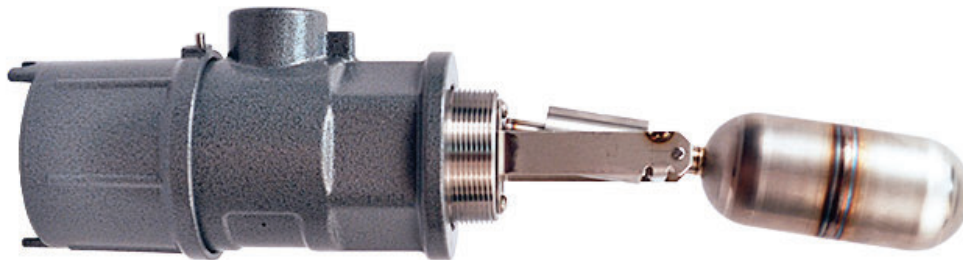




# 1710 Side Mounted Level Switch

## General Instructions

The SOR® 1710 Side Mounted Level Switch is a horizontally mounted, float-operated level switch. The 1710 is suitable for plant and OEM applications where open or closed contacts are required to signal presence or absence of liquid at a discrete level.



When the liquid rises, the float extension arm moves a magnet which repels an internal magnet de-actuating a microswitch. When the liquid level falls, the float extension arm moves the magnet in the opposite direction, actuating the microswitch.

The 1710 is recommended for use in clean liquids only.

**NOTE: If you suspect that a product is defective, contact the factory or the SOR Representative in your area for a return authorization number (RMA). This product should only be installed by trained and competent personnel.**

*Design and specifications are subject to change without notice.*

*For latest revision, go to **SORInc.com***

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## Physical Installation

- The 1710 must be mounted so that the centerline is within 3° of horizontal. The conduit connection centerline must be within 3° of vertical and the nameplate at 12 o'clock. Switch actuation cannot be reversed by rotating the unit 180°.
- Pipe support hangers or stands should be used where necessary.
- All isolation valves must be fully open during service, as restricted valves may cause erroneous level switching.
- Remember external chamber piping should be short, straight and unrestricted.
- Pipe must be of a diameter equal to or greater than the process connection diameter.
- Valves and other equipment between the chamber and process must be of the same diameter or larger than the process connection diameter to allow adequate liquid flow into the chamber.
- Installation shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-14.



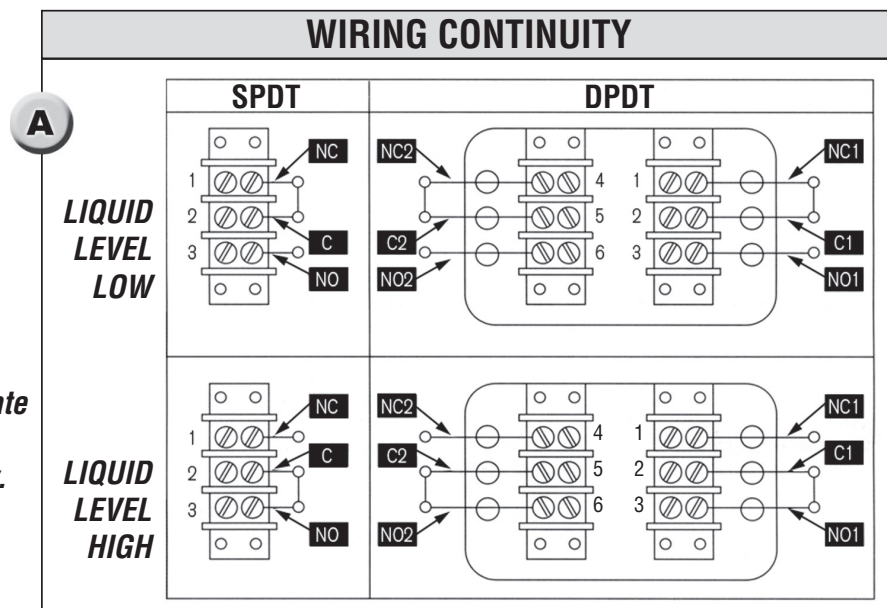
*Not following these installation instructions, including pipe and valve diameter and pipe lengths can affect operation of the switch, including differential.*

## Electrical Installation

- ❶ Remove the end cover to gain access to the switch mechanism and terminal block.
- ❷ Feed the switching wires into the housing through the electrical connection. Wire to the terminal block(s) as shown in **A**. Select wires which are compatible with temperature and electrical load required by the application. Keep wire length as short as possible to prevent damage when cover is installed.
- ❸ Connect the ground wire to the green ground screw located on the outside of the housing.
- ❹ Replace the switch cover. Ensure switch cover is screwed on all the way.
- ❺ Housing becomes very hot during regular use, high temp. conduit connections are necessary.
- ❻ Test the switch action by varying the liquid level in the chamber or tank.



*The cover can become extremely hot during operation. Use adequate protection to prevent severe personal injury.*



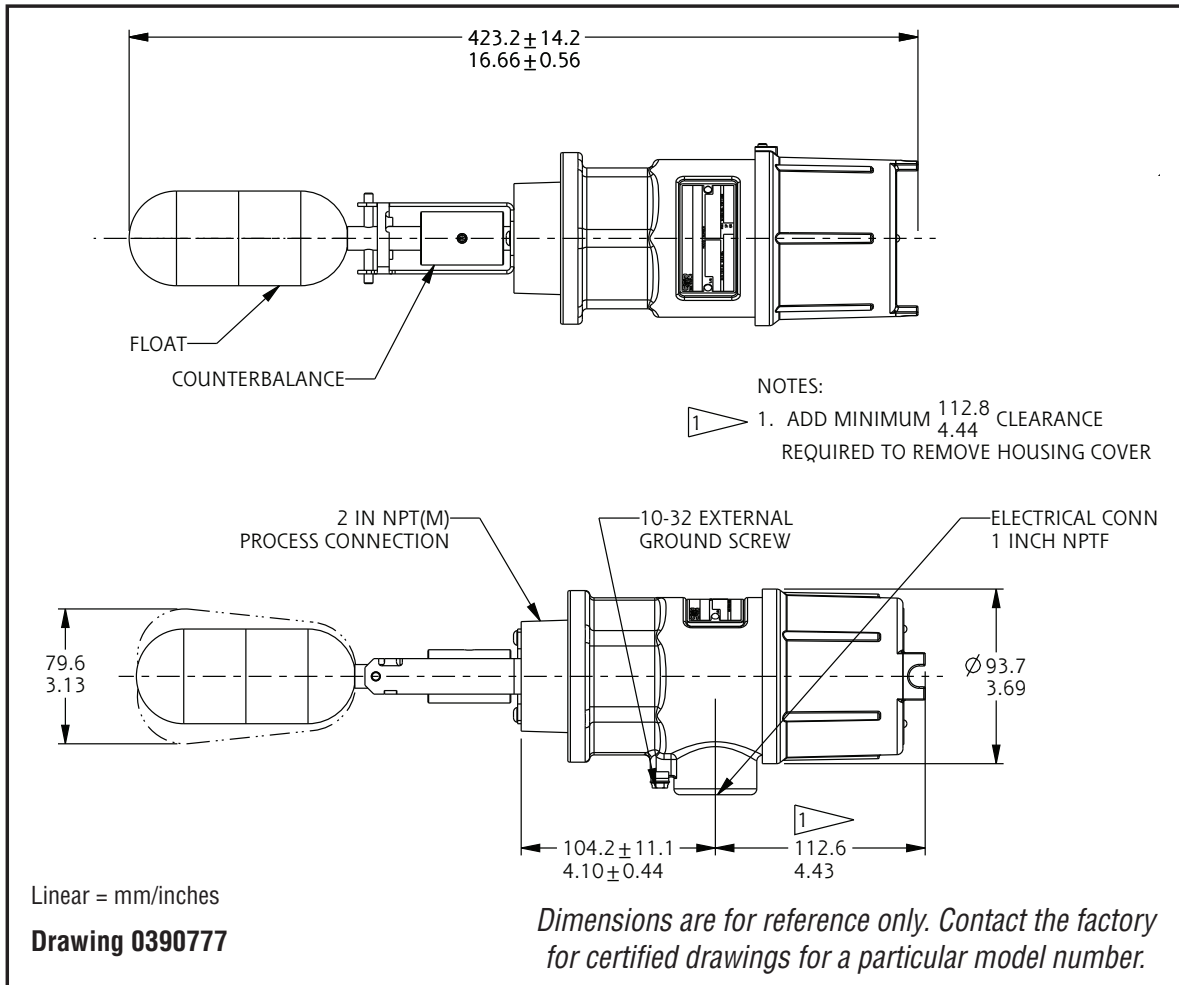
## Safety Integrity Level (SIL) Installation Requirements

The SOR pressure switches have been evaluated as Type-A safety related hardware. To meet the necessary installation requirements for the SIL system, the following information must be utilized:

- Proof Test Interval shall be one year.
- Units may only be installed for use in Low Demand Mode.
- Products have a HFT (Hardware Fault Tolerance) of 0, and were evaluated in a 1001 (one out of one) configuration.

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## Dimensions



## Replacement Switch Assemblies

Replacement switch assemblies include: bracket, terminal block, magnet, and microswitch(es). Choose the appropriate switch mechanism and order it using the part number shown.

The switch designator is located in the empty position of the sample model number below:

1710A - G2A - C -   - H1

	<b>Part Number</b>	<b>Description</b> (see back page for specifications)		
<b>Designator</b>	A 1	380801	SPDT	General Purpose
	A 4	380310	DPDT	
	S 1	380381	SPDT	Hermetically Sealed, Gold Contacts
	S 4	380570	DPDT	

Components to be incorporated into or used as replacement parts of the equipment shall be fitted by suitably-trained personnel in accordance with the manufacturer's documentation (or inform of contracting manufacturer or their stockist or specify no replaceable component parts).

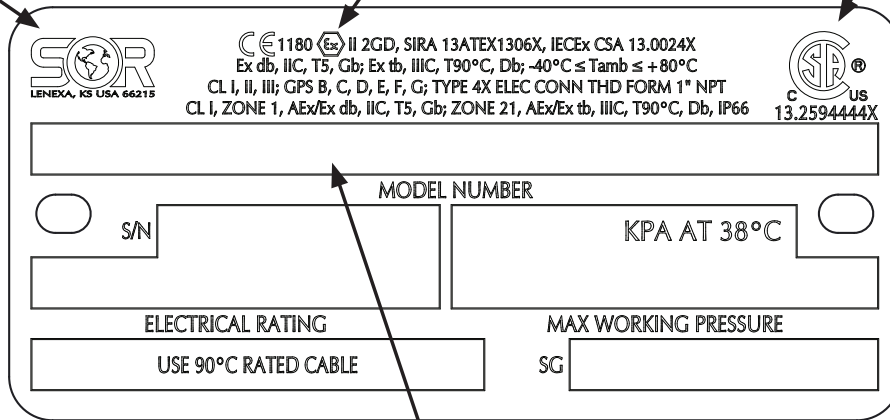
## ATEX Information

### For ATEX Certified Models

Manufacturer's  
Registered Trademark

ATEX Listing Information

Product Type Identification



Location of Product Model  
Identification

Drawing 0720558

The certification of this equipment relies upon the following material used in its construction:

ENCLOSURE MATERIAL:

ALUMINUM 356.0-T6 (COVER AND HOUSING, ASTM B 108)

O-RING COMPOUND: SILICONE, PARKED COMPOUND S1224

The equipment may be used with flammable gases and vapours with apparatus groups IIC or IIB + Hydrogen (see product nameplate) and with temperature class T5 in the ambient temperature range -40°C to +80°C.

The equipment is only certified for use in ambient temperatures in the range -40°C to +80°C and should not be used outside this range.

## Special Conditions for Safe Use

- To minimize the risk of electrostatic discharge, clean only with a damp cloth.
- When the equipment is installed particular precautions must be taken to ensure the process temperature does not affect the ambient temperature range -40°C to 80°C of the overall liquid level control switch assembly.
- If the equipment is likely to come into contact with aggressive substances, than it is the responsibility of the end user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection provided by the equipment is not compromised. If in doubt contact the manufacturer.
- Flamepath joints are not intended to be repaired.

## Maximum Operating Pressure Ratings

Process Connection	Description	Pressure at Listed Temperature in psig (bar)						
		100°F (38°C)	200°F (93°C)	300°F (149°C)	400°F (204°C)	500°F (260°C)	600°F (316°C)	700°F (371°C)
G2A	2" NPT(M)	1500 (103)	1500 (103)	1500 (103)	1500 (103)	1500 (103)	1500 (103)	1500 (103)
G3C	3" 150# RF Flange (316SS)	275 (19)	235 (16)	215 (15)	195 (13)	170 (12)	140 (10)	110 (8)
G3D	3" 300# RF Flange (316SS)	720 (50)	620 (42)	560 (39)	515 (36)	480 (33)	450 (31)	435 (30)
G4C	4" 150# RF Flange (316SS)	275 (19)	235 (16)	215 (15)	195 (13)	170 (12)	140 (10)	110 (8)
G4D	4" 300# RF Flange (316SS)	720 (50)	620 (42)	560 (39)	515 (36)	480 (33)	450 (31)	430 (30)

### With External Chamber


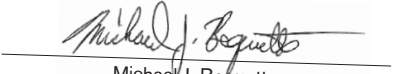
Chamber Designator	Description	Pressure at Listed Temperature in psig (bar)						
		100°F (38°C)	200°F (93°C)	300°F (149°C)	400°F (204°C)	500°F (260°C)	600°F (316°C)	700°F (371°C)
EE	4" S40 Carbon Steel	1500 (103)	1500 (103)	1397 (96)	1282 (88)	1196 (82)	1129 (78)	1081 (75)
EG	4" S40 316/316L SS	1435 (99)	1435 (99)	1435 (99)	1435 (99)	1435 (99)	1435 (99)	1378 (95)


## Electrical and Pressure Paramaters

Switch	Rating
A	6A, 125/250 VAC
S	1/2A, 28 VDC

# Declaration of Conformity

For ATEX Certified Models

<b>EC Declaration of Conformity</b>		<b>CE</b>
<b>Product</b>	<b>1710 Side Mounted Level Switch</b>	
<b>Manufacturer</b>	SOR Inc. 14685 West 105 <sup>th</sup> Street Lenexa, Kansas 66215-2003 United States of America	
<b>Date of Issue</b>	<b>December 4, 2017</b>	
<b>We declare that the above products conform to the following specifications and directives</b>	ATEX Directive (2014/34/EU) Equipment Intended for use in Potentially Explosive Atmospheres EN 60079-0:2012, A11:2013 IEC 60079-0:2012 EN 60079-1:2014 IEC 60079-1:2007 EN 60079-31:2014 IEC 60079-31:2009	
<b>Carries the marking</b>	 <b>Ex db IIC T5 Gb; Ex tb IIIC T90°C Db; (Nonchambered); Ex d IIB + H2 T5 Gb; Ex tb IIIC T90°C Db (Chambered)</b> <b>Ta=-40°C ≤ Tamb ≤ +80°C</b>	
<b>Reference document</b>	<b>EC-Type Examination Certificate</b> <b>SIRA 13ATEX1306X</b> <b>IECEx CSA 13.0024X</b> Issued March 3, 2014	
<b>ATEX Notified Body</b>	<b>Baseefa Ltd.</b> (Notified Body No. 1180) Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ United Kingdom Baseefa Customer Reference No. 1021	
<b>Person responsible</b>	Michael J. Bequette (VP of Engineering)	
 Michael J. Bequette		
<b>Engineered to Order with Off-the-Shelf Speed</b>		

 14685 West 105th Street, Lenexa, KS 66215-2003  
913-888-2630 • 800-676-6794 USA • 913-888-0767 FAX

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## Maintenance



*Do not remove the cover when the unit is energized.*

- Keep the cover tightly secured to the housing.
- Prevent moisture or dirt from entering the housing when the cover is off.
- Check all screw terminal connections periodically. Vibration may loosen the screw terminals.
- Clean the float and counterweight mechanism periodically to assure continued free movement.
- Make no adjustments to the switch mechanism. It is factory calibrated for optimum performance.
- Apply petroleum jelly or anti-seize compounds to cover threads periodically to prevent seizing.

Inspection and maintenance of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-17.

Repair of this equipment (as applicable) shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-19.

## Troubleshooting

Symptom	Probable Cause
The float is in the actuated position but the switch does not actuate.	a. The terminal block is wired incorrectly. Check wiring. b. The unit is installed upside-down. Rotate housing so that the nameplate faces up. c. The switch is damaged. Contact the factory.
The float is in the de-actuated position but the switch remains actuated.	a. The terminal block is wired incorrectly. Check wiring. b. The switch is damaged. Contact the factory.
The control will not function when installed but operates when removed from process connection.	a. Float travel is inadequate. Check for internal vessel obstructions. See Mounting Requirements.
Liquid is in the vessel at the actuation level but the unit does not respond.	a. The float pivot pin is bound up or dirty. Clean the float pivot pin. b. The unit is installed upside-down. Rotate housing so that the nameplate faces up. c. The specific gravity of the liquid is not sufficient to lift the float. d. The float is leaky or collapsed. Contact the factory.



Printed in USA

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