



# XMD

## Differential Pressure Transmitter for Process Industry with HART<sup>®</sup>-Communication

accuracy according to EN IEC 62828-2:  
0.1 % span

### Nominal pressure

from 60 mbar up to 20 bar

### Output signals

2-wire: 4 ... 20 mA / HART<sup>®</sup>  
others on request

### Special characteristics

- ▶ static over pressure 400 bar
- ▶ two chamber aluminium die cast case
- ▶ HART<sup>®</sup>-communication
- ▶ output signal: linear or square root extraction
- ▶ explosion protection, intrinsic safety Exia
- ▶ flameproof enclosure Exd






### Optional versions

- ▶ SIL 2 according to IEC 61508
- ▶ with integrated display and operating module
- ▶ preparation for assembly of process connections

The intelligent XMD transmitter is designed for measurement of differential pressure in industrial processes of all production branches. It has an excellent long-term stability.

With the use of the square root output signal can be the steam and gas flow in orifice plates and speed probes measured.

### Preferred areas of use are

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




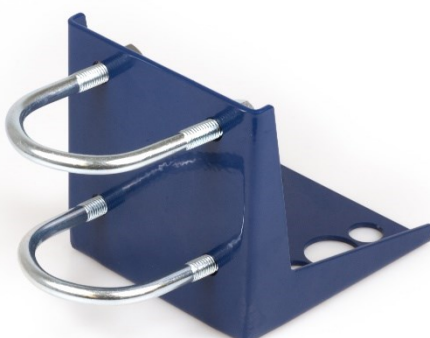
Sensor type	B	C	D	E
Differential pressure range dp	60 mbar	400 mbar	2.5 bar	20 bar
Setting limits (offset and span in this range freely adjustable)	-60 ... 60 mbar	-400 ... 400 mbar	-2.5 ... 2.5 bar	-20 ... 20 bar
Lowest permissible span	2 mbar	4 mbar	25 mbar	200 mbar
Permissible static pressure optional	160 bar -	160 bar 400 bar	160 bar 400 bar	160 bar 400 bar
Rangeability TD (with respect to the differential pressure range dp)	30:1	100:1	100:1	100:1

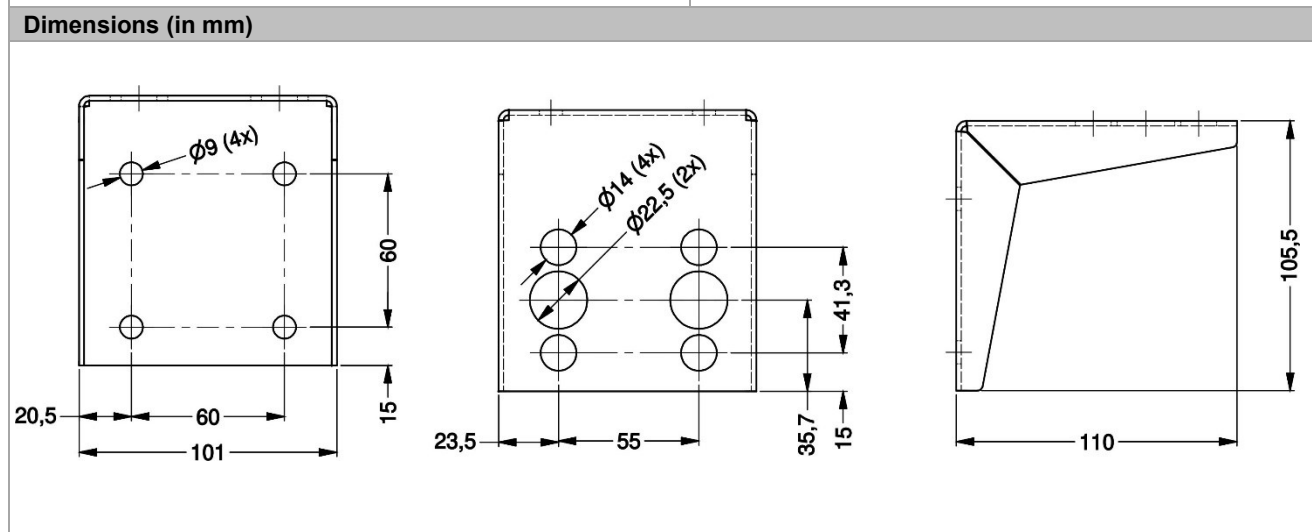
Output signal / Supply	
2-wire: 4 ... 20 mA with explosion protection	standard: intrinsic safety (ia) with HART®-communication options: flameproof equipment (d) with HART®-communication SIL2 / intrinsic safety (ia) with HART®-communication SIL2 / flameproof equipment (d) with HART®-communication  $V_s = 12 \dots 28 \text{ V}_{DC}$ $V_s = 13 \dots 28 \text{ V}_{DC}$ $V_s = 12 \dots 28 \text{ V}_{DC}$ $V_s = 13 \dots 28 \text{ V}_{DC}$
Performance	
Accuracy	1. accuracy 0,1 % turn-down (span) $\leq 10:1$ : $\leq \pm 0,1 \%$ span turn-down (span) $> 10:1$ : $\leq \pm [0,01 \times \text{turn-down}] \%$ span  2. accuracy 0,075 % turn-down (span) $\leq 10:1$ : $\leq \pm 0,075 \%$ span turn-down (span) $> 10:1$ : $\leq \pm [0,0075 \times \text{turn-down}] \%$ span  note: turn-down = nominal pressure range / adjustable range
Influence supply	$\leq 0.001 \%$ span / 10 V
Influence static pressure	type B: $\pm [0.06 \text{ mbar} + 0.075 \%$ of the adjusted range] / 160 bar type C: $\pm [0.2 \text{ mbar} + 0.05 \%$ of the adjusted range] / 160 bar type D: $\pm [1.25 \text{ mbar} + 0.05 \%$ of the adjusted range] / 160 bar type E: $\pm [10 \text{ mbar} + 0.05 \%$ of the adjusted range] / 160 bar
Influence installation position	max. 400 Pa (can be compensated by zero-point correction)
Long term stability	type B: $\leq \pm (0.2 \%$ x differential pressure range dp) / year at reference conditions type C - E: $\leq \pm (0.1 \%$ x differential pressure range dp) / year at reference conditions
Permissible load	without LC-display: $R_{max} = [(V_s - 12 \text{ V}) / 0.023 \text{ A}] \Omega$ with LC-display: $R_{max} = [(V_s - 15 \text{ V}) / 0.023 \text{ A}] \Omega$ HART®-communication: $R = 230 \Omega \dots 600 \Omega$
Response time	type B: approx. 0.4 sec type C: approx. 0.2 sec type D: approx. 0.2 sec type E: approx. 0.1 sec
Damping	electronic: 0.1 ... 60 sec plus response time
Thermal effects (Offset and Span)	
Temperature range -20 ... +65°C	type B: $\pm [0.30 \times \text{turn-down} + 0.20] \%$ of the adjusted range] type C - E: $\pm [0.20 \times \text{turn-down} + 0.10] \%$ of the adjusted range]
Temperature range -40 ... -20°C and +65 ... +100°C	type B: $\pm [0.30 \times \text{turn-down} + 0.20] \%$ of the adjusted range] type C - E: $\pm [0.20 \times \text{turn-down} + 0.10] \%$ of the adjusted range]
Permissible temperatures	
Environment/storage	without display: -40 ... 85 °C with display: -20 ... 65 °C (85°C without function)
Media wetted parts	silicone oil: -40 ... 100 °C (information: +125 °C short time, max. 30 min.) fluorolube oil: -40 ... 100 °C (information: +125 °C short time, max. 30 min.)
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

<b>Explosion protection</b>	
Approval AX2-XMD (with SIL2)	<b>intrinsic safety</b> IBExU05ATEX1105 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	$U_i = 28 \text{ V}$ , $I_i = 98 \text{ mA}$ , $P_i = 680 \text{ mW}$ , $C_i = 0 \text{ nF}$ , $L_i = 0 \text{ }\mu\text{H}$ , $C_{\text{GND}} = 33 \text{ nF}$
Approval AX7-XMD (with SIL2)	<b>flameproof enclosure</b> IBExU12ATEX1073 X (with SIL2: IBExU 12 ATEX1073 X) zone 1: II 2G Ex db IIC T5 Gb
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with $p_{\text{atm}}$ 0.8 bar up to 1.1 bar in zone 1 or higher: intrinsic safety: -40 ... 70 °C / flameproof enclosure: -20 ... 70 °C
<b>Miscellaneous</b>	
Option SIL 2 version	according to IEC 61508
Safety Integrity Level	SIL2
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 digit
Ingress protection	IP 67
Installation position	any
Weight	min. 3500 g
Current consumption	approx. 21 mA
Operational life	> 100 x 10 <sup>6</sup> cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
<b>Connections</b>	
Electrical connection	terminal clamps in clamping chamber with cable gland M20x1.5 (for cable- $\varnothing$ 5 up to 14 mm)
For mechanical connection	internal threads 7/16-20 UNF (connecting screws are not part of delivery)
<b>Wiring diagram</b>	
<b>Pin configuration</b>	
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	
<b>Dimensions (in mm)<sup>2</sup></b>	
* without display and operating module marked dimensions decrease by 22 mm	
<sup>2</sup> aluminium die cast case is horizontally rotatable	
HART <sup>®</sup> is a registered trade mark of HART Communication Foundation; Hastelloy <sup>®</sup> is a brand name of Haynes International Inc. Windows <sup>®</sup> is a registered trade mark of Microsoft Corporation	

## Accessories

Process connection (not part of delivery)		Ordering code
Objednací typ		
blinding plug (external thread) 1/4" – 18 NPT		5002322
blinding plug with venting (external thread) 1/4" – 18 NPT		1003217
screw 7/16" UNF X 1 3/4" A2 (4 pcs needed), the screw is only used to connect the valve set		1004639
Universal holder		
Weight	550 g	
Material	black steel	
Ordering code	5029224	



**Programming kits for HART®-devices: CIS 150-RS232 and CIS 150-USB**

CIS 150-RS232



CIS 150-USB



Package contents

Programming software "Config 3.0" on CD  
operating manual

**CIS 150-RS232:**  
HART® modem (MH-02 Manufacturer: JSP NOVÁ PAKA)  
connecting cable BNC-Testtip (for measuring device)  
9-pin connecting cable RS232 (for PC)

**CIS 150-USB:**  
Adapt 5  
connecting cable BNC-Testtip (for measuring device)  
USB connecting cable – Type A to Type B – (for PC)

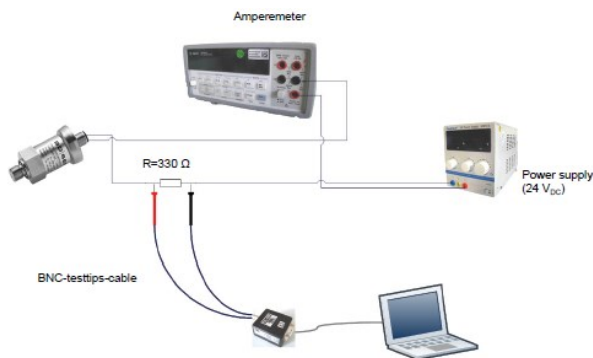
System requirement

For the installation of the software, a Windows® PC (95, 98, ME, 2000, NT, XP, 7, 10, 11) with serial interface (RS 232) or USB-interface is required

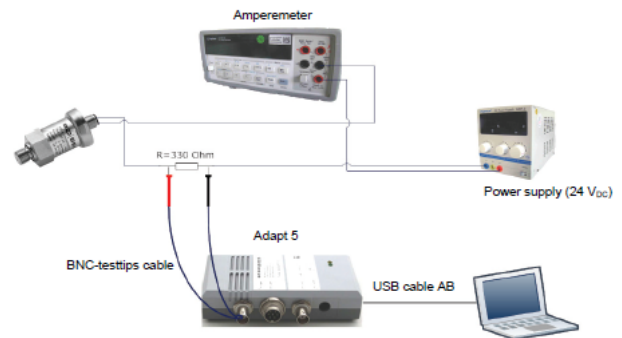
**Please read the operating manual carefully before installing and starting up the programming kit.**

**Wiring diagrams**

**CIS 150-RS232:**



**CIS 150-USB interface:**



**Ordering codes**

**Version:**

**HART(R) modem with RS232 connection cable for PC**

**Adapt 5 with USB connection cable for PC**

**Ordering code:**

**CIS 150-RS232**

**CIS 150-USB**

*Windows® is a registered trade mark of Microsoft Corporation*



Flange DN 25/PN 40 DIN 2501 (without seals)	
Flange DN 40/PN 40 DIN 2501 (without seals)	
Flange DN 50/PN 40 DIN 2501 (without seals)	
Flange DN 80/PN 16 DIN 2501 (without seals)	
Flange DN 100/PN 16 DIN 2501 (without seals)	
Customer	
<b>Mounting bracket</b>	
Universal holder for XMD	5029224
<b>Factory Calibration Certificate</b>	
Table of measured values - printed on Warranty Certificate	
<b>Accessories</b>	
HART® modem HM02 + USB including SW CONFIG	5031837

0,-...without additional charge

On request...in accordance with the producer

!!! When you make an order it is necessary to fill the questionnaire for transmitters with separators!!!

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product;

detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.

