HYDAC INTERNATIONAL

Electronic Pressure Transmitter

HDA 4400

ATEX Intrinsically safe

ATEX Energy limited circuits

Description:

The pressure transmitter HDA 4400 in ATEX version has been specially developed for use in potentially explosive atmospheres and is based on the HDA 4000 series.

As with the industry model, the HDA 4400 in ATEX version has a stainless steel measurement cell with thin-film strain gauge for measuring relative pressure in the high pressure range.

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 zones:

I M1 EEx ia
II 1G EEx ia IIC T6
II 1/2G EEx ia IIC T6
II 2G EEx ia IIC T6
II 3G EEx nL IIC T4
II 3G EEx nA II T4 IP65

II 1D IP6X T80°C
II 3D IP6X T80°C

Special features:

- Accuracy ≤ ± 0.5 % FS typ.
- Certificates:
  KEMA 05ATEX1016 X
  KEMA 05ATEX1021
- Output signal 4 .. 20 mA
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term properties

Technical specifications:

Input data		
Measuring ranges	16; 60; 100; 250; 400; 600 bar	
Overload pressures	32; 120; 200; 500; 800; 1000 bar	
Burst pressures	200; 300; 500; 1000; 2000; 2000 bar	
Mechanical connection	G1/4 A DIN 3852	
Torque value	20 Nm	
Parts in contact with medium	Sensor:	Stainless steel
	Mech. conn.:	< 40 bar 1.4542; 316L ≥ 40 bar 316L; 1.4435; 1.4571; 1.4404
	Seal:	FPM
Output data		
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax} = (U_B - 10\ V) / 20\ mA\ [k\Omega]$	
Accuracy to DIN 16086 Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Accuracy at min. setting (B.F.S.L.)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.	
Temperature compensation Zero point	≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.	
Temperature compensation Over range	≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.	
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.	
Hysteresis	≤ ± 0.4 % FS max.	
Repeatability	≤ ± 0.1 % FS	
Rise time	≤ 1 ms	
Long-term drift	≤ ± 0.3 % FS typ. / year	
Environmental conditions		
Compensated temperature range	T6 / T80: -20 .. +60 °C / T4: -20 .. +85°C	
Operating temperature range	T6 / T80: -20 .. +60 °C / T4: -20 .. +85°C	
Max. ambient temperature T_a	T6 / T80: +60 °C / T4: +85 °C	
Storage temperature range	-40 .. +100 °C	
Media temperature range	T6 / T80: -20 °C .. +60 °C / T4: -20 °C .. +85°C	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 IEC 61241-11	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to DIN 40050	IP 65 (DIN 43650 and Binder 714 M18) IP 67 (M12x1, when an IP 67 connector is used)	
Relevant data for Ex applications		
Supply voltage	12 .. 28 V DC	
Max. supply current	100 mA	
Max. supply capacity	up to 28 V: 1 W	
Connection capacitance of the sensor	≤ 22 nF	
Inductance of the sensor	0 H	
Housing isolation voltage	125 V AC (500 V AC on request)	
Other data		
Residual ripple of supply voltage	≤ 5 %	
Life expectancy	> 10 million cycles 0 .. 100 % FS	
Weight	approx. 150 g	

Note: Reverse polarity protection of the supply voltage, excess voltage, override short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
B.F.S.L. = **B**est **F**it **S**traight **L**ine

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Pin connections:

Binder series 714 M18

Pin	HDA 4444-A
1	n.c.
2	Signal +
3	Signal -
4	n.c.

DIN 43650

Pin	HDA 4445-A
1	Signal +
2	Signal -
3	n.c.
⊥	PE

M12x1

Pin	HDA 4446-A
1	Signal +
2	n.c.
3	Signal -
4	n.c.

Applications:

Code for Model Code	1	1	1	7
Protection Type	I M1 EEx ia	II 1G EEx ia IIC T6 II 1/2G EEx ia IIC T6	II 2G EEx ia IIC T6	II 3G EEx nL IIC T4
Certificate	KEMA 05ATEX1016X	KEMA 05ATEX1016X	KEMA 05ATEX1016X	KEMA 05ATEX1021
Zones / Categories	Group I Category M1 Mining Protection type: intrinsically safe ia with barrier T_a: -20 .. 60°C	Group II Category 1G, 1/2G Gases Protection type: intrinsically safe ia with barrier For use in Zone 0 For mounting to Zone 0 T_a: -20 .. 60°C	Group II Category 2G Gases Protection type: intrinsically safe ia with barrier For use in Zone 1 and 2 T_a: -20 .. 60°C	Group II Category 3G Gases Protection type: nL For use in Zone 2 T_a: -20 .. 85°C
Electrical connection	4, 5, 6	4, 5, 6	4, 5, 6	4, 5, 6

Units for protection types II 1D IP6X T80°C, II 3D IP6X T80°C and II 3G EEx nA II T4 IP65 are available on request.
Please contact our technical sales department.

Model code:

HDA 4 4 4 X – A – XXXX – A N X – 000

Mechanical connection
4 = G1/4 A DIN 3852 (male)

Electrical connection
4 = 4 pole Binder series 714 M18, male (female connector not supplied)
5 = 3 pole + PE, DIN 43650, male (female connector supplied)
6 = M12x1, 4 pole, male (female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor

Pressure ranges in bar
0016; 0060; 0100; 0250; 0400; 0600

Approval
A = ATEX

Isolation voltage *
N = 125 V AC (housing)

Protection types and zones (code) **
1 = I M1 EEx ia IIC T6
II 1G EEx ia IIC T6
II 1/2 G EEx ia IIC T6
II 2G EEx ia IIC T6
7 = II 3G EEx nL IIC T4

Modification number ***
000 = Standard

Notes:

* Instruments with a housing isolation voltage of 500 V AC are available on request.

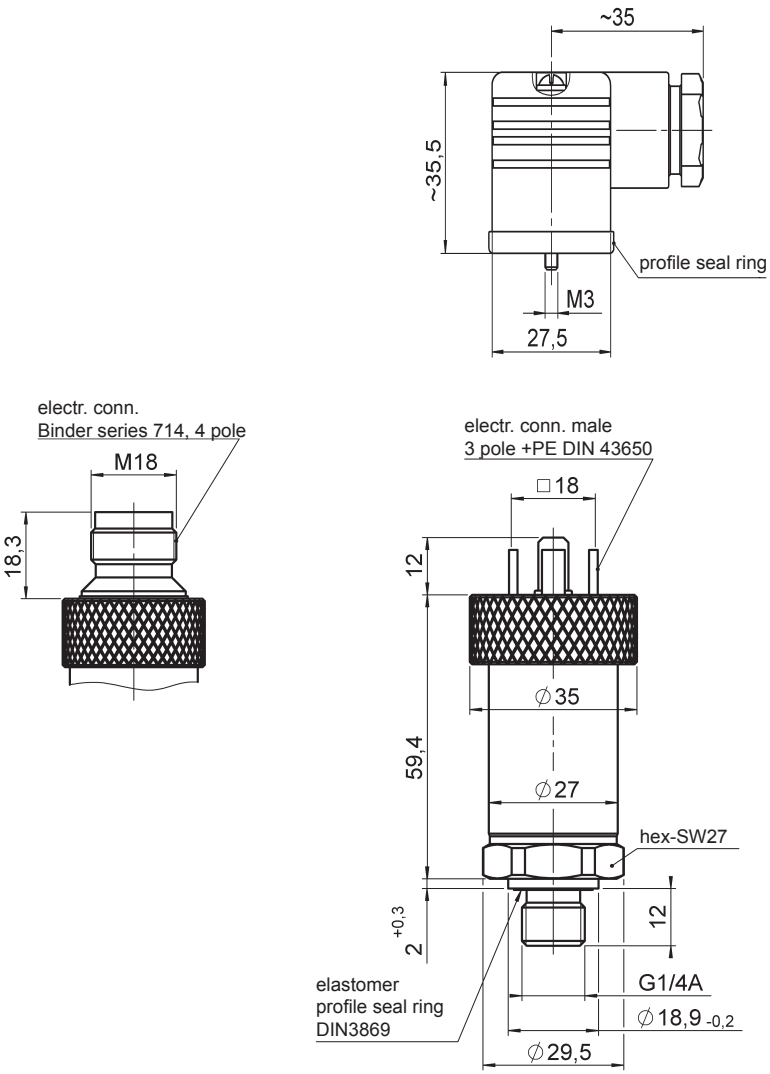
** Instruments for protection types II 1D IP6X T80°C, II 3D IP6X T80°C and II 3G EEx nA II T4 IP65 are available on request.

*** On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories:

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

Dimensions:



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.