



Electronic Pressure Transmitter

HDA 4700

with Flush Membrane
ATEX, IECEx, CSA
Flameproof Enclosure



Description:

The electronic pressure transmitter HDA 4700 with flush membrane is certified in the ignition protection class Flameproof Enclosure to ATEX, IECEx and CSA. The devices have triple approval, ensuring that they are universally suitable for use in potentially explosive environments around the world. Therefore it is no longer necessary to stock multiple devices with separate individual approvals.

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, or in highly viscous media.

Its main applications are in mining and the oil and gas industry, e.g. in underground vehicles, hydraulic power units (HPU), blow-out preventers (BOPs), drill drives or in lubrication systems.

Protection types and applications:

CSA_{US} Explosion Proof – Seal Not Required
Class I Group A, B, C, D, T6, T5
Class II Group E, F, G
Class III
Type 4

ATEX Flame Proof

I M2 Ex d I Mb
II 2G Ex d IIC T6, T5 Gb
II 2D Ex tb IIIC T110 .. 130 °C Db

IECEx Flame Proof

Ex d I Mb
Ex d IIC T6, T5 Gb
Ex tb IIIC T110 .. 130 °C Db

Special features:

- Accuracy ≤ 0.25 % FS typ.
- Certificates:
ATEX KEMA 10ATEX0100 X
CSA MC 224264
IECEx KEM 10.0053X
- Robust design
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

Input data	
Measuring ranges	40; 60; 100; 250; 400; 600 bar
Overload ranges	80; 120; 200; 500; 800; 1000 bar
Burst pressure	300; 300; 500; 1000; 2000; 2000 bar
Mechanical connection ¹⁾	G1/2 A DIN 3852 G1/2 with add. front O-ring seal
Pressure transfer fluid	Silicon-free oil
Torque value	45 Nm
Parts in contact with medium	Stainless steel: 1.4435; 1.4301 Seal: FPM O-ring: FPM
Conduit, housing material	1.4404; 1.4435 (316L)
Output data	
Output signal, permitted load resistance ²⁾	4 .. 20 mA, 2 conductor $R_{Lmax} = (U_b - 8 V) / 20 \text{ mA [k}\Omega\text{]}$
Accuracy to DIN 16086, max. setting	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Accuracy at minimum setting (B.F.S.L.)	≤ ± 0.15 % FS typ. ≤ ± 0.25 % FS max.
Temperature compensation	≤ ± 0.008 % FS / °C typ.
Zero point	≤ ± 0.015 % FS / °C max.
Temperature compensation	≤ ± 0.008 % FS / °C typ.
Over range	≤ ± 0.015 % FS / °C max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.
Hysteresis	≤ ± 0.1 % FS max.
Repeatability	≤ ± 0.05 % FS
Rise time	≤ 1.5 ms
Long term drift	≤ ± 0.1 % FS typ. / year
Environmental conditions	
Compensated temperature range	T5, T130 °C: -25 .. +80 °C T6, T110 °C: -25 .. +60 °C
Operating temperature range ³⁾	T5, T130 °C: -40 .. +80 °C / -20 .. +80 °C T6, T110 °C: -40 .. +60 °C / -20 .. +60 °C
Storage temperature range	-40 .. +100 °C
Fluid temperature range ³⁾	T5, T130 °C: -40 .. +80 °C / -20 .. +80 °C T6, T110 °C: -40 .. +60 °C / -20 .. +60 °C
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 1 / 31
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529 to ISO 20653	IP 65 (Vented Gauge) IP 69K (Sealed Gauge)
Other data	
Supply voltage	8 .. 30 V DC
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million load cycles, 0 .. 100 % FS
Weight	~ 300 g

Note.: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

B.F.S.L. = Best Fit Straight Line

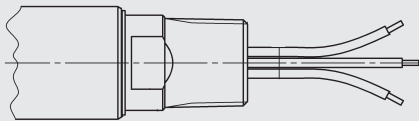
¹⁾ Other mechanical connections on request

²⁾ Other output signals on request

³⁾ -20 °C with FPM seal, -40 °C on request

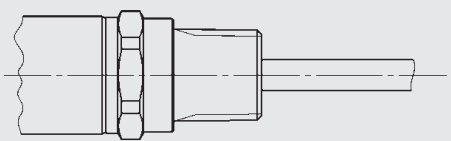
Pin connections:

Conduit (single cores)



Core	HDA 47Z9-A
red	Signal +
black	Signal -
green-yellow	Housing

Conduit (flying leads)



Core	HDA 47ZG-A
white	Signal -
brown	Signal +
green	n.c.
yellow	n.c.

Areas of application:

Approvals	cCSAus: Explosion Proof - Seal not required ATEX: Flame Proof IECEX: Flame Proof
Certificate	ATEX KEMA 10ATEX100X CSA MC 224264 IECEX KEM 10.0053X
Applications / Protection types	cCSAus: Class I Group A, B, C, D, T6; T5 Class II Group E, F, G Class III Type 4 ATEX: I M2 Ex d I Mb II 2G Ex d IIC T6, T5 Gb II 2D Ex tb IIIC T110 .. 130 °C Db IECEX: Ex d I Mb Ex d IIC T6, T5 Gb Ex tb IIIC T110 .. 130 °C Db

Model code:

HDA 4 7 Z X - A - XXXX - XXX - D X - 000 (2m)

Mechanical process connection

Z = Flush membrane

Electrical connection

9 = 1/2-14 NPT Conduit (male thread), single cores

G = 1/2-14 NPT Conduit (male thread), flying leads

Signal

A = 4 .. 20 mA, 2 conductor

Pressure ranges in bar

0040; 0060; 0100; 0250; 0400; 0600

Mechanical connection

G01 = G1/2 A, DIN 3852

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

Approval

D = CSA Explosion Proof – Seal not required

ATEX Flame Proof

IECEX Flame Proof

Type of measurement cell

S = Sealed Gauge (sealed to atmosphere) ≥ 40 bar

V = Vented Gauge (vented to atmosphere) ≤ 16 bar

Modification number

000 = Standard

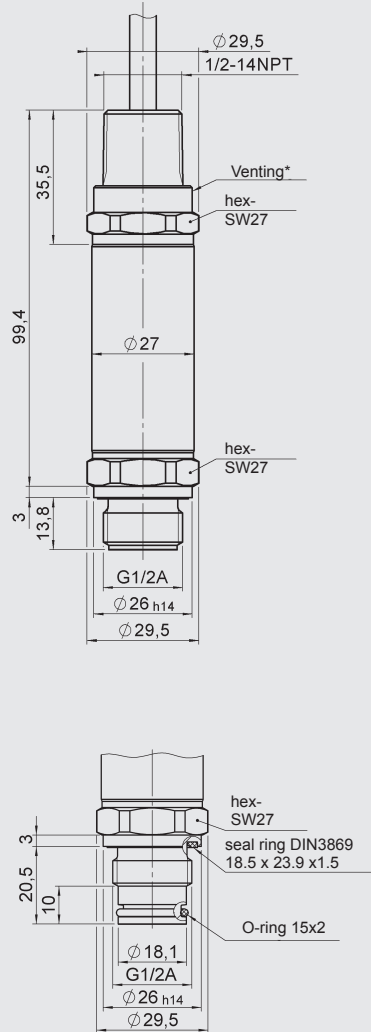
Cable length in m

Standard = 2 m

Accessories:

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

Dimensions:



* optional, depending on gauge type "Sealed Gauge" / "Vented Gauge"

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.

