Industrial Pressure Transmitter

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure
from 0 ... 6 bar up to 0 ... 600 bar

Output signals
2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Special characteristics
► suitable for oxygen applications
► insensitive to pressure peaks
► high overpressure capability

Optional versions
► IS-version
  Ex ia = intrinsically safe for gases and dusts
► customer specific versions

The industrial pressure transmitter DMP 335 is based on a stainless steel welded pressure sensor without fluid.

This characteristic has a special advantage with applications where silicone oil or elastomeric seals cannot be used.

Bevorzugte Anwendungsgebiete
- Medical Technology
- Plant and Machine Engineering
- Mobile Hydraulics
- Refrigeration
- Oxygen application

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**Input pressure range**

<table>
<thead>
<tr>
<th>Nominal pressure gauge (bar)</th>
<th>6</th>
<th>10</th>
<th>16</th>
<th>25</th>
<th>40</th>
<th>60</th>
<th>100</th>
<th>160</th>
<th>250</th>
<th>400</th>
<th>600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overpressure (bar)</td>
<td>14</td>
<td>35</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>140</td>
<td>350</td>
<td>350</td>
<td>700</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Burst pressure (bar)</td>
<td>35</td>
<td>85</td>
<td>85</td>
<td>175</td>
<td>350</td>
<td>350</td>
<td>850</td>
<td>850</td>
<td>1750</td>
<td>2100</td>
<td>2100</td>
</tr>
</tbody>
</table>

Vacuum resistance: unlimited

**Output signal / Supply**

- **Standard**
  - 2-wire: 4 ... 20 mA / $V_S = 8 ... 32 \text{V}_{\text{DC}}$

- **Option IS-version**
  - 2-wire: 4 ... 20 mA / $V_S = 10 ... 28 \text{V}_{\text{DC}}$

- **Option 3-wire**
  - 3-wire: 0 ... 10 V / $V_S = 14 ... 30 \text{V}_{\text{DC}}$

**Performance**

- **Accuracy**: $\leq \pm 0.5 \% \text{FSO}$
- **Permissible load**: current 2-wire: $R_{\text{max}} = \frac{(V_{\text{S}} - V_{\text{S min}})}{0.02} \Omega$
  - voltage 3-wire: $R_{\text{max}} = 10 \text{k}\Omega$
- **Influence effects**: supply: $0.05 \% \text{FSO} / 10 \text{V}$
  - load: $0.05 \% \text{FSO} / \text{k}\Omega$
- **Long term stability**: $\leq \pm 0.2 \% \text{FSO} / \text{year at reference conditions}$
- **Response time**: 2-wire: $\leq 10 \text{msec}$
  - 3-wire: $\leq 3 \text{msec}$

1 accuracy according to IEC $60770$ – limit point adjustment (non-linearity, hysteresis, repeatability)

**Thermal effects (Offset and Span)**

- **Thermal error**: $\pm 0.3 \% \text{FSO} / 10 \text{K}$
- **In compensated range**: $0 ... 70 \text{°C}$

**Permissible temperatures**

- **Permissible temperatures**: medium: $-40 ... 125 \text{°C}$
  - electronics / environment: $-40 ... 85 \text{°C}$
  - storage: $-40 ... 100 \text{°C}$

**Electrical protection**

- **Short-circuit protection**: permanent
- **Reverse polarity protection**: no damage, but also no function

**Mechanical stability**

- **Vibration**: 20 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
- **Shock**: 500 g / 1 msec according to DIN EN 60068-2-27

**Materials**

- **Pressure port**: stainless steel 1.4571 (316 Ti)
- **Housing**: stainless steel 1.4404 (316 L)
- **Option compact field housing**: stainless steel 1.4305 (303), cable gland brass, nickel plated others on request
- **Seals (media wetted)**: none (welded)
- **Diaphragm**: stainless steel 1.4542 (17-4PH)
- **Media wetted parts**: pressure port, diaphragm

**Explosion protection (only for 4 ... 20 mA / 2-wire)**

- **Approvals**: IBEExU 10 ATEX 1068 X / IECEx IBE 12.0027X
  - zone 0: II 1G Ex ia IIC T4 Ga
  - zone 20: II 1D Ex ia III C T 85°C Da

- **Safety technical maximum values**: $U_i = 28 \text{V}_{\text{DC}}$, $I_i = 93 \text{mA}$, $P_i = 660 \text{mW}$, $C = 0 \text{nF}$, $L = 0 \text{µH}$, the supply connections have an inner capacity of max. 27 nF to the housing

- **Permissible temperatures for environment**
  - in zone 0: $-20 ... 60 \text{°C}$ bei $p_{\text{env}} 0.8$ bar up to 1.1 bar
  - in zone 1: $-20 ... 70 \text{°C}$

- **Connecting cables (by factory)**
  - cable capacitance: signal line/shield also signal line/signal line: $160 \text{pF/m}$
  - cable inductance: signal line/shield also signal line/signal line: $1 \text{µH/m}$

**Miscellaneous**

- **Current consumption**
  - signal output current: max. 25 mA
  - signal output voltage: max. 7 mA
- **Weight**: approx. 140 g
- **Installation position**: any
- **Operational life**: $> 100 \times 10^6$ pressure cycles
- **CE-conformity**: EMC Directive: 2014/30/EU
  - Pressure Equipment Directive: 2014/68/EU (module A)

- **ATEX Directive**: 2014/34/EU

2 This directive is only valid for devices with maximum permissible overpressure $> 200$ bar
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Wiring diagrams

2-wire-system (current)

3-wire-system (voltage)

Pin configuration

<table>
<thead>
<tr>
<th>Electrical connections</th>
<th>ISO 4400</th>
<th>Binder 723 (5-pin)</th>
<th>M12x1 (4-pin)</th>
<th>field housing</th>
<th>cable colour (IEC 60757)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply +</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>IN +</td>
<td>wh (white)</td>
</tr>
<tr>
<td>Supply –</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>IN –</td>
<td>bn (brown)</td>
</tr>
<tr>
<td>Signal + (only for 3-wire)</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>OUT +</td>
<td>gn (green)</td>
</tr>
<tr>
<td>Shield</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
<td>gnye (green-yellow)</td>
</tr>
</tbody>
</table>

Electrical connections (dimensions in mm)

standard

ISO 4400 (IP 65)

Binder series 723 5-pin (IP 67)

M12x1 4-pin (IP 67)

cable outlet with PVC cable (IP 67)

option

compact field housing (IP 67)

cable outlet, cable with ventilation tube (IP 68)

universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

3 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
4 different cable types and lengths available, permissible temperature depends on kind of cable

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Mechanical connections (dimensions in mm)

<table>
<thead>
<tr>
<th></th>
<th>standard</th>
<th>option</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/2&quot;</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>G1/4&quot;</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>SW27</td>
<td>G1/2&quot; EN 837</td>
<td>G1/4&quot; EN 837</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; NPT</td>
<td>1/4&quot; NPT</td>
</tr>
</tbody>
</table>

⇒ metric threads and other versions on request

Accessories

Plug-on Display PA 430

**Functional range**
- free scalable display
- switch mode, hysteresis, parameterizable deceleration of the contacts
- display 330° rotatable
- connector 300° rotatable
- no external power supply necessary

**Product characteristics**
- plug-on display for pressure transmitter with output signal:
  - 4…20 mA / 2-wire or 0…10 V / 3-wire
  - 4-digit LED display

**Optional versions**
- IS-version
- 1 or 2 programmable contacts

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## Ordering code DMP 335

<table>
<thead>
<tr>
<th>Pressure (gauge)</th>
<th>2 1 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input [bar]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6 1 1</td>
</tr>
<tr>
<td>10</td>
<td>1 6 1</td>
</tr>
<tr>
<td>16</td>
<td>1 6 2</td>
</tr>
<tr>
<td>25</td>
<td>2 5 1</td>
</tr>
<tr>
<td>40</td>
<td>4 1 2</td>
</tr>
<tr>
<td>60</td>
<td>6 1 2</td>
</tr>
<tr>
<td>100</td>
<td>1 6 3</td>
</tr>
<tr>
<td>160</td>
<td>1 6 3</td>
</tr>
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<td>250</td>
<td>2 5 3</td>
</tr>
<tr>
<td>400</td>
<td>4 1 3</td>
</tr>
<tr>
<td>600</td>
<td>6 1 3</td>
</tr>
<tr>
<td>Customer</td>
<td>9 9 9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ... 20 mA / 2-wire</td>
<td>1</td>
</tr>
<tr>
<td>4 ... 10 V / 3-wire</td>
<td>3</td>
</tr>
<tr>
<td>Intrinsic safety 4 ... 20 mA / 2-wire</td>
<td>E</td>
</tr>
<tr>
<td>Customer</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 %</td>
<td>5</td>
</tr>
<tr>
<td>Customer</td>
<td>9</td>
</tr>
<tr>
<td>Consult</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical connection

| Male and female plug ISO 4400 | 7 6 6 |
| Male plug Binder series 723 (5-pin) | 2 6 5 |
| Compact field housing 4 ... 10 V / 3-wire | 7 6 6 |
| Stainless steel 1.4305 | 9 9 9 |

<table>
<thead>
<tr>
<th>Mechanical connection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/2&quot; EN 837</td>
<td>2 6 6</td>
</tr>
<tr>
<td>G1/4&quot; EN 837</td>
<td>4 6 6</td>
</tr>
<tr>
<td>1/4&quot; NPT</td>
<td>9 6 6</td>
</tr>
<tr>
<td>Customer</td>
<td>9 9 9</td>
</tr>
</tbody>
</table>

### Seals

- Without (welded version) | 2 9 9 |
- Customer                | 9 9 9 |

### Special version

- Standard | 0 9 9 |
- Customer | 9 9 9 |

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### Standard

- 2 m PVC cable without ventilation tube (permisible temperature: -5 ... 70 °C)
- Cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable; price without cable

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