Submersible pressure transmitter for level measurement
Model LS-10, standard version

Applications
- Level measurement in rivers and lakes
- Level measurement in vessel and storage systems
- Control of sewage lift and pumping stations
- Monitoring of sewage, settling and stormwater retention basins

Special features
- Robust
- Reliable
- Economical

Description

For simple measuring tasks
The model LS-10 submersible pressure transmitter has been optimised for simple measuring requirements in level measurement. It offers excellent quality, is cost-effective and reliable.

It has been designed to the current demands of the industry and has a 4 ... 20 mA output as standard, an accuracy of 0.5% and PUR cable. With IP 68 ingress protection, it is suitable for permanent level measurement up to 100 m water column.

Reliable and long-lasting
The submersible pressure transmitter features a hermetically-sealed and exceptionally robust stainless steel case. The proven, fully-welded construction ensures a long service life and permanent sealing.
Measuring ranges

<table>
<thead>
<tr>
<th>Relative pressure</th>
<th>bar</th>
<th>Measuring range</th>
<th>0 ... 0.25</th>
<th>0 ... 0.4</th>
<th>0 ... 0.6</th>
<th>0 ... 1</th>
<th>0 ... 1.6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>2.4</td>
<td>2.4</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measuring range</td>
<td>0 ... 2.5</td>
<td>0 ... 4</td>
<td>0 ... 6</td>
<td>0 ... 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inWC</td>
<td>Measuring range</td>
<td>0 ... 100</td>
<td>0 ... 150</td>
<td>0 ... 250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>750</td>
<td>750</td>
<td>1,100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>950</td>
<td>950</td>
<td>1,600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psi</td>
<td>Measuring range</td>
<td>0 ... 5</td>
<td>0 ... 10</td>
<td>0 ... 15</td>
<td>0 ... 25</td>
<td>0 ... 50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>30</td>
<td>45</td>
<td>70</td>
<td>120</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>35</td>
<td>60</td>
<td>90</td>
<td>180</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>mH2O</td>
<td>Measuring range</td>
<td>0 ... 2.5</td>
<td>0 ... 4</td>
<td>0 ... 6</td>
<td>0 ... 10</td>
<td>0 ... 16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>20</td>
<td>20</td>
<td>30</td>
<td>50</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>24</td>
<td>24</td>
<td>40</td>
<td>60</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measuring range</td>
<td>0 ... 25</td>
<td>0 ... 40</td>
<td>0 ... 60</td>
<td>0 ... 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overpressure limit</td>
<td>80</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Burst pressure</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The given measuring ranges are also available in mbar, kPa and MPa.

Output signal

**Analogue signal**

4 ... 20 mA

**Load in Ω**

≤ (power supply - 10 V) / 0.02 A - (cable length in m x 0.14 Ω)

Reference conditions

**Temperature**

15 ... 25 °C

**Atmospheric pressure**

860 ... 1,060 mbar

**Humidity**

45 ... 75 % relative

Voltage supply

**Power supply**

DC 10 ... 30 V
**Accuracy data**

**Accuracy at reference conditions**
≤ ±0.5 % of span

Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2).

**Non-linearity (per IEC 61298-2)**
≤ ±0.2 % of span

**Non-repeatability**
≤ ±0.1 % of span

**Temperature error at 0 ... 50 °C**
- Mean temperature coefficient of zero point
  - Measuring ranges ≤ 0.25 bar: ≤ ±0.4 % of span/10 K
  - Measuring ranges > 0.25 bar: ≤ ±0.2 % of span/10 K
- Mean temperature coefficient of span
  ≤ ±0.2 % of span/10 K

**Long-term stability at reference conditions**
≤ ±0.2 % of span/year

**Operating conditions**

**Ingress protection (per IEC 60529)**
IP 68

**Permissible temperature ranges**
- Medium: -10 ... +50 °C
- Ambient: -10 ... +50 °C
- Storage: -30 ... +80 °C

**Immersion depth**
up to 100 m

**Maximum tensile strength of the cable**
- without strain relief: up to 350 N
- with strain relief: up to 1,000 N

**Weight**
- Level probe: approx. 180 g
- Cable: approx. 80 g/m
- Additional weight (accessories): approx. 500 g

**Electrical connection**

**Short-circuit resistance**
S+ vs. U-

**Reverse polarity protection**
U+ vs. U-

**Insulation voltage**
DC 500 V

**Cable lengths**

<table>
<thead>
<tr>
<th>Meter (m)</th>
<th>15</th>
<th>30</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feet (ft)</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Other cable lengths on request

**Connection diagram**

**Cable outlet**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U+</td>
<td>brown</td>
</tr>
<tr>
<td>U-</td>
<td>green</td>
</tr>
<tr>
<td>Shield</td>
<td>grey</td>
</tr>
</tbody>
</table>

**Materials**

**Wetted parts**
- Case from stainless steel
- Sensor out of stainless steel
- Protection cap from PA
- Cable from PUR

**Approvals, directives and certificates**

**Approval**
- CSA
- GOST-R

for further approvals, see local website

**CE conformity**
EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application)
Dimensions in mm

Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable strain relief clamp</td>
<td>14052336</td>
</tr>
<tr>
<td>The cable strain relief clamp enables easy and secure mechanical fastening of the submersible pressure transmitter’s cable at the measuring point. It acts as a guide for the cable, in order to avoid mechanical damage and to reduce the tensile stress.</td>
<td></td>
</tr>
<tr>
<td>Additional weight</td>
<td>14052341</td>
</tr>
<tr>
<td>The additional weight increases the dead weight of the submersible pressure transmitter. It simplifies the lowering into monitoring wells, narrow shafts and deep wells. It effectively reduces negative environmental influences on the measuring result from the measured medium (e.g. turbulent flow).</td>
<td></td>
</tr>
<tr>
<td>CrNi-Stahl 316L, approx. 500 g, length (L) 130 mm</td>
<td></td>
</tr>
<tr>
<td>Terminal box</td>
<td>14052339</td>
</tr>
<tr>
<td>The terminal box, with IP 67 ingress protection and watertight ventilation element, provides a moisture-free electrical termination for the submersible pressure transmitter. It should be mounted in dry environment or directly in the switch cabinet.</td>
<td></td>
</tr>
<tr>
<td>Filter element</td>
<td>14052344</td>
</tr>
<tr>
<td>The filter element prevents dirt and moisture from entering the venting tube. The watertight diaphragm also offers a reliable protection for the submersible pressure transmitter.</td>
<td></td>
</tr>
</tbody>
</table>

Ordering information
Model / Measuring range / Cable length / Accessories