Pressure Transmitter
HDA 4700

Relative pressure | **Accuracy 0.25 %**

Functional Safety PL d, Cat 3

Increased Functional Safety

Description:

This version of the pressure transmitter series HDA 4700 has been specially developed for use in safety circuits / safety functions as part of the functional safety of machinery and equipment up to PL d - Cat 3 (in accordance with ISO 13849).

The pressure transmitters are designed with two channels. Each channel consists of a sensor element and evaluation electronics. As a result, the pressure transmitter develops two separate and independent output signals in proportion to the pressure.

The safety function is tested by evaluating and comparing the two analogue output signals in a higher-level system.

The main fields of application are as sensor elements in mobile, safety-oriented systems such as load torque displays, load torque limitation in truck-mounted cranes or working platforms and much more.

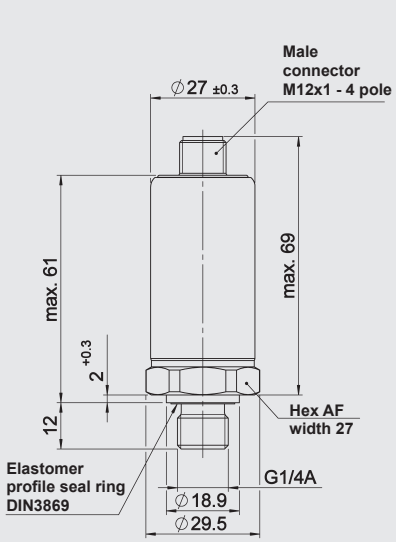
Technical data:

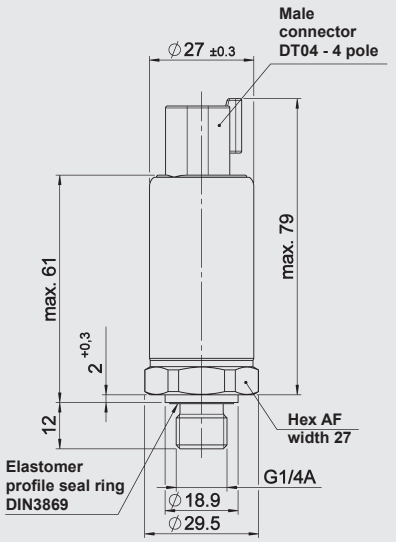
Input data									
Measuring ranges signal 1	bar	25	40	60	100	160	250	400	600
Measuring ranges signal 2	bar	25/40	40/60	60/100	100/160	160/250	250/400	400/600	600/1000
Overload pressures	bar	80	80	120	200	320	500	800	1200
Burst pressure	bar	200	200	300	500	800	1250	2000	2000
Mechanical connection		G¼ A ISO 1179-2 with 0.5 mm orifice							
Tightening torque, recommended		20 Nm							
Parts in contact with fluid [1]		Mech. connection: Stainless steel (2 x thin-film strain gauge) Seal: FKM							
Output data									
Output signal 1 [2] Output signal 2 [2]		4 .. 20 mA, 3-conductor 4 .. 20 mA, 3-conductor							
Accuracy acc. to DIN 16086, terminal based		≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.							
Accuracy, B.F.S.L.		≤ ± 0.15 % FS typ. ≤ ± 0.25 % FS max.							
Temperature compensation Zero point		≤ ± 0.008 % FS / °C typ. ≤ ± 0.015 % FS / °C max.							
Temperature compensation Span		≤ ± 0.008 % FS / °C typ. ≤ ± 0.015 % FS / °C max.							
Non-linearity acc. to DIN 16086, terminal based		≤ ± 0.3 % FS max.							
Hysteresis		≤ ± 0.1 % FS max.							
Repeatability		≤ ± 0.05 % FS							
Rise time		≤ 2 ms							
Long-term stability		≤ ± 0.1 % FS typ. / year							
Environmental conditions									
Compensated temperature range		-25 .. +85 °C							
Operating temperature range (fail safe) [3]		-40 .. +85 °C / -25 .. +85 °C							
Storage temperature range		-40 .. +85 °C							
Medium temperature range[3]		-40 .. +85 °C / -25 .. +85 °C							
CE- mark		EN 61000-6-1 / 2 / 3 / 4							
Vibration resistance acc. to DIN EN 60068-2-6 at 5 .. 2000 Hz		≤ 20 g							
Shock resistance acc. to DIN EN 60068-2-27		≤ 100 g / 6 ms							
Protection class [4] acc. to DIN EN 60529 ISO 20653		IP 67 / IP 69 (with attached mating connector) IP 6K9K							
Safety-related data									
Performance level									
Based on		DIN EN ISO 13849-1:2008							
PL		d							
Architecture		Category 3							
Other data									
Supply voltage		7 .. 35 V DC (max. load resistance 250 Ω) 12 .. 35 V DC (max. load resistance 500 Ω)							
Residual ripple of supply voltage		≤ 5 %							
Current consumption		≤ 50 mA							
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. = **B**est **F**it **S**traight **L**ine

[1] Other seal materials on request
[2] Other output signals on request
[3] -25 °C with FKM seal, -40 °C on request
[4] With mounted mating connector in corresponding protection class

Dimensions:





Model code:

HDA 4 7 4 X - C C - XXXX - XXXX - Pd- 000

Mechanical connection
4 = G1/4 A ISO 1179-2

Electrical connection
6 = male M12x1, 4 pole
(mating connector not supplied)
V = male Deutsch DT04, 4 pole
(mating connector not supplied)

Output signal 1
C = 4 .. 20 mA, 3-conductor

Output signal 2
C = 4 .. 20 mA, 3-conductor

Measuring ranges signal 1 in bar (max. operating pressure)
0025; 0040; 0060; 0100; 0160; 0250; 0400; 0600

Measuring ranges signal 2 in bar
0025; 0040; 0060; 0100; 0160; 0250; 0400; 0600; 1000

Measuring range signal 2 = Measuring range signal 1 or max. 1 pressure range higher

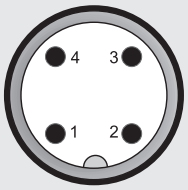
Functional safety
Pd = PL d – Cat 3 acc. to DIN EN 13849-1

Modification number
000 = standard

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

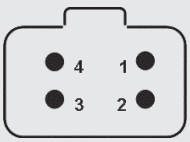
Pin connections:

M12x1



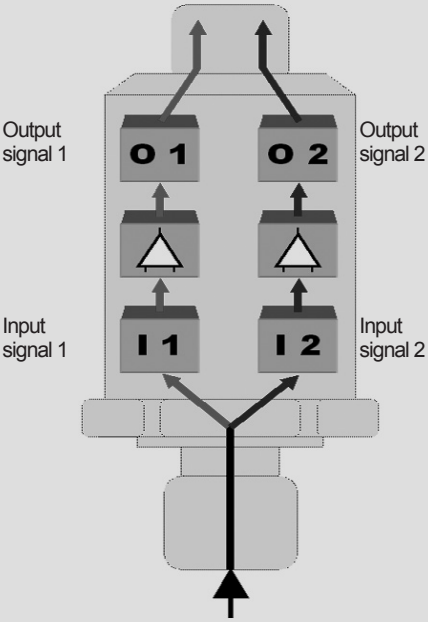
Pin	HDA 4746-CC
1	$+U_B$
2	Signal 2
3	0 V
4	Signal 1

DT04



Pin	HDA 474V-CC
1	$+U_B$
2	0 V
3	Signal 2
4	Signal 1

Block circuit diagram:



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.

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