



## Pressure Transmitter

### HDA 4700

Marine applications

Relative pressure

Accuracy 0.25 %



**ABS**



Lloyd's  
Register



#### Features

- Accuracy  $\leq \pm 0.25$  % 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 4700 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 from 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.

#### Application fields

HDA 4700 has been specially developed for the use in the 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                                                  |     |     |     |                                                                                |     |     |      |                         |      |                    |                    |
|-------------------------------------------------------------|-----|-----|-----|--------------------------------------------------------------------------------|-----|-----|------|-------------------------|------|--------------------|--------------------|
| Measuring ranges                                            | bar | 6   | 16  | 40                                                                             | 60  | 100 | 250  | 400                     | 600  | 1000 <sup>1)</sup> | 1600 <sup>1)</sup> |
| Overload pressures                                          | bar | 12  | 32  | 80                                                                             | 120 | 200 | 500  | 800                     | 1000 | 1600               | 2400               |
| Burst pressure                                              | bar | 100 | 100 | 200                                                                            | 300 | 500 | 1250 | 2000                    | 2000 | 3000               | 3000               |
| Mechanical connection                                       |     |     |     | G1/4 A ISO 1179-2<br>G1/2 B DIN-EN 837                                         |     |     |      |                         |      |                    |                    |
| Tightening torque, recommended                              |     |     |     | 20 Nm (G1/4); 45 Nm (G1/2)                                                     |     |     |      |                         |      |                    |                    |
| Parts in contact with fluid                                 |     |     |     | Mech. connection: Stainless steel<br>Seal: FKM                                 |     |     |      |                         |      |                    |                    |
| Output data                                                 |     |     |     |                                                                                |     |     |      |                         |      |                    |                    |
| Output signal, permitted load resistance                    |     |     |     | 20 mA, 2-conductor<br>R <sub>Lmax</sub> = (U <sub>B</sub> – 10 V) / 20 mA [kΩ] |     |     |      |                         |      |                    |                    |
| Accuracy acc. to DIN 16086,<br>Terminal based <sup>2)</sup> |     |     |     | ≤ ± 0.25 % FS typ.<br>≤ ± 0.5 % FS max.                                        |     |     |      |                         |      |                    |                    |
| Accuracy at minimum value setting<br>(B.F.S.L.)             |     |     |     | ≤ ± 0.15 % FS typ.<br>≤ ± 0.25 % FS max.                                       |     |     |      |                         |      |                    |                    |
| Temperature compensation<br>offset                          |     |     |     | ≤ ± 0.008 % FS / °C typ.<br>≤ ± 0.015 % FS / °C max.                           |     |     |      |                         |      |                    |                    |
| Temperature compensation<br>span                            |     |     |     | ≤ ± 0.008 % FS / °C typ.<br>≤ ± 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                                 |     |     |     | -25..+70 °C                                                                    |     |     |      |                         |      |                    |                    |
| Storage temperature range                                   |     |     |     | -40..+100 °C                                                                   |     |     |      |                         |      |                    |                    |
| Fluid temperature range                                     |     |     |     | -25..+70 °C                                                                    |     |     |      |                         |      |                    |                    |
| EMC                                                         |     |     |     | 2014/30/EU<br>EN 61000-6-1 / 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 <sup>3)</sup>                               |     |     |     | DIN EN 60529                                                                   |     |     |      | IP 67                   |      |                    |                    |
| CE conformity                                               |     |     |     | Available                                                                      |     |     |      |                         |      |                    |                    |
| Other data                                                  |     |     |     |                                                                                |     |     |      |                         |      |                    |                    |
| Supply voltage                                              |     |     |     | 10..32 V DC                                                                    |     |     |      |                         |      |                    |                    |
| Residual ripple of the supply voltage                       |     |     |     | ≤ 5 %                                                                          |     |     |      |                         |      |                    |                    |
| Current consumption                                         |     |     |     | ≤ 25 mA                                                                        |     |     |      |                         |      |                    |                    |
| Life expectancy <sup>4)</sup>                               |     |     |     | >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 (Full Scale)** = relative to complete measuring range

**B.F.S.L.** = Best Fit Straight Line

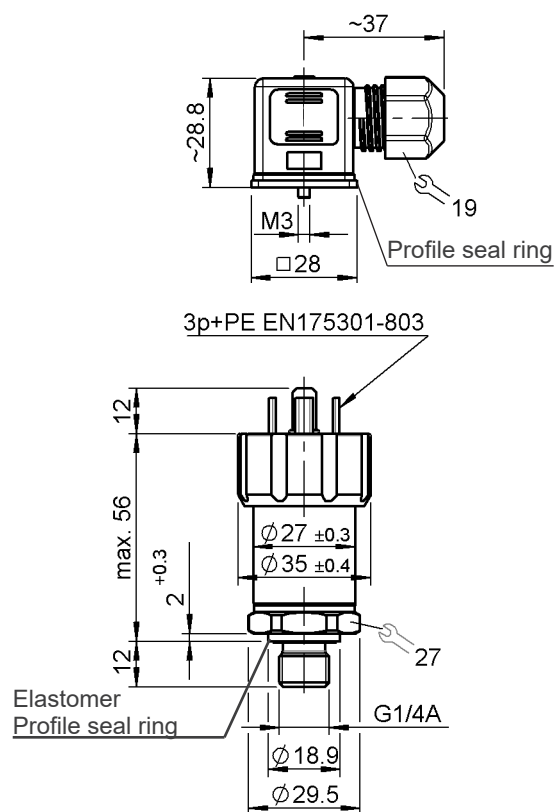
<sup>1)</sup> Measuring ranges 1000 bar and 1600 bar only valid for ABS, DNV and Bureau Veritas; from 1000 bar only with connection G1/2 B DIN EN 837

<sup>2)</sup> Including non-linearity, hysteresis, offset and final value deviation

<sup>3)</sup> With mounted mating connector in corresponding protection type

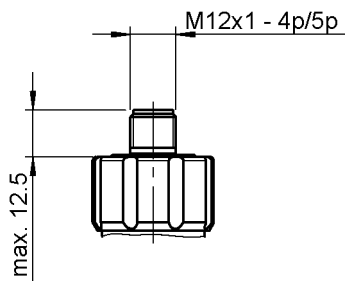
<sup>4)</sup> Measuring ranges  $\geq 1000$  bar: > 1 million load cycles (0..100 % FS)

Dimensions



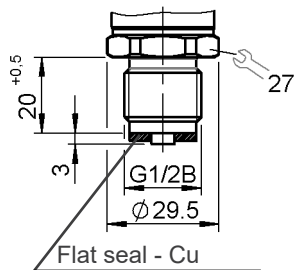
Electrical connection variants

Plug connector M12x1, 4 pole



Mechanical connection variants

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 7 X X - A - XXXX - 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

06.0; 0016; 0040; 0060; 0100; 0250; 0400; 0600

1000; 1600 bar (only with mech. connection type "1")

### Modification number

S00 = Ship approval

### Accessories:

Appropriate accessories, such as mating connectors for electrical connection, 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.

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