HYDAC INTERNATIONAL

Pressure Transmitter
HDA 4700
Enhanced functional safety

Relative pressure | **Accuracy 0.25 %**

Functional Safety PL d, Cat 3

Features

- Accuracy ≤ ± 0.25 % FS typ.
- Functional safety:
  Performance Level d
  Category 3

Description

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

These pressure transmitters have a dual-channel system design. Each channel is composed of a sensor element and an electronic evaluation unit. This means, the pressure transmitter generates two separate pressure proportional output signals which are independent from one another.

The check of the safety function is carried out by evaluation and comparison of both analogue output signals in a higher-level system.

Fields of application

The main fields of application are in mobile safety-oriented systems, such as load torque displays or load torque limitation in loading 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	50	80	120	200	320	500	800	1000
Burst pressure	bar	125	200	300	500	800	1250	2000	2000
Mechanical connection			G1/4 A ISO 1179-2 with orifice						
Tightening torque, recommended			20 Nm						
Parts in contact with fluid [1]			Connector: Stainless steel (2 x thin film DMS) Seal ring: 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 [3]			≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.						
Accurracy acc. to minimum value setting (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.						
Rise time			≤ 2 ms						
Long-term drift			≤ ± 0.1 % FS typ. / year						
Environmental conditions / Approvals / Tests									
Compensated temperature range			-25 .. +85 °C						
Operating temperature range (fail safe) [4]			-40 .. +85 °C / -25 .. +85 °C						
Storage temperature range			-40 .. +85 °C						
Fluid temperature range [4]			-40 .. +85 °C / -25 .. +85 °C						
EMC			2014/30/EC EN 61006-6-1 / 2 / 3 / 4						
Vibration resistance			DIN EN 60068-2-6				≤ 200 m/s² (5 .. 2000 Hz)		
Shock resistance			DIN EN 60068-2-27				≤ 100 g / 6 ms		
Protection type acc. to [5]			DIN EN 60529 ISO 20653				IP 65 / IP 69 IP 6K9K		
CE/UKCA conformity			Provided						
Safety-related data									
Performance level									
Based on			DIN EN ISO 13849:1-2015						
PL			d						
Architecture			Category 3						
Other data									
Supply voltage			7 .. 35 V DC (max. load 250 Ω) 12 .. 35 V DC (max. load 500 Ω)						
Residual ripple of supply voltage			≤ 5 %						
Current consumption			≤ 50 mA						
Life expectancy			> 10 million load cycles (0 .. 100 % FS)						
Weight			~ 180 g						

Note: Reverse polarity protection of the supply voltage, overvoltage, 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

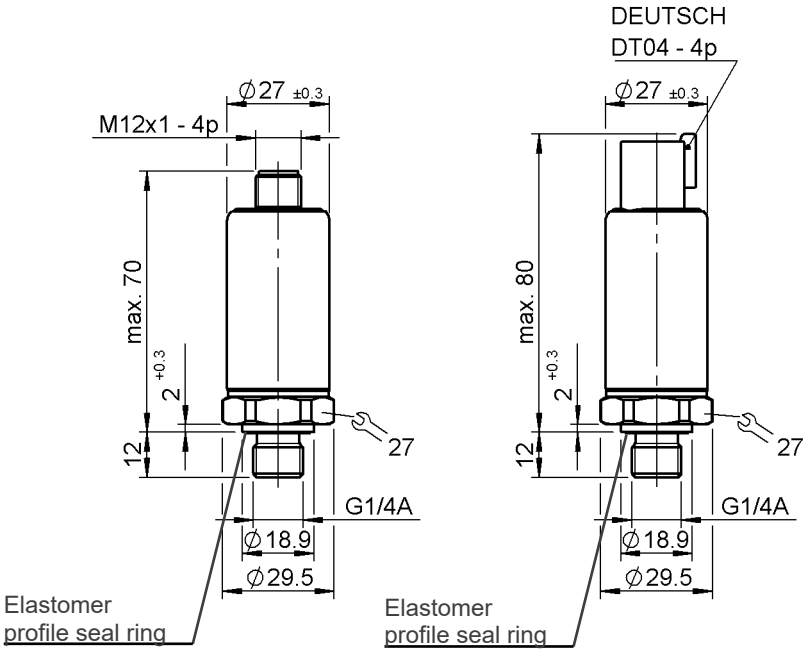
[2] Other output values on request

[3] Including non-linearity, hysteresis, offset and final value deviation

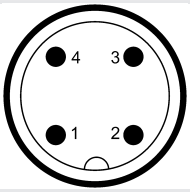
[4] In the standard up to -25 °C with FKM seal, -40 °C on request

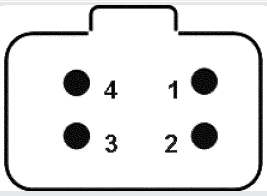
[5] With mounted mating connector in corresponding protection type

Dimensions

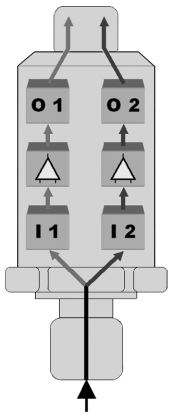


Pin connections

M12x1, 4 pole	Pin	Output signal CC
	1	$+U_B$
	2	Signal 2
	3	0 V
	4	Signal 1

Deutsch DT 04, 4 pole	Pin	Output signal CC
	1	$+U_B$
	2	0 V
	3	Signal 2
	4	Signal 1

Block diagram



O1	output signal 1
I1	input signal 1
O2	output signal 2
I2	input signal 2

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 = Plug connector M12x1, 4 pole (without mating connector)
V = Plug connector DT04, 4 pole (without mating connector)

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
0016; 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 Kat. 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.

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.

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