**1710 Side Mounted Level Switch**

**1710** is a horizontally oriented, float-operated level switch suitable for plant and OEM applications where open or closed contacts are required to signal the presence or absence of liquid at a discrete level. The float extension arm moves a magnet which actuates (de-actuates) an electromechanical switching element.

The 1710 may be used on a wider variety of applications and process conditions than any other single model of mechanical level switch currently offered by SOR®. The flexibility in this design is critical to customers all over the world in a wide variety of industries.

The 1710 side mounted level switch is suitable for most point level applications.

- boilers
- storage vessels
- high or low alarm

**Features and Benefits**

- Five-year warranty
- Low maintenance costs
- Compact design
- Worldwide approvals & certifications
- Withstands temperatures up to 700°F (371°C)
- Withstands pressures up to 1799 psig (124 bar)
- External chambers available
- ASME Section IX and AWS D2.1 qualified welding system
- Designed to ANSI/ASME B31.1 and B31.3 guidelines
- Stainless steel switching mechanisms
- All stainless steel wetted parts
- Quick worldwide delivery
- Only ASTM grade materials with certified mill test reports used
- FM, ATEX and IECEx certified for hazardous locations in US and Canada
- **Safety Certified to IEC 61508 (SIL)**
  SOR products are certified to IEC 61508 for non-redundant use in SIL1 and SIL2 Safety Instrumented Systems for most models. For more details or values applicable to a specific product, see the Safety Integrity Level Quick Guide (Form 1528).
## Differential (Dead Band) Specifications

**1710 Side Mounted Level Switch**

### Product Specifications

- **Mounting Orientation**: Horizontal mount only
- **Float Material**: Stainless Steel
- **Maximum Process Pressure at 100°F (38°C)**
  - 1799 psi (124 bar)
- **Process Temperature Range**
  - -40 to 700°F (-40 to 371°C)

### Electrical
- **Switch type**: SPDT or DPDT snap switch
- **Housing material**: Aluminum
- **Conduit connection size**: 1” NPT

### Minimum Specific Gravity
- 0.60 SG

### Chamber Design Code
- ANSI B31.1 or ANSI B31.3
- Certificate available

### *Standard Approvals
- CSA (US & Canada)
- ATEX/IECEx

### Weight
- **Standard**: 7.3 lbs. (3.2 kg)
- **With Chamber**: 22 lbs. (10 kg)

Note: For other variations please consult factory.

*See page 3 for details

### Maximum Operating Pressure Ratings*

<table>
<thead>
<tr>
<th>Process Connection</th>
<th>Description</th>
<th>Pressure at Listed Temperature in psig (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100°F (38°C)</td>
<td>200°F (93°C)</td>
</tr>
<tr>
<td><strong>G2A</strong></td>
<td>2” NPT(M)</td>
<td>1500 (103)</td>
</tr>
<tr>
<td><strong>G3C</strong></td>
<td>3” 150# RF Flange (316SS)</td>
<td>275 (19)</td>
</tr>
<tr>
<td><strong>G3D</strong></td>
<td>3” 300# RF Flange (316SS)</td>
<td>720 (50)</td>
</tr>
<tr>
<td><strong>G4C</strong></td>
<td>4” 150# RF Flange (316SS)</td>
<td>275 (19)</td>
</tr>
<tr>
<td><strong>G4D</strong></td>
<td>4” 300# RF Flange (316SS)</td>
<td>720 (50)</td>
</tr>
</tbody>
</table>

### With External Chamber

<table>
<thead>
<tr>
<th>Chamber Designator</th>
<th>Description</th>
<th>Pressure at Listed Temperature in psig (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100°F (38°C)</td>
<td>200°F (93°C)</td>
</tr>
<tr>
<td><strong>EE</strong></td>
<td>4” S40 316/316L SS</td>
<td>1799 (103)</td>
</tr>
<tr>
<td><strong>EG</strong></td>
<td>4” S40 Carbon Steel</td>
<td>1435 (99)</td>
</tr>
</tbody>
</table>

* Maximum operating pressure is limited by the float or chamber, depending on the temperature.

For exact material description, see page 3.
### Model Number System

**1710 A - G2A - C - A1 - H1 - ZZ PP C1**

#### Switch Type

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT</td>
<td>1</td>
</tr>
<tr>
<td>DPDT</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Switch Mechanism

- Dry Contact Snap Switch, -40 to 600°F (-40 to 316°C), 0.1A-6A at 250 VAC
- Hermetically Sealed/Gold Contact, -40 to 700°F (-40 to 371°C), 0.5A at 28VDC

#### Process Connection

- Threaded 2" NPT(M) Standard (316SS)
- 3" 150# RF Flange (316SS)
- 3" 300# RF Flange (316SS)
- 4" 150# RF Flange (316SS)
- 4" 300# RF Flange (316SS)
- For Chambered Units Only:
  - 1" NPT Top/Bottom
  - 1" SW Top/Bottom

#### Agency Approvals

- 00: No Agency Approval
- ZZ: CSA, ATEX, IECEx Approved***

#### Accessories

- CN: Conduit Reducer M20 x 1.5
- CP: Conduit Reducer 1/2" NPT
- CR: Conduit Reducer 3/4" NPT
- EE: External Chamber Stainless Steel**
- EG: External Chamber Carbon Steel**
- MR: Mill Test Report
- PP: Fiber Tag
- RR: Oversized Nameplate for customer tagging

#### Certificates

- C1: Calibration
- C2: Hydrostatic Pressure Test
- C3: Inspection Report
- C4: Compliance/Conformance
- C5: Dielectric Test
- C6: Insulation Resistance
- C7: QA Test Report

#### Notes:

- * Requires use of EE or EG options
- ** See page 2 for chamber details.
- *** Special conditions for safe use: When the equipment is installed, particular precautions shall be taken to ensure, taking into account the effect of the process temperature, that the ambient temperature of the overall liquid level control switch assembly is between -40°C to +80°C.

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* How to Order

**1710 A - G2A - C - A1 - H1 - ZZ PP C1**

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## Agency Approvals

<table>
<thead>
<tr>
<th>Agency</th>
<th>Approved Model</th>
<th>Protection</th>
<th>Area Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX/IECEx</td>
<td>1710X-GXX-XX-XX-ZZ</td>
<td>Flameproof</td>
<td>Ex d IIC T5 Gb; Ex tb IIIC T90°C Db (-40°C ≤ Tamb ≤ +80°C)</td>
</tr>
<tr>
<td></td>
<td>1710X-EXX-XXXX-XX-ZZ</td>
<td></td>
<td>Ex d IIIB + Hydrogen T5 Gb; Ex tb IIIC T90°C Db (-40°C ≤ Tamb ≤ +80°C)</td>
</tr>
<tr>
<td>CSA</td>
<td>1710X-GXX-XX-XX-ZZ</td>
<td>Explosion Proof</td>
<td>Class I, II, III; Groups B,C,D,E,F,G; Type 4X Class I, Zone 1, AEx/Ex d IIC T5 Gb Zone 21, AEx/Ex tb IIIC T90°C Db; IP66</td>
</tr>
<tr>
<td></td>
<td>1710X-EXX-XXXX-XX-ZZ</td>
<td></td>
<td>Class I, II, III; Groups B,C,D,E,F,G; Type 4X Class I, Zone 1, AEx/Ex d IIIB + Hydrogen T5 Gb Zone 21, AEx/Ex tb IIIC T90°C Db; IP66</td>
</tr>
<tr>
<td>GOST R</td>
<td>Certificate available upon request.</td>
<td>Flameproof</td>
<td>Ex d IIC T5 (-40°C ≤ Tamb ≤ +80°C)</td>
</tr>
<tr>
<td>KOSHA</td>
<td>Certificate available upon request.</td>
<td>Flameproof</td>
<td>Ex d IIC T5 (-40°C ≤ Tamb ≤ +80°C)</td>
</tr>
<tr>
<td>Safety Integrity Level</td>
<td>Certificate available upon request.</td>
<td>Type A Component with HFT0 Low Demand Mode</td>
<td>SIL2</td>
</tr>
</tbody>
</table>
1710 Side Mounted
Level Switch

The 1710 unit allows for a smaller installation foot print, making it more compact and economical than most traditional vertical chambers. Although the 1710 is more compact, it provides the rugged reliability customers have come to expect from SOR.

The design starts with a high pressure float counter-weighted with a magnet. The magnet is coupled with another magnet inside the housing which is attached to the switching mechanism. The key is that the two magnets are separated by a pressure retaining wall of non-magnetic material. The magnets interact with each other as the float goes up and down, providing a safe and reliable system you can depend on for the most critical of applications.

1710 Assembly with chamber

Design and specifications are subject to change without notice. For latest revision, see sorinc.com.

1710 Assembly without chamber