _{DC} ; max. 250 V _{AC}						
switching capacity	max. 60 W						
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	<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 						

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	
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	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		
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 <p>DPS 300 without display</p>		option <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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