BD|SENSORS
pressure measurement

XMD

Differential Pressure Transmitter for Process Industry with HART®-Communication and SIL2 (optionally)

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
- explosion protection intrinsic safety (ia)

Optional versions

- explosion protection flameproof equipment (d)
- SIL2 - version according to IEC 61508 / IEC 61511
- 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

BD SENSORS GmbH
BD-Sensors-Straße 1
D - 95199 Thierstein

Tel.: +49 (0) 92 35 / 98 11- 0
Fax: +49 (0) 92 35 / 98 11- 11

www.bdsensors.com
info@bdsensors.de

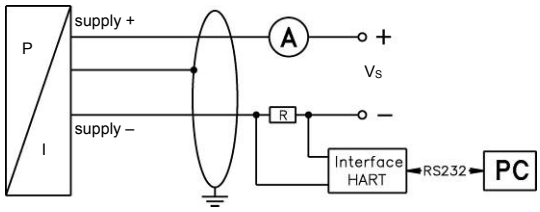
Pressure ranges					
Nominal pressure [bar]	0.075	0.4	2	7	20
Permissible static pressure [bar]	130	130	130	130	130

Output signal / Supply		
2-wire: 4 ... 20 mA with explosion protection	standard: intrinsic safety (ia) with HART®-communication options: flameproof equipment (d) with HART®-communication SIL2 / intrinsic safety (ia) with HART®-communication SIL2 / flameproof equipment (d) with HART®-communication	V_S = 12 ... 28 V_{DC} V_S = 13 ... 28 V_{DC} V_S = 12 ... 28 V_{DC} 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	option 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	silicone oil	
Explosion protection		
Approvals AX12-XMD AX2-XMD (with SIL2)	**intrinsic safety** IBExU 05 ATEX 1106 X (with SIL2: IBExU 05 ATEX1105 X) zone 0/1: II 1/2G Ex ia IIB T4 Ga/Gb zone 20: II 1D Ex ia IIIC T85 °C Da	
	safety technical maximum values: U_i = 28 V, I_i = 98 mA, P_i = 680 mW, C_i = 0 nF, L_i = 0 µH, C_{GND} = 27 nF	
Approvals AX17-XMD AX7-XMD (with SIL2)	**flameproof enclosure** IBExU 12 ATEX 1045 X (with SIL2: IBExU 12 ATEX1073 X) zone 1: II 2G Ex d IIC T5 Gb	
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: intrinsic safety: -40 ... 70 °C / flameproof enclosure: -20 ... 70 °C	
Options		
SIL2-version	according to IEC 61508 / IEC 61511	
Display	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	
Miscellaneous		
Ingress protection	IP 67	
Installation position	any	
Weight	min. 3 500 g	
Current consumption	approx. 21 mA	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	

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

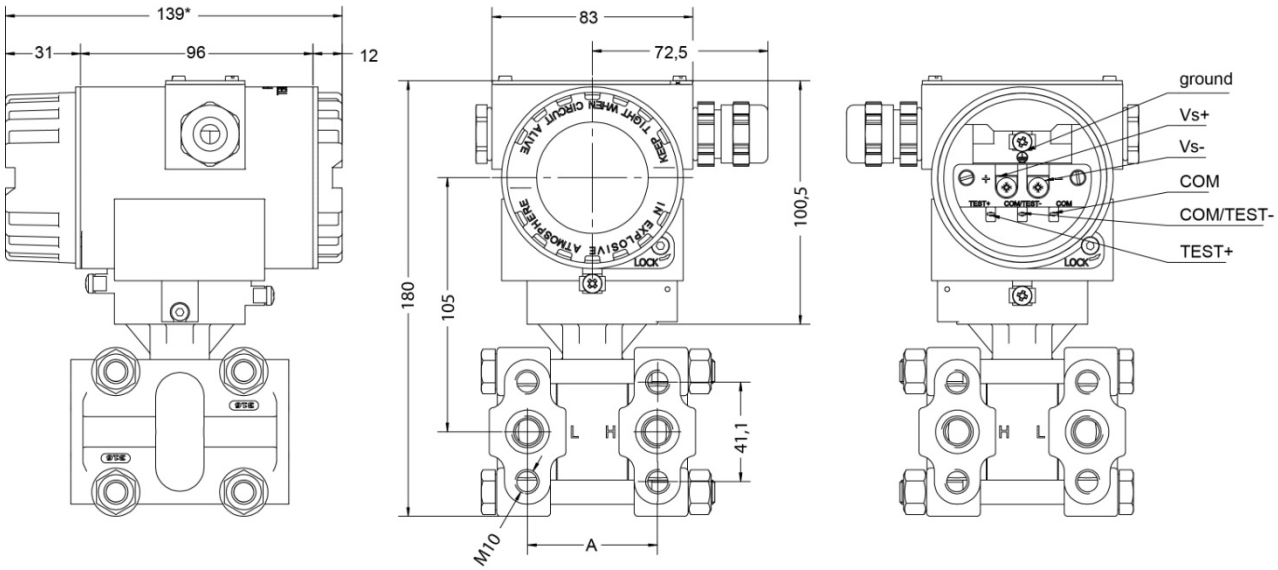
Wiring diagram

2-wire-system (current) and HART® - communication



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]



P_N = 0.075 bar, 0.4 bar, 2 bar : A = 54.5 ± 0.5 mm
P_N = 7 bar : A = 56.0 ± 0.5 mm
P_N = 20 bar : A = 56.5 ± 0.5 mm

* 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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Pressure Transmitter for Process Industry

XMP ci

Characteristics

- pressure ranges from 0.06 up to 20 bar
- turn-down 1:10
- two chamber aluminium die cast case or stainless steel field housing
- internal or flush mounted capacitive ceramic sensor
- HART®-communication (standard)
- explosion protection intrinsic safety (ia)
- accuracy according to IEC 60770: 0.1 % FSO

XMP i

Characteristics

- pressure ranges for vacuum, gauge and absolute pressure from 0.4 up to 600 bar
- turn-down 1:10
- two chamber aluminium die cast case or stainless steel field housing
- internal or flush welded diaphragm
- HART®-communication (standard)
- explosion protection intrinsic safety (ia)
- accuracy according to IEC 60770: 0.1 % FSO

Precision Pressure Transmitter for Food Industry, Pharmacy and Biotechnology

x|act ci

Characteristics

- pressure ranges from 0.06 up to 20 bar
- turn-down 1:10
- hygienic version
- flush mounted, capacitive ceramic sensor
- several process connections (inch thread, Clamp, etc.)
- with integrated display and operating module
- accuracy according to IEC 60770: 0.1 % FSO

x|act i

Characteristics

- pressure ranges from 0.4 up to 40 bar
- turn-down 1:10
- hygienic version
- flush welded diaphragm
- several process connections (G1“ cone, Clamp, dairy pipe, etc.)
- with integrated display and operating module
- accuracy according to IEC 60770: 0.1 % FSO

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Fax: +49 (0) 92 35 / 98 11- 11
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Ordering code XMD

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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 with HART®-communication	I	
	flameproof equipment (d) 4 … 20 mA / 2-wire with HART®-communication	G	
SIL2:	intrinsic safety (ia) 4 … 20 mA / 2-wire with HART®-communication	IS	
SIL2:	flameproof equipment (d) 4 … 20 mA / 2-wire with HART®-communication	GS	
	customer	9	consult
Accuracy			
	0.1 % FSO	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)	H	
	customer	9	consult
Seal			
	FKM	1	
	EPDM	3	
Special version			
	standard	0 0 0	
	customer	9 9 9	consult

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