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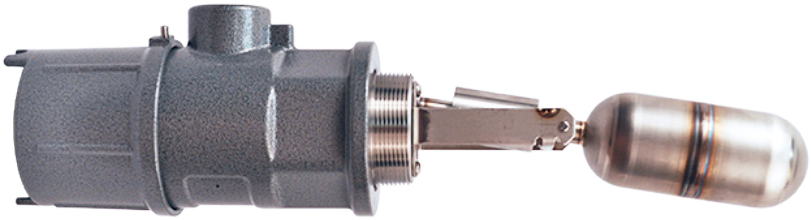
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SOR
MEASUREMENT AND CONTROL

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 1500 psig (103 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
- ATEX, IECEx and CSA (US and Canada) certified for hazardous locations
- GOST certified. Certifications available upon request
- **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).

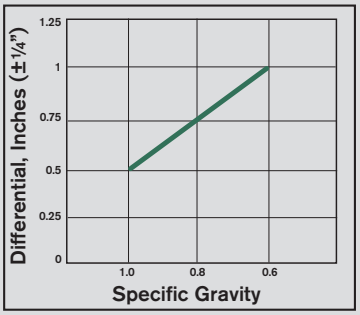
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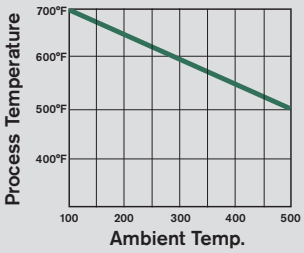
Product Specifications

Mounting	
Orientation	Horizontal mount only
Float Material	Stainless Steel
Maximum Process Pressure	at 100°F (38°C) 1500 psig (103 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)

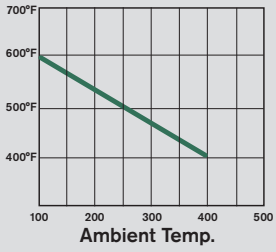
Differential (Dead Band)



S-switch Process Temp. vs. Ambient Temp.



A-switch Process Temp. vs. Ambient Temp.



Note: For other variations please consult factory.
*See page 3 for details

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 316/316L SS	1500 (104)		1493 (103)	1368 (94)	1273 (88)	1206 (83)	1158 (80)
EG	4" S40 Carbon Steel	1500 (104)						1492 (103)

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

For exact material description, see page 3.

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How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application. You must select a designator for each component.

1 Model

Level Switch	1710

2 Body Material

316/316L Stainless Steel	A

3 Process Connection

Threaded 2" NPT(M) Standard (316SS)	G2A
3" 150# RF Flange (316SS)	G3C
3" 300# RF Flange (316SS)	G3D
4" 150# RF Flange (316SS)	G4C
4" 300# RF Flange (316SS)	G4D
For Chambered Units Only:	
1"NPT Top/Bottom	E1A*
1"SW Top/Bottom	E1B*

4 Float Material

316/316L Stainless Steel	C

5 Switch Mechanism

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

6 Switch Type

SPDT	1
DPDT	4

7 Housing

H1	Aluminum Housing IP66, 1" NPT Conduit Connection

8 Agency Approvals

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

9 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 316SS Namplate for customer tagging
TS****	Taiwan Safety Mark

Certificates

C1	Calibration
C2	Hydrostatic Pressure Test
C3	Inspection Report
C4	Compliance/Conformance
C5	Dielectric Test
C6	Insulation Resistance
C7	QA Test Report
D1	Certificate of Origin
D2	Manufacturer's Certification

1	2		3		4		5		6		7		8	9
1710	A	-		-	C	-		-		-	H1			

1710 A-G2A-C-A 1-H1-ZZ PP C1 Example Model No.

Notes:

- "X" in model number indicates a special requirement.
- For other variations please consult factory.

* 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.
**** Requires use of ZZ option.

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Agency Approvals

Agency	Approved Model	Protection	Area Classification
ATEX/IECEx	1710X-GXX-X-XX-XX-ZZ	Flameproof	Ex d IIC T5 Gb; Ex tb IIIC T90°C Db (-40°C ≤ Tamb ≤ +80°C)
	1710X-EXX-X-XX-XX-ZZ		Ex d IIB +Hydrogen T5 Gb; Ex tb IIIC T90°C Db (-40°C ≤ Tamb ≤ +80°C)
CSA	1710X-GXX-X-XX-XX-ZZ	Explosion Proof	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
	1710X-EXX-X-XX-XX-ZZ		Class I, II, III; Groups B,C,D,E,F,G; Type 4X Class I, Zone 1, AEx/Ex d IIB +Hydrogen T5 Gb Zone 21, AEx/Ex tb IIIC T90°C Db; IP66
GOST R	Certificate available upon request. Contact customer service for custom model number configuration.	Flameproof	Ex d IIC T5 (-40°C ≤ Tamb ≤ +80°C)
KOSHA	Certificate available upon request.	Flameproof	Ex d IIC T5 (-40°C ≤ Tamb ≤ +80°C)
Safety Integrity Level	Certificate available upon request.	Type A Component with HFT0 Low Demand Mode	SIL2

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1710 Side Mounted Level Switch

Dimensions

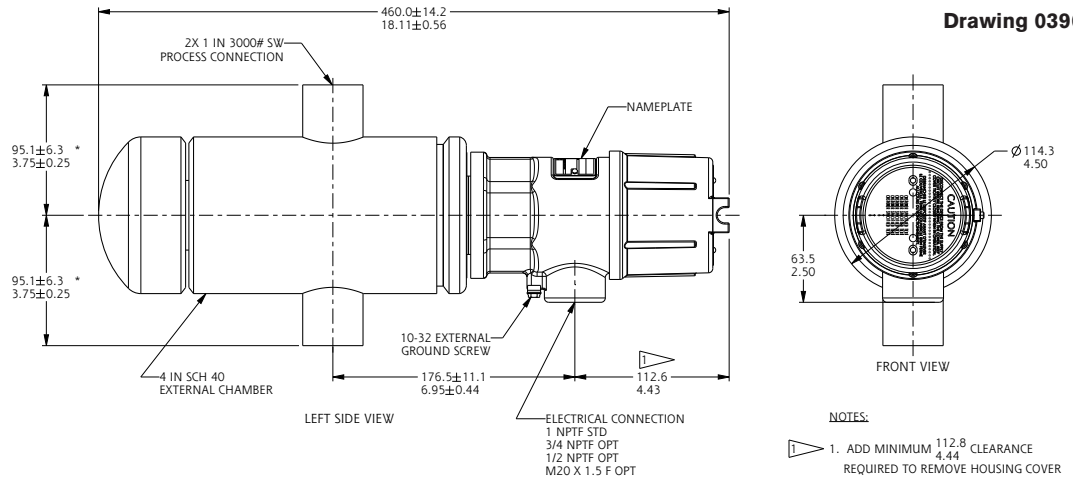
The 1710 unit allows for a smaller installation foot print, making it more compact and economical than most traditional vertical chambers. Although the 1710 is more compact, it provides the rugged reliability customers have come to expect from SOR.

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*

Linear = mm / in.

Drawing 0390698

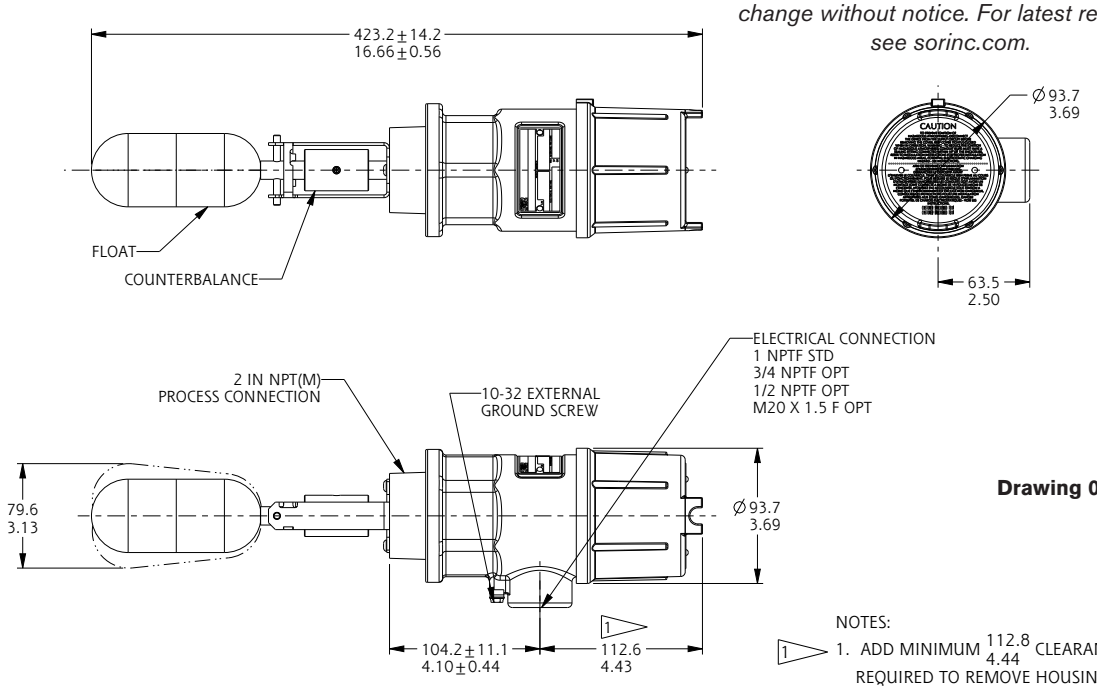


NOTES:

1. ADD MINIMUM 112.8 / 4.44 CLEARANCE REQUIRED TO REMOVE HOUSING COVER

1710 Assembly *without chamber*

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



Drawing 0390777

NOTES:

1. ADD MINIMUM 112.8 / 4.44 CLEARANCE REQUIRED TO REMOVE HOUSING COVER

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