



Pressure Transmitter HDA 4100 Ex applications

Absolute pressure

Accuracy 0.5 %

Intrinsically Safe, Dustproof enclosure
Non-Sparking
ATEX, IECEx, double approval



Description:

The pressure transmitter HDA 4100 is a compact pressure transmitter (intrinsically safe version) which is used to measure absolute pressures in hydraulics and pneumatics. The double approval in accordance with ATEX and IECEx enables universal, almost worldwide utilisation of the devices in potentially explosive atmospheres.

As with the industry model, the ATEX/IECEx version HDA 4100 has a ceramic measurement cell with thick-layer strain gauge.

Intended fields of application are, for example, in the oil and gas industry, in mining, on gas turbines or in locations with high dust contamination, e.g. in mills.

Protection types and applications:

ATEX

I M1	Ex ia	I	Ma
II 1G	Ex ia	II C	T6 Ga
II 1/2G	Ex ia	II C	T6 Ga/Gb
II 2G	Ex ia	II C	T6 Gb
II 3G	Ex nA	II C	T6, T5, T4 Gc
II 3G	Ex ic	II C	T6, T5, T4 Gc
II 1D	Ex ia	II C	T85 °C Da
II 1D	Ex ta	II C	T80/90/100 °C
			T ₅₀₀ 90/T ₅₀₀ 100/T ₅₀₀ 110 °C Da
II 2D	Ex tb	II C	T80/T90/T100 °C Db
II 3D	Ex tc	II C	T80/T90/T100 °C Dc
II 3D	Ex ic	II C	T80/T90/T100 °C Dc

IECEx

Ex ia	I	Ma
Ex ia	II C	T6 Ga
Ex ia	II C	T6 Ga/Gb
Ex ia	II C	T6 Gb
Ex nA	II C	T6, T5, T4 Gc
Ex ic	II C	T6, T5, T4 Gc
Ex ia	II C	T85 °C Da
Ex ta	II C	T80/T90/T100 °C Da
		T ₅₀₀ 90/T ₅₀₀ 100/T ₅₀₀ 110 °C Da
Ex tb	II C	T80/T90/T100 °C Db
Ex tc	II C	T80/T90/T100 °C Dc
Ex ic	II C	T80/T90/T100 °C Dc

Technical data:

Input data

Measuring ranges	bar	1	2.5
Overload pressures	bar	3	8
Burst pressure	bar	5	12
Mechanical connection	G1/4 A ISO 1179-2		
Tightening torque, recommended	20 Nm		
Parts in contact with fluid	Sensor: Ceramic Mech. connection: 1.4301 Seal: FKM/EPDM		

Output data

Output signal, permitted load resistance	4 .. 20 mA, 2-conductor R _{Lmax} = (U _B - 12 V) / 20 mA [kΩ]		
Accuracy acc. to DIN 16086, terminal based	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.		
Accuracy, B.F.S.L.	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.		
Temperature compensation	≤ ± 0.02 % FS / °C typ.		
Zero point	≤ ± 0.03 % FS / °C max.		
Temperature compensation	≤ ± 0.02 % FS / °C typ.		
Span	≤ ± 0.03 % FS / °C max.		
Non-linearity acc. to DIN 16086, terminal based	≤ ± 0.5 % FS max.		
Hysteresis	≤ ± 0.4 % FS max.		
Repeatability	≤ ± 0.1 % FS		
Rise time	≤ 1.5 ms		
Long-term drift	≤ ± 0.3 % FS typ. / year		

Environmental conditions

Compensated temperature range	-25 .. +85 °C		
Operating/ambient temperature range	T6, T80/T85 °C, T ₅₀₀ 90 °C T5, T90 °C, T ₅₀₀ 100 °C T100 °C, T ₅₀₀ 110 °C T4	Ta = -20 .. +60 °C Ta = -20 .. +70 °C Ta = -20 .. +80 °C Ta = -20 .. +85 °C	
Storage temperature range	-40 .. +100 °C		
Fluid temperature range ¹⁾²⁾	-40 .. +60 °C / -20 .. +60 °C		

CE mark

Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class acc. to DIN EN 60529 ³⁾	IP 67	

Relevant data for Ex applications

	Ex ia, ic	Ex nA, ta, tb, tc
Supply voltage	12 .. 28 V DC	12 .. 28 V DC
Max. input current	li = 100 mA	
Max. input power	Pi = 1 W	Max. power consumption ≤ 1 W
Connection capacitance of the sensor	Ci ≤ 22 nF	
Inductance of the sensor	Li = 0 mH	
Insulation voltage ⁴⁾	50 V AC, with integrated overvoltage protection acc. to EN 61000-6-2	

Other data

Residual ripple of supply voltage	≤ 5 %
Current consumption	≤ 25 mA
Life expectancy	> 10 million cycles (0 .. 100 % FS)
Weight	~ 150 g

Note: Reverse polarity protection of the supply voltage, excess voltage, overvoltage and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range; B.F.S.L. = Best Fit Straight Line

¹⁾ -20 °C with FKM seal or EPDM seal, -40 °C on request

²⁾ With M12x1 male connector, only up to -25 °C

³⁾ With mounted mating connector in corresponding protection class

⁴⁾ 500 V AC on request

Fields of application:

Code no. for use in model code	1		9	A	C	
ATEX KEMA 05 ATEX 1016X	I M1 Ex ia I Ma	II 1G Ex ia IIC T6 Ga II 1/2G Ex ia IIC T6 Ga/Gb II 1D Ex ia IIIC T85 °C Da	II 2G Ex ia IIC T6 Gb	II 3G Ex nA IIC T6, T5 Gc	II 1D Ex ta IIIC T80/T90 °C T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da II 2D Ex tb IIIC T80/T90 °C Db	II 3G Ex ic IIC T6, T5 Gc II 3D Ex ic IIIC T80/T90 °C Dc
IECEX KEM 08.0014X	Ex ia I Ma	Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIIC T85 °C Da	Ex ia IIC T6 Gb	Ex nA IIC T6, T5 Gc	Ex ta IIIC T80/T90 °C T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da Ex tb IIIC T80/T90 °C Db	Ex ic IIC T6, T5 Gc Ex ic IIIC T80/T90 °C Dc
Application fields	Mining Protection type: intrinsically safe ia with barrier	Gases/conductive dust Protection type: intrinsically safe ia with barrier	Gases Protection type: intrinsically safe ia with barrier	Gases Protection type: non-sparking nA	Conductive dust Protection type: dustproof enclosure	Gases/conductive dust Protection type: intrinsically safe ic with barrier
Electrical connection (see model code)	5, 6	5, 6	5, 6	6	6	5, 6

Instruments for other protection types and zones (see cover) are available upon request.

Model code:

HDA 4 1 4 X - A - XXXX - ENX - 000 - X 1

Mechanical connection

4 = G1/4 A ISO 1179-2

Electrical connection

5 = male, EN175301-803, 3 pole + PE
(IP 67 mating connector supplied)
6 = male M12x1, 4 pole
(mating connector not supplied)

Output signal

A = 4 .. 20 mA, 2-conductor

Measuring ranges in bar

01.0; 02.5

Approval

E = ATEX
IECEX

Insulation voltage

N = 50 V AC to housing

Protection types and applications (code)

	ATEX	IECEX
1 =	I M1 Ex ia I Ma II 1G Ex ia IIC T6 Ga II 1/2 G Ex ia IIC T6 Ga/Gb II 2 G Ex ia IIC T6 Gb II 1D Ex ia IIIC T85 °C Da	Ex ia I Ma Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb Ex ia IIC T6 Gb Ex ia IIIC T85 °C Da
9 =	II 3G Ex nA IIC T6, T5 Gc	Ex nA IIC T6, T5 Gc
A =	II 1D Ex ta IIIC T80/T90 °C T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da II 2D Ex tb IIIC T80/T90 °C Db	Ex ta IIIC T80/T90 °C Da T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da Ex tb IIIC T80/T90 °C Db
C =	II 3G Ex ic IIC T6, T5 Gc II 3D Ex ic IIIC T80/T90 °C Dc	Ex ic IIC T6, T5 Gc Ex ic IIIC T80/T90 °C Dc

Only in conjunction with electr. connection "6" and the impact protection metal safety sleeve (see dimensions)

Only in conjunction with electr. connection "6" and the impact protection metal safety sleeve (see dimensions)

Modification number

000 = standard

Sealing material (in contact with fluid)

F = FKM seal (e.g. for hydraulic oils)
E = EPDM seal (e.g. for refrigerants)

Connection material (in contact with fluid)

1 = stainless steel

