

## Level Switches

### SOR® top mount level switches

are rugged, industrial products specifically designed for versatility of application. This catalog contains application and ordering data for float and displacer-operated level switches. Switches are available with flanged or sealed chambers or as insertion models.

281-484-4830

Options available for each type of switch include: switch type and number, housing type, chamber material, process connections, accessories, and more. Units may be customized to suit customers' needs.

Inside this catalog you will find solutions to your level sensing puzzles. SOR mechanical level switches have many configurations available. If you don't see what you need, we will engineer a custom solution for your application.



### Features and Benefits

- Five-year warranty
- ASME Section IX and AWS qualified welding system
- Designed to ASME B31.1 and B31.3 guidelines
- Hermetically sealed switching mechanisms available
- Stainless steel switching mechanisms
- High-temperature capability (up to 1200 °F)
- Wide variety of explosion-proof housings
- Versatile switching mechanisms which retro-fit into other manufacturers' units
- Worldwide listings and certifications
- Quick worldwide delivery
- ASTM grade materials with certified mill test reports used
- EAC Certificate for Russia
- 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).

**Standard Chamber Materials** All SOR level switch chambers are constructed using ASTM grade materials with full material certification. Mill Test Reports are kept on file for all raw materials. Copies are available upon request at the time of order placement. **Consult factory for alternative chamber materials.**

<b>Carbon Steel Construction</b>	Chamber Center Section .....	A106 Grade B
	Flanges/Weld Fittings .....	A105
	Weld Cap .....	A234-WPB
	Studs/Nuts.....	A193-B7/A194-2H
<b>Stainless Steel Construction</b>	Chamber Center Section .....	A312-TP316/316L
	Flanges/Weld Fittings .....	A182-316/316L
	Weld Cap .....	A403-316/316L
	Studs/Nuts.....	A193-B7/A194-2H

**Quality Assurance** SOR maintains a high level of quality throughout our corporation. Many quality assurance features are built into our products.

- ISO 9001 certified engineering design and production system (certified since 1993).
- Level-welded chambers designed to the guidelines of ASME B31.1 and B31.3 (inspection certificate available – see page 29).
- All welders and weld procedures are qualified and maintained to ASME Section IX.
- All ASTM grade materials used - Certified Mill Test Reports required on all raw materials.

**Switching Mechanisms** SOR switching mechanisms are designed for use in punishing industrial conditions.

- All stainless steel construction - no aluminum or brass.
- Temperature ratings available from -65°F (-54°C) to 1000°F (538°C) on dry, non-condensing services.
- Condensing service (steam) temperature ratings available up to 800°F (427°C), and up to 1200°F (649°C) with protection (see page 26).
- Available switching mechanisms include hermetically sealed, standard open contacts, or pneumatic contacts.
- Agency listings are available on most switch mechanisms: UL, CSA, ATEX or IECEx.

## Gaskets

- All standard models are provided with a Nitrile binder composite gasket that is selected for its resistance to hydrocarbons and steam.
- For high-temperature, high-pressure or NACE-constructed units, a spiral-wound gasket is used with 316SS wound-around Grafoil.
- Extreme high-pressure model 802 uses a soft-iron, ring-joint gasket on the chamber head flange.

## Internal Trim

- All sensing elements (floats and displacers) are constructed of either 316/316LSS or porcelain as a minimum.
- Attraction sleeves are available in 400SS as a standard, with 316/316LSS or other exotic metals as an option.
- All other wetted internal parts are 316SS or better. Displacer springs are made of Inconel 600.

**Product Support** SOR has a full-time engineering staff dedicated to solving your mechanical level switch problems.

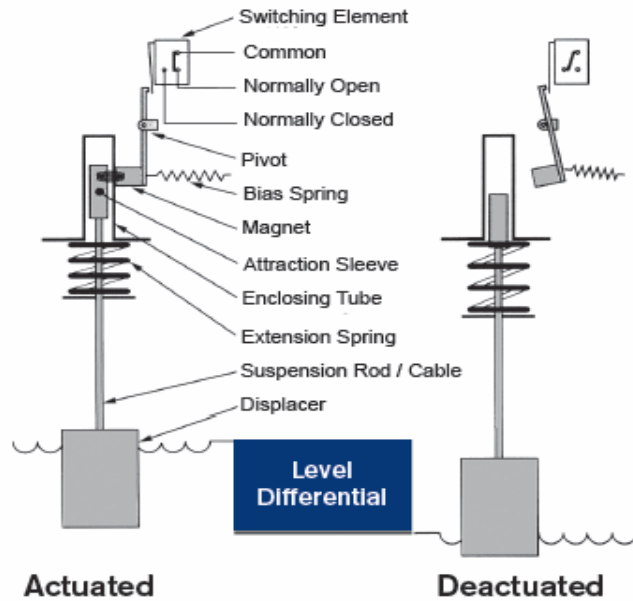
Engineers and technicians are knowledgeable about sales and production techniques, and are dedicated to providing the best solution to our customers at the best price.

## Displacer-Operated Level Switches Model Series 700

Displacer controls offer alternative features to the float-operated control. The sensor is a weight (displacer), heavier than the liquid, that is suspended by a spring. When liquid contacts the displacer, a buoyancy force is produced, which causes the effective weight of the displacer to change. This causes the spring to retract slightly to a new equilibrium position. When the spring retracts, the attraction sleeve also moves upward into the field of the external magnet, thus overcoming the force of the bias spring and actuating the switching element.

This principle provides for narrow or wide switching differential, and allows switching point alteration by moving the displacer(s) up or down the suspension cables.

Displacers may be arranged in combinations of narrow and wide differential to operate up to three switching stages. Displacer controls operate under higher pressure conditions than float-operated switches.



# Level Switches

## Step 1: Model Selection Pressure Rating & Specific Gravity

[701](#) A-F4C-B-A1-B1-MC T

**700 Series** Single-stage, displacer-operated and suitable for top-insertion tank mounting.  
Maximum Working Pressure

Model	Minimum Specific Gravity <sup>1 2 3</sup>	Function	Connection Style	Displacer Material	Connection Material	Pressure Rating - psi (bar)	
						100°F (38°C)	450°F (232°C) <sup>4</sup>
701	0.48	Narrow Differential	NPT	Porcelain	All	1000 (69)	750 (52)
702	0.43			SS	All	1000 (69)	750 (52)
703	0.48		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
704	0.43		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
705	0.32	Wide Differential	NPT	Porcelain	All	1000 (69)	750 (52)
706	0.29			SS	All	1000 (69)	750 (52)
707	0.32		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (20)	182 (13)
708	0.29		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)

- Notes:**
1. An operating specific gravity is required for all 705 through 708 models at time of order.
  2. Minimum SG based on standard sized displacers and units without anti-vibration, pneumatic or extra high temperature switches.
  3. For SS displacers, lower SG's may be achieved using non-standard sized sensors.
  4. Standard displacer units are not available over 450°F (232°C). For higher temperatures up to 650°F (343°C), a special high temperature spring is available.

**730 Series** Dual-stage, displacer-operated and suitable for top-insertion tank mounting.  
Maximum Working Pressure

Model	Minimum Specific Gravity <sup>1 2 3</sup>	Function	Connection Style	Displacer Material	Connection Material	Pressure Rating - psi (bar)	
						100°F (38°C)	450°F (232°C) <sup>4</sup>
730	0.64	Narrow Differential	NPT	Porcelain	All	1000 (69)	750 (52)
731	0.57			SS	All	1000 (69)	750 (52)
732	0.64		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
733	0.57		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
734	0.55	Wide Differential	NPT	Porcelain	All	1000 (69)	750 (52)
735	0.49			SS	All	1000 (69)	750 (52)
736	.055		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (20)	182 (13)
737	0.49		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)

- Notes:**
1. An operating specific gravity is required for all 730 models at time of order.
  2. Minimum SG based on standard sized displacers and units without anti-vibration, pneumatic or extra high temperature switches.
  3. For SS displacers, lower SG's may be achieved using non-standard sized sensors.
  4. Standard displacer units are not available over 450°F (232°C). For higher temperatures up to 650°F (343°C), a special high temperature spring is available.

# Level Switches

## Step 1b: Model Selection Pressure Rating & Specific Gravity

750 A-E1A-F-A1-N4-CRTT



**750 Series** Three-stage, displacer-operated and suitable for top-insertion tank mounting.  
Maximum Working Pressure

Model	Minimum Specific Gravity <sup>1 2 3</sup>	Function	Connection Style	Displacer Material	Connection Material	Pressure Rating - psi (bar)	
						100°F (38°C)	450°F (232°C) <sup>4</sup>
750	0.80	Narrow Differential	NPT	Porcelain	All	1000 (69)	750 (52)
751	0.71			SS	All	1000 (69)	750 (52)
752	0.80		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
753	0.71		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)
754	0.85	Wide Differential	NPT	Porcelain	All	1000 (69)	750 (52)
755	0.81			SS	All	1000 (69)	750 (52)
756	0.85		Flange	Porcelain	A105	285 (20)	185 (13)
					316SS	275 (20)	182 (13)
757	0.81		Flange	SS	A105	285 (20)	185 (13)
					316SS	275 (19)	182 (13)

- Notes:**
1. An operating specific gravity is required for all 750 models at time of order.
  2. Minimum SG based on standard sized displacers and units without anti-vibration, pneumatic or extra high temperature switches.
  3. For SS displacers, lower SG's may be achieved using non-standard sized sensors.
  4. Standard displacer units are not available over 450°F (232°C). For higher temperatures up to 650°F (343°C), a special high temperature spring is available.

## Level Switches

### Step 2: Process Connection Material

701 A-F4C-B-A1-B1-MC

Select process connection material from the following chart. Maximum working pressure shown in the charts in Step 1 is based on the material selected here. **Alternate materials can be provided, please consult the factory.**

Model	Material	Designator
All Models	A106B Carbon Steel	A
	316/316L Stainless Steel	C
	A333 GR.6 Lo-Temp Carbon Steel	F

## Level Switches

### Step 3: Process Connection

701 A-F4C-B-A1-B1-MC

### 700, 730 and 750 Series See page 44-46 for dimensions.

Model	Connection Size	Style	Connection Designator
701 702 705 706 730 731 734	2-1/2"	NPT	F7A
735 750 751 754 755	3"	NPT	F3A
703 704 707 708	3"	150# RF Flange	F3C
732 733 736 737		300# RF Flange	F3D
752 753 756 757	4"	150# RF Flange	F4C
		300# RF Flange	F4D
	6"	150# RF Flange	F6C
		300# RF Flange	F6D

**Note:** Flanged process connections may reduce the maximum working pressure of the unit.

## Level Switches

### Step 4: Trim Material

701 A-F4C-B-A1-B1-MC

Select the internal trim material from the chart below.

Model	Float/Displacer Material	Attraction Sleeve Material	Available with Chamber Material	Trim Designator
702 704 706 708 731 733 735 737 751 753 755 757	316/316L SS	400 SS	A106 Carbon Steel (A) only	B
701 703 705 707 730 732 734 736 750 752 754 756	Porcelain	400 SS	A106 Carbon Steel (A) only	P
	Porcelain	316/316L SS	A106 Carbon Steel (A) or 316/316L SS (C)	R

**Note:** Consult the factory for pressure ratings on Monel trim. Standard displacer spring material is Inconel 600.

# Level Switches

## Step 5: Switching Mechanism 701 A-F4C-B-A1-B1-MC

Select the switch mechanism from the chart below.

Switch Type	SPDT Single Pole Double Throw			DPDT Double Pole Double Throw			3-Way Valve	Available Agency Listings						
	Single	Dual	Triple	Single	Dual	Triple	Single	CSA	UL	ATEX/IECEX (flameproof)	ATEX/IECEX (IS)	INMETRO (flameproof)	INMETRO (IS)	Rostechnadzor (RTN)
Switching Stages														
Switching Description	Designator													
Standard Dry Contact	A1	A2	A3	A4	A5	A8	-	•	•	•		•		•
High-Temperature Dry Contact	B1	B2	B3	B4	B5	B8	-	•	•	•		•		•
Gold Contact	C1	C2	C3	C4	C5	C8	-	•	•	•	•	•	•	•
Anti-Vibration Dry Contact <sup>1</sup>	D1 <sup>1</sup>	-	-	D4 <sup>1</sup>	-	-	-	•	•	•		•		•
High-Amperage DC Service	E1	E2	E3	E4	E5	E8	-	•	•	•		•		•
Hermetically Sealed	F1	F2	F3	F4	F5	F8	-	•	•	•		•		•
Gold Contact Hermetically Sealed	G1	G2	G3	G4	G5	G8	-	•	•	•	•	•	•	•
High-Temperature Hermetically Sealed	H1	H2	H3	H4	H5	H8	-	•	•	•		•		•
Standard Mini-Hermetically Sealed	L1	L2	L3	L4	L5	L8	-	•	•	•		•		•
Anti-Vibration Gold Contact <sup>1</sup>	R1 <sup>1</sup>	-	-	R4 <sup>1</sup>	-	-	-	•	•	•	•	•	•	•
Gold Contact Mini-Hermet	S1	S2	S3	S4	S5	S8	-	•	•	•		•		•
Anti-Vibration Mini-Hermet <sup>1</sup>	T1 <sup>1</sup>	-	-	T4 <sup>1</sup>	-	-	-	•	•	•		•		•
High-Temperature Mini-Hermet	V1	V2	V3	V4	V5	V8	-	•	•	•		•		•
Extra-High Temperature (Ceramic)	Y1 <sup>1</sup>	-	-	Y4 <sup>1</sup>	-	-	-	•	•	•	•	•	•	•
Pneumatic Non-Bleed with 316SS Fittings	-	-	-	-	-	-	JO <sup>1,2</sup>							
Available with models:														
700 Series	•			•			•	•	•	•	•	•	•	•
730		•			•			•	•	•	•	•	•	•
750 (enclosures N1, N8 or B5 only)			•			•		•						•

### Notes

1. These switches use two magnets and must be considered dual mechanisms when figuring minimum specific gravity.
2. Pneumatic switching mechanisms must be specified with P1 housing.



# Level Switches

## Step 5: Switching Mechanism

701 A-F4C-B-[A1](#)-B1-MC

SOR switching mechanisms are designed for use in harsh industrial atmospheres. SOR offers a variety of electrical and pneumatic switching mechanism types to fit a wide range of applications. The basic types of switch mechanisms available are listed below. See page 20 for specifications.

All SOR switching mechanisms are constructed from stainless steel and other durable manufactured materials. Each mechanism is individually calibrated and inspected to insure accuracy and repeatability. See below for the benefits and application of each switch type. All mechanisms are interchangeable with most competitor units.

### Types A, B, C, E; Standard Dry-Contact Switches

Standard dry-contact switches have open mechanisms and exposed switching elements. These switching mechanisms are easy to maintain. Visual confirmation of operation is obvious. Dry-contact switch mechanisms are recommended for most level switch applications and are available in SPDT and DPDT switch arrangements.

- High-load carrying capacity
- High-quality phenolic insulator
- Vibration resistance
- Versatility of application

### Types F, G, H; Hermetically Sealed Switches

Hermetically sealed switches are entirely enclosed in a hermetically sealed enclosure. Both switching elements and mechanisms are sealed. Good for volatile atmospheres and low temperatures.

- Completely enclosed switching mechanism and switch contacts
- Long-term reliability in harsh environmental conditions
- Vibration resistance

### Types L, S, T, V; Mini-Hermetically Sealed Switches

Mini-hermetically sealed switches have a hermetically sealed switch element on an exposed mechanism. Good for high-temperature service and normal applications that require hermetically sealed contacts.

- Rugged stainless steel construction
- Class I Group A rating for use in hazardous areas
- Vibration resistance
- High operating temperature limits

### Types D and R; Anti-Vibration Switches

Anti-Vibration Switches employ two magnets to provide vibration protection. Dual magnets prevent false trips by providing a positive mechanical lock to the enclosing tube when the switch is in any position. (Type T switches are mini-hermetically sealed units with dual magnets.)

### Type J: Pneumatic Switch

Pneumatic switches are available for applications that prohibit electrical switching or where electricity is not available.

- Three-way aluminum valve
- Anti-vibration design
- 1/4" NPT ports in 316SS for additional corrosion resistance

### Type Y: Extra-High Temperature Switch

The Y Series level switch mechanism is designed to operate normally under extremely high-temperature conditions. Constructed of stainless steel, ceramic, and oxidation-resistant alloys, the Y Series is designed to counteract the warping and seizure normally associated with this type of mechanism in high temperatures. The Y Series switch is especially well suited for power plant conditions.

- Mica/glass insulation on wires and switches
- Stainless steel and ceramic switch element and terminal block
- Switch mechanism rated at 800°F (427°C) continuous process temperature
- Can be combined with external temperature protection to function in temperatures up to 1200°F (649°C)
- Dual magnets for vibration protection

# Level Switches

## Step 5: Switching Mechanism 701 A-F4C-B-A1-B1-MC

Switch Designator		Resistive Amperage					Inductive Amperage					Minimum Temperature <sup>1</sup>	Maximum Temperature <sup>2</sup>	
		110-130VAC	210-250VAC	20-30VDC	110-130VDC	210-250VDC	110-130VAC	210-250VAC	20-30VDC	110-130VDC	210-250VDC			
A	Standard Dry Contact	15	15	5	.5	.25	15	15	5	.4	.13	-15°F (-26°C)	250°F (121°C)	
B	Hi-Temperature Dry Contact	5	5	1.5	.5	-	5	5	1	.25	-	-15°F (-26°C)	400°F (204°C)	
C	Gold Contact	1	-	1	-	-	1	-	.5	-	-	-15°F (-26°C)	250°F (121°C)	
D	Anti-Vibration	15	15	5	.5	.25	15	15	5	.4	.13	-15°F (-26°C)	250°F (121°C)	
E	High-Amp DC	-	-	10	10	3	-	-	10	10	3	-15°F (-26°C)	250°F (121°C)	
F	Hermetically Sealed	11	11	5	.5	.25	11	11	.25	.25	.13	-65°F (-54°C)	250°F (121°C)	
G <sup>7</sup>	Gold Contact Hermetically Sealed	1	-	1	-	-	1	-	.5	-	-	-65°F (-54°C)	250°F (121°C)	
H	High-Temperature Hermetically Sealed	5	5	1.5	.3	-	5	5	1	.25	-	-65°F (-54°C)	350°F (177°C)	
L <sup>5</sup>	Mini-Hermetically Sealed	DPDT	5	5	5	.5	-	5	5	2.5	.25	-	-15°F (-26°C)	250°F (121°C)
		SPDT	11	11	5	.5	.25	11	11	2.5	.25	.13	-15°F (-26°C)	250°F (121°C)
R	Anti-Vibration Gold Contact	1	-	1	-	-	1	-	.5	-	-	-15°F (-26°C)	250°F (121°C)	
S <sup>7</sup>	Gold Contact Mini-Hermet	1	-	1	-	-	1	-	.5	-	-	-15°F (-26°C)	250°F (121°C)	
T <sup>5</sup>	Anti-Vibration Mini-Hermet	DPDT	5	5	5	.5	-	5	5	2.5	.25	-	-15°F (-26°C)	250°F (121°C)
		SPDT	11	11	5	.5	.25	11	11	2.5	.5	.13	-15°F (-26°C)	250°F (121°C)
V <sup>7</sup>	High-Temperature Mini-Hermet	5	5	1.5	.5	-	5	5	1	.25	-	-15°F (-26°C)	400°F (204°C)	
Y <sup>6</sup>	Extra-High Temperature (Ceramic)	1	1	1	.4	-	1	1	.4	-	-	-40°F (-40°C) Note 3	800°F (427°C)	
J <sup>4</sup>	Pneumatic 316SS Fittings	Non-bleed 3-way aluminum valve body. Buna-N O-Rings 150 psi maximum supply, 24CFM @ 100 psi										5°F (-15°C)	200°F (93°C)	

### Notes

1. Minimum ambient temperature at which the switch mechanism will operate normally. This may vary according to actual climatic conditions. Actual minimum process temperature may be much lower. Consult the factory for details.
2. Maximum process temperature at which the switch mechanism will operate normally. This can be increased according to the type of process. Refer to pages 25-26 for more details.
3. -40°F Temperature rating with no icing.
4. Pneumatic switches must be used with clean, dry air or gas.
5. These switch designators have higher current rating for SPDT than DPDT.
6. Manufacturer specifications state maximum operating humidity must be <85% and minimum power rating is 100mW.
7. For high humidity environments and low current (<100mA), use hermetically sealed gold contact switches (S & G switches). For high temperatures, high humidity, and low current, a "V" switch is available with gold contacts upon request.

## Level Switches

701 A-F4C-B-A1-**B1**-MC

SOR housings are designed to protect the switching mechanisms from harsh environmental conditions, as well as protecting the surrounding atmosphere from potential ignition sources. The basic types of housings are listed below.

### General Purpose, NEMA 4x Housings

- Heavy duty cast aluminum
- All housings are rated NEMA 4x (IP66) as a minimum

### Explosion-Proof Housings

- Available in aluminum or cast iron
- Ratings as shown in chart below

### Pneumatic Switch Housings

- Required for use with a pneumatic switching mechanism
- General Purpose, NEMA 4 (IP66) only



### Switch Housings

Select the housings from the chart below

Housing Designator	Description	Electical/ Pneumatic Connections	Enclosure Rating <sup>2</sup>	Approvals						Available with Models		
				Canada	USA	ATEX	IECEX	Rostekhnadzor	INMETRO	700's	730's	750's
B1	Aluminum	1" NPT	Groups B C D E F G	■	■			○		○	○	
B2	Cast Iron		Groups B C D E F G	■	■			○		○	○	
B5 <sup>2</sup>	Aluminum Extended		Groups B C D E F G	■	■			○				○
N1	Aluminum Extended		NEMA 4, 4X	■				○				○
N4	Aluminum		NEMA 4, 4X	○	■			○		○	○	
N7	Aluminum		Groups C D F G	■	■			○		○	○	
N8	Aluminum Extended		Groups C D E F G	■	■			○				○
P1 <sup>1</sup>	Aluminum Pneumatic		(3) 1/4" NPT	NEMA 4, 4X							○	
S3	Aluminum	1" NPT <sup>3</sup>	Ex d IIC T6 Gb			○	■	○	○	○	○	
S8	Cast Iron		Ex d IIC T6				■	○		○	○	
T6	Cast Iron		Ex d IIC T6 Gb			■	■	○		○	○	

- – Available
- – Standard

**Notes:**

1. P1 housing must be used with pneumatic switch mechanisms.
2. B5 housing is rated for Groups B C D E F G in Canada, and Groups C D F G in the USA.
3. For M20 x 1.5 connection size, add Accessory Designator CN to the end of the SOR level switch model number.

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701 A-F4C-B-A1-B1-MC

SOR accessories are provided for customizing the level switches in this catalog according to the requirements of the application. Place accessory designator(s) from the table below at the end of the model number. Check the compatibility chart below for correct use of each accessory.

Accessory Designator	Description	Model Series		
		700	730	750
AF <sup>1</sup>	Air Filter & Gauge	●		
CL	ATEX/IECEX Approval for S3 Hsg	●	●	
CN	Conduit Reducer M20 x 1.5	●	●	●
CP	Conduit Reducer 1/2" NPT	●	●	●
CR	Conduit Reducer 3/4" NPT	●	●	●
CS <sup>2</sup>	CSA Certification	●	●	●
CV <sup>3</sup>	Canadian Registration Number (CRN)	●	●	●
CY	Certificate of Conformance (Power Piping, ASME 31.1)			
CZ <sup>4</sup>	Certificate of Conformance (Process Piping, ASME 31.3)			
DN	Special Drain Connection			
EC <sup>5</sup>	Extra Chamber Connection			
ET <sup>6</sup>	Temperature Extension	●	●	●
FE <sup>6</sup>	Finned Extension			
GG	Sealed Conduit	●	●	
ID <sup>7</sup>	Interface Detection			
KK	Housing Breather Drain	●	●	●
MC <sup>8</sup>	Manual Check	●	●	
MR	Mill Test Report	●	●	●
MT <sup>9</sup>	Mag Particle Examination			
NC	NACE Construction	●	●	●
NM	INMETRO Approved for S3 Hsg	●	●	
PP	Fiber Tag	●	●	●
PT	Dye Penetration Examination			
PY	Powder coat epoxy coating. No coating on stainless steel parts or plated screws. (500 hrs. salt spray)	●	●	●
RR	SS Tag wired to housing	●	●	●
RT	Radiograph Examination			
SC <sup>10</sup>	Special Calibration	C/F	C/F	C/F
SD <sup>11</sup>	Special Dimensions			
SL <sup>12</sup>	Special Cable Length	●	●	●
TC <sup>9</sup>	Tru-Check	●	●	
TF	Tandem Floats			
TS <sup>13</sup>	Taiwan Safety Mark	●	●	
TT	Oversized Nameplate for customer tagging	●	●	●
TW	Top Works Only (no chamber)			
UT	Ultrasonic Examination			
VV	Fungicidal Varnish	●	●	●
WC	Water Column Unit			
WV <sup>2</sup>	UL Listed	●	●	
YY	Epoxy Coating (enclosure only)	●	●	●

Notes: C/F = Consult the Factory

1. Pneumatic switching mechanisms only (P1)
2. Consult switch and housing sections for agency availability.
3. CY or CZ option may be required for CRN, see Page 25.
4. Process media must be known prior to manufacture. Different processes (service categories) require different quality inspection procedures. Consult the factory for details.
5. Need connection size, type, and location on chamber.
6. See high-temperature selection for application, Pages 26-27.

7. The upper & lower specific gravity required to determine functionality.
8. Appropriate for Model Series 701 through 704 & 730 through 733. See page 28 for details. Not available with NACE.
9. No MT option on Stainless Steel
10. Operating specific gravity, Set Point (referenced from upper process connection) and if Set Point is rising or falling are required.
11. Specific details of chamber dimensional changes.
12. Length of cable required (10 ft. is standard).
13. Requires S3, S8 or T6 Housing.

# Level Switches

## Step 7: Accessories/Certificates

701 A-F4C-B-A1-B1-[MC](#)

### Test Certificates

Model Series	Certificate Designator	Calibration	Hydrostatic Pressure Test	Inspection Report	Compliance /Conformance	Dielectric Test	Insulation Resistance	QA Test Report
700	C1	◆						
	C3			◆				
730	C4				◆			
750	C5					◆		
*740, 804	C6						◆	
	C7							◆
741-743	B5	◆		◆		◆	◆	
802	B6	◆		◆			◆	
	B7	◆		◆	◆			

\*These products also have Certificate C2 - Hydrostatic Pressure Test.

### Canadian Registration Number OH0690

Model Series	Chamber/Process Connection Material	Process Connection Size & Type	Trim Material	Switching Mechanism	Housing	Accessories
700	ALL	ALL	ALL	ALL	ALL	CV Required
730	ALL	ALL	ALL	ALL	ALL	
750	ALL	ALL	ALL	ALL	ALL	

Manual Check (MC) and Tru-Check (TC) options permit manual actuation of vertical displacer level switches, addressing EPA and OSHA safety requirements. The standard 30-foot stainless steel chain allows manual actuation from the tank base, eliminating potentially hazardous trips to the top of the tank. Specify either an MC or TC option by placing the designator in the accessory section of the model number.

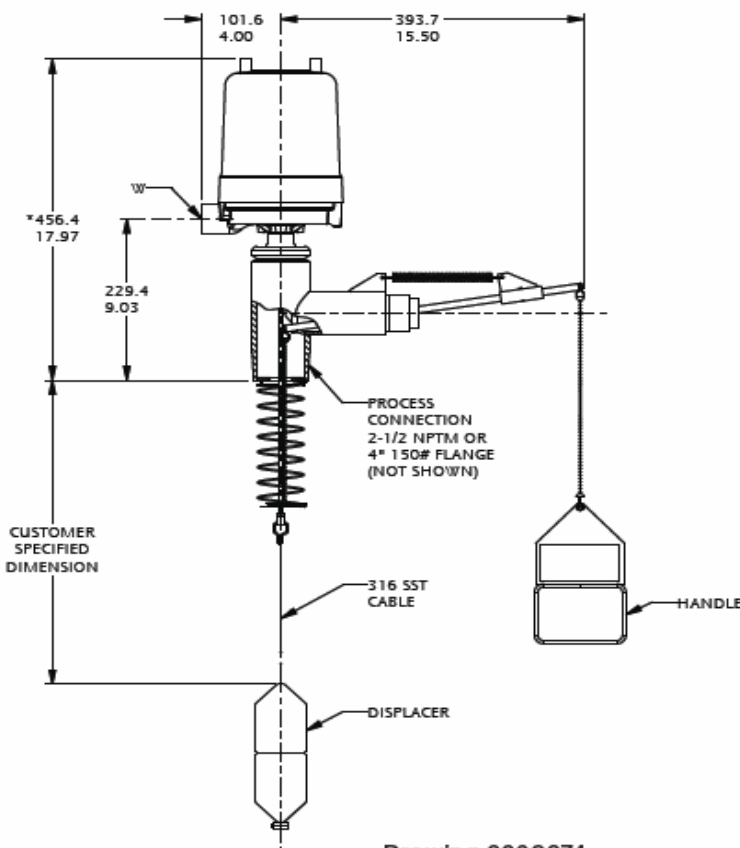
Designator	Application
TC	Tanks or vessels pressurized to 100 psi
MC	Atmospheric vented tanks or vessels

These options are available on SOR level switch Series 701 through 704 and 730 through 733. MC and TC option available on carbon steel units only. Series 730 through 733 are more sensitive to both high and low SG values. Please consult factory before ordering the MC or TC options for these models.

### How It Works

Pulling the handle transfers downward motion to the actuator lever by means of the beaded stainless steel chain. The resultant motion lifts the entire level sensing assembly which moves the attraction sleeve and actuates the switching element to simulate a high-level condition. Switching action for alarm, shutdown or control is verified.

### Dimensions



Drawing 0390674

### Product Specifications

#### Pressure Range

TC (Tru-Check)	*0 to 100 psi
MC (Manual Check)	0 psi (vented to atmosphere)

\*Maximum pressure for entire level sensing assembly is 100 psi with Tru-Check installed.

#### Temperature Range -40 to 300°F (-40 to 150°C)

#### Wetted Parts

Ball	Chrome Plated Brass
Seal	Teflon
Spring	Spring Steel
Body	1018 Steel

*Design and specifications are subject to change without notice. For latest revision, see [www.sorinc.com](http://www.sorinc.com).*

# Level Switches

## 700 SERIES UNIT DIMENSIONS

Dimensions in this catalog are for reference only. They may be changed without notice. Contact the factory for certified drawings for a particular model number. Dimensions are expressed as millimeters over inches. (Linear = mm/in.) "W" designates electrical connection, see page 22 for more housing information.

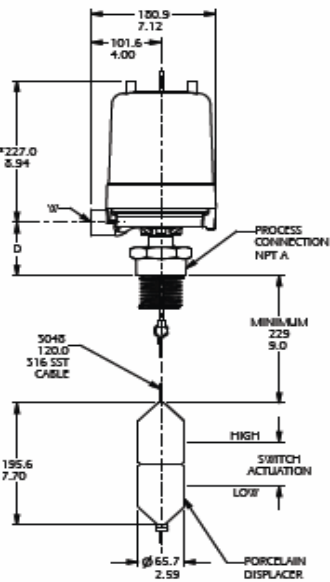
### Narrow Differential Models 701-704:

Actuation differential is approximately 1-7/16"  
@ Specific Gravity of 1.0 @ 100°F.

### Wide Differential Models 705-708:

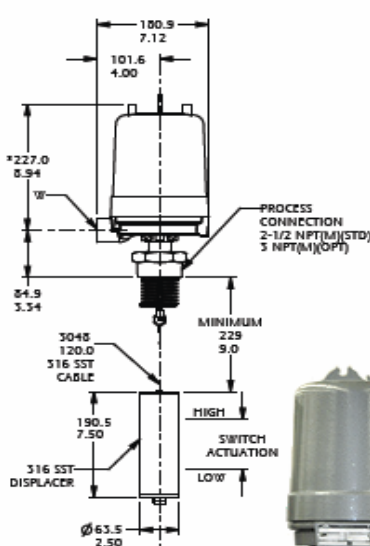
Actuation differential is adjustable from approximately  
9-1/2" (minimum @ Specific Gravity of 1.0 @ 100°F)  
to available cable length.

**Model 701/703**  
Narrow Differential



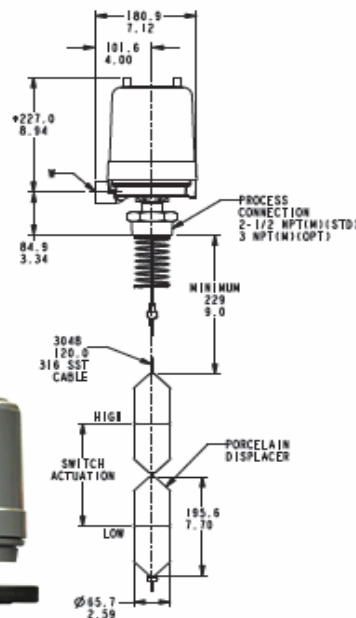
Drawing 0390670

**Model 702/704**  
Narrow Differential



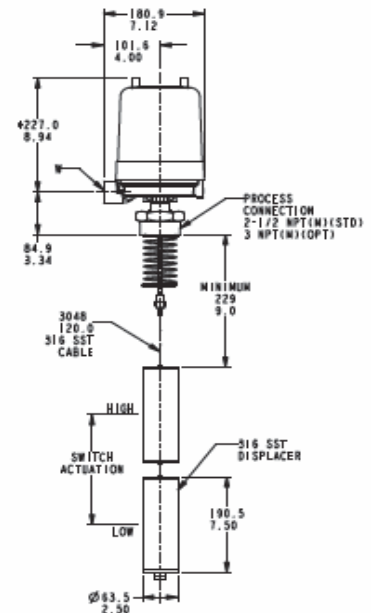
Drawing 0390671

**Model 705/707**  
Wide Differential



Drawing 0390672

**Model 706/708**  
Wide Differential



Drawing 0390673



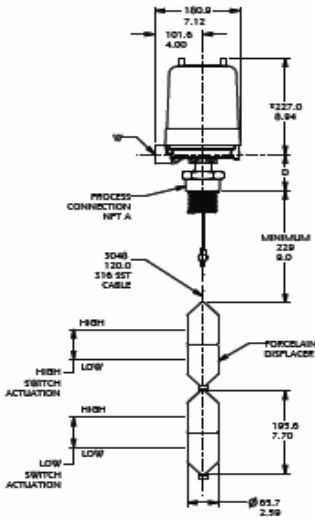
# Level Switches

## 730 UNIT DIMENSIONS

Dimensions in this catalog are for reference only. They may be changed without notice. Contact the factory for certified drawings for a particular model number. Dimensions are expressed as millimeters over inches. (Linear = mm/in.) "W" designates electrical connection, see page 22 for more housing information.

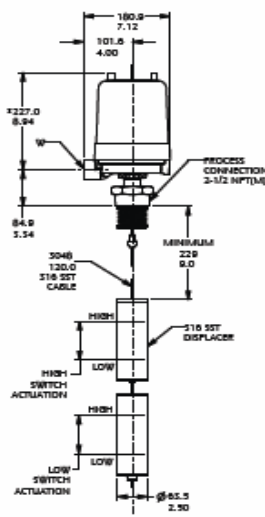


**Model 730/732**  
Narrow Differential



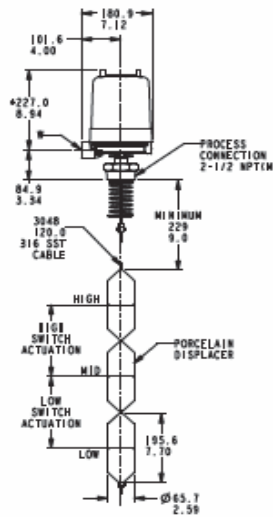
Drawing 0390677

**Model 731/733**  
Narrow Differential



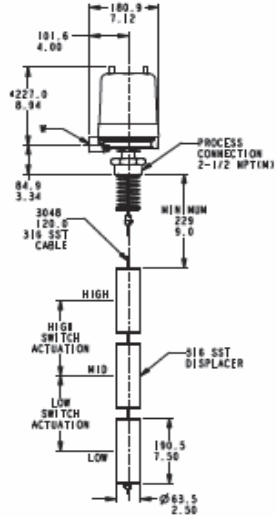
Drawing 0390678

**Model 734/736**  
Wide Differential



Drawing 0390679

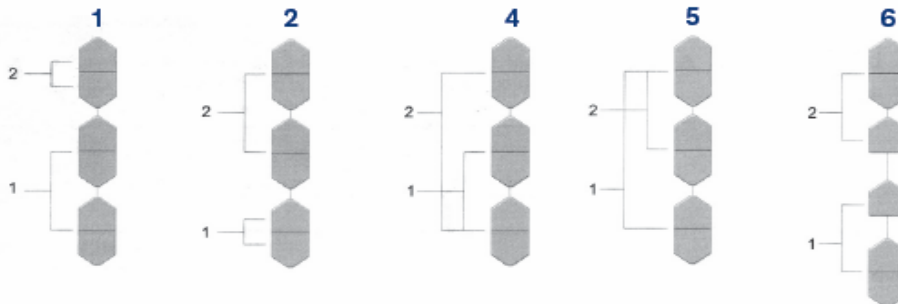
**Model 735/737**  
Wide Differential



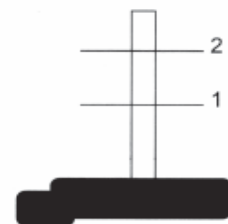
Drawing 0390680

## Optional Switching Arrangements

Dual-stage, wide differential switches may be ordered with switching arrangements different from those shown above. To order, select the desired arrangement below and add **SC** to the accessory section of the model number. At the time of order, specify the required arrangement number. Porcelain displacers are shown for pictorial purposes only.



## Switch Position





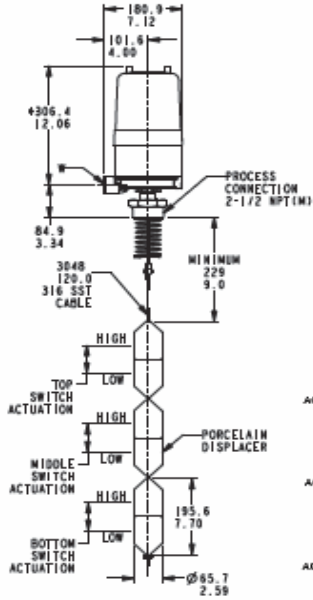
# Level Switches

750 UNIT DIMENSIONS

Dimensions in this catalog are for reference only. They may be changed without notice. Contact the factory for certified drawings for a particular model number. Dimensions are expressed as millimeters over inches. (Linear = mm/in.) "W" designates electrical connection.

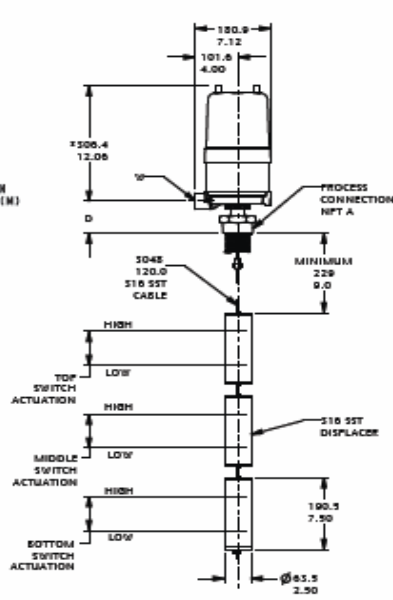


**Model 750/752**  
Narrow Differential



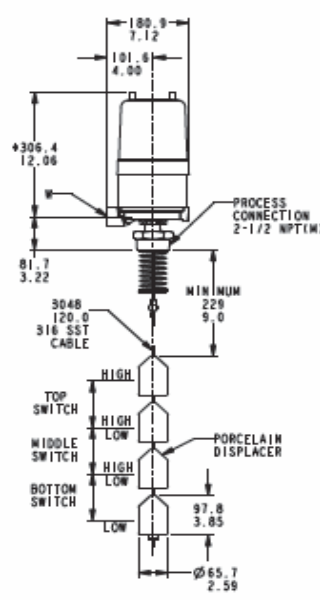
Drawing 0390681

**Model 751/753**  
Narrow Differential



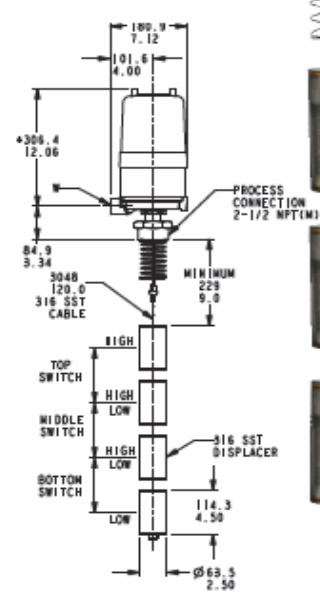
Drawing 0390682

**Model 754/756**  
Wide Differential



Drawing 0390683

**Model 755/757**  
Wide Differential

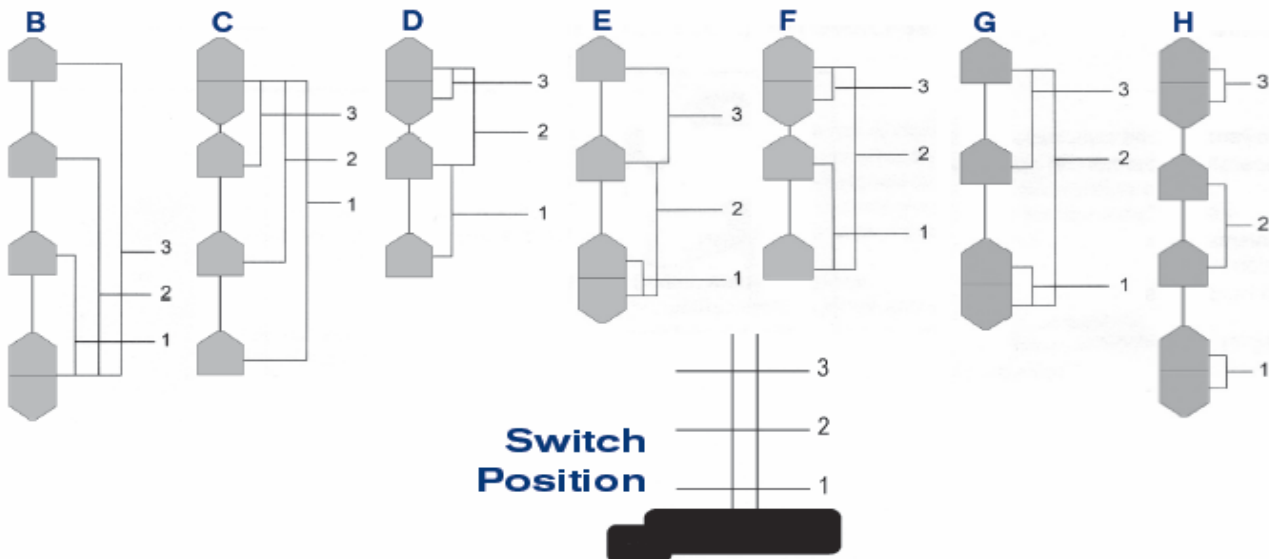


Drawing 0390684

\* Minimum 8-3/4" (222 mm) overhead clearance required to remove housing cover.

## Optional Switching Arrangements

Three-stage, wide differential switches may be ordered with switching arrangements different from those shown above. To order, select the desired arrangement below and add **SC** to the accessory section of the model number. At the time of order, specify the required arrangement number. Porcelain displacers are shown for pictorial purposes only.





MEASUREMENT AND CONTROL

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Registered Quality System to ISO 9001

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