HYDAC INTERNATIONAL

Electronic Pressure Transmitter

HDA 4700
for Applications with Higher Level Functional Safety

PL d, Cat 3
EN ISO 13849-1

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). It is also possible to use them in "SIL 2" systems (according to EN 61508).

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 system.

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

Special features:

- Two-channel, redundant pressure measurement
- Two separate, independent output signals
- Accuracy ≤ ± 0.25 % FS typ.
- Highly robust sensor cell
- Outstanding performance in terms of temperature effect and EMC
- Very compact design
- PL d, Cat. 3 certification

Input data				
Pressure ranges for Signal 1 in bar	25	40	60	100
Pressure ranges for Signal 2 in bar	25 / 40	40 / 60	60 / 100	100 / 160
	160	250	400	600
	160 / 250	250 / 400	400 / 600	600 / 1000
Overload pressures in bar	80	80	120	200
	320	500	800	1200
Burst pressures in bar	200	200	300	500
	800	1250	2000	2000
Mechanical connection (Torque value)	G¼ A DIN 3852 with 0.5 mm orifice (20 Nm)			
Parts in contact with fluid	Mech. conn.: Stainl. steel (2 x thin-film strain gauge) Seal: FPM [1]			
Output data				
Output signal 1 [2] Output signal 2 [2]	4 .. 20 mA, 3 conductor 4 .. 20 mA, 3 conductor			
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 Zero point	≤ ± 0.008 % / °C typ. ≤ ± 0.015 % / °C max.			
Temperature compensation Over range	≤ ± 0.008 % / °C typ. ≤ ± 0.015 % / °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	≤ 2 ms			
Long term stability	≤ ± 0.1 % FS / year typ.			
Environmental Conditions				
Compensated temperature range	-25 .. +85°C			
Operating temperature range (fail safe)	-40 .. +85°C			
Storage temperature range	-40 .. +85°C			
Fluid temperature range:	-40 .. +85 °C			
CE mark	EN 61000-6-1 / 2 / 3 / 4			
Functional safety	PL d - Cat 3 to ISO 13849 (Possible to use in SIL 2 to EN 61508)			
Vibration resistance according to DIN EN 60068-2-6 at 5 .. 2000 Hz	≤ 20 g			
Protection class to DIN 40050	IP 67 / IP 69K (when female connector is fitted)			
Performance Level				
TÜV South	Technical report HS 83259T			
Architecture	Category 3			
PL	d			
Other data				
Electrical connection	M12x1, 4 pole			
Supply voltage	7 .. 35 V DC (max. load resistance 250 Ω) 12 .. 35 V DC (max. load resistance 500 Ω)			
Service life	> 10 million load cycles (0 .. 100 %)			
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 the complete measuring range
1) Other seal materials on request
2) Other output signals on request

Model code:

HDA 4 7 4 6 - C C - XXXX - XXXX - Pd- 000

Mechanical connection
4 = G1/4 A DIN 3852 (male)

Electrical connection
6 = M12x1, 4 pole, male
(female connector not supplied)

Signal 1
C = 4 .. 20 mA, 3 conductor

Signal 2
C = 4 .. 20 mA, 3 conductor

Pressure ranges for Signal 1 in bar (max. oper. pressure)
0025; 0040; 0060; 0100; 0160; 0250; 0400; 0600

Pressure ranges for Signal 2 in bar
0025; 0040; 0060; 0100; 0160; 0250; 0400; 0600; 1000

Press. range for signal 2 = Pressure range for signal 1
or max. 1 pressure range higher

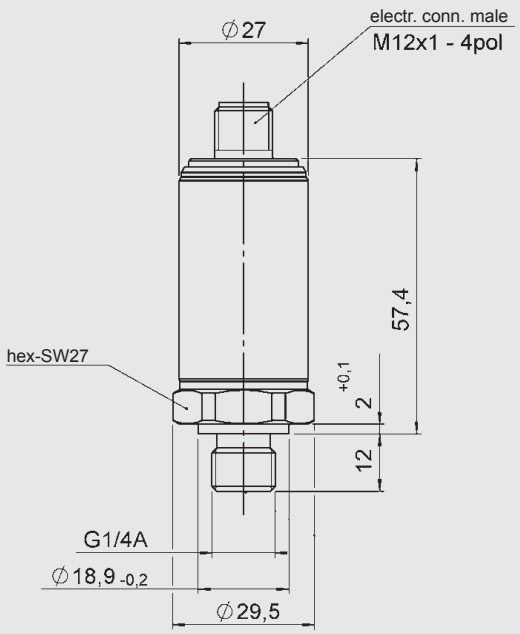
Functional safety
Pd =PL d – Cat 3 accord. to DIN EN 13949-1

Modification number
000 = Standard

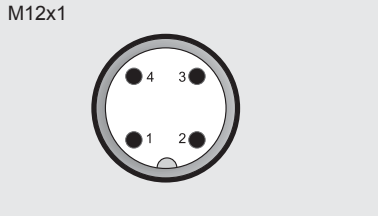
Note:
On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

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

Dimensions:

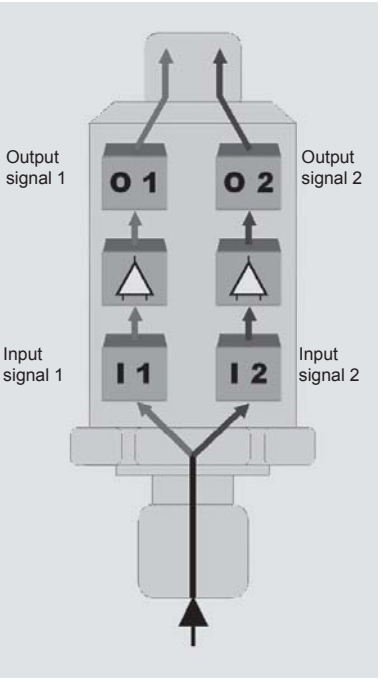


Pin connections:



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

Block circuit diagram:



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.