



Electronic Pressure Transmitter

HDA 4400

IECEX Intrinsically Safe
IECEX Dustproof Enclosure
IECEX Non-sparking



Description:

The pressure transmitter HDA 4400 IECEx Intrinsically Safe version has been especially developed for use in potentially explosive atmospheres and is based on the HDA 4000 series.

As with the industrial version of the HDA 4400, devices with IECEx Intrinsically Safe approval have a field-proven, all-welded stainless steel measurement cell with thin film strain gauge without internal seal.

Intended areas of application are, for example, in the oil and gas industry, in mining, on gas turbines or in locations with high dust loads, 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
- Robust design
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term properties

Technical data:

Input data	
Measuring ranges ¹⁾	16; 60; 100; 250; 400; 600; 1000 bar
Overload ranges	32; 120; 200; 500; 800; 1000; 1600 bar
Burst pressure	200; 300; 500; 1000; 2000; 2000; 3000 bar
Mechanical connection ¹⁾	G1/2 DIN 3852 (45 Nm)
(Torque value)	G1/4 A DIN 3852 (20 Nm)
Parts in contact with medium	Stainless steel: 1.4542; 1.4571; 1.4435; 1.4404; 1.4301
	Seal: FPM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor R _{Lmax} = (U _B - 12 V) / 20 mA [kΩ]
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	$\leq \pm 0.015$ % FS / °C typ.
Zero point	$\leq \pm 0.025$ % FS / °C max.
Temperature compensation	$\leq \pm 0.015$ % FS / °C typ.
Over range	$\leq \pm 0.025$ % FS / °C max.
Non-linearity at max. setting to DIN 16086	$\leq \pm 0.3$ % FS max.
Hysteresis	$\leq \pm 0.4$ % FS max.
Repeatability	$\leq \pm 0.25$ % 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 ²⁾	-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
	max. power consumption ≤ 1 W
Connection capacitance of the sensor	C _i = ≤ 22 nF
Inductance of the sensor	L _i = 0 mH
Insulation voltage ³⁾	50 V AC, with integrated overvoltage protection EN 61000-6-2
Other data	
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 150 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⁾ 1000 bar only with mechanical connection G 1/2 DIN 3852 and vice versa

²⁾ -20 °C with FPM seal, -40 °C on request

³⁾ 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 protection level Ma Mining Protection class: intrinsically safe ia with barrier	Equipment protection level Ga, Ga/Gb Gases Protection class: intrinsically safe ia with barrier	Equipment protection level Gb Gases Protection class: intrinsically safe ia with barrier	Equipment protection level Gc Gases Protection class: non-sparking nA	Equipment protection level Da, Db Conductive dust Protection class: Dustproof enclosure	Equipment protection level Gc, Dc Gases/conductive dust Protection class: Intrinsically safe ic with barrier	Equipment protection level 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 for use in 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 types Ex nA IIC T6, T5, T4 Gc are available with flying leads on request.

Model code:

HDA 4 4 X X – A – XXXX – I N X – 000

Mechanical connection

- 2 = G1/2 DIN 3852 (only for "1000 bar" pressure range)
- 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

- 0016; 0060; 0100; 0250; 0400; 0600
- 1000 (only in conjunction with mechanical connection type "2")

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 T₅₀₀T90 °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

Notes:

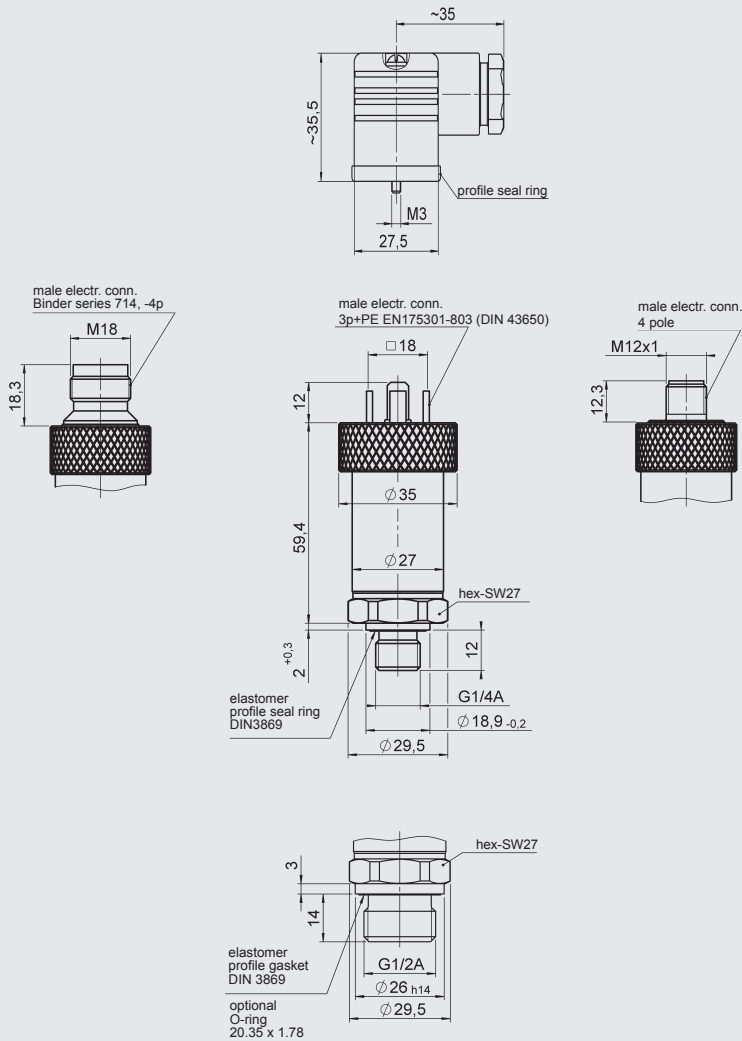
*For design and electrical connection see Dimensions

Accessories:

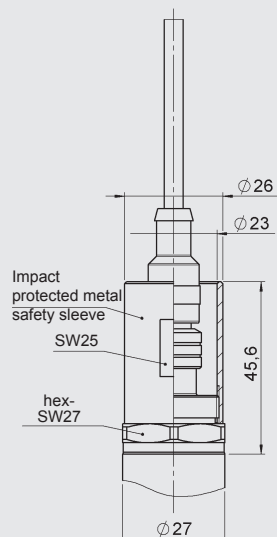
Appropriate accessories, such as electrical connectors, can be found in the Accessories brochure.

Dimensions:

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



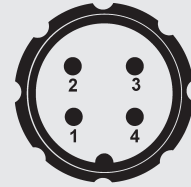
Protection types and applications: (code): 9, A



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

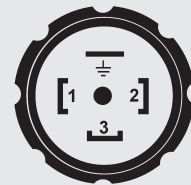
Pin connections:

Binder series 714 M18



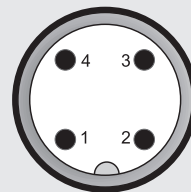
Pin	HDA 44x4-A
1	n.c.
2	Signal +
3	Signal -
4	n.c.

EN 175301-803 (DIN 43650)



Pin	HDA 44x5-A
1	Signal +
2	Signal -
3	n.c.
⊥	Housing

M12x1, 4 pole



Pin	HDA 44x6-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 and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.