HYDAC INTERNATIONAL

Pressure Transmitter
HDA 4400
Marine applications

Relative pressure | **Accuracy 0.5 %**

Features

- Accuracy ≤ ± 0.5 % FS typ.
- Minor temperature error
- Excellent EMC characteristics

Approvals:

- American Bureau of Shipping
- Lloyds Register of Ships
- DNV
- Bureau Veritas

Other approvals on request

Description

The pressure transmitter series HDA 4400 is designed to measure relative pressures in high pressure ranges by means of its measurement cell with thin-film strain gauge on a stainless steel membrane.

The electronic evaluation unit converts the measured pressure into a proportional analogue signal of 4 .. 20 mA.

The electronic assembly is completely potted to protect it against humidity, vibrations and shock, and is enclosed in a solid stainless steel housing.

Fields of application

HDA 4400 has been specially developed for the use in ship engineering industry.

For use in the ship engineering sector, these pressure transmitters have been approved by the below listed organisations.

Technical data

Input data								
Measurement ranges	bar	-1..1	2.5	6	10	16	25	40	60
	bar	100	250	400	600	1000 [1]	1600 [1]		
Overload pressures	bar	5	5	12	20	32	50	80	120
	bar	200	500	800	1000	1600	2400		
Burst pressure	bar	100	100	100	100	100	125	200	300
	bar	500	1250	2000	2000	3000	3000		
Mechanical connection		G1/4 A ISO 1179-2 G1/2 B DIN-EN 837							
Tightening torque, recommended		20 Nm (G1/4); 45 Nm (G1/2)							
Parts in contact with fluid		Connector: Stainless steel Seal: FKM							
Output data								
Output signal, permitted load resistance		4 .. 20 mA, 2 conductor $R_{Lmax} = (U_B - 10\ V) / 20\ mA\ [k\Omega]$							
Accuracy acc. to DIN 16086, Terminal based [2]		≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.							
Accuracy at minimum value setting (B.F.S.L.)		≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.							
Temperature compensation zero point		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.							
Temperature compensation span		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.							
Rise time		≤ 2 ms							
Long-term drift		≤ ± 0.3 % FS typ. / year							
Environmental conditions / Approvals / Tests								
Compensated temperature range		-25 .. +85 °C							
Operating temperature range [3]		-40 .. +85 °C / -25 .. +85 °C							
Storage temperature range		-40 .. +100 °C							
Fluid temperature range [3]		-40 .. +100 °C / -25 .. +100 °C							
EMC		2014/30/EU EN 61006-6-1 / 2 / 3 / 4							
Vibration resistance		DIN EN 60068-2-6				≤ 200 m/s² (10 .. 500 Hz)			
Shock resistance		DIN EN 60068-2-27				≤ 100 g / 6 ms			
Protection type [4]		DIN EN ISO 60529				IP 67			
CE conformity		Provided							
Other data								
Supply voltage		10 .. 32 V DC							
Residual ripple of supply voltage		≤ 5 %							
Current consumption		≤ 25 mA							
Life expectancy [5]		> 10 million load 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 (**F**ull **S**cale) = relative to complete measuring range

B.F.S.L. = **B**est **F**it **S**traight **L**ine

[1] Pressure ranges: Approval for Lloyds Register on request, ranges from 1000 bar only with connection G 1/2 B DIN EN 837

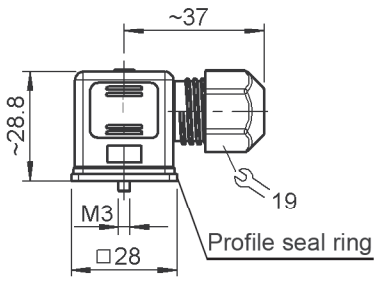
[2] Including non-linearity, hysteresis, offset and final value deviation

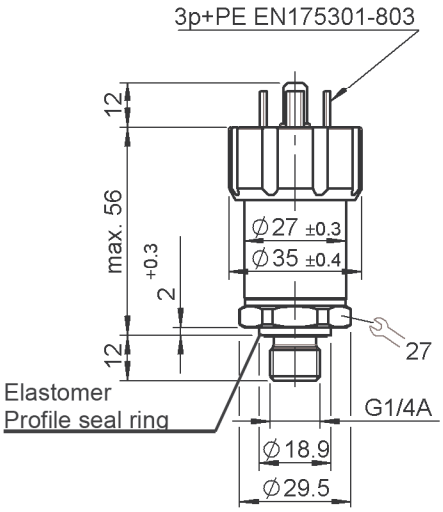
[3] In the standard up to -25 °C with FKM seal, -40 °C on request

[4] With mounted mating connector in corresponding protection type

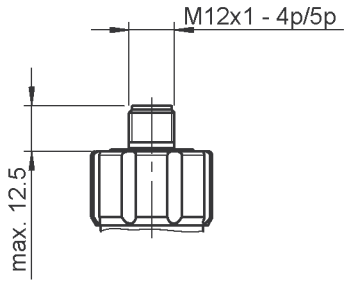
[5] Measuring ranges ≥ 1000 bar: > 1 million load cycles (0 .. 100 % FS)

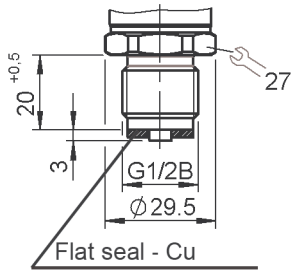
Dimensions



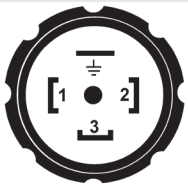


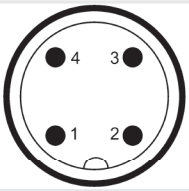
Electrical connection variants	Mechanical connection variants
Plug connector M12x1, 4 pole	G1/2 B DIN EN 837 / external 45 Nm





Pin connections

EN 175301-803, 3 pole + PE	Pin	Output signal: A
	1	Signal +
	2	Signal -
	3	n.c.
	⊥	Housing

M12x1, 4 pole	Pin	Output signal: A
	1	Signal +
	2	n.c.
	3	Signal -
	4	n.c.

Model code

HDA 4 4 X X - A - XXX - S00

Mechanical connection

1 = G1/2 B DIN EN 837 (only for pressure ranges "1000 and 1600 bar")
4 = G1/4 A ISO 1179-2

Electrical connection

5 = Plug connector EN175301-803, 3 pole + PE (with mating connector IP67)
6 = Plug connector M12x1, 4 pole (without mating connector)

Output signal

A = 4 .. 20 mA, 2 conductor

Measuring ranges in bar

001 (-1 .. 1); 2,5; 006; 010; 016; 025; 040; 060; 100; 250; 400; 600
1000; 1600 bar (only with mech. connection type "1")

Modification number

S00 = Ship approval

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/or operating conditions not described please contact the relevant technical department.
Subject to technical modifications.