

PRODUCT CATALOGUE

DIFFERENTIAL PRESSURE TRANSMITTER





PRESSURE AT THE HIGHEST LEVEL

„Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else“

This is our philosophy. That's why BDESENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.

With 260 employees at 4 locations in Germany, the Czech Republic, Russia and China BD|SENSORS has solutions from 0.1 mbar to 6000 bar:

- pressure sensors, pressure transducers
pressure transmitters
- electronic pressure switches
- pressure measuring devices with display and
switching outputs
- hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART® communication or field bus interface.

In addition we have developed hundreds of customer-specific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

flexibly, quickly and cost-efficiently.

INDEX

PRECISION

4-7

XMD

4-7

INDUSTRY

8-25

PLANT AND MACHINE ENGINEERING

DMD 331

8-11

DMD 831

12-14

DMD 341

15-18

HVAC

DPS 300

19-22

DPS 200

23-25

4 ARGUMENTS

26



XMD

Differential Pressure Transmitter for Process Industry with HART®-Communication

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

from 75 mbar up to 20 bar

Output signals

2-wire: 4 ... 20 mA
others on request

Special characteristics

- ▶ static over pressure 130 bar
- ▶ turn-down 1:10
- ▶ two chamber aluminium die cast case
- ▶ HART®-communication
- ▶ output signal: linear or square root extraction
- ▶ IS-version
Ex ia = intrinsically safe version

Optional versions

- ▶ IS-version
Ex d = flameproof enclosure
- ▶ with integrated display and operating module

The differential pressure transmitter XMD has been especially designed for the process industry and can be used for level measurement of closed, pressurized tanks, pump or filter controlling, etc.

Another attribute is the possibility to switch the output signal from linear to square root extraction by what the flow rate of the medium can be issued.

Preferred areas of use are



Oil and gas industry



Chemical and petrochemical industry



Energy Industry



Food and beverage



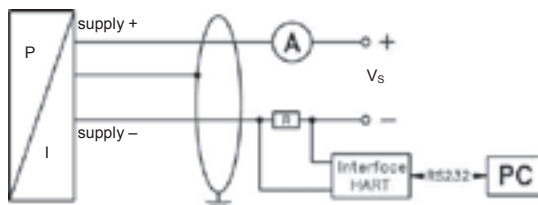
Paper Industry



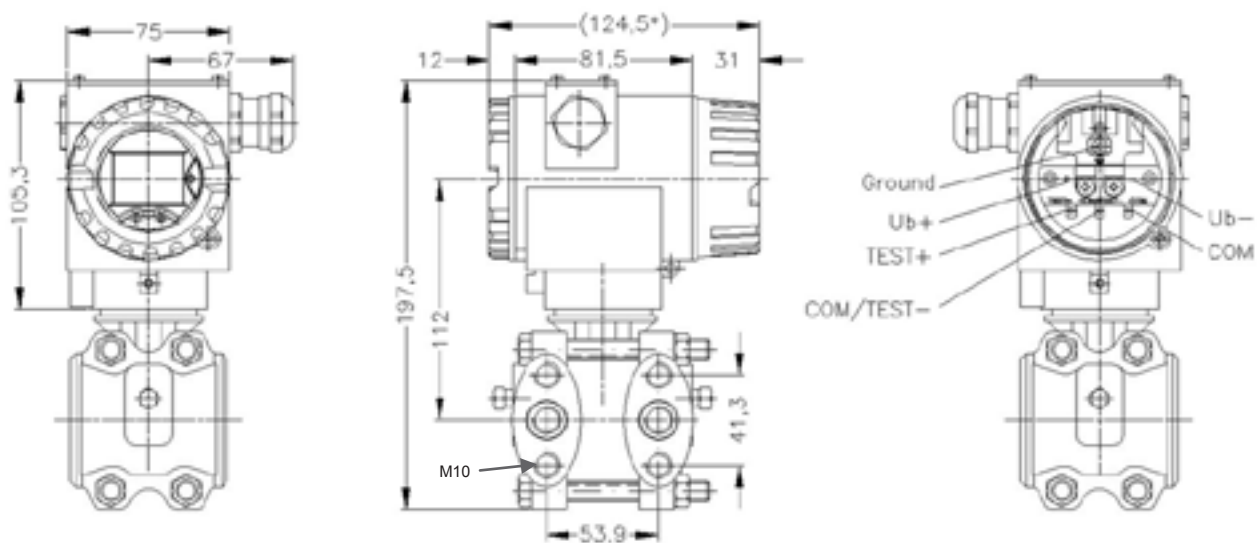
Pressure ranges						
Nominal pressure	[bar]	0.075	0.4	2	7	20
Permissible static pressure	[bar]	130	130	130	130	130
Output signal / Supply						
Standard	2-wire: 4 ... 20 mA IS-intrinsically safe version with HART®-communication / V _S = 12 ... 28 V _{DC}					
Option	IS version flameproof enclosure / V _S = 13 ... 28 V _{DC}					
Performance						
Clocking error	≤ ± 0.2 % FSO					
Accuracy ¹	turn-down ≤ 5:1: ≤ ± 0.1 % FSO turn-down > 5:1: ≤ ± [0.1 + 0.015 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range					
Permissible load	load during HART®-communication: R _{min} = 250 Ω					
Supply	≤ 0.05 % FSO / 10 V					
Permissible load	≤ 0.05 % FSO / kΩ					
Long term stability	≤ ± (0.1 x turn-down) % FSO / year at reference conditions					
Response time	300 msec – with electronic damping 0 sec					
Measuring rate	3.5/sec					
Adjustability	electronic damping: 0 ... 100 sec offset: 0 ... 90 % FSO turn-down of span: max. 10:1					
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (Offset and Span) / Permissible temperatures						
Thermal error	≤ ± (0.1 x turn-down) % FSO / 10 K in compensated range standard: -20 ... 80 °C optional for device without display: -40 ... 60 °C					
Permissible temperatures	without display: medium: -40 ... 85 °C environment: -40 ... 50 °C storage: -40 ... 80 °C with display: medium: -40 ... 85 °C environment: -20 ... 50 °C storage: -30 ... 80 °C					
Electrical protection						
Short-circuit protection	permanent					
Reverse polarity protection	no damage, but also no function					
Electromagnetic compatibility	emission and immunity according to EN 61326					
Mechanical stability						
Vibration	5 g RMS (25 ... 2000 Hz)			according to DIN EN 60068-2-6		
Shock	100 g / 1 msec			according to DIN EN 60068-2-27		
Materials						
Pressure port	stainless steel 1.4401 (316)					
Housing	aluminium die cast, powder-coated					
Viewing glass	laminated safety glass					
Seals (media wetted)	FKM / EPDM					
Diaphragm						
Standard	stainless steel 1.4435 (316 L)					
Option	Hastelloy® C-276 (2.4819)					
Media wetted parts	pressure port, seals, diaphragm					
Filling fluids	silicon oil					
Explosion protection						
Approval AX12-XMD	IBExU 05 ATEX 1106 X zone 1: II 2G Ex ia IIB T4 Gb / II 1D Ex ia IIIC T85 °C Da					
Safety technical maximum values for intrinsically safe version	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 0 nF, L _i = 0 μH, C _{GND} = 27 nF					
Approval AX17-XMD (flameproof enclosure)	IBExU 12 ATEX 1045 X zone 1: II 2G Ex d IIC T5 Gb					
Permissible temperatures for environment	in zone 1: -20 ... 65 °C (intrinsically safe version); -20 ... 70 °C (flameproof enclosure)					
Miscellaneous						
Display (optionally)	LC display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm; 52-segment bargraph; accuracy 0.1% ± 1 digit					
Ingress protection	IP 67					
Installation position	any					
Weight	min. 3500 g					
Current consumption	approx. 21 mA					
Operational life	> 100 x 10 ⁶ cycles					
CE-conformity	EMC Directive: 2004/108/EC					

Connections

Electrical connection	terminal clamps in clamping chamber with cable gland M20x1.5 (for cable-Ø 5 up to 14 mm)
Process connections	internal thread 1/4" - 18 NPT

Wiring diagram**Pin configuration**

Electrical connection	terminal clamps (clamp section 2.5 mm ²)
Supply + (Vs+)	+
Supply - (Vs-)	-
Test +	TEST+
COM / Test -	COM/TEST-
COM	COM
Ground	⏏

Dimensions (in mm) ²

* without display and operating module marked dimensions decrease by 19 mm

² aluminium die cast case is horizontally rotatable as standard

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Windows® is a registered trade mark of Microsoft Corporation

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¹ HART® is a registered trade mark of HART Communication Foundation

² Hastelloy® is a brand name of Haynes International Inc.



DMD 331

Differential Pressure Transmitter for Liquids and Gases

Stainless Steel Sensor

accuracy according to IEC 60770:
0.5 % FSO

Differential pressure

from 0 ... 20 mbar up to 0 ... 16 bar

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 10 V

Special characteristics

- ▶ differential pressure wet / wet
- ▶ permissible static pressure -onesided- up to 30 times of differential pressure range
- ▶ compact design
- ▶ mechanical robust and reliable at dynamic pressures as well as shock- and vibration

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe version
- ▶ different electrical and mechanical connections
- ▶ customer specific versions

The DMD 331 is a differential pressure transmitter for industrial applications and is based on a piezoresistive stainless steel sensor, which can be pressurized on both sides with fluids or gases compatible with SST 1.4404 (316L) and 1.4435 (316L).

The compact design allows an integration of the DMD 331 in machines and applications with limited space. The DMD 331 calculates the difference between the pressure on the positive and the negative side and converts it into a proportional electrical signal.

Preferred areas of use are



Plant and Machine Engineering



Energy Industry

Preferred used for



Water



Input pressure range							
Nominal pressure	[bar]	0.2	0.4	1	2.5	6	16
Differential pressure range	[bar]	0 ... 0.02 up to 0 ... 0.2	0 ... 0.04 up to 0 ... 0.4	0 ... 0.1 up to 0 ... 1	0 ... 0.25 up to 0 ... 2.5	0 ... 0.6 up to 0 ... 6	0 ... 1.6 up to 0 ... 16
Permissible static pressure, one-sided	[bar]	0.5	1	3	6	20	60

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_S = 12 \dots 36 V_{DC}$
Option IS-version	2-wire: 4 ... 20 mA / $V_S = 14 \dots 28 V_{DC}$
Option 3-wire	3-wire: 0 ... 10 V / $V_S = 14 \dots 36 V_{DC}$

Performance	
Accuracy	IEC 60770 ¹ : $\leq \pm 0.5 \% \text{ FSO}$
Permissible load	current 2-wire: $R_{\max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{\min} = 10 \text{ k}\Omega$
Influence effects	supply: $0.05 \% \text{ FSO} / 10 \text{ V}$ load: $0.05 \% \text{ FSO} / \text{k}\Omega$
Long term stability	$\leq \pm 0.2 \% \text{ FSO} / \text{year}$
Response time	< 5 msec

¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects ² (Offset and Span) / Permissible temperatures				
Nominal pressure P _N	[bar]	0.2	0.4	≥ 1.0
Tolerance band	[% FSO]	≤ ± 2.5	≤ ± 2	≤ ± 1.5
TC, average	[% FSO / 10 K]	± 0.4	± 0.3	± 0.2
in compensated range	[°C]	0 ... 50		0 ... 70
Permissible temperatures	medium: -25 ... 125 °C		electronics / environment: -25 ... 85 °C	storage: -40 ... 100 °C

² relating to nominal pressure range

² relating to nominal pressure range

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	aluminium, black anodized
Seals (media wetted)	FKM / others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

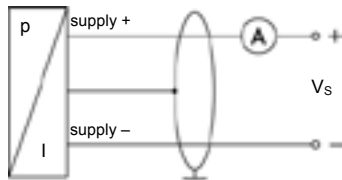
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g
Operational life	> 100 x 10 ⁶ pressure cycles
Ingress protection	IP 65
CE-conformity	EMC Directive: 2004/108/EC

Explosion protection (only for 4 ... 20 mA / 2 wire)	
Approvals	IBExU 08 ATEX 1125 X
DX13A-DMD 331	zone 1: II 2G Ex ia IIC T4
Safety technical maximum values	$U_i = 28 V_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \leq 1 \text{ nF}$, $L_i \leq 10 \mu\text{H}$, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	-20 ... 60 °C bei p_{atm} 0,8 bar up to 1,1 bar

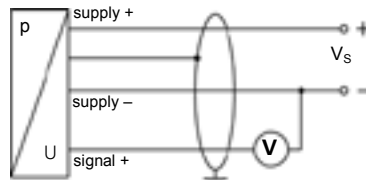
Pin configuration	
Electrical connection	ISO 4400
Supply +	1
Supply –	2
Signal + (only 3-wire)	3
Shield	ground pin

Wiring diagrams

2-wire-system (current)

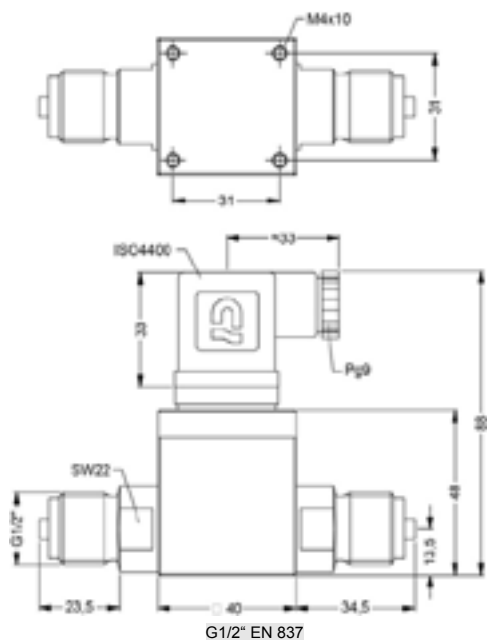
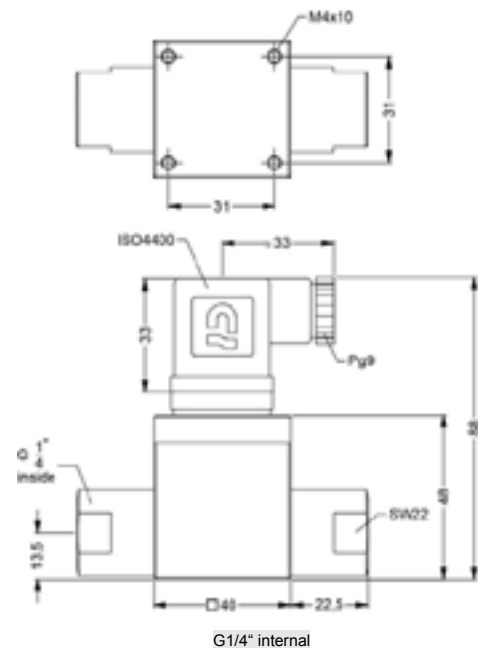
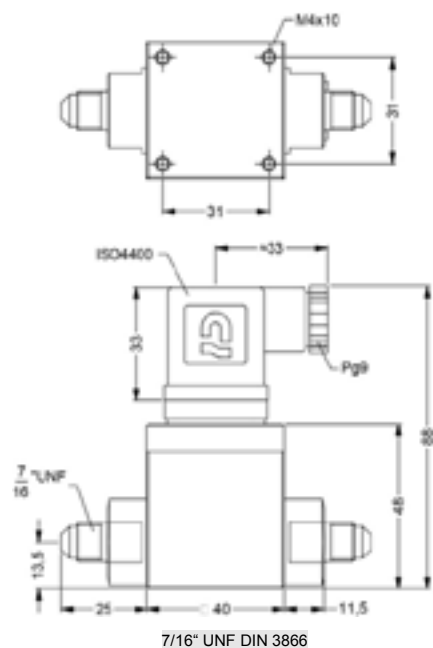


3-wire-system (voltage)

**Electrical connection**

Standard	male and female plug ISO 4400 (IP 65)
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Others	on request
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Mechanical connection (dimensions in mm)**standard****option**

DMD 331

			-		-					-		-			-			-			-		
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[illegible]



DMD 831

Differential Pressure Transmitter with Display and Contact for Fluids and Gases

- ▶ 2 piezoresistive stainless steel sensors
- ▶ differential pressure from 0 ... 1 bar up to 0 ... 70 bar
- ▶ display and pressure port rotatable

Technical Data



Input pressure range							
Type	D5	D6	D7	D8	DA	DB	H1
Differential pressure range [bar] (calibration)	0 ... 1	0 ... 2	0 ... 3,5	0 ... 7	0 ... 20	0 ... 35	0 ... 70
Permissible static pressure [bar] one-sided	1	2	3,5	7	20	35	70

Analogue signal / Supply	
Standard	3-wire: 4 ... 20 mA 24 V _{DC} ± 10 %
Permissible load	500 Ω
Accuracy ¹	≤ ± 1 % BFSL
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Contact	
Number, type	standard: 1 PNP option: 2 independent PNP
Max. switching current	125 mA, short-circuit proof
Switching accuracy ¹	≤ ± 0.5 % FSO
Repeatability	≤ ± 0.1 % FSO
Switching cycles	> 100 x 10 ⁶
Delay time	0 ... 100 sec
Programming	
Adjustability	analogue output / contact refers to: <ul style="list-style-type: none"> - pressure (+ port) - pressure (- port) - differential pressure
	Turn-Down: max. 1:10
Thermal error ² (offset and span) / Permissible temperatures	
Tolerance band	≤ ± 1.5 % FSO
TC, average	± 0.2 % FSO / 10 K
In compensated range	0 ... 70 °C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -25 ... 85 °C storage: -40 ... 85 °C
² relating to nominal pressure range	
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27
Materials		
Pressure port	stainless steel 1.4404 (316L)	
Housing	PA 6.6, Polycarbonate	
Seals (media wetted)	FKM	others on request
Diaphragm	stainless steel 1.4435 (316L)	
Media wetted parts	pressure port, seals, diaphragm	
Miscellaneous		
Display	4-digit, red LED-display, digit size 7 mm range of indication -1999 ... +9999; accuracy 0.1 % +/- 1 digit; digital damping 0.3 ... 30 sec (programmable);	
Current consumption	signal output current: max. 60 mA (without switching current)	
Weight	approx. 350 g	
Operational life	> 100 x 10 ⁶ pressure cycles	
Ingress protection	IP 65	
Electrical connections		
Standard	connector M12x1 / 5- pin (IP 67)	others on request
Wiring diagram		
Pin configuration		
Electrical connections	M12x1 (5-pin), plastic	cable outlet (IP 67)
Supply +	1	wh (white)
Supply -	3	bn (brown)
Signal +	2	gn (green)
Contact 1	4	gy (grey)
Contact 2	5	pk (pink)
Shield	via pressure port	ye/gn (yellow / green)
Mechanical connections (in mm)		Electrical connections (dimensions in mm)
<div><div><p>standard</p><p>G1/2" DIN 3852</p></div><div><p>M12x1 (5-polig) cable outlet</p><p>cable outlet PVC Ø = 4.9mm cable outlet PUR Ø = 5.7mm</p></div></div> <div><p>option</p><p>G1/4" EN 837 1/4" NPT G1/4" DIN 3852 G1/2" EN 837</p></div>		

DMD 831		<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div><div></div><div></div></div>	-	<div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></div><div></div><div></div></div>	-	<div><div></d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¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)



DMD 341

Differential Pressure Transmitter for Gases and Compressed Air in Compact Version

Silicon Sensor

accuracy according to IEC 60770:
0.35 % / 1 % / 2 %

Differential pressure

from 0 ... 6 mbar up to 0 ... 1000 mbar

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

Special characteristics

- ▶ aluminium housing
- ▶ suited for non-aggressive gases and compressed air

Optional versions

- ▶ customer specific versions

The DMD 341 is a differential pressure transmitter for non-aggressive gases and compressed air. Because of its compact and robust aluminium housing it is particularly suited for machine and plant engineering.

Basic element of the DMD 341 is a piezoresistive stainless steel silicon sensor, which features high accuracy and excellent long term stability.

Preferred areas of use are



Plant and Machine Engineering



Heating and Air Conditioning

Preferred used for



Compressed Air,
Non-Aggressive Gases



Input pressure range											
Nominal pressure P_N (over, differential pressure) [mbar]	0...6	0...10	0...20	0...40	0...60	0...100	0...160	0...250	0...400	0...600	0...1000
Nominal pressure P_N symmetric (differential pressure) [mbar]	± 6	± 10	± 20	± 40	± 60	± 100	± 160	± 250	± 400	± 600	± 1000
Overpressure [mbar]	100	100	200	350	350	1000	1000	1000	1000	3000	3000

Output signal / Supply	
Standard	standard pressure range: 2-wire: 4 ... 20 mA / $V_S = 8 ... 32 V_{DC}$
Options 3-wire	standard pressure range: 3-wire: 0 ... 20 mA / $V_S = 14 ... 30 V_{DC}$ 0 ... 10 V / $V_S = 14 ... 30 V_{DC}$

Performance	
Accuracy ¹	$P_N > 160$ mbar: $\leq \pm 0.35$ % FSO 40 mbar $\leq P_N \leq 160$ mbar: $\leq \pm 1$ % FSO $P_N < 40$ mbar: $\leq \pm 2$ % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω
Long term stability	$\leq \pm 0.2$ % FSO / year
Response time	< 5 msec

¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span) / Permissible temperatures				
Nominal pressure P_N [mbar]	≤ 10	≤ 20	≤ 250	> 250
Tolerance band [% FSO]	$\leq \pm 2$	$\leq \pm 1.5$	$\leq \pm 1$	$\leq \pm 0.5$
TC, average [% FSO / 10 K]	± 0.3	± 0.25	± 0.15	± 0.08
in compensated range	0 ... 60 °C			
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 100 °C	

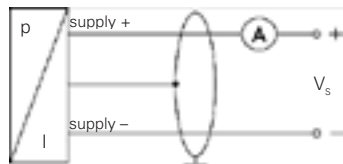
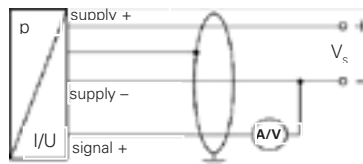
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

Materials	
Pressure port	G1/8" internal: aluminium, silver anodized flexible tube connection Ø6.6 x 11: brass, nickel plated
Housing	aluminium, silver anodised
Seal (media wetted)	PUR, bonded
Sensor	silicon, glass, RTV, ceramics Al ₂ O ₃ , nickel
Media wetted parts	pressure port, housing, seal, sensor

Miscellaneous	
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g
Operational life	> 100 x 10 ⁶ pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

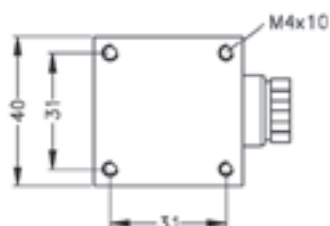
Pin configuration			
Electrical connection	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	white
Supply –	2	2	brown
Signal + (only 3-wire)	3	3	green
Shield	ground pin	4	yellow / green

Wiring diagrams**2-wire-system (current)****3-wire-system (current / voltage)****Electrical connections (dimensions in mm)****standard**

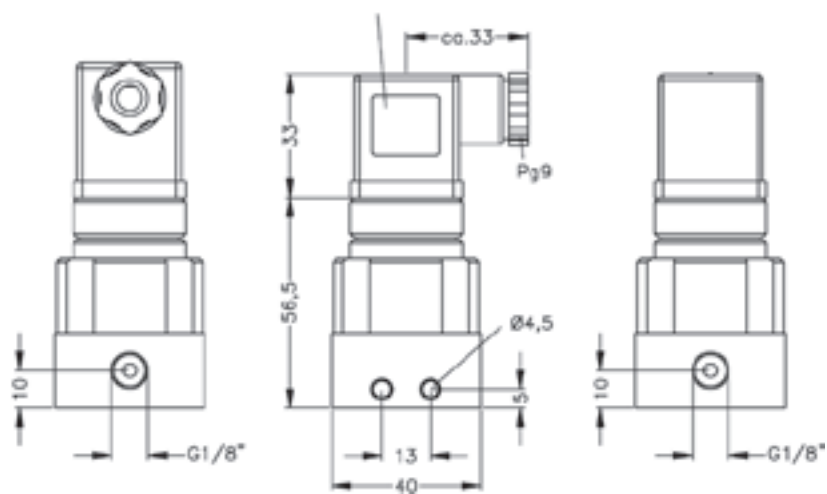
ISO 4400 (IP 65)

option

M12x1 4-pin (IP 67)

Cable outlet with PVC-cable (IP 67)²² standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube**Mechanical connection (dimensions in mm)****Standard**

connector ISO 4400

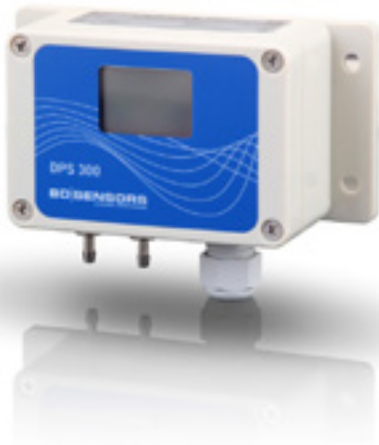


G1/8" internal

DMD 341

DMD 341				<div></div>	<div></div>	<div></div>	-	<div></div>	<div></div>	<div></div>	-	<div></div>	-	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	<div></div>	<div></div>
Pressure																									
differential pressure				3	3	0																			
gauge pressure				3	3	1																			
Input [mbar]																									
6							0	0	6	0															
10							0	1	0	0															
20							0	2	0	0															
40							0	4	0	0															
60							0	6	0	0															
100							1	0	0	0															
160							1	6	0	0															
250							2	5	0	0															
400							4	0	0	0															
600							6	0	0	0															
1000							1	0	0	1															
-6 ... 6							S	0	0	6														consult	
-10 ... 10							S	0	1	0														consult	
-20 ... 20							S	0	2	0														consult	
-40 ... 40							S	0	4	0														consult	
-60 ... 60							S	0	6	0														consult	
-100 ... 100							S	1	0	0														consult	
-160 ... 160							S	1	6	0														consult	
-250 ... 250							S	2	5	0														consult	
-400 ... 400							S	4	0	0														consult	
-600 ... 600							S	6	0	0														consult	
-1000 ... 1000							S	1	0	2														consult	
customer							9	9	9	9														consult	
Output																									
4 ... 20 mA / 2-wire											1														
0 ... 20 mA / 3-wire											2														
0 ... 10 V / 3-wire											3														
customer											9													consult	
Accuracy																									
standard for P _N > 160 mbar							0,35	%				3													
Standard for 40 mbar ≤ P _N ≤ 160 mbar							1,0	%				8													
standard for P _N < 40 mbar							2,0	%				G													
customer												9												consult	
Electrical connection																									
Male and female plug ISO 4400												1	0	0											
Male plug M12x1 (4-pin)												M	0	0											
Cable outlet with PVC cable ¹												T	A	0											
customer												9	9	9										consult	
Mechanical connection																									
G1/8" internal thread															Q	0	0								
Ø 6.6 x 11 (for flex. tubes Ø 6)															Y	0	0								
customer															9	9	9							consult	
Seals																									
PUR, bonded																6									
Special version																									
standard																					0	0	0		
customer																					9	9	9	consult	

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)



DPS 300

Multi Range Differential Pressure Transmitter for Gas and Compressed Air

Silicon Sensor

accuracy according to IEC 60770:
1 % FSO BFSL

Differential pressure

from 0 ... 1,6 mbar up to 0 ... 1000 mbar

Output signals

3-wire: 0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA
2-wire: 4 ... 20 mA (optional)

Special characteristics

- ▶ LC-display, two-line
- ▶ adjustable ranges
- ▶ high overpressure capability
- ▶ adjustable damping
- ▶ compact form

Optional versions

- ▶ contacts
- ▶ automatic zero adjustment
(in preparation)
- ▶ square root extraction

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 and can simply parameterised. Values, status of the contact and the unit are shown on the display.

Preferred applications are



HVAC



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 P_N [mbar]	1,0	2,5	6	25	60 / 160	400 / 600
Max. static pressure [mbar]	200	200	200	345	1000	3000

Output signal / Supply		
Standard	3-wire: 0 ... 10 V / 0 ... 20 mA / 4 ... 20 mA	/ $V_S = 19 \dots 32 V_{DC}$
Option	2-wire: 4 ... 20 mA	/ $V_S = 11 \dots 32 V_{DC}$
Performance		
Accuracy	1,0 % FSO BFSL	
Permissible load	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$ current 2-wire: $R_{max} = [(V_S - V_{Smin}) / 0,02 \text{ A}] \Omega$	current 3-wire: 330 Ω
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $\text{k}\Omega$	
Response time T_{90}	>100 ms; adjustable by potentiometer in the range of 0 msec up to 5000 msec	
Turn on time	500 ms	
Measuring rate	12,5 Hz	
Contact (optional)		
	3-wire version	2-wire version (optional)
Number, form	2 x relay-output (NO/NC)	2 x PNP-open-collector-contact
max. switching current	2 A	max. 125 mA resistant; short-circuit-proof
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	$< 100 \times 10^6$	$< 100 \times 10^6$
Thermal effects / Permissible temperatures		
Thermal error (offset and span)	0.5 % FSO / 10 K (typ.) for $P_N \leq 4 \text{ mbar}$ 0.3 % FSO / 10 K (typ.) for $P_N > 4 \text{ mbar}$	
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	
Elektromagnetic protection	EMC directive: 2004/108/EG 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 / silicon tube, sensor	
Display		
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- re calibration- autozeroing- factory setting	

Miscellaneous		
Current consumption	2-wire: max. 22 mA 3-wire: max. 30 mA (during automatic zero adjustment: +23 mA)	
Ingress protection	Approx. 200 g	
Weight	IP 54	
Installation position	vertical ¹	
¹ The devices are calibrated in a vertical position with the 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)	
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		
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											
	customer				9	9	9	9											consult
Output	3-wire: 0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA								3Z										
	2-wire: 4 ... 20 mA								1										
	customer								9										consult
contact	without								0										
	2 contacts								B										
Accuracy	1 % FSO								G										
Display	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					
	Ø445 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	consult
	square-root extraction															6	0	5	
	customer															9	9	9	consult



DPS 200

Differential Pressure Transmitter for Gas and Compressed Air

Applications:

- ▶ for HVAC-applications

Characteristics:

- ▶ piezoresistive silicon sensor
- ▶ differential pressure range 1 ... 1000 mbar

Technical Data



Input pressure range							
Nominal pressure P_N [mbar] (differential, gauge pressure)	1	1.6	2.5	4	6	10	40
max. static pressure [mbar]	200	200	200	200	200	345	345
Nominal pressure P_N [mbar] (differential, gauge pressure)	60	100	160	250	400	600	1000
max. static pressure [mbar]	345	345	1000	1000	3000	3000	3000

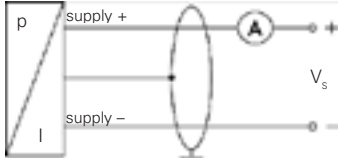
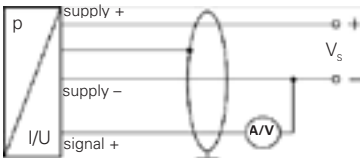
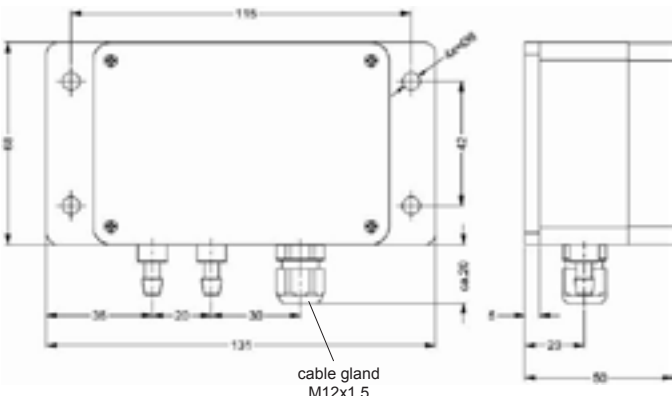
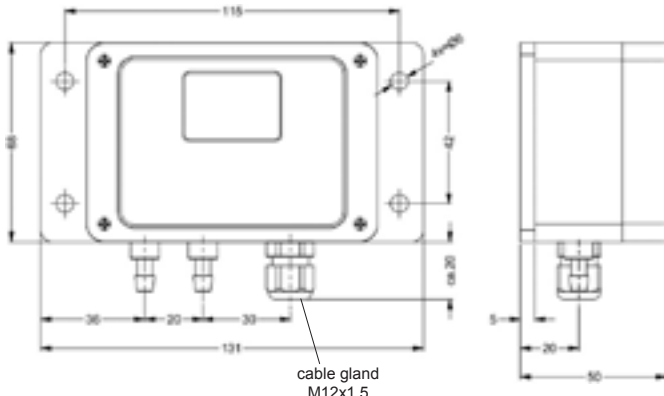
Output signal / Supply	
Standard	3-wire: 0 ... 10 V $V_S = 19 \dots 32 V_{DC} / 24 V_{AC} \pm 10 \%$
Option	2-wire: 4 ... 20 mA $V_S = 11 \dots 32 V_{DC}$ 3-wire: 0 ... 20 mA / 3-wire: 4 ... 20 mA $V_S = 19 \dots 32 V_{DC} / 24 V_{AC} \pm 10 \%$

Performance	
Accuracy	1 % FSO BFSL
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{Smin}) / 0,02 A] \Omega$ current 3-wire: 330 Ω voltage 3-wire: 10 k Ω
Influence effects	supply: $\leq \pm 0.1 \%$ FSO/10V load: $\leq \pm 0.1 \%$ FSO/k Ω
Response time (0 ... 100%)	2-wire: adjustable by potentiometer in the range of 500 msec up to 2.5 sec 3-wire: adjustable by potentiometer in the range of 50 msec up to 2.5 sec
Measuring rate	2-wire: 8 Hz 3-wire: 1 kHz

Thermal effects (Offset and Span) / Permissible temperatures	
Thermal error (offset and span)	0.5 % FSO / 10 K (typ.) for nominal pressure ≤ 5 mbar 0.3 % FSO / 10 K (typ.) for $P_N > 5$ 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
Elektromagnetic protection	emission and immunity according to EN 61326

Materials	
Pressure port	brass nickel plated
Housing	ABS
Diaphragm	sensor
Media wetted parts	pressure port, PVC / silicon tube, diaphragm, sensor

Miscellaneous		
Display (optional)	LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph	
Current consumption	2-wire: signal output current: max. 22 mA 3-wire: signal output current: max. 30 mA signal output voltage: 7.5 mA (20 mA short circuit) display: + 1 mA	
Ingress protection	IP 54	
Weight	approx. 165 g	
Installation position	vertical ¹	
¹ The devices are calibrated in a vertical position with the 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)	
Wiring diagram		
2-wire-system (current)	3-wire-system (current / voltage)	
		
Pin configuration		
Electrical connections	Terminals 2-wire-system	Terminals 3-wire-system
supply + supply - signal + (only for 3-wire)	2 / + 3 / - 1 (not connected)	2 / V _s + 3 / V _s - 1 / SIG
Dimensions (in mm)		
standard: DPS 200 without display		
		
optional: DPS 200 with display		
		

DPS 200		<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>
Pressure																			
	differential pressure	8	1	0															
	gauge pressure	8	1	1															consult
Input																			
	[mbar]																		
	1.0				0	0	1	0											
	1.6				0	0	1	6											
	2.5				0	0	2	5											
	4.0				0	0	4	0											
	6.0				0	0	6	0											
	10				0	1	0	0											
	40				0	4	0	0											
	60				0	6	0	0											
	100				1	0	0	0											
	160				1	6	0	0											
	250				2	5	0	0											
	400				4	0	0	0											
	600				6	0	0	0											
	1000				1	0	0	1											
	customer				9	9	9	9											consult
Output																			
	0 ... 10 V / 3-wire								3										
	4 ... 20 mA / 2-wire								1										
	0 ... 20 mA / 3-wire								2										
	4 ... 20 mA / 3-wire								7										
	customer								9										consult
Accuracy																			
	1 % 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						
	Ø445 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	
	customer															9	9	9	consult

COMPETENCE

Industrial pressure measurement technology from 0.1 mbar up to 6000 bar

- pressure transmitters, electronic pressure switches or hydrostatic level probes
- OEM or high-end products
- standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

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pressure measurement at the highest level

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

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projectable delivery times and strict observance of deadlines

Short delivery times and firm deadlines, even for special designs, make BD|SENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.




















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We have special solutions for your individual requirement.









We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.

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	laboratory techniques
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	food and beverage
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	oil and gas industry
	pharmaceutical industry
	marine / shipbuilding / offshore
	heavy industry
	environmental industry
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	pasty and viscous media
	oxygen
	water



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