

# Instruction Bulletin

Replaces 65013-009-87B dated 6/00

## Closed Tank Float Switches Flange Mounted Class 9037, Types ER, EW

### INTRODUCTION AND SPECIFICATIONS



### INSTALLATION

Use the float switch to control the liquid level automatically in a closed tank. The float switch can be set in the field to either open or close contacts on rising liquid. Floats and rods are supplied in appropriate kits. See Tables 2–5.

**Sump Operation:** Contacts close on liquid rise. (See float positions 1 and 3, Figures 1 and 3, for proper float and rod mounting).

**Standard Operation:** Contacts open on liquid rise. (See float positions 2 and 3, Figures 2 and 3, for proper float and rod mounting).

**Table 1: Class 9037, Types ER and EW Double-Pole Device Ratings**

Electrical Ratings					
No. of Poles	Voltage	Horsepower			Control Circuit Rating
		Single Phase AC	Polyphase AC	DC	
2 Pole	115 Vac	2	3	0.5	A600
	230 Vac	3	5	0.5	
	460/575	–	1	–	
	32	–	–	0.25	
Temperature Ratings					
-40 to +185 °F (-40 to +86 °C)					
Pressure Rating					
50 psi					
Enclosure Rating					
For Type ER: NEMA 7 & 9					
For Type EW: NEMA 4					

Mount the float switch directly to the tank using the four 13/16 in. diameter mounting holes provided in the flange. Flange gaskets are not provided, but may be desirable. The recommended size of the hole in the tank is 4-3/16 in. For a wiring diagram, refer to Figure 5 on page 4.

### **⚠ DANGER**

#### HAZARDOUS VOLTAGE

Disconnect all power before installing or servicing this equipment.

**Failure to follow this instruction will result in death or serious injury.**

### **⚠ WARNING**

#### HAZARDOUS ATMOSPHERE

- To prevent explosion, the integrity of the enclosure must be maintained.
- Disconnect all power before opening the enclosure.
- Flange surfaces must be clean and free of scratches or nicks.
- Flange bolts must be torqued to 145–155 lb-in (16.4–17.5 N•m) before applying power.

**Failure to follow these instructions can result in death or serious injury.**

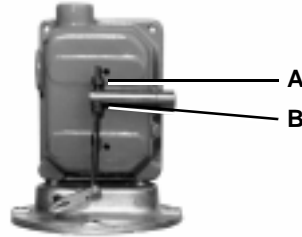


**MOTOR PROTECTION**

These switches do not provide motor protection. They can be used as a pilot to operate an overload-protected starter. Contact your Square D sales representative for information on a complete line of motor starters.

**ADJUSTMENT**

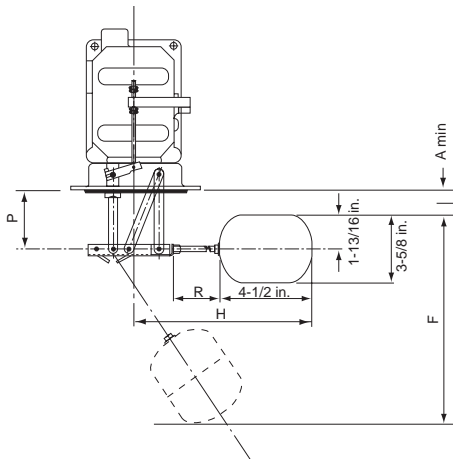
Each float switch is factory set to a specified float travel for a given length of rod. Reasonable adjustment of float travel can be made in the field. By turning adjustment nut A downward and nut B upward, float travel will be decreased. The reverse will increase float travel.



**FLOAT POSITIONS AND ROD KITS**

The float switch can be mounted in three positions as shown in Figures 1–3. Refer to Tables 2–5 for rod kits that are available for these positions.

**Table 2: Rod Kits for 9037 Types ER/EW-8 and -10 for Float Position 1**



P=(post clearance dimension) is 2-5/8 in. for short post models. On long post models (Types ER/EW-9 and -13) this distance is 4-11/16 in.

**Figure 1: Float Position 1 – Vertical mounting, sump operation; contacts close as liquid level rises.**

Class 9049 Rod Kits	EW-8, ER-8; EW-10, ER-10 <sup>[1]</sup>									
	EW-8, ER-8 A <sup>[2]</sup>		EW-10, ER-10 A <sup>[2]</sup>		F <sup>[2]</sup>		Water Level Change			
	R <sup>[2]</sup>	H <sup>[2]</sup>	Min	Max	Min	Max	Min	Max	Min	Max
ER-1	1-3/4	8-1/4	1	2	3-1/16	4-1/16	4-3/4	6	1-3/4	3
ER-2	2-1/2	9	1	2	3-1/16	4-1/16	4-3/4	6-1/4	1-3/4	3-1/4
ER-3	3-1/4	9-1/2	1	2	3-1/16	4-1/16	4-3/4	6-1/2	1-3/4	3-1/2
ER-5	5-1/4	11-3/4	1	2-1/2	3-1/16	4-9/16	4-3/4	6-3/4	1-3/4	3-3/4
ER-7	7-1/4	13-3/4	1	3	3-1/16	5-1/16	5	7-1/4	2	4-1/4
ER-12	12-1/4	18-3/4	1	4-1/4	3-1/16	6-5/16	5-3/4	9	2-3/4	6

<sup>[1]</sup> Dimensions are in inches.

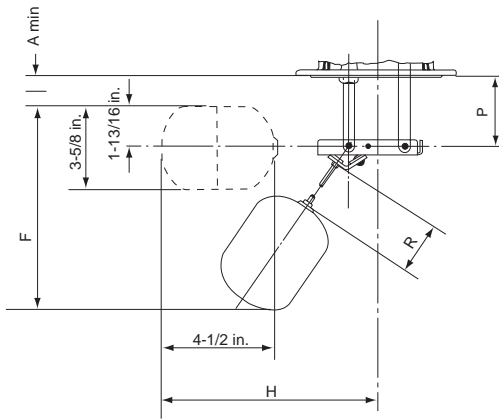
<sup>[2]</sup> Letters refer to Float Position 1, Figure 1.

**Table 3: Rod Kits for 9037 Types ER/EW-9 and -13 for Float Position 1**

Class 9049 Rod Kits	EW-9, ER-9; EW-13, ER-13 <sup>[1]</sup>									
	EW-9, ER-9 A <sup>[2]</sup>		EW-13, ER-13 A <sup>[2]</sup>		F <sup>[2]</sup>		Water Level Change			
	R <sup>[2]</sup>	H <sup>[2]</sup>	Min	Max	Min	Max	Min	Max	Min	Max
ER-1	1-3/4	7-1/2	1	4	3-1/16	6-1/16	6	9	3	6
ER-2	2-1/2	8-1/4	1	4-1/2	3-1/16	6-9/16	6-1/4	9-3/4	3-1/4	6-3/4
ER-3	3-1/4	9	1	5	3-1/16	7-1/16	6-1/4	10-1/4	3-1/4	7-1/4
ER-5	5-1/4	11	1	6	3-1/16	8-1/16	6-1/2	11-1/2	3-1/2	8-1/2
ER-7	7-1/4	12	1	7-1/2	3-1/16	9-9/16	6-1/2	13	3-1/2	10
ER-12	12-1/4	18	1	9-1/2	3-1/16	11-9/16	9	17-1/2	6	14-1/2

<sup>[1]</sup> Dimensions are in inches.

<sup>[2]</sup> Letters refer to Float Position 1, Figure 1.



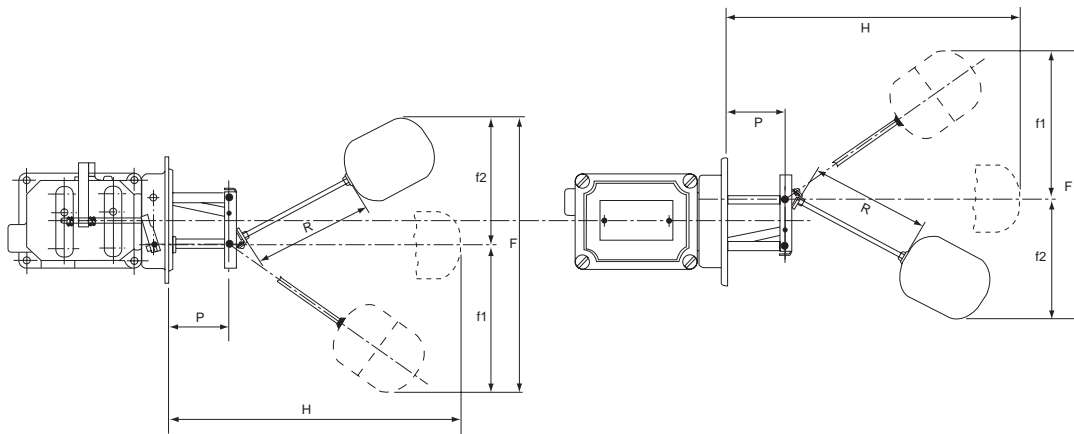
P=(post clearance dimension) is 2-5/8 in. for short post models. On long post models (Types ER/EW -9 and -13) this distance is 4-11/16 in.

**Figure 2: Float Position 2 – Vertical mounting, standard operation; contacts close as liquid level falls.**

**Table 4: Rod Kits for 9037 Types ER/EW-9 and -13 for Float Position 2**

Class 9049 Rod Kits	EW-9, ER-9; EW-13, ER-13 [1]									
	R [2]	H [2]	EW-9, ER-9 A [2]		EW-13, ER-13 A [2]		F [2]		Water Level Change	
			Min	Max	Min	Max	Min	Max	Min	Max
ER-1	1-3/4	7-1/2	1	3	3-1/16	5-1/16	5-1/4	7-1/4	2-3/4	4-1/4
ER-2	2-1/2	8-1/4	1	3-1/2	3-1/16	5-9/16	5-3/4	8-1/4	2-3/4	5-1/4
ER-3	3-1/4	9	1	4	3-1/16	6-1/16	6	9	3	6
ER-5	5-1/4	11	1	5	3-1/16	7-1/16	6-3/4	10-3/4	3-3/4	7-3/4
ER-7	7-1/4	13	1	6	3-1/16	8-1/16	7-3/4	12-3/4	4-3/4	9
ER-12	12-1/4	18	1	8-1/2	3-1/16	10-9/16	10-1/4	17-3/4	7-1/4	12-1/4

[1] Dimensions are in inches.  
[2] Letters refer to Float Position 2, Figure 2.



P=(post clearance dimension) is 2-5/8 in. for short post models. On long post models (Types ER/EW-9 and -13) this distance is 4-11/16 in.

**Figure 3: Float Position 3 – Horizontal mounting, standard or sump operation depending on the position of the switch. To reverse operation, turn the control through 180° around the horizontal line.**

**Table 5: Rod Kits for 9037 Type ER/EW-9 and -13 for Float Position 3**

Class 9049 Rod Kits	EW-9, ER-9; EW-13, ER-13 [1]									
	R [2]	EW-9,ER-9 H [2]	EW-13,ER-13 H [2]	f1 or f2		F		Water Level Change		
				Min	Max	Min	Max	Min	Max	
ER-1	1-3/4	9	11	2-3/4	4-1/2	5-1/2	9	2-1/4	5-3/4	
ER-2	2-1/2	9-3/4	11-3/4	2-3/4	4-1/2	5-1/2	9	2-1/4	5-3/4	
ER-3	3-1/4	10-1/2	12-1/2	3	5	6	10	2-3/4	6-3/4	
ER-5	5-1/4	12-1/2	14-1/2	3-1/2	6	7	12	3-3/4	8-3/4	
ER-7	7-1/4	14-1/2	16-1/2	3-3/4	7	7-1/2	14	4-1/4	10-3/4	
ER-12	12-1/4	19-1/2	21-1/2	4-1/2	9-1/2	8-3/4	19	5-1/2	15-3/4	

[1] Dimensions are in inches.  
[2] Letters refer to Float Position 3, Figure 3.

## REPLACEMENT PARTS AND ACCESSORIES

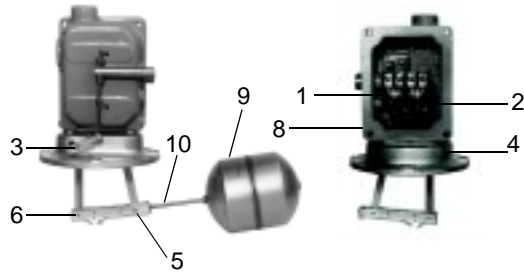


Figure 4: Replacement Parts

Table 6: Replacement Parts

Item Number	Description	Number Required	Part Number
1	Set of movable and stationary contacts (includes all attaching parts)	1	9998 PC242
-	Switch mechanism	1	2666-S96-G1
3	Link arm assembly (complete with set screw stud and adjusting nuts)	1	2666-M23-G1
4	Mounting flange (complete with packing, link arm, ground link, tie link assy., float rod lever – give Class and Type number)	1	2666-E6-G
5	Spring pin	1	24219-00470
6	Spring pin	1	24219-00460
-	Flange seal kit	1	9998 PC 341
8	Cover gasket for Type EW	1	1546-L11-X1

Table 7: Accessories

Item Number	Description	Number Required	Part Number
9	304 stainless steel 3.63 in. x 4.50 in. diameter float	1	9049 EF-1
9	316 stainless steel 3.63 in. x 4.50 in. diameter float	1	9049 EF-2
10	1.75 in. stainless steel float rod	1	9049 ER-1
10	2.5 in. stainless steel float rod	1	9049 ER-2
10	3.25 in. stainless steel float rod	1	9049 ER-3
10	5.25 in. stainless steel float rod	1	9049 ER-5
10	7.25 in. stainless steel float rod	1	9049 ER-7
10	12.25 in. stainless steel float rod	1	9049 ER-12

## WIRING

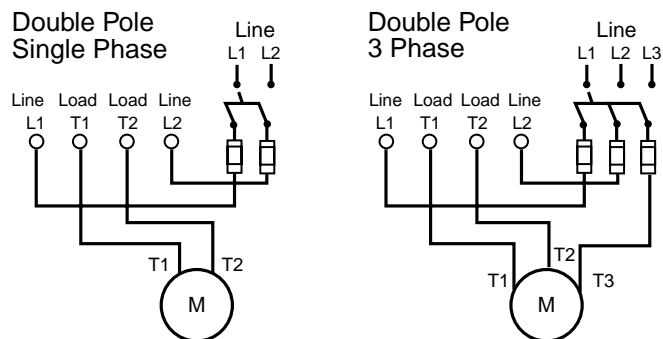


Figure 5: Wiring Diagram

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