



## Pressure Transmitter

### HDA 8700 for series application

Customised version thanks to various electrical and mechanical connections and a large number of output signals

Relative pressure

Accuracy 0.25 %



#### Features

- Accuracy  $\leq \pm 0.25$  % FS typ.
- Robust sensor cell
- With E13 road approval

#### Description

As most of our pressure transmitters, HDA 8700 is based on a robust and long-life thin-film sensor.

All of the parts in contact with the fluid (sensor and pressure connection) are made of stainless steel and are welded together. This means, there are no sealing points inside of the sensor. Leakage can therefore be excluded.

The transmitters are available in pressure ranges from 0 .. 40 bar to 0 .. 600 bar.

For implementation into modern controls, there are standard analogue outputs available, such as 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V or 0 .. 10 V. Ratiometric output signals are available as well.

There are various integrated connectors as well as a diversity of cable solutions available for the electrical connection.

A basic accuracy of  $\leq \pm 0.25$  % FS typ., combined with low temperature drift open up a wide range of applications for HDA 8700.

#### Fields of application

The HDA 8700 pressure transmitter series has been specially designed for series use, e.g. in mobile applications.

Especially for the use in public traffic vehicles, HDA 8700 has the E13 approval (for road vehicles) according to ECE type approval.

## Technical data

| Input data                                                                                                                                                                        |                                                                                                                                                            |     |     |     |     |                                                                      |      |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|----------------------------------------------------------------------|------|------|
| Measuring ranges                                                                                                                                                                  | bar                                                                                                                                                        | 40  | 60  | 100 | 160 | 250                                                                  | 400  | 600  |
| Overload pressures                                                                                                                                                                | bar                                                                                                                                                        | 80  | 120 | 200 | 320 | 500                                                                  | 800  | 1000 |
| Burst pressure                                                                                                                                                                    | bar                                                                                                                                                        | 200 | 300 | 500 | 800 | 1250                                                                 | 2000 | 2000 |
| Mechanical connection                                                                                                                                                             | Various threads, e.g.:<br>G1/4 A ISO 1179-2<br>M14x1.5<br>9/16-18 UNF 2A (SAE6)                                                                            |     |     |     |     |                                                                      |      |      |
| Tightening torque, recommended                                                                                                                                                    | Recommended tightening torque, see dimensions                                                                                                              |     |     |     |     |                                                                      |      |      |
| Parts in contact with fluid <sup>1)</sup>                                                                                                                                         | Connector: Stainless steel<br>Seal: FKM                                                                                                                    |     |     |     |     |                                                                      |      |      |
| Output data                                                                                                                                                                       |                                                                                                                                                            |     |     |     |     |                                                                      |      |      |
| Output signal                                                                                                                                                                     | Various Signals, e.g. 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V, 0 .. 10 V;<br>Ratiometric: 0.5 .. 4.5 V at U <sub>B</sub> = 5 V DC (10 .. 90 % U <sub>B</sub> ± 5 %) |     |     |     |     |                                                                      |      |      |
| 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>zero point                                                                                                                                            | ≤ ± 0.01 % FS / °C typ.<br>≤ ± 0.02 % FS / °C max.                                                                                                         |     |     |     |     |                                                                      |      |      |
| Temperature compensation<br>span                                                                                                                                                  | ≤ ± 0.01 % FS / °C typ.<br>≤ ± 0.02 % FS / °C max.                                                                                                         |     |     |     |     |                                                                      |      |      |
| Rise time                                                                                                                                                                         | ≤ 1.5 ms                                                                                                                                                   |     |     |     |     |                                                                      |      |      |
| Long-term drift                                                                                                                                                                   | ≤ ± 0.3 % FS typ. / year                                                                                                                                   |     |     |     |     |                                                                      |      |      |
| Environmental conditions / Approvals / Tests                                                                                                                                      |                                                                                                                                                            |     |     |     |     |                                                                      |      |      |
| Compensated temperature range                                                                                                                                                     | -25 .. +85 °C                                                                                                                                              |     |     |     |     |                                                                      |      |      |
| Operating temperature range <sup>3)</sup>                                                                                                                                         | -40 .. +100 °C / -25 .. +100 °C                                                                                                                            |     |     |     |     |                                                                      |      |      |
| Storage temperature range                                                                                                                                                         | -40 .. +100 °C                                                                                                                                             |     |     |     |     |                                                                      |      |      |
| Fluid temperature range <sup>3)</sup>                                                                                                                                             | -40 .. +125 °C / -25 .. +125 °C                                                                                                                            |     |     |     |     |                                                                      |      |      |
| EMC                                                                                                                                                                               | 2014/30/EU<br>EN 61006-6-1 / 2 / 3 / 4                                                                                                                     |     |     |     |     |                                                                      |      |      |
| Vibration resistance                                                                                                                                                              | DIN EN 60068-2-6                                                                                                                                           |     |     |     |     | ≤ 250 m/s² (5 .. 2000 Hz)                                            |      |      |
| Shock resistance                                                                                                                                                                  | DIN EN 60068-2-27                                                                                                                                          |     |     |     |     | 100 g / 6 ms / half sine<br>500 g / 1 ms / half sine                 |      |      |
| Protection type <sup>4)</sup>                                                                                                                                                     | DIN EN 60529<br><br>ISO 20653                                                                                                                              |     |     |     |     | IP 65 / IP 67 (depending on the<br>electrical connection)<br>IP 6K9K |      |      |
|   conformity | Provided                                                                                                                                                   |     |     |     |     |                                                                      |      |      |
|  approval <sup>5)</sup>                                                                         | Provided                                                                                                                                                   |     |     |     |     |                                                                      |      |      |
|  E approval                                                                                     | available acc. to UN/ECE10                                                                                                                                 |     |     |     |     |                                                                      |      |      |
| Other data                                                                                                                                                                        |                                                                                                                                                            |     |     |     |     |                                                                      |      |      |
| Electrical connection                                                                                                                                                             | Various Plug, e.g. M12x1, Packard Metri Pack, Deutsch DT 04, AMP<br>Superseal, AMP Junior Power Timer, jacketed cable                                      |     |     |     |     |                                                                      |      |      |
| Supply voltage                                                                                                                                                                    | 8 .. 30 V DC<br>12 .. 30 V DC for communication operation 0 .. 10 V                                                                                        |     |     |     |     |                                                                      |      |      |
| when applied acc. to UL specifications                                                                                                                                            | 5 V ± 5 % for ratiometric output signal<br>-limited energy- acc. to 9.3 UL 61010; Class 2<br>UL 1310/1585; LPS UL 60950                                    |     |     |     |     |                                                                      |      |      |
| Residual ripple of supply voltage                                                                                                                                                 | ≤ 5 %                                                                                                                                                      |     |     |     |     |                                                                      |      |      |
| Current consumption                                                                                                                                                               | ≤ 22 mA                                                                                                                                                    |     |     |     |     |                                                                      |      |      |
| Life expectancy                                                                                                                                                                   | > 10 million load cycles (0 .. 100 % FS)                                                                                                                   |     |     |     |     |                                                                      |      |      |
| Weight                                                                                                                                                                            | ~ 55 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> Other seal materials on request

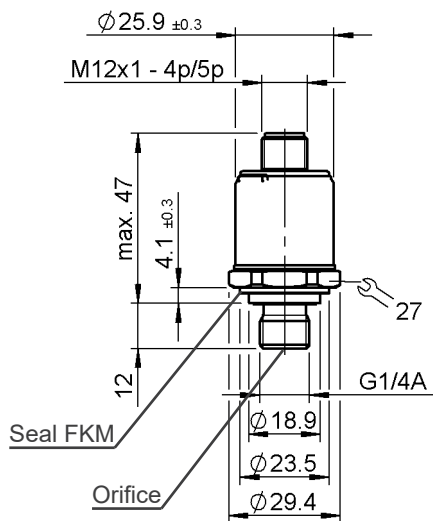
<sup>2)</sup> Including non-linearity, hysteresis, offset and final value deviation

<sup>3)</sup> In the standard up to -25 °C with FKM seal, -40 °C on request

<sup>4)</sup> With mounted mating connector in corresponding protection type

<sup>5)</sup> Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 no. 61010-1

Dimensions



Electrical connection variants

|                                                 |                                                          |                                                                                                                               |
|-------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Plug Packard Metri Pack series 150, 3 pole      | Plug Deutsch DT 04, 3 pole                               | Jacketed cable                                                                                                                |
| <p>Metri-Pack Serie 150 - 3p</p> <p>max. 20</p> | <p>DEUTSCH DT04 - 3p</p> <p>max. 17.5</p> <p>max. 21</p> | <p>1000 <math>\pm 10</math></p> <p>35 <math>\pm 2</math></p> <p>5 -1</p> <p>max. 20</p> <p><math>\phi 25.9 \pm 0.3</math></p> |
| Plug AMP Superseal, 3 pole                      | Plug AMP Junior Timer, 3 pole                            |                                                                                                                               |
| <p>Superseal Serie 1.5 - 3p</p> <p>max. 19</p>  | <p>Junior Power Timer - 3p</p> <p>max. 14.5</p>          |                                                                                                                               |

Mechanical connection variants

|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7/16-20 UNF 2A<br>External thread<br>Tightening torque, recommended: 15 Nm                                                                                                                                            | 9/16-18 UNF 2A<br>External thread<br>Tightening torque, recommended: 20 Nm                                                                                                                                         |
| <p>7/16 -20UNF2A</p> <p>O-Ring 8.92x1.83 -FKM-90Sh</p> <p>Orifice</p> <p><math>\phi 14.3</math></p> <p><math>\phi 23.5</math></p> <p><math>\phi 29.4</math></p> <p>9.14</p> <p>4.1 <math>\pm 0.3</math></p> <p>27</p> | <p>9/16 -18UNF2A</p> <p>O-Ring 11.89x1.98 -FKM-90Sh</p> <p>Orifice</p> <p><math>\phi 19</math></p> <p><math>\phi 23.5</math></p> <p><math>\phi 29.4</math></p> <p>10</p> <p>4.1 <math>\pm 0.3</math></p> <p>27</p> |

## Order details OEM

Pressure transmitter HDA 8700 has been specially developed for OEM customers and is available for minimum order quantities from 500 pieces per type.

For detailed specification, please do not hesitate to contact our HYDAC ELECTRONIC Sales department.

## 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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