



Pressure Transmitter HDA 4400 Ex applications

Relative pressure

Accuracy 0.5 %

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



Description:

The pressure transmitter HDA 4400 in intrinsically safe version has been specially developed for use in potentially explosive atmospheres and is based on the HDA 4000 series. The double approval in accordance with ATEX and IECEx enables universal, almost worldwide utilisation of the devices.

The pressure port is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

This device is used for applications in which a standard pressure port could become blocked, clogged or frozen by the particular medium used or in processes where the medium changes regularly and any residues could cause mixing or contamination of the media.

Intended fields of application are, for example, in the oil and gas industry, in mining 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	IIC T6 Ga
II 1/2G	Ex ia	IIC T6 Ga/Gb
II 2G	Ex ia	IIC T6 Gb
II 1D	Ex ia	IIIC T85 °C Da
II 1D	Ex ta	IIIC T80/90/100 °C
		T ₅₀₀ 90/ T ₅₀₀ 100/ T ₅₀₀ 110 °C Da
II 2D	Ex tb	IIIC T80/T90/T100 °C Db
II 3G	Ex nA	IIC T6, T5, T4 Gc
II 3G	Ex ic	IIC T6, T5, T4 Gc
II 3D	Ex tc	IIIC T80/T90/T100 °C Dc
II 3D	Ex ic	IIIC T80/T90/T100 °C Dc

IECEx

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
Ex ta	IIIC T80/T90/T100 °C
	T ₅₀₀ 90/ T ₅₀₀ 100/ T ₅₀₀ 110 °C Da
Ex tb	IIIC T80/T90/T100 °C Db
Ex nA	IIC T6, T5, T4 Gc
Ex ic	IIC T6, T5, T4 Gc
Ex tc	IIIC T80/T90/T100 °C Dc
Ex ic	IIIC T80/T90/T100 °C Dc

Technical data:

Input data

Measuring ranges	bar	4	6	10	16	25	40	100	250	400	600	-1..3
Overload pressures	bar	8	12	20	32	50	80	200	500	800	1000	8
Burst pressure	bar	20	30	50	80	125	200	500	1000	2000	2000	20

Mechanical connection

G1/2 A ISO 1179-2
G1/2 with additional front O-ring seal
G1/4 with additional front O-ring seal

Tightening torque, recommended

20 Nm (G1/4); 45 Nm (G1/2)

Parts in contact with fluid

Stainless steel: 1.4435; 1.4301
Seal: FKM, O-ring: FKM

Pressure transfer fluid

Silicone-free oil

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.
≤ ± 1.0 % FS max.

Accuracy, B.F.S.L.

≤ ± 0.25 % FS typ.
≤ ± 0.5 % FS max.

Temperature compensation

≤ ± 0.015 % FS / °C typ.

Zero point

≤ ± 0.025 % FS / °C max.

Temperature compensation

≤ ± 0.015 % FS / °C typ.

Span

≤ ± 0.025 % FS / °C max.

Non-linearity acc. to DIN 16086, terminal based

≤ ± 0.3 % 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	Ta = -30 .. +60 °C/-20 .. +60 °C
T5, T90 °C, T ₅₀₀ 100 °C	Ta = -30 .. +70 °C/-20 .. +70 °C
T100 °C, T ₅₀₀ 110 °C	Ta = -30 .. +80 °C/-20 .. +80 °C
T4	Ta = -30 .. +85 °C/-20 .. +85 °C

Storage temperature range

-40 .. +100 °C

Fluid temperature range ¹⁾²⁾

Ta = -30 .. +60 °C / -20 .. +60 °C

CE mark

EN 61000-6-1/2/3/4; EN 60079-0/11/15/26/31; EN 50303

Vibration resistance acc. to

≤ 20 g

DIN EN 60068-2-6 at 10 .. 500 Hz

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	
Maximum input power	Pi = 1 W	Max. power consumption ≤ 1W
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 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, -30 °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 4 Z X - A - XXXX - GXX - E N X - 000

Mechanical process connection

Z = flush membrane

Electrical connection

5 = male, EN 175301-803, 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

04.0; 06.0; 0010; 0016; 0025; 0040; 0060; 0100; 0250; 0400; 0600
0003 (-1 .. 3)

Mechanical connection

G01 = G1/2 A ISO 1179-2

G02 = G1/2 with additional front O-ring seal

G04 = G1/4 with additional front O-ring seal (only measuring ranges 0040; 0100; 0250; 0400 and 0600)

Approval

E = ATEX
IECEX

Insulation voltage

N = 50 V AC to housing

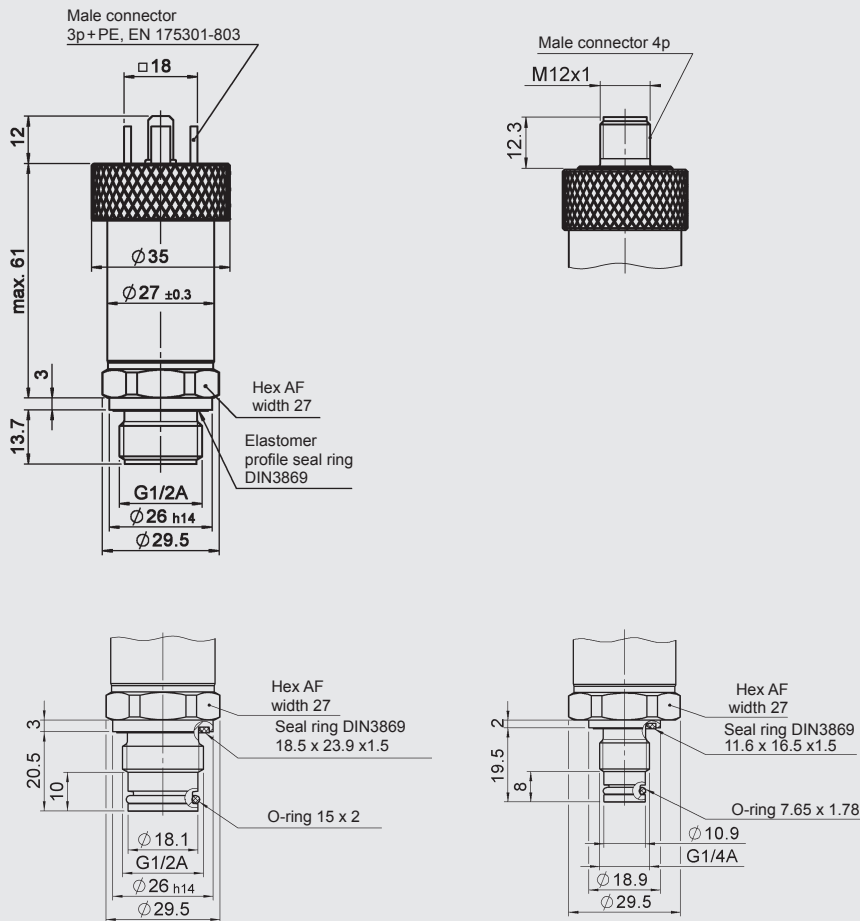
Protection types and applications (code)

	ATEX	IECEX
1 =	I M1 Ex ia I Ma	Ex ia I Ma
	II 1G Ex ia IIC T6 Ga	Ex ia IIC T6 Ga
	II 1/2 G Ex ia IIC T6 Ga/Gb	Ex ia IIC T6 Ga/Gb
	II 2 G Ex ia IIC T6 Gb	Ex ia IIC T6 Gb
	II 1D Ex ia IIIC T85 °C Da	Ex ia IIIC T85 °C Da
9 =	II 3G Ex nA IIC T6, T5 Gc	Ex nA IIC T6, T5 Gc
	Only in conjunction with electr. connection "6" and the impact protection metal safety sleeve (see dimensions)	
A =	II 1D Ex ta IIIC T80/T90 °C T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da	Ex ta IIIC T80/T90 °C Da T ₅₀₀ 90 °C, T ₅₀₀ 100 °C Da
	II 2D Ex tb IIIC T80/T90 °C Db	Ex tb IIIC T80/T90 °C Db
	Only in conjunction with electr. connection "6" and the impact protection metal safety sleeve (see dimensions)	
C =	II 3G Ex ic IIC T6, T5 Gc	Ex ic IIC T6, T5 Gc
	II 3D Ex ic IIIC T80/T90 °C Dc	Ex ic IIIC T80/T90 °C Dc

Modification number

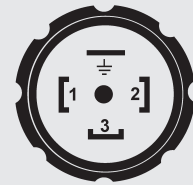
000 = standard

Dimensions:



Pin connections:

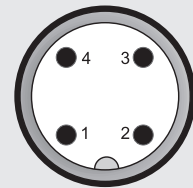
EN 175301-803



Pin HDA 44Z5-A

1	Signal +
2	Signal -
3	n. c.
⊥	PE

M12x1

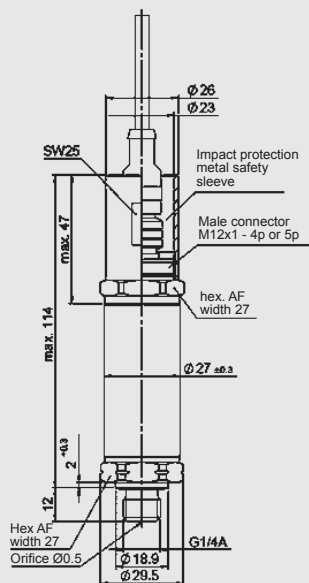


Pin HDA 44Z6-A

1	Signal +
2	n. c.
3	Signal -
4	n. c.

With impact protection metal safety sleeve:

Protection types and applications (code): 9, A



The impact protection metal safety sleeve is included. A straight mating connector is required for electrical connection. E.g. mating connector M12x1, 4 pole, straight, with 3 m shielded cable: ZBE 06S-03, part no. 6098243

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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