



# XMD

## Differential Pressure Transmitter for Process Industry with HART<sup>®</sup>-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<sup>®</sup>-communication
- ▶ output signal: linear or square root extraction
- ▶ explosion protection, intrinsic safety (ia)






### Optional versions

- ▶ explosion protection, flameproof equipment (d)
- ▶ SIL 2 according to IEC 61508
- ▶ 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	
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  $V_s = 12 \dots 28 V_{DC}$ $V_s = 13 \dots 28 V_{DC}$ $V_s = 12 \dots 28 V_{DC}$ $V_s = 13 \dots 28 V_{DC}$
Performance	
Clocking error	$\leq \pm 0.2 \% \text{ FSO}$
Accuracy <sup>1</sup>	turn-down $\leq 5:1$ : $\leq \pm 0.1 \% \text{ FSO}$ turn-down $> 5:1$ : $\leq \pm [0.1 + 0.015 \times \text{turn-down}] \% \text{ FSO}$ with turn-down = nominal pressure range / adjusted range
Permissible load	load during HART®-communication: $R_{min} = 250 \Omega$
Supply	$\leq 0.05 \% \text{ FSO} / 10 V$
Permissible load	$\leq 0.05 \% \text{ FSO} / k\Omega$
Long term stability	$\leq \pm (0.1 \times \text{turn-down}) \% \text{ FSO} / \text{year}$ 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
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (Offset and Span) / Permissible temperatures	
Thermal error	$\leq \pm (0.1 \times \text{turn-down}) \% \text{ FSO} / 10 K$ 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 AX2-XMD (with SIL2)	<b>intrinsic safety</b> 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 for intrinsically safe version	$U_i = 28 V$ , $I_i = 98 \text{ mA}$ , $P_i = 680 \text{ mW}$ , $C_i = 0 \text{ nF}$ , $L_i = 0 \mu\text{H}$ , $C_{GND} = 27 \text{ nF}$
Approval AX7-XMD (with SIL2)	<b>flameproof enclosure</b> 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
Miscellaneous	
Option SIL 2 version	according to IEC 61508
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 $\pm 9999$ ; 8-digit 14-segment additional display, digit height 5 mm; 52-segment bargraph; accuracy $0.1\% \pm 1 \text{ digit}$
Ingress protection	IP 67
Installation position	any
Weight	min. 3500 g
Current consumption	approx. 21 mA
Operational life	$> 100 \times 10^6$ 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	
Pin configuration	
Electrical connection	terminal clamps (clamp section 2.5 mm <sup>2</sup> )
Supply + (Vs+)	+
Supply - (Vs-)	-
Test +	TEST+
COM / Test -	COM/TEST-
COM	COM
Ground	⏏
Dimensions (in mm) <sup>2</sup>	
<p> <math>P_N = 0,075 \text{ bar}, 0,4 \text{ bar}, 2 \text{ bar} : A = 54,5 \pm 0,5 \text{ mm}</math>  <math>P_N = 7 \text{ bar} : A = 56,0 \pm 0,5 \text{ mm}</math>  <math>P_N = 20 \text{ bar} : A = 56,5 \pm 0,5 \text{ mm}</math> </p>	
<p>* without display and operating module marked dimensions decrease by 19 mm</p>	
<p><sup>2</sup> aluminium die cast case is horizontally rotatable as standard  HART® is a registered trade mark of HART Communication Foundation; Hastelloy® is a brand name of Haynes International Inc.  Windows® is a registered trade mark of Microsoft Corporation</p>	

### 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



This data sheet contains product specification: properties are not guaranteed. Subject to change without notice.