

Model 716A

DISPLACER SWITCH / ALARM -TOP INSERTED TWO ALARM POINTS

Spring supported displacer type level switches are used in sumps, tanks, and vessels where long insertions and switching over wide variations in liquid level are required.

Displacer actuated units are less sensitive to surface wave action than other models which are actuated by floats. Spring opposed displacer type units are suited to difficult services where the fluid contains entrained solids or otherwise would tend to cause hang-ups in float actuated units.

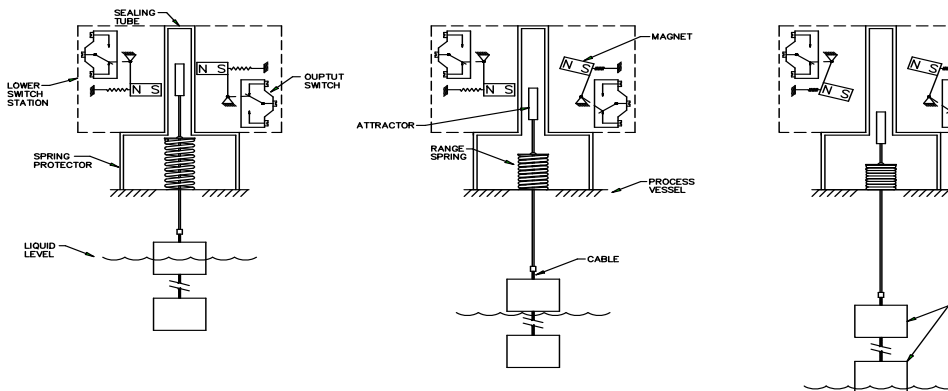
Operation is based on a buoyancy principle. A displacer, which is denser than the process liquid, is suspended from a spring. The length of the spring is proportional to the amount of weight that it supports; the less the weight, the longer the spring will be. When liquid covers a displacer, an amount of weight equal to the weight of the process liquid displaced, is removed from the spring and supported by the process liquid. The spring length is proportionally increased and the attractor is moved up into the field of the switch station magnet. The magnet is pulled in against the outside of the sealing tube and the output switch is actuated.

Similarly, when the process fluid uncovers the displacer, the displacer liquid weight is transferred back to the spring. The length of the spring is decreased to its original length and the attractor is pulled out of the field of the magnet. The magnet returns to its original position and the output switch deactivates. The two separate displacers are supported by a single spring. As the liquid covers the first displacer, the spring lifts the entire displacer assembly (along with the attractor) upward a precise amount. The second switch station will be operated as the liquid level continues to rise covering the upper displacer. The displacers may be placed on the cable at widely separated points and the switch action will then be produced when the liquid level surface covers a displacer at the separated points.

Units equipped with the optional Ground Level Checker include a mechanical arm that allows the switch to be manually operated. Operating this lever allows the user to manually verify the function of the switch without changing the level in the tank. Pulling the lever caused the lever arm to raise the switch actuator through the switchpoints. Releasing the lever returns the switch to its previous position. The checker lever can be operated via a cable attached to it and routed to ground level.



Model 716A with optional Ground Level Checker



Delta Controls
CORPORATION

BASIC TYPE	SENSING DISPLACER	INSERTION DISTANCE	PROCESS CONNECTION	SWITCH & HOUSING	OPTIONS
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MODEL EXAMPLE 716A - 54Y - 20' - 4"/150RS - L2W - HH

BASIC TYPE	
M/N	DESCRIPTION
716A	2 STATIONS, 2 DISPLACERS
716D	1 STATION, 2 DISPLACERS

316 S.S. SPRING; UP TO 300°F,
INCONEL SPRING UP TO 500°F
BASIC: 316 S.S. TRIM, 416 S.S.
ATTRACTOR

SENSING DISPLACER										
DISPLACER (INCHES)						WKG PSIG @ °F			MINIMUM ANSI FLANGED	
M/N	MAT *	MIN SPG	MAX SPG	O.D.	LENGTH	100	250	450	NPT	NOZZLE
49Y	316 S.S.	0.45	0.90	3.5	5.9,12.5	385	300	250	NA	4" SCH 80
50Y	316 S.S.	0.60	1.20	3.5	4.8,10.0	385	300	250	NA	4" SCH 80
51Y	316 S.S.	0.60	1.07	2.9	7.1,14.9	500	400	325	3"	3" SCH 80
52Y	316 S.S.	0.70	1.10	2.9	5.9,12.0	500	400	325	3"	3" SCH 80
54Y	316 S.S.	0.85	1.20	2.9	4.8,10.0	500	400	325	3"	3" SCH 80
55Y	316 S.S.	1.01	2.10	2.9	4.8,10.0	500	400	325	3"	3" SCH 80
HIGH POSITION OF FLOATING TANK ROOF										
52L	BRASS	0.70	1.10	2.5	10.0,12.0	375	300	260	3"	3" SCH 80
57Z	LEAD	POSITION		1.0	4.0,4.0	NA	NA	NA	2.0	C/F

* 316 S.S. AVAILABLE IN SOLID POLYPROPYLENE; WORKING PRESSURE OF 2200 PSIG @ 100°F; LIMITED TO 1520 PSIG @ 220°F MAXIMUM. CHANGE "Y" TO "P" AND ADD \$ TO THE ELEMENT PRICE.

INSERTION DISTANCE		
M/N	DESCRIPTION	PER FT
10	10 FT OF 316 S.S. CABLE	N/C
#	UP TO 50 FEET OF 316 S.S. CABLE, MAXIMUM	OVER 10 FT

REPLACE "#" WITH REQUIRED FEET OF CABLE FOR MONEL OR HASTELLOY "C" CABLE: C/F

PROCESS CONNECTION			
M/N	ANSI SIZE	STEEL	304 S.S.
			316 S.S.
3" MPT*			
3"/150R*			
3"/300R*			
3"/600R*			
4"/150R*			
4"/300R*			

REPLACE "*" WITH "S" FOR STEEL, "B" FOR 304 S.S., OR "Y" FOR 316 S.S.
CONSULT FACTORY FOR OTHER SIZES & RATINGS.

SWITCH & HOUSING						INTENDED SERVICE **
▲ SWITCH STATION DESCRIPTIONS -						
W/P-N4	710A	710D	E/P-7CD,9	710A	710D	
S1W		NA	* S1C		NA	GENERAL USAGE
S2W		NA	* S2C		NA	
S4W			S4C			
T1W			T1C			HIGH TEMPERATURE
T2W			T2C			
H1W			H1C			ENVIRONMENTALLY SEALED
H2W			H2C			
L1W			L1C			A.C. MOTOR LOADS
L2W			L2C			
D1W			D1C			HIGH D.C. LOADS
D2W			D2C			

FOR NEMA 4X (EPOXY PAINT): ADD \$ AND CHANGE "W" TO "X"
FOR NEMA 7, GROUP B: ADD \$ AND CHANGE "C" TO "B"
* FOR ALL 300 S.S. NEMA 7B HOUSINGS: ADD \$ AND CHANGE "C" TO "T"
**SEE DATA SHEET FOR SWITCH LOAD AND SERVICE RATINGS

OPTIONS	
M/N	DESCRIPTION
AA	NONE
IN	INCONEL SPRING, 500°F INCREASE MIN SPG BY 6%
SA	316 S.S. SHEATHED ATTRACTOR
HH	120VAC ELECTRICAL HOUSING HEATER TO PREVENT CONDENSATION & ICING



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Reliability**

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