Pressure switch, high adjustability of switch differential
For the process industry
Model PSM-700, with robust aluminium case

Applications

- Pumps for process applications (e.g. water treatment, water supply and distribution)
- Industrial hydraulics (e.g. pressure control, oil pressure monitoring and overpressure protection in process lines)
- Discharge control for automatic sprinkler systems
- Compressor controls in pneumatic applications

Description

The model PSM-700 mechanical pressure switch has been designed for control and monitoring applications. The measuring element is a fully welded bellow made of stainless steel 316L. This corrosion-resistant pressure switch is suitable for a broad range of media used in the process industry.

The case consists of a high-grade aluminium alloy with which the pressure switch can withstand the harsh operating conditions of the process industry. The model PSM-700 is equipped with UL listed micro switches to ensure high endurance with durable operation and long service life.

The model PSM-700 has a high switch point repeatability of ≤ 0.5 %, which enables reliable switching. Adjustable switch differential to a wide range of up to 60 % of the setting range to realise flexible on/off controls. This wide setting range is often needed for the on/off control mode of cyclic applications.

The switch point can be specified on site. With the available tamper proofing, unauthorised adjustment of the switch point can be prevented.

Applications

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- Industrial hydraulics (e.g. pressure control, oil pressure monitoring and overpressure protection in process lines)
- Discharge control for automatic sprinkler systems
- Compressor controls in pneumatic applications

Special features

- Switch differential adjustable within a wide range of up to 60 % of the setting range to realise flexible on/off controls
- Robust aluminium case
- Switch point repeatability of ≤ 0.5 % for reliable switching
- High-quality micro switches with long service life
- Up to 2 possible positions for electrical connection
Specifications

Design
BS 6134:1991

Case
Aluminium (EN AC-44100)
Sealing: EPDM
With blow-out device on the left side

Tamper proofing (option)
Prevents unauthorised adjustment of the switch point.

Ingress protection per IEC/EN 60529
IP66

Permissible temperature ranges
Ambient: -10 ... +60 °C [+14 ... +140 °F]
Medium:
-30 ... +115 °C [-22 ... +239 °F]
-30 ... +150 °C [-22 ... +302 °F] 1)
Storage: -50 ... +60 °C [-58 ... +140 °F]

Switching function
1 x SPDT (single pole double throw)
1 x DPDT (double pole double throw)
1 or 2 micro switches, contacts silver-plated
The DPDT function is realised with 2 simultaneously triggering SPDT micro switches within 2 % of the setting range.

Switch differential
Fixed
Adjustable up to 60% of the setting range
The exact value/value range of the switch differential is dependent on the above-selected version and the setting range (see table "Setting range" on page 3)

Switch point repeatability
≤ 0.5 % of span

Switch point setting
Factory default setting (see table "setting range" on page 3)
Factory-set to customer specification. The switch point and the switching direction need to be specified (e.g. switch point: 5 bar, rising).

Subsequent setting of the switch point on site is made using the adjustment screw, which is fastened to the switch.
For optimal performance we suggest to adjust the switch point between 15 % and 70 % of the setting range.

Electrical connection
1 x on the left side for 1 x SPDT version
1 x on the left side and 1 x from above for 1 x DPDT version or 1 x SPDT version (option)

Thread of electrical connection
½ NPT female
M20 x 1.5 female
¾ NPT via adapter

Cable gland
Without
Polyamide
Stainless steel
Cable connection using internal terminal block, protective conductor connection using internal and external screw.
Maximum grounding cable cross-section 4 mm²

Electrical safety
Safety class I per IEC 61010-1:2010 (case grounded with protective conductor), overvoltage category II, pollution degree 2

Measuring element
Bellow, stainless steel 316L

Process connection
316L stainless steel, lower mount
¼ NPT female per ANSI B1.20.1
G ½ male per ISO 228/1
G ¼ male per ISO 228/1

Mounting
Direct mounting
Panel mounting
Mounting fixture for wall mounting from stainless steel
Mounting bracket for 2" pipe mounting and U-bolts from stainless steel

Weight
Approx. 1.0 ... 1.5 kg, depending on setting range

Process connection

1) only selectable for contact version: F2, A1, A2
### Contact version

<table>
<thead>
<tr>
<th>Code</th>
<th>Switch differential</th>
<th>Switch type</th>
<th>Electrical rating AC</th>
<th>Electrical rating DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Resistive load</td>
<td>Inductive load</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>125 V</td>
<td>250 V</td>
</tr>
<tr>
<td>F1</td>
<td>Fixed</td>
<td>SPDT</td>
<td>10 A</td>
<td>10 A</td>
</tr>
<tr>
<td>F2</td>
<td></td>
<td>DPDT</td>
<td>-</td>
<td>15 A</td>
</tr>
<tr>
<td>A1</td>
<td>Adjustable</td>
<td>SPDT</td>
<td>-</td>
<td>15 A</td>
</tr>
<tr>
<td>A2</td>
<td></td>
<td>DPDT</td>
<td>-</td>
<td>15 A</td>
</tr>
</tbody>
</table>

### Setting range

<table>
<thead>
<tr>
<th>Unit</th>
<th>Setting range</th>
<th>Switch point with factory default setting</th>
<th>Maximum operating pressure</th>
<th>Proof pressure</th>
<th>Fixed switch differential</th>
<th>Fixed switch differential</th>
<th>Adjustable switch differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>bar</td>
<td>-1 ... 1.5</td>
<td>0.25</td>
<td>5</td>
<td>20</td>
<td>≤ 0.1</td>
<td>≤ 0.23</td>
<td>0.23 ... 0.9</td>
</tr>
<tr>
<td></td>
<td>0.2 ... 1.6</td>
<td>0.9</td>
<td>2.5</td>
<td>10</td>
<td>≤ 0.06</td>
<td>≤ 0.24</td>
<td>0.24 ... 0.95</td>
</tr>
<tr>
<td></td>
<td>0.4 ... 4</td>
<td>2.2</td>
<td>9</td>
<td>36</td>
<td>≤ 0.16</td>
<td>≤ 0.6</td>
<td>0.6 ... 2.4</td>
</tr>
<tr>
<td></td>
<td>0.7 ... 7</td>
<td>3.85</td>
<td>18</td>
<td>72</td>
<td>≤ 0.28</td>
<td>≤ 1.1</td>
<td>1.1 ... 4</td>
</tr>
<tr>
<td></td>
<td>1 ... 10</td>
<td>5.5</td>
<td>18</td>
<td>72</td>
<td>≤ 0.4</td>
<td>≤ 1.5</td>
<td>1.5 ... 6</td>
</tr>
<tr>
<td></td>
<td>1.6 ... 16</td>
<td>8.8</td>
<td>25</td>
<td>100</td>
<td>≤ 0.64</td>
<td>≤ 2.4</td>
<td>2.5 ... 9.5</td>
</tr>
<tr>
<td></td>
<td>4 ... 25</td>
<td>14.5</td>
<td>36</td>
<td>144</td>
<td>≤ 1</td>
<td>≤ 3.75</td>
<td>3.8 ... 15</td>
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<tr>
<td></td>
<td>7 ... 35</td>
<td>21</td>
<td>50</td>
<td>200</td>
<td>≤ 1.4</td>
<td>≤ 5.25</td>
<td>5.5 ... 20</td>
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<tr>
<td>psi</td>
<td>-15 ... 21</td>
<td>3</td>
<td>72</td>
<td>288</td>
<td>≤ 1.45</td>
<td>≤ 3.3</td>
<td>3.3 ... 13</td>
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<tr>
<td></td>
<td>3 ... 23</td>
<td>13</td>
<td>36</td>
<td>144</td>
<td>≤ 0.95</td>
<td>≤ 3.5</td>
<td>3.5 ... 13.5</td>
</tr>
<tr>
<td></td>
<td>5.8 ... 58</td>
<td>32</td>
<td>130</td>
<td>520</td>
<td>≤ 2.4</td>
<td>≤ 8.7</td>
<td>8.7 ... 34</td>
</tr>
<tr>
<td></td>
<td>10 ... 100</td>
<td>55</td>
<td>260</td>
<td>1,040</td>
<td>≤ 4.1</td>
<td>≤ 15.5</td>
<td>15.5 ... 60</td>
</tr>
<tr>
<td></td>
<td>15 ... 145</td>
<td>80</td>
<td>260</td>
<td>1,040</td>
<td>≤ 5.1</td>
<td>≤ 22</td>
<td>22 ... 85</td>
</tr>
<tr>
<td></td>
<td>23 ... 230</td>
<td>126.5</td>
<td>360</td>
<td>1,440</td>
<td>≤ 9.5</td>
<td>≤ 35</td>
<td>35 ... 139</td>
</tr>
<tr>
<td></td>
<td>60 ... 360</td>
<td>210</td>
<td>520</td>
<td>2,080</td>
<td>≤ 14.5</td>
<td>≤ 54.5</td>
<td>55 ... 215</td>
</tr>
<tr>
<td></td>
<td>100 ... 500</td>
<td>300</td>
<td>720</td>
<td>2,880</td>
<td>≤ 20.5</td>
<td>≤ 76.5</td>
<td>76.5 ... 300</td>
</tr>
</tbody>
</table>

1) In the absence of customer specification, the switch point will be preset on falling pressure to the specified value
2) Maximum pressure that the sensor element can withstand without suffering any permanent damage. The instrument might have to be calibrated afterwards.
3) The difference between the switch point and the reset point is also known as switch hysteresis

### Approvals

<table>
<thead>
<tr>
<th>Logo</th>
<th>Description</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>![CE]</td>
<td>EU declaration of conformity</td>
<td>European Union</td>
</tr>
</tbody>
</table>

- Low voltage directive
- RoHS directive

### Certificates (option)

- 2.2 test report per EN 10204
- 3.1 inspection certificate per EN 10204

Approvals and certificates, see website
Dimensions in mm [in]

Model PSM-700, fixed switch differential

Model PSM-700, adjustable switch differential

For panel mounting
2 x through bores, suitable for M4 screws, accessible after removal of the case cover
**Mounting**

Direct mounting

Panel mounting

Wall mounting

2" pipe mounting

2 x through bores, suitable for M4 screws, accessible after removal of the case cover

**Ordering information**

Model / Contact version / Electrical connection / Setting range / Switch point setting