PRODUCT CATALOGUE
DIFFERENTIAL
PRESSURE TRANSMITTER

BD|SENSORS
pressure measurement

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 BDSENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and 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.

BD|SENSORS
pressure measurement

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.

INDEX

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.

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

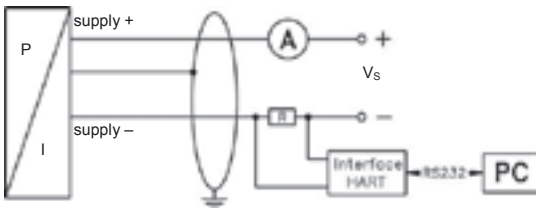
- Oil and gas industry
- Chemical and petrochemical industry
- Energy Industry
- Food and beverage
- Paper Industry

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 Option	2-wire: 4 ... 20 mA IS-intrinsically safe version with HART®-communication / V_S = 12 ... 28 V_{DC} IS version flameproof enclosure / VS = 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 Option	 stainless steel 1.4435 (316 L) 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

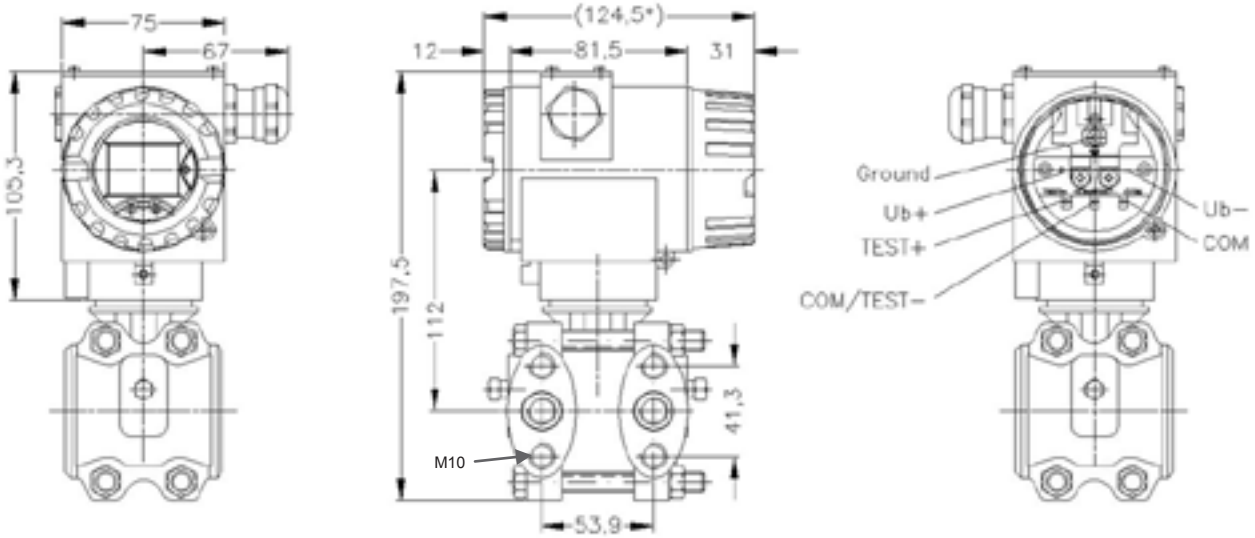
Connections	
Electrical connection	terminal clamps in clamping chamber with cable gland M20x1.5 (for cable-Ø 5 up to 14 mm)
Process connections	internal thread 1/4" - 18 NPT

Wiring diagram



Pin configuration	
Electrical connection	terminal clamps (clamp section 2.5 mm²)
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

XMD	Pressure	Input	Design	Output	Accuracy	Electrical connection	Mechanical connection	Diaphragm	Seals		Special version	
	□□□	□□□□	□□	□	□	□□□	□□□	□	□	1	□□□	
Pressure												
differential pressure	3 4 0											
Input [bar]												
0 ... 0.075		0 7 5 0										
0 ... 0.4		4 0 0 0										
0 ... 2		2 0 0 1										
0 … 7		7 0 0 1										
0 … 20		2 0 0 2										
customer		9 9 9 9										consult
Design												
with display			A 0									
without display			A N									
Output												
Intrinsic safety ia 4 … 20 mA / 2-wire (intrinsically safe version) with HART®-communication [1]				I								
Intrinsic safety d 4 … 20 mA / 2-wire (explosion proof housing) with HART®-communication [1]				G								
customer				9								consult
Accuracy												
0.1 %					1							
Electrical connection												
terminal clamp						A K 0						
customer						9 9 9						consult
Mechanical connection												
internal thread 1/4" - 18 NPT							N 5 6					
Diaphragm												
stainless steel 1.4435 (316L)								1				
Hastelloy® C-276 (2.4819) [2]								H				
customer								9				consult
Seals												
FKM									1			
EPDM									3			
Special version												
standard											0 0 0	
customer											9 9 9	consult

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

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

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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 differentialpressure 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

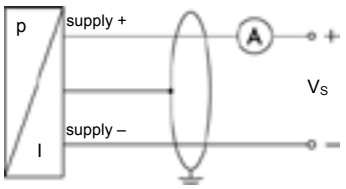
Preferred used for

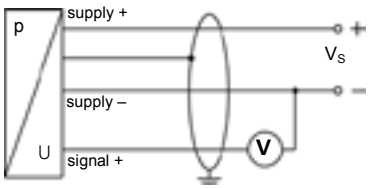
Water

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 ... 36 V_{DC}		
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}		
Option 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}		
Performance			
Accuracy	IEC 60770 [1]: ≤ ± 0.5 % FSO		
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω voltage 3-wire: R_{min} = 10 kΩ		
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ		
Long term stability	≤ ± 0.2 % FSO / 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			
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 (onla for 4 … 20 mA / 2 wire)			
Approvals DX13A-DMD 331	**IBExU 08 ATEX 1125 X** zone 1: II 2G Ex ia IIC T4		
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, C_i ≤ 1 nF, L_i ≤ 10 µH, 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 + Supply – Signal + (only 3-wire)	1 2 3		
Shield	ground pin		

Wiring diagrams	
2-wire-system (current)	3-wire-system (voltage)

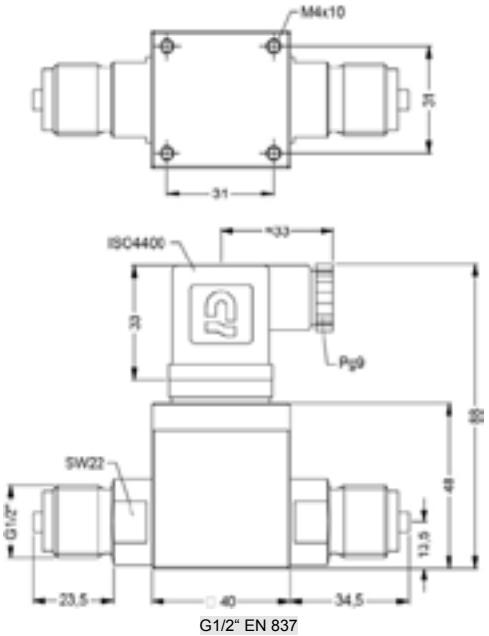




Electrical connection	
Standard	male and female plug ISO 4400 (IP 65)
Others	on request

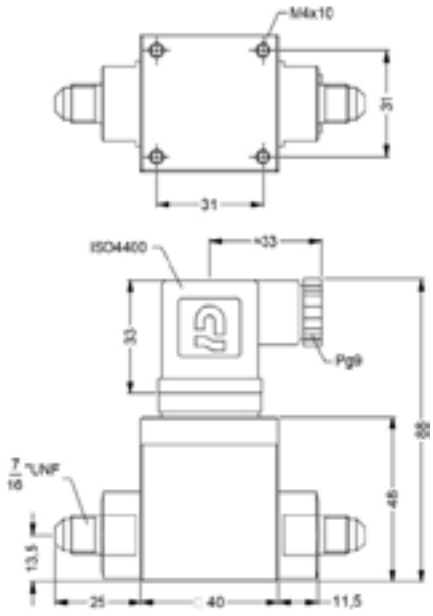
Mechanical connection (dimensions in mm)

standard

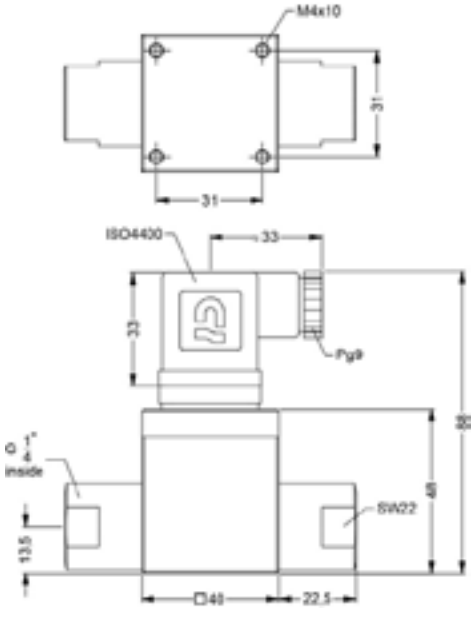


G1/2“ EN 837

option



7/16“ UNF DIN 3866



G1/4“ internal

DMD 331 ☐☐☐-☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Pressure	Code	
differential pressure	7 3 0	

Nominal pressure range [bar]	Code	
0.2	F	
0.4	A	
1.0	B	
2.5	C	
6.0	D	
16	E	
customer	9	consult

Differential pressure range [bar]	F	A	B	C	D	E	Code	
0.02	■						0 2 0 0	
0.04	■	■					0 4 0 0	
0.10	■	■	■				1 0 0 0	
0.25		■	■	■			2 5 0 0	
0.40		■	■	■			4 0 0 0	
0.60			■	■	■		6 0 0 0	
1.0			■	■	■		1 0 0 1	
2.5				■	■	■	2 5 0 1	
4.0					■	■	4 0 0 1	
6.0					■	■	6 0 0 1	
10						■	1 0 0 2	
16						■	1 6 0 2	
customer							9 9 9 9	consult

Output	Code	
4 … 20 mA / 2-wire	1	
intrinsic safety 4 … 20 mA / 2 wire	E	
0 … 10 V / 3-wire	3	
customer	9	consult

Accuracy	Code	
0.5 %	5	
customer	9	consult

Electrical connection	Code	
Male and female plug ISO 4400	1 0 0	
customer	9 9 9	consult

Mechanical connection	Code	
G1/2" EN 837	2 0 0	
7/16" UNF DIN 3866	U 0 0	
G1/4" internal thread	J 0 0	
customer	9 9 9	consult

Seals	Code	
FKM	1	
customer	9	consult

Special version	Code	
standard	0 0 0	
customer	9 9 9	consult

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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

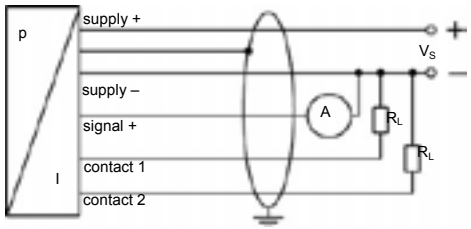
CE

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:	- 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

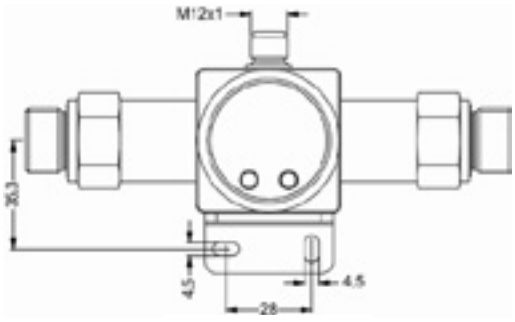
Wiring diagram



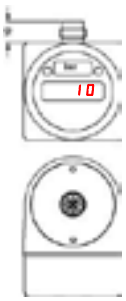
Pin configuration		
Electrical connections	M12x1 (5-pin), plastic	cable outlet (IP 67)
Supply +	1	wh (white)
Supply –	3	bn (brown)
Signal +	2	gn (green)
Contact 1	4	gy (grey)
Contact 2	5	pk (pink)
Shield	via pressure port	ye/gn (yellow / green)

Mechanical connections (in mm) **Electrical connections (dimensions in mm)**

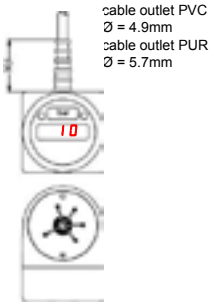
standard



G1/2" DIN 3852



M12x1 (5-polig)

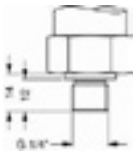


cable outlet

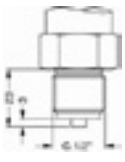
option

G1/4" EN 837

1/4" NPT



G1/4" DIN 3852



G1/2" EN 837

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DMD 831

Ordering Code

DMD 831 ☐☐☐ - ☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

Pressure		
differential pressure	7 3 2	

max. static pressure [bar]		
1	D 5	
2	D 6	
3.5	D 7	
7	D 8	
20	D A	
35	D B	
70	H 1	
customer	9 9	consult

differential pressure range [bar] Minimum	Maximum	D5	D6	D7	D8	DA	DB	H1	Code	
0.1	1	■	■	■	■				1 0 0 1	
0.2	2		■	■	■	■			2 0 0 1	
0.35	3.5			■	■	■	■		3 5 0 1	
0.7	7				■	■	■	■	7 0 0 1	
2	20					■	■	■	2 0 0 2	
3.5	35						■	■	3 5 0 2	
7	70							■	7 0 0 2	
customer									9 9 9 9	consult

Analogue output		
4 … 20 mA / 3-wire	7	
customer	9	consult

Contact		
1 contact PNP	1	
2 contacts PNP	2	
customer	9	consult

Accuracy		
1% FSO BFSL	G	
customer	9	consult

Electrical connection		
M12x1 (5-pin)	N 0 0	
Cable outlet with PVC cable [1]	T A 0	consult
customer	9 9 9	consult

Mechanical connection		
G 1/2" DIN 3852	1 0 0	
G 1/2" EN 837	2 0 0	
G 1/4" DIN 3852	3 0 0	
G 1/4" EN 837	4 0 0	
1/2" NPT	N 0 0	
1/4" NPT	N 4 0	
customer	9 9 9	consult

Seals		
FKM	1	
customer	9	consult

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)

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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

CE

Input pressure range											
Nominal pressure P_N [mbar] (over, differential pressure)	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: 40 mbar ≤ P_N ≤ 160 mbar: P_N < 40 mbar:	≤ ± 0.35 % FSO ≤ ± 1 % FSO ≤ ± 2 % FSO
Permissible load	current 2-wire: current 3-wire: voltage 3-wire:	R_{max} = [(V_S – V_S min) / 0.02 A] Ω R_{max} = 500 Ω R_{min} = 10 kΩ
Influence effects	supply: load:	0.05 % FSO / 10 V 0.05 % FSO / kΩ
Long term stability	≤ ± 0.2 % FSO / year	
Response time	< 5 msec	

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

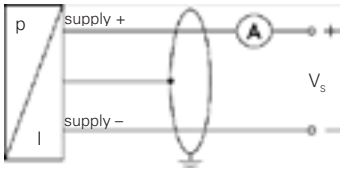
Thermal effects (Offset and Span) / Permissible temperatures				
Nominal pressure P_N [mbar]	≤ 10	≤ 20	≤ 250	> 250
Tolerance band [% FSO]	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 0.5
TC, average [% FSO / 10 K]	± 0.3	± 0.25	± 0.15	± 0.08
in compensated range	0 ... 60 °C			
Permissible temperatures	medium: -25 ... 125 °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_2O_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

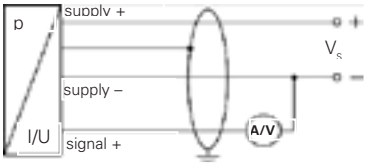
Pin configuration			
Electrical connection	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	white
Supply –	2	2	brown
Signal + (only 3-wire)	3	3	green
Shield	ground pin	4	yellow / green

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

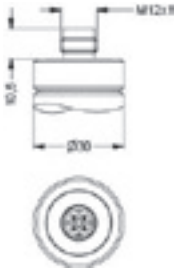


Electrical connections (dimensions in mm)

standard

ISO 4400 (IP 65)

option



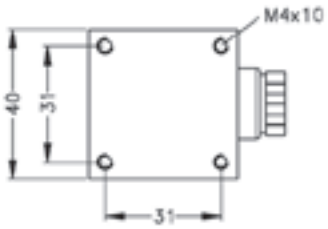
M12x1 4-pin (IP 67)

Cable outlet with PVC-cable (IP 67)[2]

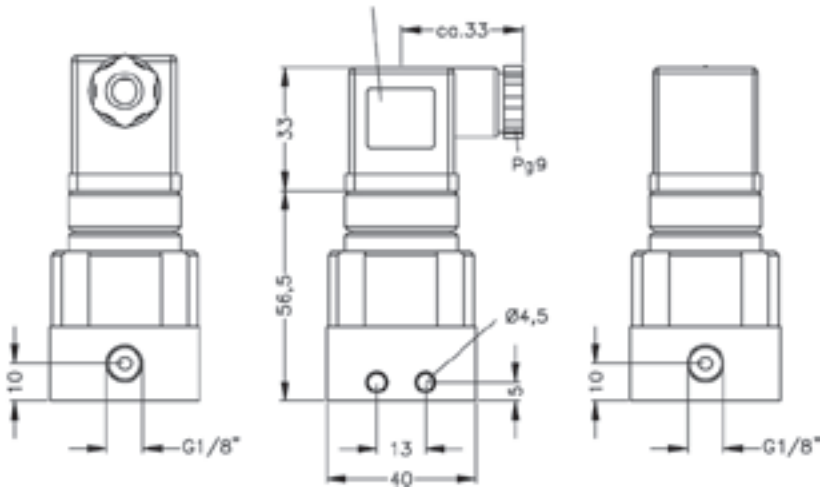
[2] *standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube*

Mechanical connection (dimensions in mm)

Standard



connector ISO 4400



G1/8“ internal

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DMD 341

Ordering Code

DMD 341 □□□-□□□□-□-□-□□□-□□□-□-□□□

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)

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

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

CE

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 ... 32 V_{DC}
Option	2-wire: 4 ... 20 mA /	V_S = 11 ... 32 V_{DC}
Performance		
Accuracy	1,0 % FSO BFSL	
Permissible load	voltage 3-wire: R_{min} = 10 kΩ current 2-wire: R_{max} = [(V_S – $V_{S\,min}$) / 0,02 A] Ω	current 3-wire: 330 Ω
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
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	≤ ± 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 ≤ 4 mbar 0.3 % FSO / 10 K (typ.) for P_N > 4 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	- 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]

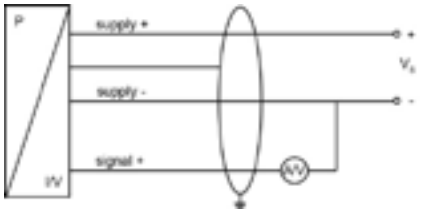
[1] The devices are calibrated in a vertical position with the pressure port down. If this position is changed on installation there can be slight deviations in the zero point.

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)

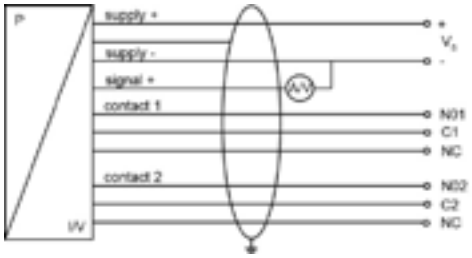
Pin configuration		
Standard	cable gland M16x1,5	
Electrical connections	3-wire	2-wire
supply +	VS +	VS +
supply –	VS -	VS -
signal + (only for 3-wire)	Iout / Vout	-
contact 1	C1 / NO1 / NC1	S1
contact 2	C2 / NO2 / NC2	S2

Wiring diagram

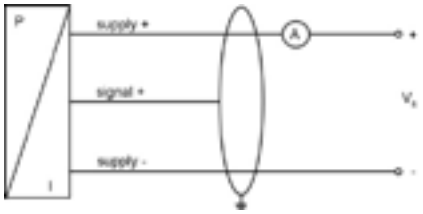
3-wire-system (current / voltage)



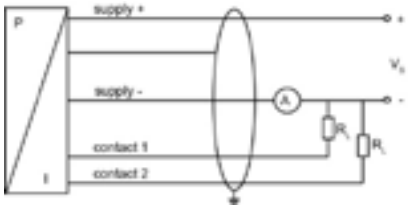
3-wire-system (current / voltage) with 2 contacts



2-wire-system (current

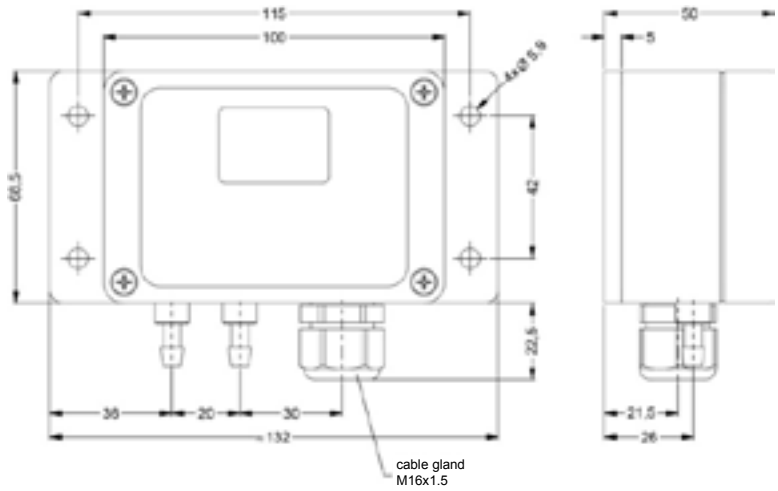


2-wire-system (current) with 2 contacts



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

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Subject to change without notice.

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 … 32 V_{DC} / 24 V_{AC} ± 10 %
Option	2-wire: 4 ... 20 mA V_S = 11 ... 32 V_{DC} 3-wire: 0 ... 20 mA / 3-wire: 4 ... 20 mA V_S= 19 … 32 V_{DC} / 24 V_{AC} ± 10 %
Performance	
Accuracy	1 % FSO BFSL
Permissible load	current 2-wire: R_{max} = [(V_S - V_{Smin}) / 0,02 A] Ω current 3-wire: 330 Ω voltage 3-wire: 10 kΩ
Influence effects	supply: ≤ ± 0.1 % FSO/10V load: ≤ ± 0.1 % FSO/kΩ
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

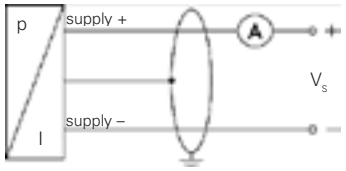
Miscellaneous	
Display (optional)	LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph
Current consumption	2-wire: signal output current: max. 22 mA 3-wire: signal output current: max. 30 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.*

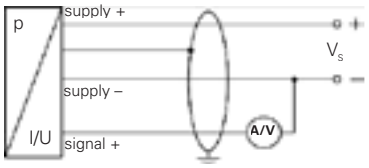
Mechanical connections (dimensions in mm)	
Standard	Ø 6.6 x 11 (for flex. tubes Ø 6)
Option	Ø 4.4 x 10 (for flex. tubes Ø 4)

Wiring diagram

2-wire-system (current)



3-wire-system (current / voltage)

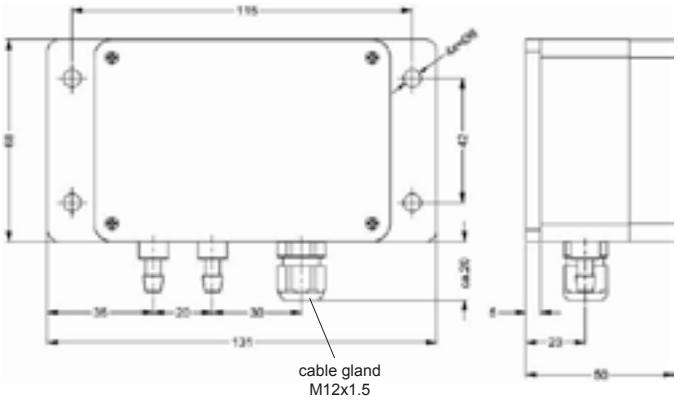


Pin configuration

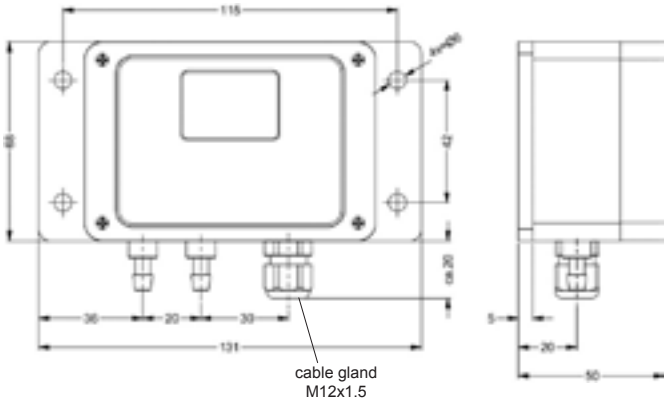
Electrical connections	Terminals 2-wire-system	Terminals 3-wire-system
supply +	2 / +	2 / V_S+
supply –	3 / -	3 / V_S-
signal + (only for 3-wire)	1 (not connected)	1 / SIG

Dimensions (in mm)

standard:
DPS 200 without display



optional:
DPS 200 with display



DPS 200

Ordering Code

DPS 200 □□□-□□□□-□-□-□-□-□□□-□-□□□

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

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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.

PRICE / PERFORMANCE

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.

RELIABILITY

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.

FLEXIBILITY

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.

INDUSTRIES

- plant and machine engineering
- chemical and biochemical industry
- energy industry
- renewable energy
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- HVAC
- hydraulics
- refrigeration
- calibration techniques
- laboratory techniques
- medical technology
- food and beverage
- vehicles and mobile hydraulics
- oil and gas industry
- pharmaceutical industry
- marine / shipbuilding / offshore
- heavy industry
- environmental industry
- packaging and paper industry

MEDIA

- sewage
- aggressive media
- colours
- gases
- fuels and oils
- pasty and viscous media
- oxygen
- water

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