

# MODEL 763 STEAM CONDENSATE LEVEL SWITCHES

## -For Power Plant and Central Station Services-

TS-763

### FEATURES

- Services to 3000 PSI (20.6 MP<sub>a</sub>) or 1500°F (815°C)
- Engaged magnetic fields prevent false alarms
- High and low steam drum level alarm service
- Drip leg and condensate trap drain services
- Blow down pot and superheater service
- Very high reliability – no false shutdowns
- Insensitive to vibration and system shocks
- Handles very hot heating oil as well as steam
- Designed, built, and tested to ASME standards

### OPERATIONS

The Series 763 condensate level switch produces a switching action when a liquid level passes a selected elevation. The sensing element is mounted in an external cage. An external cage is utilized to minimize the effects of turbulence, boiling, and splashing on the measurement. This cage design can also be valved off from the process, cooled and depressurized; allowing inspection, testing, maintenance, etc. of the 763. The output signal from the 763 consists of 1 or more heavy SPDT dry contacts.

The unit has a strong heavy wall displacer sensing element. The weight of this element is partially offset by a pivoted counterweight. The displacer net weight is strictly a function of the earth's gravity. Switch action is unaffected by process temperature and other variables. This design allows the 763 to work reliably at temperatures over 1500°F (815°C).

The displacer is buoyed upwards by the liquid as the level rises. The counterweight is equipped with an embedded magnet which is rotated downward as the displacer rises. A second magnet, connected to the output switch, is located on the outside of the pressure containing cage wall. This magnet is in opposition to the counterweight magnet and is continuously engaged with the embedded magnet. The switch magnet field goes over center and the magnet is forced against the upper stop as the displacer passes the centerline of the cage. The output switch has been activated and is now positively held in the up position. It will not false switch because of vibration, shock loads, etc. Conversely, the switch magnet is forced against the lower stop and the output switch deactivates as the liquid level drops below the centerline of the cage. There are no cams, rollers, temperature sensitive springs, etc. to limit reliability.

The 763 is truly a very high reliability liquid level switch which operates at high temperatures and pressures. Only a single weight, kept in position by a pivot shaft, moves. Reliable magnet lines of force penetrate the cage wall and connect up to the output switch.

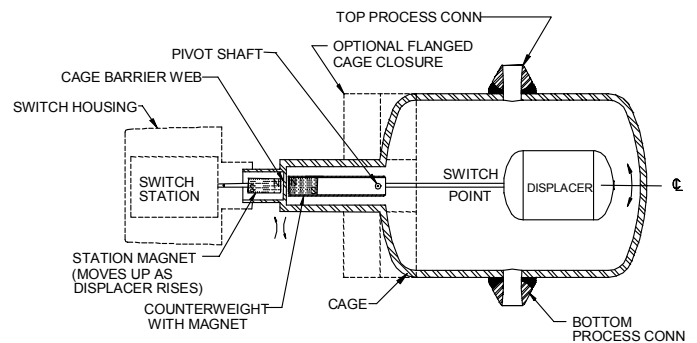


Model 763-Y



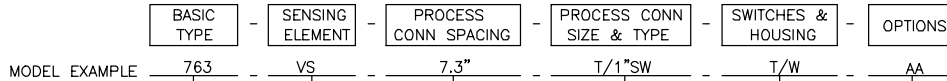
Model 763-36

### OPERATING SCHEMATIC



**DELTA CONTROLS CORP**

# DISPLACER LEVEL SWITCH, EXTERNAL CAGE TYPE, ONE ALARM POINT FOR STEAM CONDENSATE AND HEATING FLUIDS, HIGH TEMPERATURE (TO 1500°F) AND HIGH PRESSURE SERVICE (TO 3000 PSIG)



M/N	DESCRIPTIONS
763	1 ALARM POINT

SPECIFY INCHES

M/N	DESCRIPTIONS
AA	NONE
HM	SPECIAL MAGNET REQUIRED ABOVE 800°F C/F ABOVE 1000°F

M/N	MINIMUM SPECIFIC GRAVITY LIMITATIONS FOR STEAM		WORKING PSIG @ °F VAPOR TEMP							
	A106-B CARBON STEEL	BASIC T/B CONN. (INCHES)	SERVICE: PSIG * SATURATED STEAM		A106-B CARBON STEEL		2 1/4 CHROME 1 MOLY		316 STAINLESS STEEL	
	SENSOR	CAGE	PSI	*F	20/650	750	800	900	1000	1150
VS	316 SS	STEEL	7.3 SW OR NPT	250	406	240	225	-	-	-
VY	316 SS	304 SS	7.3 SW OR NPT	250	406	240	225	205	195	185
XS	316 SS	STEEL	8.3 SW	700	500	600	650	-	-	-
XH	316 SS	CR-MOLY	8.3 SW	700	500	-	-	565	530	-
XY	316 SS	304 SS	8.3 SW	700	500	-	-	-	515	410
YS	316 SS	STEEL	8.9 BW	1000	545	1050	1000	-	-	-
YH	316 SS	CR-MOLY	8.9 BW	1000	545	-	-	870	550	-
YY	316 SS	304 SS	8.9 BW	1000	545	-	-	-	875	700
36S	316 SS	STEEL	8.0 BW	2000	636	1800	1550	-	-	-
36H	316 SS	CR-MOLY	8.0 BW	2000	636	-	-	1770	1610	-
36Y	316 SS	304 SS	8.0 BW	2000	636	-	-	-	3000	2500
37S	316 SS	STEEL	11.9 BW	3000	695	3000	2670	-	-	-
37H	316 SS	CR-MOLY	11.9 BW	3000	695	-	-	3000	2630	-
37Y	316 SS	304 SS	11.9 BW	3000	695	-	-	-	3000	2500

MIN. SPG. REQUIREMENTS IS WHEN STEAM AT ITS SATURATION TEMPERATURE. THE ELEMENTS IS ALSO SUITABLE FOR SUPERHEATED STEAM AND HIGHER TEMPERATURES AT THAT PRESSURE.

NEMA 4X M/N	MAX STEAM TEMPERATURE	DESCRIPTION OF INTENDED SERVICE & LOAD RATINGS
T1W	*1200	HIGH TEMPERATURE; 0.5 AMP @ 125VDC, 5 AMP @ 125& 250VAC
T2W	*1200	A.C. MOTOR LOADS; 15 AMP @ 125VDC, 1/2 HP @ 250VAC
L1W	750	HIGH D.C. LOADS; 10 AMP @ 125VDC, 1/2 HP @ 250VDC
L2W	750	
D1W	650	
D2W	650	

ALL ELEMENTS	M/N
PROCESS CONN. SIZE	1" NPT
	1" SW
	1" BW

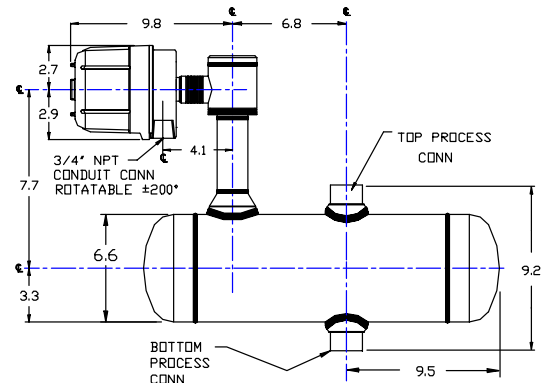
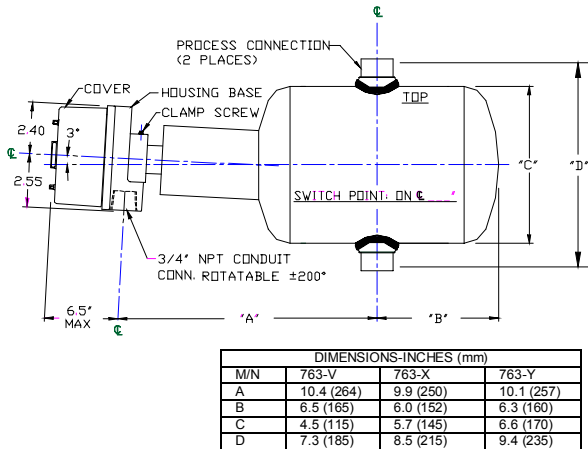
## SPECIFICATIONS

- Output Switch:** Dry contact micro; SPDT, DPDT, 4PDT
- Wetted Materials:** Trim 316 stainless steel
- Cage:** A106; 2 1/4 Cr, 1Mo; 316 SS
- Design Code:** ASME, Sections VIII and IX; and ANSI
- Testing and Inspection:** Hydro, gamma, magnetic particle, Ultrasonic, dye penetrate, and others as required
- Process Connections:** Top/Bottom is basic; side optional; socket weld, butt weld, flanges, or clamp hubs
- Cage style:** Seal welded or flanged
- Area Classifications:**
  - North American:** CSA and NRTL/C Class I, Division I, Group. BCD; 4X Class II, Group. EFG; Class III
  - European:** EE<sub>x</sub> d IIB + H<sub>2</sub> T6 Zone 2, Enclosure  $\epsilon\epsilon$

## LONG TERM USERS OF THE MODEL 763

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"> <li>CPC</li> <li>Various</li> <li>Muscatine Power</li> <li>Eastman</li> <li>Electricidad</li> <li>CCPC</li> <li>Industrial Generating</li> <li>Westinghouse</li> <li>Arizona P.S.</li> <li>Lilco</li> <li>LP&amp;L</li> <li>International Paper</li> <li>Petrobras</li> </ul> | <ul style="list-style-type: none"> <li>Refinery</li> <li>Power Plants</li> <li>Power Plant</li> <li>Fine Chemicals</li> <li>Power Plants</li> <li>Petrochemicals</li> <li>Power Plants</li> <li>Power Plants</li> <li>Power Plant</li> <li>Power Plant</li> <li>Paper Mill</li> <li>Refinery</li> </ul> | <ul style="list-style-type: none"> <li>Taiwan</li> <li>China</li> <li>Iowa</li> <li>Tennessee</li> <li>Mexico</li> <li>Texas</li> <li>Texas</li> <li>Worldwide</li> <li>Arizona</li> <li>New York</li> <li>Louisiana</li> <li>USA</li> <li>Brazil</li> </ul> |
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## OUTLINE DIMENSIONS



**MODEL NUMBER 763-36**

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