Pressure Transmitter
HDA 4700

Relative pressure | **Accuracy 0.25 %**

CAN interface
Optional temperature measurement

CANopen SAE J1939

c UL us

Description:

HDA 4700 with CAN interface is a digital pressure transmitter which is used to measure relative pressures in hydraulics and pneumatics. The measured pressure value is digitised and made available to the CAN field bus system via the CANopen protocol or J1939 protocol. The instrument parameters can be viewed and configured by the user using standard CAN software.

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 in the mobile and industrial sectors.

The device provides the option of an externally attached temperature probe that measures in the system fluid directly and can be thus be used for closed-loop control tasks. Adding the option of temperature measurement to the pressure transmitter functions saves one additional measuring point and eases the installation for the customer.

Technical data:

Input data							
Measuring ranges[1)]	bar	40	100	250	400	600	1000
Overload pressures	bar	80	200	500	800	1000	1600
Burst pressure	bar	200	500	1000	2000	2000	3000
Mechanical connection				G1/4 A ISO 1179-2 G1/2 A ISO 1179-2			
Tightening torque, recommended				20 Nm (G1/4); 45 Nm (G1/2)			
Parts in contact with fluid				Mech. connection: Stainless steel Seal: FKM			
Output data							
Output signal				CANopen or J1939 protocol depending on version			
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				≤ ± 0.08 % FS			
Rise time				≤ 1 ms			
Long-term drift				≤ ± 0.1 % FS typ. / year			
Environmental conditions							
Compensated temperature range				-25 .. +85 °C			
Operating temperature range[2)]				-40 .. +85 °C / -25 .. +85 °C			
Storage temperature range				-40 .. +100 °C			
Medium temperature range[2)]				-40 .. +100 °C / -25 .. +100 °C			
CE mark				EN 61000-6-1 / 2 / 3 / 4			
c UL us mark[3)]				Certificate no.: E318391			
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz				≤ 20 g			
Protection class acc. to DIN EN 60529 [4)]				IP 67			
Other data							
Supply voltage when applied acc. to UL specifications				9 .. 35 V DC - limited energy - acc. to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950			
Residual ripple of supply voltage				≤ 5 %			
Current consumption				≤ 25 mA			
Life expectancy				> 10 million cycles (0 .. 100 % FS)			
Weight				~ 150 g			

Note: Reverse polarity protection of the supply voltage, excess voltage 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)] 1000 bar only with mech. connection G1/2 A ISO 1179-2 and vice versa
[2)] -25 °C with FKM seal, -40 °C on request
[3)] Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 No 61010-1
[4)] With mounted mating connector in corresponding protection class

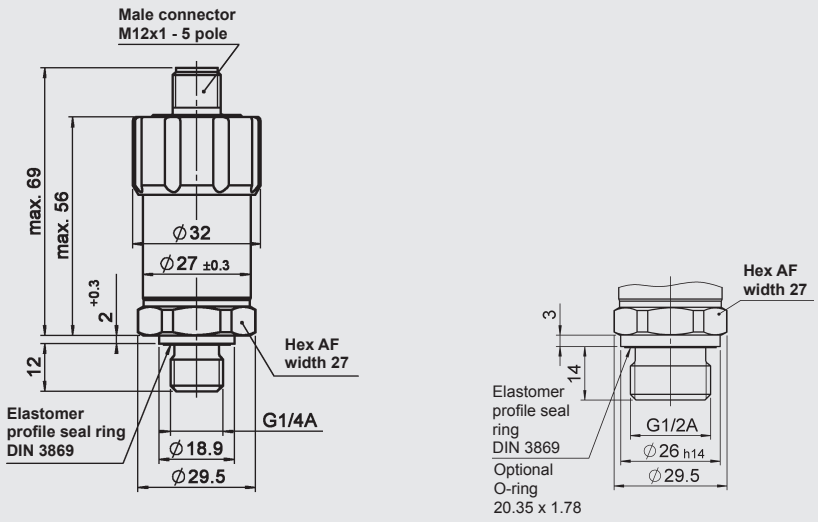
Protocol data for CANopen:

Communication profile	CiA DS 301 V4.2
Device profile	CiA DS 404 V1.3
Layer setting Services and Protocol	CiA DSP 305 V2.2
Automatic bit-rate detection	CiA AN 801
Baud rates	10 kbit .. 1 Mbit corresp. to DS305 V2.2
Transmission services - PDO - Transfer	 Measured value as 16/32 bit and float, status synchronous, asynchronous, cyclical, measured value change, exceeding boundaries
Node ID/baud rate	Can be set via Manufacturer Specific Profile

Protocol data for SAE J1939:

Data Link Layer	SAE J1939-21
Network Layer	SAE J1939-31
Network Management	SAE J1939-81

Dimensions:



Model code:

HDA 4 7 X 8 – F1X – XXXX – 000

Mechanical connection
2 = G1/2 A ISO 1179-2
(only for measuring range ≥ 1000 bar)
4 = G1/4 A ISO 1179-2

Electrical connection
8 = male M12x1, 5 pole

Output signal
F11 = CANopen
F12 = CAN SAE J1939

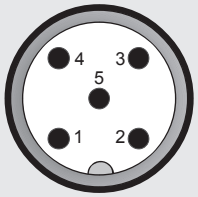
Measuring ranges in bar
0040; 0100; 0250; 0400; 0600 (only with mech. connection code "4")
1000 (only with mech. connection code "2")

Modification number
000 = standard

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

Pin connections:

M12x1



Pin	Signal	Description
1	Housing	shield/housing
2	$+U_B$	supply +
3	0 V	supply -
4	CAN_H	bus line dominant high
5	CAN_L	bus line dominant low

Additional technical data with temperature measurement option:

Input data					
Measuring range	-25 .. +100 °C				
Probe length	7 mm				
Mechanical connection	G1/2 A ISO 1179-2 with probe				
Tightening torque, recommended	45 Nm				
Measuring ranges pressure in bar	40	100	250	400	600
Output data					
Output signal Pressure	CAN protocol				
Output signal Temperature	The temperature signal is available via the CAN bus.				
Accuracy	≤ ± 1.0 % FS typ. ≤ ± 1.5 % FS max.				
Temperature drift (environment)	≤ ± 0.02 % FS / °C				
Rise time acc. to DIN EN 60751	t_{50}: ~ 4 s t_{90}: ~ 8 s				

Model code with temperature measurement option:

HDA 4 7 2 8 – F1X – XXXX – T – 007 – 000

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

Electrical connection
8 = male M12x1, 5 pole

Output signal
F11 = CANopen
F12 = CAN SAE J1939

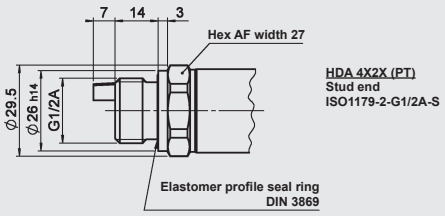
Setting range in bar
0040; 0100; 0250; 0400; 0600; 1000

With temperature measurement

Probe length
007 = 7 mm

Modification number
000 = standard

Dimensions with temperature measurement option:



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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