



Electronic Pressure Transmitter

HDA 4100

IECEX Intrinsically Safe
IECEX Dustproof Enclosure
IECEX Non-sparking



Description:

The pressure transmitter HDA 4100 in IECEx Intrinsically Safe version has been specially developed for use in potentially explosive atmospheres for absolute measurement in the low pressure range and is based on the HDA 4000 series.

As with the industrial version, the HDA 4100 with IECEx Intrinsically Safe approval has the field-proven ceramic measuring cell with thick-film strain gauge without interior seals.

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

Protection types and applications:

Ex ia I Ma

Ex ia IIC T6 Ga

Ex ia IIC T6 Ga/Gb

Ex ia IIC T6 Gb

Ex nA IIC T6, T5, T4 Gc

Ex ic IIC T6, T5, T4 Gc

Ex ta IIIC T80/90/100°C Da
T₅₀₀ 90/100/110°C Da

Ex tb IIIC T80/90/100°C Db

Ex tc IIIC T80/90/100°C Dc

Ex ic IIIC T80/90/100°C Dc

Ex ia IIIC T85°C Da

Special features:

- Accuracy: $\leq \pm 0.5\%$ FS typ.
- Certificate:
IECEX TSA 09.0041X /
IECEX KEM 08.0014X
- Output signal 4 .. 20 mA
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

Input data	
Measuring ranges	1; 2.5 bar
Overload pressures	3; 8 bar
Burst pressures	5; 12 bar
Mechanical connection	G1/4 A DIN 3852
Torque value	20 Nm
Parts in contact with medium	Sensor: Ceramic Mech. connection: 1.4301 Seal: FPM / EPDM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax} = (U_B - 12 V) / 20 mA [k\Omega]$
Accuracy to DIN 16086, max. setting	$\leq \pm 0.5\%$ FS typ. $\leq \pm 1.0\%$ FS max.
Accuracy at minimum setting (B.F.S.L.)	$\leq \pm 0.25\%$ FS typ. $\leq \pm 0.5\%$ FS max.
Temperature compensation zero point	$\leq \pm 0.02\%$ FS / °C typ. $\leq \pm 0.03\%$ FS / °C max.
Temperature compensation over range	$\leq \pm 0.02\%$ FS / °C typ. $\leq \pm 0.03\%$ FS / °C max.
Non-linearity at max. setting to DIN 16086	$\leq \pm 0.5\%$ FS max.
Hysteresis	$\leq \pm 0.4\%$ FS max.
Repeatability	$\leq \pm 0.1\%$ FS
Rise time	≤ 1.5 ms
Long term drift	$\leq \pm 0.3\%$ FS typ. / year
Environmental conditions	
Compensated temperature range	-20 .. +85 °C
Operating temperature range	-20 .. +60 °C
Storage temperature range	-40 .. +100 °C
Fluid temperature range ¹⁾	-40 .. +60 °C / -20 .. +60 °C
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 / 36
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 65 (for male EN 175301-803 (DIN 43650) and Binder 714 M18) IP 67 (for M12x1 male, when an IP 67 female connector is used)
Relevant data for Ex applications	
Supply voltage	U _i = 12 .. 28 V
Max. input current	i _i = 100 mA
Max. input power	P _i = 1 W
Connection capacitance of the sensor	C _i = ≤ 22 nF
Inductance of the sensor	L _i = 0 mH
Insulation voltage ²⁾	50 V AC, with integrated overvoltage protection EN 61000-6-2
Other data	
Residual ripple of supply voltage	$\leq 5\%$
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 180 g

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

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

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

²⁾ 500 V AC on request

Areas of application:

Protection types and applications		Ex ia I Ma	Ex ia IIC T6 Ga Ex ia IIC T6 Ga/Gb	Ex ia IIC T6 Gb	Ex nA IIC T6 Gc	Ex ta IIIC T80°C T ₅₀₀ T90°C Da Ex tb IIIC T80°C Db	Ex ic IIC T6 Gc Ex ic IIIC T80°C Dc	Ex ia IIIC T85° C Da
Zones / Categories		Equipment level standard Ma Mining Protection class: intrinsically safe ia with barrier	Equipment level standard Ga, Ga/Gb Gases Protection class: intrinsically safe ia with barrier	Equipment level standard Gb Gases Protection class: intrinsically safe ia with barrier	Equipment level standard Gc Gases Protection class: non-sparking nA	Equipment level standard Da, Db Conductive dust Protection class: Dustproof enclosure	Equipment level standard Gc, Dc Gases/conductive dust Protection class: Intrinsically safe ic with barrier	Equipment level standard Da Conductive dust Protection class: intrinsically safe ia with barrier
Electrical connection		4, 5, 6	4, 5, 6	4, 5, 6	6	6	4, 5, 6	4, 5, 6
Code (see model code)	IECEX	IECEX Australia						
1	✓	✓	✓	✓	✓			
9	✓				✓			
A	✓					✓		
C	✓						✓	
D	✓		✓	✓	✓			✓

Certificate numbers: IECEx TSA 09.0041X, IECEx KEM 08.0014X

Devices in the ignition protection class "Dustproof enclosure" for the protection types Ex ta IIIC T80/90/100° C Da T500T90/T100/T110°C Da, Ex tb IIIC T80/90/100°C Db and Ex tc IIIC T80/90/100°C Dc are available with flying leads on request. Devices in the ignition protection class "non-sparking" for protection type Ex nA IIC T6, T5, T4 Gc are available with flying leads on request.

Model code:

HDA 4 1 4 X - A - XXXX - I N X - 000 - X 1

Mechanical connection

4 = G1/4 A DIN 3852

Electrical connection

4 = Male, 4 pole Binder series 714 M18 (connector not supplied)

5 = Male, 3 pole + PE, EN 175301-803 (DIN 43650) (connector supplied)

6 = Male, M12x1, 4 pole (connector not supplied)

Signal

A = 4 .. 20 mA, 2 conductor

Pressure ranges in bar

01.0; 02.5;

Approval

I = IECEx

Insulation voltage

N = 50 V AC

Protection types and applications (code)

1 = Ex ia I Ma
Ex ia IIC T6 Ga
Ex ia IIC T6 Ga/Gb
Ex ia IIC T6 Gb

9 = Ex nA IIC T6 Gc (only in conjunction with electr. connection "6")*

A = Ex ta IIIC T80°C T₅₀₀ T90°C Da (only in conjunction with electr. connection "6")*
Ex tb IIIC T80°C Db

C = Ex ic IIC T6 Gc
Ex ic IIIC T80°C Dc

D = 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

Modification number

000 = Standard

Seal material (in contact with fluid)

F = FPM seal (e.g.: for hydraulic oils)

E = EPDM seal (e.g.: for refrigerants)

Material of connection (in contact with fluid)

1 = Stainless steel

Notes:

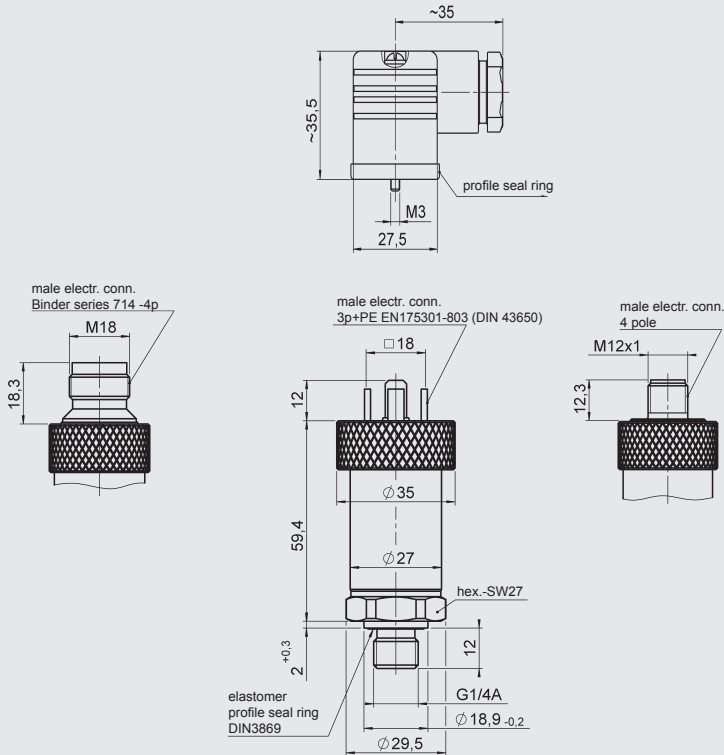
* For design and electrical connection see device dimensions

Accessories:

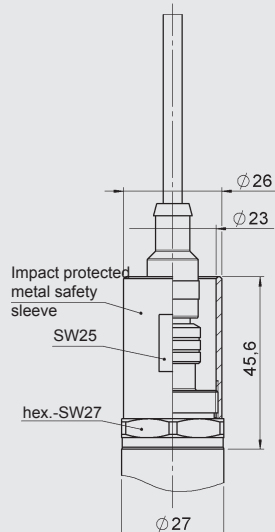
Appropriate accessories, such as electrical connectors, can be found in the Accessories brochure.

Dimensions:

Protection types and applications: (code): 1, C, D



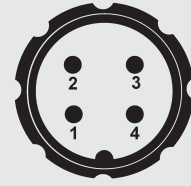
Protection types and applications (code): 9, A



The impact protected metal safety sleeve is included. A straight female connector is required for electrical connection; e.g. female connector M12x1, 4 pole, straight, with 3m shielded cable: ZBE 06S-03, Part No. 6098243

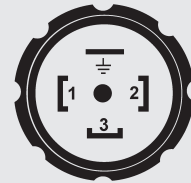
Pin connections:

Binder series 714 M18



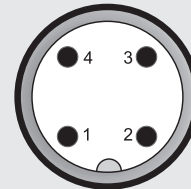
Pin	HDA 41x4-A
1	n.c.
2	Signal +
3	Signal -
4	n.c.

EN 175301-803 (DIN 43650)



Pin	HDA 41x5-A
1	Signal +
2	Signal -
3	n.c.
⊥	Housing

M12x1, 4 pole



Pin	HDA 41x6-A
1	Signal +
2	n.c.
3	Signal -
4	n.c.

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.