The pressure transmitter DMK 331P is suitable for measuring the pressure of viscous and pasty media, where a totally flush pressure port is required.

**Preferred areas of use are**

- Plant and Machine Engineering
- Food Industry

**Preferred used for**

- Viscous and Pasty Media

### Nominal pressure

- from 0 ... 60 bar
- up to 0 ... 400 bar

### Output signals

- 2-wire: 4 ... 20 mA
- 3-wire: 0 ... 20 mA / 0 ... 10 V
- others on request

### Special characteristics

- suited for viscous and pasty media

### Optional versions

- IS-version
  - Ex ia = intrinsically safe for gases and dusts
- SIL 2
  - according to IEC 61508 / IEC 61511
- food compatible oil filling with FDA approval
- cooling element for media temperatures up to 300 °C
- customer specific versions
### Input pressure range

<table>
<thead>
<tr>
<th>Nominal pressure gauge / abs. [bar]</th>
<th>60</th>
<th>100</th>
<th>160</th>
<th>250</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overpressure [bar]</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>Burst pressure ≥ [bar]</td>
<td>120</td>
<td>250</td>
<td>500</td>
<td>500</td>
<td>650</td>
</tr>
</tbody>
</table>

### Output signal / Supply

<table>
<thead>
<tr>
<th></th>
<th>2-wire:</th>
<th>Options IS-protection</th>
<th>Options 3-wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>4 ... 20 mA /</td>
<td>4 ... 20 mA /</td>
<td>0 ... 20 mA /</td>
</tr>
<tr>
<td></td>
<td>8 ... 32 VDC</td>
<td>10 ... 28 VDC</td>
<td>14 ... 30 VDC</td>
</tr>
<tr>
<td></td>
<td>S= 8 ... 32 VDC</td>
<td>S= 10 ... 28 VDC</td>
<td>S= 14 ... 30 VDC</td>
</tr>
</tbody>
</table>

### Performance

- **Accuracy**
  - ≤ ± 0.5 % FSO
  - current 2-wire: \( R_{\text{max}} = \frac{(V_S - V_{S \text{ min}})}{0.02} \Omega \)
  - current 3-wire: \( R_{\text{max}} = 500 \Omega \)
  - voltage 3-wire: \( R_{\text{sh}} = 10 \, \text{k}\Omega \)
- **Influence effects**
  - supply: 0.05 % FSO / 10 V
  - load: 0.05 % FSO / kΩ
- **Long term stability**
  - ≤ ± 0.3 % FSO / year at reference conditions
- **Response time**
  - 2-wire: ≤ 10 msec
  - 3-wire: ≤ 3 msec

### Thermal effects (Offset and Span) / Permissible temperatures

- **Thermal error**
  - ≤ ± 0.2 % FSO / 10 K
- **Permissible temperatures**
  - in compensated range
    - -20 ... 85°C
    - -40 ... 125°C for filling fluid silicon oil
    - -10 ... 125°C for filling fluid food compatible oil
    - -40 ... 85°C for electronics / environment
    - -40 ... 100°C for storage
- **Permissible temperature medium for cooling element 300°C**
  - filling fluid silicon oil
  - overpressure: -40 ... 300°C
  - vacuum: -40 ... 150°C
  - filling fluid food compatible oil
  - overpressure: -10 ... 250°C
  - vacuum: -10 ... 150°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

### Filling fluids

- **Standard**
  - silicon oil
- **Options**
  - food compatible oil (with FDA approval)
  - Mobil DTE FM 32; Category Code: H1; NSF Registration No.: 130662
  - others on request

### Materials

- **Pressure port** stainless steel 1.4404 (316 L)
- **Housing** stainless steel 1.4404 (316 L)
- **Option compact field housing** stainless steel 1.4305 (303) with cable gland brass, nickel plated others on request
- **Seals (media wetted)**
  - standard: FKM (recommended for medium temperatures ≤ 200°C)
  - option: FFKM (recommended for medium temperatures > 200°C)
  - others on request
- **Diaphragm**
  - stainless steel 1.4435 (316 L)
- **Media wetted parts**
  - pressure port, seals, diaphragm

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

- **Approval DX 19 - DMK 331P** IExU 10 ATEX 1068 X
  - zone 0: II 1G Ex ia IIC T4 Ga
  - zone 20: II 1D Ex ta IIIC T 85°C, IP6x in preparation
- **Safety technical maximum values**
  - \( U_i = 28 \, \text{V}, I_i = 93 \, \text{mA}, P_i = 660 \, \text{mW}, C = 0 \, \text{nF}, L = 0 \, \text{μH} \)
- **Permissible temperatures for environment**
  - in zone 0: -20 ... 60°C with \( p_{\text{min}} = 0.8 \, \text{bar up to 1.1 bar} \)
  - in zone 1 or higher: -20 ... 70°C
- **Connecting cables (by factory)**
  - cable capacitance: signal line/shield also signal line/signal line: 160 pF/m
  - cable inductance: signal line/shield also signal line/signal line: 1 μH/m
DMK 331P
Indus trial Pressure Transmitter Technical Data

**Miscellaneous**

<table>
<thead>
<tr>
<th>Option</th>
<th>according to IEC 61508 / IEC 61511</th>
</tr>
</thead>
</table>

**Current consumption**
- signal output current: max. 25 mA
- signal output voltage: max. 5 mA

**Weight**
- min. 200 g (depending on process connection)

**Installation position**
- any (standard calibration in a vertical position with the pressure port connection down)

**Operational life**
- > 100 x 10^6 pressure cycles

**CE-conformity**
- Pressure Equipment Directive: 97/23/EC (module A)

*This directive is only valid for devices with maximum permissible overpressure > 200 bar*

**Wiring diagrams**

2-wire-system (current)

3-wire-system (current / voltage)

**Pin configuration**

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>ISO 4400</th>
<th>Binder 723 (5-pin)</th>
<th>M12x1 / metal (4-pin)</th>
<th>field housing</th>
<th>cable colours (DIN 47100)</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>ground pin</td>
<td>5</td>
<td>4</td>
<td>gn/ye</td>
<td>(green / yellow)</td>
</tr>
</tbody>
</table>

**Electrical connection (dimensions in mm)**

<table>
<thead>
<tr>
<th>standard</th>
<th>option</th>
<th>compact field housing</th>
<th>cable outlet with PVC cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 4400 (IP 65)</td>
<td>Binder Series 723 5-pin (IP 67)</td>
<td>M12x1 4-pin (IP 67)</td>
<td></td>
</tr>
</tbody>
</table>

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

*standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)
**Mechanical connection (dimensions in mm)**

**standard**

![Diagram of standard mechanical connection]

G1/2" flush with ISO 4400

**option**

![Diagram of option mechanical connection]

G3/4" flush with ISO 4400

G1" flush with ISO 4400

cooling element 300 °C

G1/2" flush with radial o-ring

G1" flush with radial o-ring

⇔ SIL- and SIL-Ex version: total length increases by 26.5 mm!
⇔ metric threads and other versions on request

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*possible for nominal pressure ranges P_max ≤ 160 bar*
<table>
<thead>
<tr>
<th>Ordering code DMK 331P</th>
</tr>
</thead>
</table>

### Pressure

- **gauge**
  - 505
- **absolute**
  - 506

### Input

<table>
<thead>
<tr>
<th>Value</th>
<th>60</th>
<th>100</th>
<th>160</th>
<th>250</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>600</td>
<td>1000</td>
<td>1600</td>
<td>2500</td>
<td>4000</td>
</tr>
<tr>
<td>Value</td>
<td>9999</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Output

- 4 ... 20 mA / 2-wire: 1
- 0 ... 20 mA / 3-wire: 2
- 0 ... 10 V / 3-wire: 3
- Intrinsic safety 4 ... 20 mA / 2-wire: E
- SIL3 4 ... 20 mA / 2-wire: E5
- SIL2 with Intrinsic safety: 4 ... 20 mA / 2-wire: E5
- customer: 9

### Accuracy

- 0.5 %: 5
- customer: 9

### Electrical connection

- Male and female plug ISO 4400: 1 0 0
- Male plug Binder series 723 (5-pin): 2 0 0
- Male plug M12x1 (4-pin) / metal: M 1 0
- compact field housing: 8 5 0
- customer: 9 9 9

### Mechanical connection

- G1/2" DIN 3852 with flush diaphragm: Z 0 0
- G3/4" DIN 3852 with flush diaphragm: Z 3 0
- G1" DIN 3852 with flush diaphragm: Z 3 1
- G1" DIN 3852 with rad. o-ring and flush diaphragm: Z 5 7
- G1/2" DIN 3852 with rad. o-ring and flush diaphragm: Z 6 1
- customer: 9 9 9

### Diaphragm

- Stainless steel 1.4435 (316L): 1
- customer: 9

### Seals

- FKM: 1
- FFKM: 7
- customer: 9

### Filling Fluids

- Silicon oil: 1
- food compatible oil: 2
- customer: 9

### Special version

- standard: 0 0 0
- with cooling element up to 300°C: 2 0 0
- customer: 9 9 9

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1. standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)
2. only for pressure ≤ 160 bar

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This price list contains product specification properties that are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.
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