



Pressure Transmitter HDA 4700

Relative pressure

Accuracy 0.25 %

HART interface
Optional temperature measurement



Description:

HDA 4700 with HART interface is a digital pressure transmitter which is used to measure relative pressures in hydraulics and pneumatics. In addition to the analogue output of the measured value, digital communication is possible by means of the HART protocol.

This pressure transmitter, which is based on the HDA 4700 series, has a very accurate and robust sensor cell with a thin-film strain gauge on a stainless steel membrane.

Due to their outstanding temperature and EMC characteristics, together with their compact dimensions, these instruments can be used in a wide range of applications.

The instrument provides the option of a temperature sensor. The temperature signal is given out as a digital signal via the HART protocol and the pressure signal is still available as an analogue signal (4 .. 20 mA).

Technical data:

Input data

Measuring ranges	bar	6	16	40	60	100	250	400	600	1000	1600	2000
Overload pressures	bar	12	32	80	120	200	500	800	1000	1600	2400	3000
Burst pressure	bar	100	200	200	300	500	1000	2000	2000	3000	3000	4000

Mechanical connection

G1/4 A ISO 1179-2
G1/2 B DIN EN 837

Tightening torque, recommended

20 Nm (G1/4 A), 45 Nm (G1/2 B)

Parts in contact with fluid

Stainless steel, FKM

Output data

Output signal, permitted load resistance

4 .. 20 mA, 2-conductor, with HART protocol
 $R_{Lmax} = (U_B - 12 V) / 20 \text{ mA}$ [kΩ]
for HART communication min. 250 Ω

HART Communication

Acc. to HART 7 specifications

HART Common Practice Commands i.e.

Altering of measuring range limits (see table)

Zero point adjustment within max. 3 % of the span

Accuracy acc. to DIN 16086, terminal based

$\leq \pm 0.25 \%$ FS typ.
 $\leq \pm 0.5 \%$ FS max.

Accuracy, B.F.S.L.

$\leq \pm 0.15 \%$ FS typ.
 $\leq \pm 0.25 \%$ FS max.

Temperature compensation
Zero point

$\leq \pm 0.008 \%$ FS / °C typ.
 $\leq \pm 0.015 \%$ FS / °C max.

Temperature compensation
Span

$\leq \pm 0.008 \%$ FS / °C typ.
 $\leq \pm 0.015 \%$ FS / °C max.

Non-linearity acc. to DIN 16086, terminal based

$\leq \pm 0.3 \%$ FS max.

Hysteresis

$\leq \pm 0.1 \%$ FS max.

Repeatability

$\leq \pm 0.05 \%$ FS

Rise time

$\leq 25 \text{ ms}$

Long-term drift

$\leq \pm 0.1 \%$ FS / typ. year

Environmental conditions

Compensated temperature range

-25 .. +85 °C

Operating temperature range ¹⁾

-40 .. +85 °C / -25 .. +85 °C

Storage temperature range

-40 .. +100 °C

Fluid temperature range ¹⁾

-40 .. +100 °C / -25 .. +100 °C

CE mark

EN 61000-6-1 / 2 / 3 / 4

Vibration resistance acc. to
DIN EN 60068-2-6 at 10 .. 500 Hz

$\leq 20 \text{ g}$

Protection class acc. to DIN EN 60529 ²⁾

IP 65 male connector EN 175301-803
IP 67 male connector M12x1

Other data

Supply voltage

12 .. 30 V DC

Residual ripple
of supply voltage

46 .. 125 Hz: < 0.2 Vpp
> 125 Hz: < 1.2 mV RMS

Life expectancy ³⁾

> 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 complete measuring range

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

¹⁾ -25 °C with FKM seal, -40 °C on request

²⁾ With mounted mating connector in corresponding protection class

³⁾ Measuring ranges $\geq 1000 \text{ bar}$: > 1 million cycles (0 .. 100 % FS)

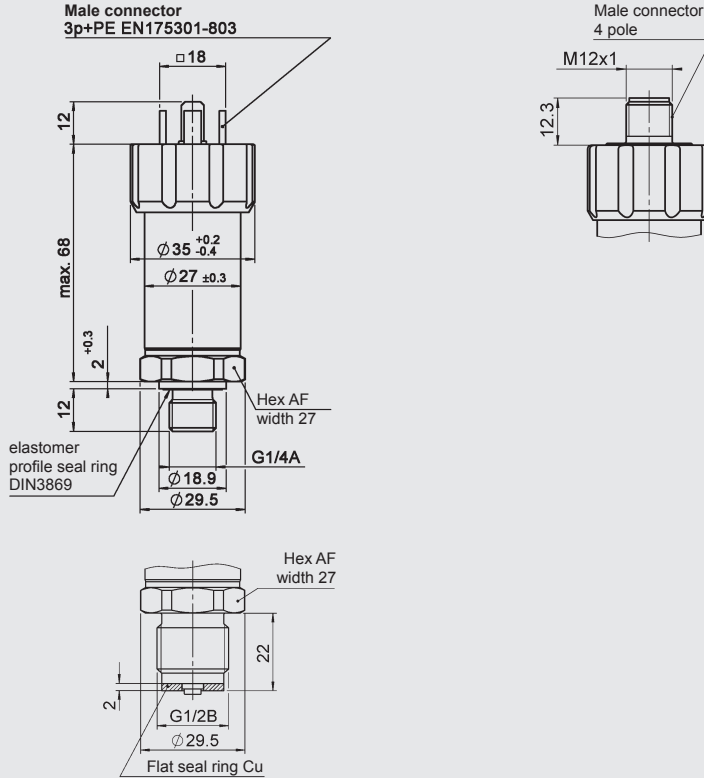
Measuring range limits:

By means of HART Common Practice Commands, you have the opportunity to adjust the following measuring range limits:

Measuring range limits of the primary variable, pressure:

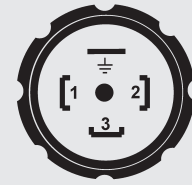
Lower measuring range limit		Upper measuring range limit		Measuring span	
min	max	min	max	min	max
0 % FS	112.5 % FS	37.5 % FS	150 % FS	37.5 % FS	150% FS

Dimensions:



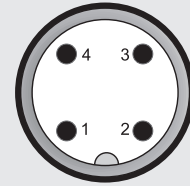
Pin connections:

EN 175301-803



HDA	4xx5-F
1	Signal +
2	Signal -
3	n.c.
⊥	PE

M12x1



Pin	HDA 4xx6-F
1	Signal +
2	n.c.
3	Signal -
4	n.c.

Model code:

HDA 4 7 X X - F21 - XXXX - 000

Mechanical connection

- 1 = G1/2 B DIN EN 837
(only for measuring ranges \geq 1600 bar)
- 4 = G1/4 A ISO 1179-2

Electrical connection

- 5 = male, EN 175301-803, 3 pole+PE
(IP 67 mating connector supplied)
- 6 = male M12x1, 4 pole
(mating connector not supplied)

Output signal

F21 = 4 .. 20 mA, 2-conductor, with HART protocol

Measuring ranges in bar

0006; 0016; 0040; 0060; 0100; 0250; 0400; 0600; 1000 (only with mech. connection code "4")
1600; 2000 (only with mech. connection code "1")

Modification number

000 = standard

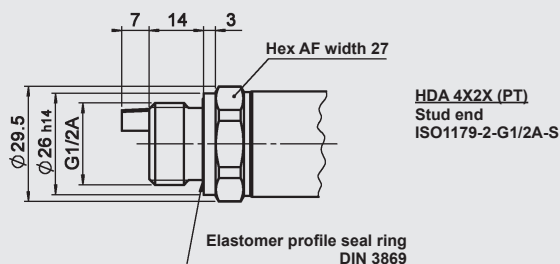
Accessories:

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

Additional technical data with temperature measurement option:

Input data							
Measuring range	-25 .. +100 °C						
Probe length	7 mm						
Mechanical connection	G½ A ISO 1179-2 with probe (45 Nm)						
Measuring ranges pressure	16	40	60	100	250	400	600
Output data							
Output signal pressure	4 .. 20 mA with HART Protocol						
Output signal temperature	Available via HART protocol as a digital signal						
Accuracy at room temperature	≤ ± 0.4 % FS typ. ≤ ± 0.8 % FS max.						
Temperature drift (environment)	≤ ± 0.01 % FS / °C						
Reaction time acc. to DIN EN 60751	t ₅₀ : ~ 10 s t ₉₀ : ~ 15 s						

Dimensions with temperature measurement option:



Measuring range limits:

Additional measuring range limits of the secondary variable, temperature:

Lower measuring range limit		Upper measuring range limit		Measuring span	
min	max	min	max	min	max
-25 °C	75 °C	0 °C	100 °C	25 °C	125 °C

Model code with temperature measurement option:

HDA 4 7 2 X - F21 -XXXX - T - 007 - 000

Mechanical connection

2 = G1/2 A ISO 1179-2

Electrical connection

5 = male, EN 175301-803, 3 pole +PE
(IP 67 mating connector supplied)

6 = male M12x1, 4 pole
(mating connector not supplied)

Output signal

F21 = 4 .. 20 mA, 2-conductor, with HART protocol

Measuring ranges in bar

0016; 0040; 0060; 0100; 0250; 0400; 0600

With temperature measurement

Probe length

007 = 7 mm

Modification number

000 = standard

Note:

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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

