Electronic Pressure Transmitter

HDA 4300
with Flush Membrane
IECEx Intrinsically Safe
IECEx Dustproof Enclosure
IECEx Non-sparking

Description:

The pressure transmitter HDA 4300 in 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 HDA 4300, the devices with IECEx Intrinsically Safe approval have the field-proven ceramic measuring cell with thick-film strain gauge.

The pressure connection is achieved with an all-welded 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 connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes regularly and any residues could cause mixing or contamination of the media. Intended areas of application are, for example, the oil and gas industry, in mines, or in locations with high levels of dust, 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
T_{500} 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:

- Pressure connection has a flush membrane
- Accuracy: ≤ ± 0.5 % FS typ.
- Certificate: IECEx KEM 08.0014X
- Robust design
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term properties

Technical data:

Input data		
Measuring ranges	-1 .. 1;-1 .. 9;1; 2.5; 4; 6; 10; 16; 25 bar	
Overload pressures	3; 32; 3; 8; 12; 20; 32; 50; 80 bar	
Burst pressure	5; 48; 5; 12;18; 30; 48; 75; 120 bar	
Mechanical connection	G1/2 A DIN 3852 G1/2 with additional front O-ring seal G1/4 with additional front O-ring seal	
Pressure transfer fluid	Silicon-free oil	
Torque value	45 Nm for G1/2, G1/2 A 20 Nm for G1/4	
Parts in contact with medium [1]	Stainless steel: Seal: O-ring:	1.4435; 1.4301 FPM FPM
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	≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.	
Accuracy at minimum setting (B.F.S.L.)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.	
Temperature compensation zero point	≤ ± 0.02 % FS / °C typ. ≤ ± 0.03 % FS / °C max.	
Temperature compensation over range	≤ ± 0.02 % FS / °C typ. ≤ ± 0.03 % FS / °C max.	
Non-linearity at max. setting to DIN 16086	≤ ± 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	-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 acc. 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)) IP 67 (for M12x1 male, when an IP 67 female connector is used)	
Relevant data for Ex applications	**Ex ia, ic**	**Ex nA, ta, tb, tc**
Supply voltage	Ui = 12 .. 28 V	12 .. 28 V
Max. input current	Ii = 100 mA	
Max. input power	Pi = 1 W	max. power consuption ≤ 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	~ 180 g	

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
B.F.S.L. = Best Fit Straight Line
[1] Other seal materials on request
[2] -20 °C with FPM seal, -40 °C on request
[3] 500 V AC on request

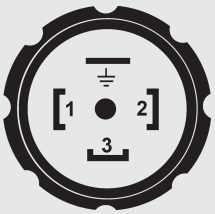
Areas of application:

Code for use in Model code	D			9	A	C
Protection types and applications	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 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
Certificate	IECEx KEM 08.0014X					
Zones / Categories	Equipment protection level Ma Mining Protection class: intrinsically safe ia with barrier	Equipment protection level Ga, Ga/Gb, Da Gases/conductive dust 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
Electrical Connection	4, 5, 6	4, 5, 6	4, 5, 6	6	6	4,5,6

Devices in the ignition protection class "Dustproof enclosure" for the protection types Ex ta IIIC T80/90/100° C Da T_{500}T90/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.

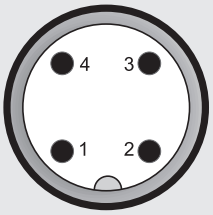
Pin connections:

EN 175301-803 (DIN 43650)



Pin	HDA 43Z5-A
1	Signal +
2	Signal -
3	n.c.
⊥	Housing

M12x1, 4 pole



Pin	HDA 43Z6-A
1	Signal +
2	n.c.
3	Signal -
4	n.c.

Model code:

HDA 4 3 Z X – A – XXXX – XXX – I N X – 000

Mechanical process connection
Z = Flush membrane

Electrical connection
5 = Male 3 pole + PE, EN 175301-803 (DIN 43650) (female connector supplied)
6 = Male M12x1, 4 pole (female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor

Pressure ranges in bar
0001 (-1..1); 01.0; 02.5; 04.0; 06.0; 0010; 0016; 0025; 0040

Mechanical connection
G01 = G1/2 A, DIN 3852
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal

Approval
I = IECEx

Insulation voltage
N = 50 V AC

Protection types and applications (code)
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
9 = Ex nA IIC T6 Gc (only in conjunction with electr. connection “6“)*
A = Ex ta IIIC T80 °C T_{500}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

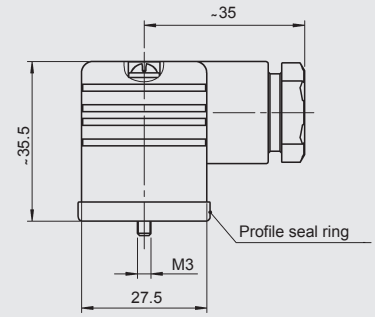
Modification number
000 = Standard

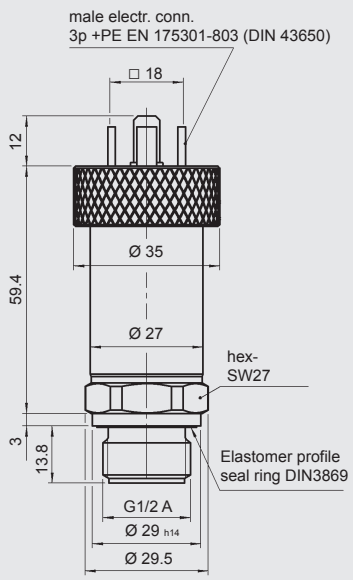
Notes:
* For design and electrical connection see device dimensions

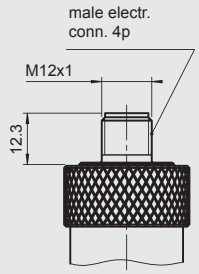
Accessories:
Appropriate accessories, such as electrical female connectors, can be found in the Accessories brochure.

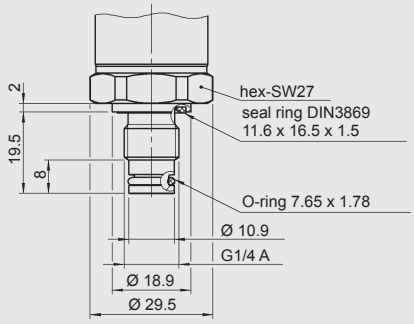
Dimensions:

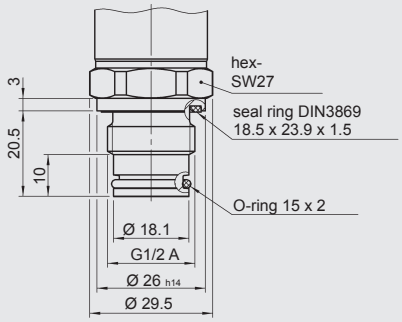
Protection types and applications (code): D, C



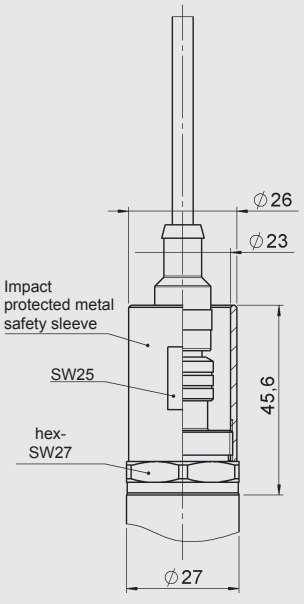








Protection types and applications (code): 9, A



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

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.

HYDAC ELECTRONIC GMBH
Hauptstraße 27, D-66128 Saarbrücken
Telephone +49 (0)6897 509-01
Fax +49 (0)6897 509-1726
E-mail: electronic@hydac.com
Internet: www.hydac.com