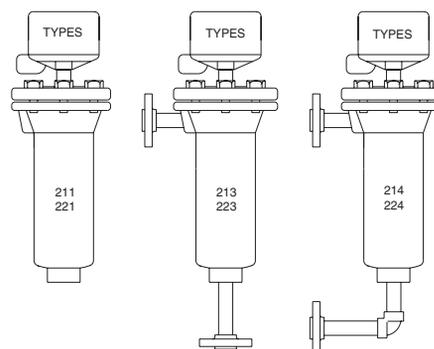
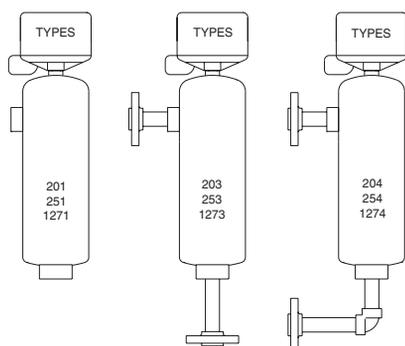




### Magnetic Type Liquid Level Controls

Series 201, 203, 204, 251, 253, 254, 1271, 1273, 1274 - Sealed Housing with Stainless Steel Float  
Series 211, 213, 214, 221, 223, 224 - Flanged Steel Float Chamber with Removable Steel Float

## Installation and Operating Instructions



### Operating Characteristics

When the float rises to the operating point, the switch or switches are actuated by the mutual attraction between a magnetic plunger attached to the float within the float chamber and a magnet attached to the switch operating assembly. When the float drops, the magnetic plunger is moved out of the field of the magnet on the switch operating assembly and the switch or switches are restored to their original position by gravity.

The magnetic plunger attached to the float moves within a tube within the switch enclosure. The switch unit is mounted on the tube singly or in pairs. Type 1271 - Single Stage Only.

### Explanation of Type and Code Numbers

Example: Type 201G-4820-C1-60.

201 is the type number of the control; letter "G" denotes enclosure; -4820 designates circuit arrangement; C1 denotes materials of construction; 60 indicates pressure rating and specific gravity.

### Enclosures

**General Purpose** enclosures are identified by the letter "G" in type number as in 201G, 1273G.

**Weather Resistant** enclosures are identified by the letter "W" in type number as in 204W, 211W.

**Explosion-proof** enclosures are identified by the letter "E" in type number as in 201E, 1274E.

**Explosion-proof -- Vapor-proof** enclosures are identified by the letters "EV" in type number as in 203EV, 223EV.

### Special Features

**Semi-Automatic** (with manual reset) operates automatically on level fall only - manual reset required on level rise. This operation identified by the letters "RU" in type number as in 201GRU.

**Wide Differential** (Single Stage) available only for controls with mercury switch contacts. Provides double the fixed level change ("B" in Liquid Level Change Table) between on and off switch operation. Identified by the letter "D" in type number as in 201GD. Type 1271 Not Available.

### 440 Volt Service

Identified by the digit 5 in circuit specification No. such as in -5820, -5821. For two-stage operation 440V is limited to SP-ST in each stage.

### Location -- Mounting

Select location recommended by equipment manufacturer. Mount all controls vertically and be sure that control switch mechanism is level.

### Wiring

Wire in accordance with local electrical codes or follow equipment manufacturer's instructions.

Align wiring block to face conduit opening and tighten brass screw of switch assembly.

The 3/4" NPT conduit connection (on all types can be rotated 360° to facilitate wiring).

Do not overload electrically. See rating stamped on nameplate.

### Operating Adjustments

**Level Adjustment (Single Stage Only)** Types 201, 203, 204, 211, 213, 214, 221, 223, 224, and 251, 253, 254 only. When single stage controls are shipped from the factory, the switch operating mechanism (illustration No. 11) is positioned at the center of the armature tube. The operating level can be raised approximately one inch by moving switch mechanism up to the top of the armature tube. Operating level may also be lowered one inch by moving switch mechanism down to bottom of armature tube. To obtain either operation, loosen clamp screw (illustration No. 11) before raising or lowering switch assembly. Be sure to tighten clamp screw after the desired adjustment is made.

Type 1271, 1273, 1274 (Single Stage Operation) the switch operating mechanism must rest at the bottom of armature tube against enclosure base.

### LIQUID LEVEL CHANGES IN INCHES FOR SWITCH OPERATION

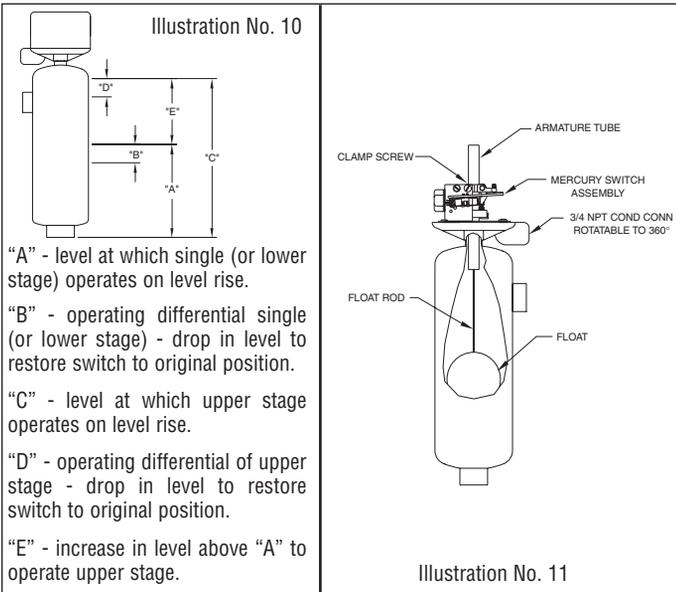
Series 201, 203, 204, 221, 223, 224, 251, 253, 254

Minimum Specific Gravity 0.6

Single Stage Operation "A" is Adj. ±1"				Single Stage with Wide Differential "A" Not Adjustable			
Sp. Gr.	"A"	"B"	Code	Sp. Gr.	"A"	"B"	Code
1.0	6-3/4"	3/4"	C1-60	1.0	7-1/2"	1-3/4"	C1-60
.6	7-1/2"	1"		.6	8-1/4"	1-7/8"	

See Illustration No. 10

Two Stage Operation "A" - Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	5-3/4"	3/4"	7-3/4"	1"	2"	C1-60
.6	6-1/2"	1"	9"	1-3/4"	2-1/2"	



**LIQUID LEVEL CHANGES IN INCHES OF WATER FOR -  
Series 201, 203, 204, 221, 223, 224, 251, 253, 254  
Minimum Specific Gravity 0.75**

Single Stage Operation Specific Gravity 1.0 & .75 - "A" is Adj. ±1"				Single Stage with Wide Differential "A" Not Adjustable			
(See Illustration No. 10)							
Sp. Gr.	"A"	"B"	Code	Sp. Gr.	"A"	"B"	Code
1.0	7-1/4"	3/4"	C1-75	1.0	8"	2"	C1-75
.75	8"	1"		.75	8-3/4"	2"	

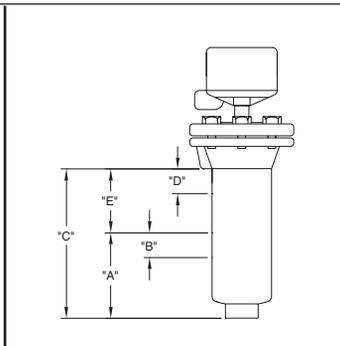
See Illustration No. 10

Two Stage Operation "A" - Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	6-1/4"	3/4"	8-1/2"	1-1/4"	2-1/4"	C1-75
.75	7"	1"	9-1/2"	1-3/4"	2-1/2"	

**LIQUID LEVEL CHANGES IN INCHES FOR SWITCH OPERATION  
Series 211, 213, 214, Minimum Specific Gravity 0.6  
450 PSI at 100°F, or 300 PSI at 500°F.**

Single Stage Operation "A" is Adj. ±1"			Single Stage with Wide Differential "A" Not Adjustable		
Sp. Gr.	"A"	"B"	Sp. Gr.	"A"	"B"
1.0	6-3/4"	3/4"	1.0	7-1/2"	1-3/4"
.6	8"	1-1/4"	.6	8-3/4"	2"

"A" - level at which single (or lower stage) operates on level rise.  
"B" - operating differential single (or lower stage) - drop in level to restore switch to original position.  
"C" - level at which upper stage operates on level rise.  
"D" - operating differential of upper stage - drop in level to restore switch to original position.  
"E" - increase in level above "A" to operate upper stage.



Two Stage Operation "A" - Not Adjustable					
Sp. Gr.	"A"	"B"	"C"	"D"	"E"
1.0	5-3/4"	3/4"	8"	1-1/4"	2-1/2"
.6	7"	1-1/4"	9-1/2"	2"	2-1/4"

**LIQUID LEVEL CHANGES IN INCHES OF WATER FOR -  
Series 1271, 1273, 1274 - Minimum Specific Gravity 0.58**

Single Stage Only "A" Not Adjustable		
Sp. Gr.	"A"	"B"
1.0	6-11/16"	1"
.58	8-1/4"	2"

**FOR SERVICE OTHER THAN SATURATED STEAM  
CONSULT FACTORY**

**PRESSURE RATINGS  
Series 201, 251**

One horizontal and one vertical 1" NPT pipe connection.

Type	Minimum Specific Gravity	Pressure Rating At		
		100°F	750°F Max.	Code
201	0.6	600 psi	500 psi	C1-60
251	0.75	1000 psi	750 psi	C1-75
	0.75	1250 psi and 650°F	750 psi	C1-75

**FLANGE AND FLOAT SPECIFICATIONS**

Series 203, 253: (1) one vertical and (1) horizontal flanged connection (1" FR forged steel - ANSI specifications.)

Series 204, 254: Two vertical flanged connection (1" RF forged steel - ANSI specifications.)

Type	Minimum Specific Gravity	Pressure Rating At		Flange Class PSI	Code
		100°F	750°F Max.		
203	0.6	275 psi	100 psi	150	C1-160
		600 psi	425 psi	300	C1-360
		600 psi	500 psi	600	C1-660
204	0.75	275 psi	100 psi	150	C1-175
		720 psi	425 psi	300	C1-375
		1000 psi	750 psi	600	C1-675
253 254	0.75	1250 psi and 650°F	750 psi	600	C1-675

**Types 211.** (1) vertical and (1) horizontal 1" NPT pipe connection  
**Type 213.** (1) flange vertical and (1) flange horizontal 1" RF forged steel.

**Type 214.** Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At		Flange Class PSI	Code
		100°F	500°F Max.		
211	0.6	450 psi	300 psi	---	C1-60
213	0.6	275 psi	150 psi	150	C1-160
		450 psi	300 psi	300	C1-360
214	0.6	450 psi	300 psi	600	C1-660

**FLANGE AND FLOAT SPECIFICATIONS**

Series 221, 223, 224

One vertical and one horizontal 1" NPT pipe connection.

**Type 221:** (1) vertical and (1) horizontal 1" NPT pipe connection.

**Type 223:** (1) flange vertical and (1) flange horizontal 1" RF forged steel.

**Type 224:** Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At		Flange Class PSI	Code
		100°F	475°F Max.		
221	0.6	600 psi	550 psi	---	C1-60
	0.75	1000 psi	850 psi	---	C1-75
223	0.6	600 psi	550 psi	300	C1-360
		600 psi	550 psi	600	C1-660
224	0.75	275 psi	150 psi	150	C1-175
		720 psi	625 psi	300	C1-375
		1000 psi	850 psi	600	C1-675

**Type 1271:** (1) vertical and (1) horizontal 1" socket weld pipe connection.

**Type 1273:** (1) flange vertical and (1) flange horizontal 1" RF forged steel.

**Type 1274:** Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At		Flange Class PSI	Code
		660°F			
1271	0.58	2325 psi		---	C1-58
1273	0.58	1520 psi		900	C1-958
	0.58	2325 psi		1500	C1-1558
1274	0.58	1520 psi		900	C1-958
	0.58	2325 psi		1500	C1-1558

**CIRCUIT ARRANGEMENTS**  
Controls with Mercury Switches  
Single Stage Only

Specification No.		Circuit Arrangement	Circuit Response to Liquid Level Changes
120/240 V	440 V		
-4820	-5820	SP-ST	Closes As Level Falls
-4821	-5821	SP-ST	Closes As Level Rises
-4815	-5815	SP-DT	One Circuit Closes As Other Circuit Opens
-4814	-5814	DP-ST	Closes As Level Falls
-4813	-5813	DP-ST	Closes As Level Rises

**Two-Stage Operation** (With Mercury Switches). Any two circuits shown in circuit arrangement table are available on each stage for 120/240 volts. Example: -4820-13 designates a SP-ST lower stage to close as level falls and a DP-ST upper stage opens as level falls.

**Circuit Arrangements**  
With Snap-Acting Switches

**Single Stage**

Specification No. -7810 (1) SP-DT Switch  
Specification No. -7806 (2) SP-DT Switches

**Two Stage**

Specification No. -7810-10 SP-DT Each Stage.  
Specification No. -7806-06 DP-DT Each Stage.

**Do not oil any parts. Never leave cover off the switch operating mechanism. Do not tamper with switch wires. Position of these wires is essential to proper operation. Tampering with these wires will void warranty.**

**MERCOID DIVISION**

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