HYDAC INTERNATIONAL

Electronic Pressure Transmitter
HDA 4100
CSA Intrinsically safe
CSA Non Incendive

Description:

The pressure transmitter HDA 4100 in CSA version has been specially developed for the North American market for use in potentially explosive atmospheres and is based on the HDA 4000 series.

As with the industry model, the HDA 4100 in CSA version has a ceramic measurement cell with thick-film strain gauge for measuring absolute pressure in the low pressure range.

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

Protection types and zones:

Intrinsically safe:

- Class I Div. 1 Group A, B, C, D T6	[C, US]
- Class I Zone 0 AEx ia IIC T6	[US]
- Ex ia IIC T6	[C]
- Class I, II, III Div. 1 Group A, B, C, D, E, F, G T6	[C, US]

Non incendive:

- Class I Div. 2 Group A, B, C, D T4A	[C, US]
- Class I Zone 2 AEx nL IIC T4	[US]
- Class I Zone 2 Ex nL IIC T4	[C]
- Class I, II, III Div. 2 Group A, B, C, D, F, G T4A	[C, US]
- Class I Zone 2 AEx nA II T4	[US]
- Class I Zone 2 Ex nA II T4	[C]

Special features:

- Accuracy ≤ ± 0.5 % FS typ.
- Certificate: CSA 1760344
- Output signal 4 .. 20 mA
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

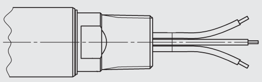
Technical specifications:

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; 9/16-18 UNF 2A; 1/4-18 NPT
Torque value	20 Nm; 20 Nm; 40 Nm
Parts in contact with medium	Sensor: Ceramic Al203 Mech. connection: 1.4571 (1.4462) Seal: FPM / EPDM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax.} = (U_B - 10\ V) / 20\ mA$ [kW]
Accuracy to DIN 16086 Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.
Accuracy at min. 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	≤ ± 0.25 % FS max.
Repeatability	≤ ± 0.1 % FS
Rise time	≤ 1 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	Intrinsically safe: -20 .. +60 °C Non incendive: -20 .. +85°C
Operating temperature range	Intrinsically safe: -20 .. +60 °C Non incendive: -20 .. +85°C
Storage temperature range	-40 .. +100 °C
Fluid temperature range	Intrinsically safe: -20 .. +60 °C Non incendive: -20 .. +85 °C
CSA mark	Certificate No.: CSA 1760344
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to DIN 40050 / NEMA (depending on the electr. connection)	Min. IP 65 Min. NEMA 4
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. 180 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
*psi pressure ranges on request

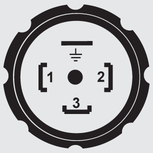
Pin connections:

Conduit (single cores)



Core	HDA 41X9-A
green	Signal +
white	Signal -
green-yellow	PE

DIN 43650



Pin	HDA 41X5-A	HDA 41XA-A
1	Signal +	Signal +
2	Signal -	Signal -
3	n.c.	n.c.
⊥	PE	PE

Applications:

Group	1	2	3	4
Protection Type	Intrinsically safe Gases and dusts	Intrinsically safe Gases	Non incendive (with field cabling) Gases	Non incendive Gases and dusts
Certificate	CSA 1760344			
Zones / Categories	Intrinsically safe - Class I, II, III - Division 1 - Group A, B, C, D, E, F, G T6	Intrinsically safe Ex ia IIC T6 - Class I - Zone 0 - AEx ia IIC T6 - Class I - Division I - Group A, B, C, D T6	Non incendive - Class I - Division 2 - Group A, B, C, D T4A - Class I - Zone 2 - AEx nL IIC T4 - Class I - Zone 2 - Ex nL IIC T4	Non incendive - Class I, II, III - Division 2 - Group A, B, C, D, F, G T4A - Class I - Zone 2 - Ex nA II T4 - Class I - Zone 2 - AEx nA II T4
Electrical connection	9, A	5, 9, A	5, 9, A	9
Code for Model Code	A	B		C

Model code:

HDA 4 1 X X – A – XXXX – C N X – 000 – X 1 XXX

Mechanical connection*
4 = G1/4 A DIN 3852 (male)
7 = 9/16-18 UNF 2A, SAE 6 (male)
8 = 1/4-18 NPT (male)

Electrical connection
5 = 3 pole+ PE, DIN 43650, male (connector supplied)
9 = conduit connection thread (1/2-14 NPT, male)
A = DIN 43650, 3 pole + PE, male (1/2" conduit female thread)

Signal
A = 4 .. 20 mA, 2 conductor

Pressure ranges in bar
01.0; 02.5

Approval
C = CSA

Dielectric withstand voltage **
N = 125 V AC (housing)

Protection types and zones (code)
A = Group 1
B = Group 2 and 3
C = Group 4

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

Cable length in cm (only for electr. connection type 9)
Standard = 122 cm (48 inch)

Notes:

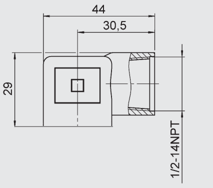
* Instruments with other connections are available on request.

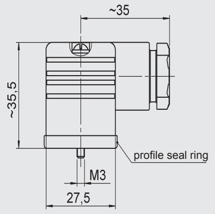
** Instruments with a housing withstand voltage of 500 V AC are available on request.

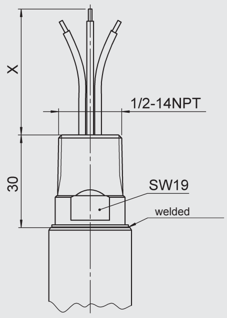
*** On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

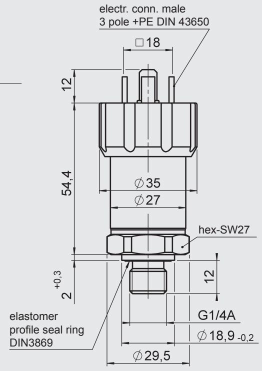
Accessories:
Appropriate accessories, such as electrical connectors can be found in the Accessories section.

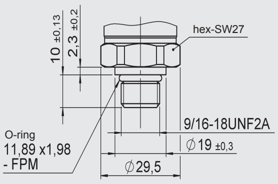
Dimensions:

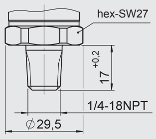












Note:

The information in this brochure refers to the operating conditions and applications described.
For applications and/or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.