



Pressure Transmitter HDA 4100 Ex applications

Absolute pressure

Accuracy 0.5 %

Intrinsically Safe
Non-Incendive
CSA approval



Description:

The pressure transmitter HDA 4100 in CSA version has been specially developed for the North American market for use in potentially explosive atmospheres and is based on the HDA 4000 series.

As with the industry model, the HDA 4100 in CSA version has a ceramic measurement cell with thick-layer strain gauge for measuring absolute pressure in the low pressure range.

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

Protection types and applications:

Intrinsically safe:

- Class I Div. 1 Group A, B, C, D T6 [C, US]
- Class I Zone 0 AEx ia IIC T6 [US]
- Ex ia IIC T6 [C]
- Class I, II, III Div. 1 Group A, B, C, D, E, F, G T6 [C, US]

Non-incendive:

- Class I Div. 2 Group A, B, C, D T4A [C, US]
- Class I Zone 2 AEx nL IIC T4 [US]
- Class I Zone 2 Ex nL IIC T4 [C]
- Class I, II, III Div. 2 Group A, B, C, D, F, G T4A [C, US]
- Class I Zone 2 AEx nA II T4 [US]
- Class I Zone 2 Ex nA II T4 [C]

Technical data:

Input data

Measuring ranges ¹⁾	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 Al2O3	
	Mech. connector:	1.4301	
	Seal:	FKM/EPDM	

Output data

Output signal, permitted load resistance	4 .. 20 mA, 2-conductor $R_{Lmax} = (U_B - 12 V) / 20 \text{ mA} [\text{k}\Omega]$
Accuracy acc. to DIN 16086, terminal based	$\leq \pm 0.5 \% \text{ FS typ.}$ $\leq \pm 1.0 \% \text{ FS max.}$
Accuracy, B.F.S.L.	$\leq \pm 0.25 \% \text{ FS typ.}$ $\leq \pm 0.5 \% \text{ FS max.}$
Temperature compensation Zero point	$\leq \pm 0.02 \% \text{ FS} / ^\circ\text{C typ.}$ $\leq \pm 0.03 \% \text{ FS} / ^\circ\text{C max.}$
Temperature compensation Span	$\leq \pm 0.02 \% \text{ FS} / ^\circ\text{C typ.}$ $\leq \pm 0.03 \% \text{ FS} / ^\circ\text{C max.}$
Non-linearity acc. to DIN 16086, terminal based	$\leq \pm 0.5 \% \text{ FS max.}$
Hysteresis	$\leq \pm 0.4 \% \text{ FS max.}$
Repeatability	$\leq \pm 0.1 \% \text{ FS}$
Rise time	$\leq 1.5 \text{ ms}$
Long-term drift	$\leq \pm 0.3 \% \text{ FS typ.} / \text{ year}$

Environmental conditions

Compensated temperature range	-25 .. +85 °C
Operating/ambient temperature range	Intrinsically safe: Ta = -20 .. +60 °C Non-incendive: Ta = -20 .. +85 °C
Storage temperature range	-40 .. +100 °C
Fluid temperature range ²⁾	Intrinsically safe: Ta = -40 .. +60 °C / -20 .. +60 °C Non-incendive: Ta = -40 .. +85 °C / -20 .. +85 °C
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz	$\leq 10 \text{ g} (1/2\text{-}14\text{NPT Conduit})$ $\leq 20 \text{ g} (\text{male connector})$
Protection class acc. to DIN EN 60529 / NEMA ³⁾ ISO 20653	IP 65; NEMA4 (male connector) IP6K9K (1/2-14NPT Conduit)

Relevant data for Ex applications

Supply voltage	12 .. 28 V DC
Max. input current	li = 100 mA
Max. input power	up to 28 V: Pi = 1 W
Connection capacitance of the sensor	Ci \leq 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	$\leq 5 \%$
Current consumption	$\leq 25 \text{ mA}$
Life expectancy	> 10 million cycles, 0 .. 100 % FS
Weight	~ 180 g; ~ 300 g (1/2-14NPT Conduit)

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

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

¹⁾ psi measuring ranges on request

²⁾ -20 °C with FKM or EPDM seal, -40 °C on request

³⁾ With mounted mating connector in corresponding protection class

⁴⁾ 500 V AC on request

Fields of application:

Group	1	2	3	4
Protection type	Intrinsically safe Gases and dusts	Intrinsically safe Gases	Non-incendive (with field wiring) Gases	Non-incendive Gases and dusts
Certificate	CSA 1760344			
Application fields	Intrinsically safe - Class I, II, III Division 1 Group A, B, C, D, E, F, G T6	Intrinsically safe - Class I Division 1 Group A, B, C, D T6 - Class I Zone 0 AEx ia IIC T6 - Ex ia IIC T6	Non-incendive - Class I Division 2 Group A, B, C, D T4A - Class I Zone 2 AEx nL IIC T4 - Class I Zone 2 Ex nL IIC T4	Non-incendive - Class I, II, III Division 2 Group A, B, C, D, F, G T4A - Class I Zone 2 Ex nA II T4 - Class I Zone 2 AEx nA II T4 IP 6x
Electrical connection	9	5, 9, A	5, 9, A	9
Code for model code	A	B		C

Model code:

HDA 4 1 4 X - A - XXXX - C N X - 000 - X 1 (2m)

Mechanical connection

4 = G1/4 A ISO 1179-2

Electrical connection

5 = male EN175301-803

3 pole + PE
(IP67 mating connector supplied)

9 = 1/2-14 NPT Conduit (male thread),
single leads

A = male EN175301-803

3 pole + PE
(1/2" Conduit female thread)

Output signal

A = 4 .. 20 mA, 2-conductor

Measuring ranges in bar

01.0; 02.5

Approval

C = CSA

Insulation voltage

N = 50 V AC to housing

Protection types and applications (code)

A = Group 1

B = Group 2 and 3

C = Group 4

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)

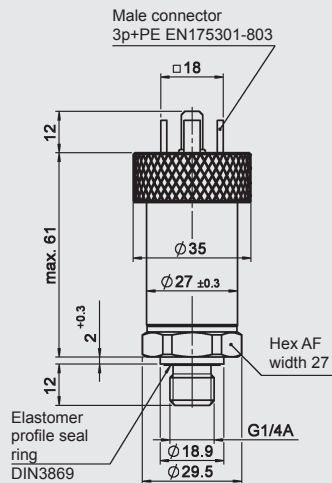
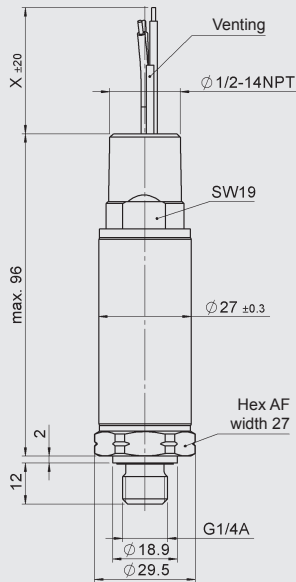
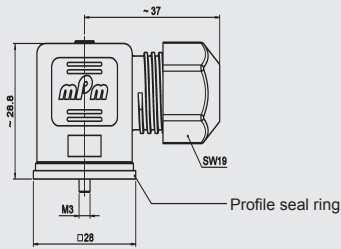
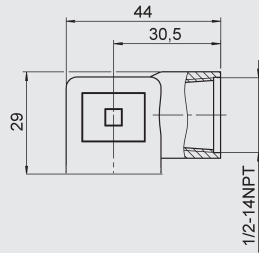
Connection material (in contact with fluid)

1 = stainless steel

Cable length in m (only for electr. connection code 9)

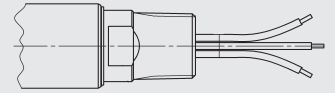
Standard = 2 m

Dimensions:



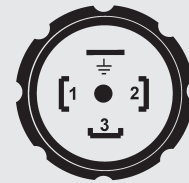
Pin connections:

Conduit (single leads)



Lead	HDA 41X9-A
green	Signal +
white	Signal -
green-yellow	Housing

EN175301-803



Pin	HDA 41X5-A	HDA 41XA-A
1	Signal +	Signal +
2	Signal -	Signal -
3	n.c.	n.c.
L	Housing	Housing

Note:

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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