

# Installation, Operation & Maintenance Instructions for Series 790 Level Control Floatswitch



**Note:** This document may be used in conjunction with WellMark Document, Section No. 2.1, "Series 790 Horizontal Liquid Level Floatswitch,

# **WARNING!**

Over-pressure of this control or installation of the control in applications which may see pressure levels beyond those for which the control is designed may result in leakage and/or catastrophic failure. This failure could result in leaking liquid or gas, damage to surrounding equipment, personal injury or death. To prevent such damage/injury the control should be installed in a safe location and should be chosen based upon the user's specific application.

It is highly recommended that suitable pressure-relieving devices, as recommended by appropriate codes or standards, be installed in your system to assure that maximum rated pressures are not exceeded.

# **Specifications**

Switch Housing	Explosion-Proof CSA Approved Class I, Groups C & D Class II, Groups E, F & G
	Class III, Enclosure Type 4X
Temperature Limit	250°F (standard), 400°F (optional)
Switch Rating:	, , , , , , , , , , , , , , , , , , , ,
Standard 250	°F, 5 A @ 120 VAC/250 VAC/28 VDC
High Amp	180°F, 11 A @ 120 VAC/250 VAC
High Temp	400°F, 5A@ 120 VAC
	d.) 1500 psig
Urethane Float	
Polypropylene Float	
	Approximately 1"
	ion) 0.6 minimum 1/2" Female Pipe Thread
Process Connection	
FIOCESS CONNECTION	1-1/2 WINF FOLZ WINF F

## **Application**

The Series 790 Floatswitch is a side-mounted liquid level switch useful for sending an electric signal to a pump, valve, alarm or other device when the liquid level in the vessel rises or lowers to a predetermined point.

#### Features Include:

- Corrosion-resistant 316 Stainless Steel on all wetted metal parts
- · Variety of Switch Options: SPDT, DPDT, High Amp, High Temp
- External Chamber option with two 1" FNPT connections.

## **Installation**

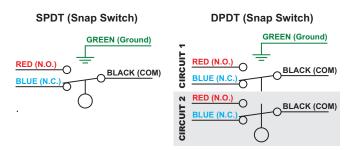
The control should be installed horizontally in a properly configured vessel fitting (1-1/2" or 2" Female NPT depending upon configuration of floatswitch), allowing unobstructed movement of the float. Install unit oriented such that the 1/2" Female conduit connection is pointing down. Utilize a suitable thread sealant or anti-seize compound. Do not over-tighten

#### **Electric Connection**

**SPDT**: Configuration includes a terminal connector with positions labeled 1, 2 and 3.

- 1 BLACK (COM)
- 2 BLUE (Normally CLOSED)
- 3 RED (Normally OPEN)

<u>DPDT</u>: Configuration includes two circuit bundles (no terminal). Each bundle includes, BLACK (COM), BLUE (Normally CLOSED) and RED (Normally OPEN).



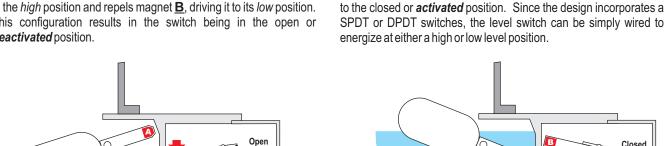
# **Operation**

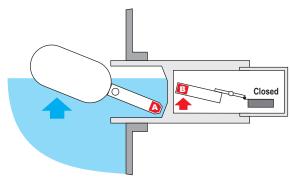
The Series 790 Level Control is a side-mounted float-operated level switch. The switch uniquely employs a magnetic repulsion feature which enables the float movement to magnetically actuate an externally-located electrical switch. Since the switch is operated by magnetic linkage across a solid stainless steel wall, there is no mechanical through-connection and therefore no seals such as Orings or packing glands which might be subject to leakage.



#### **Magnetic Switch Interface**

As shown in the following illustrations, at low liquid level magnet A is in the *high* position and repels magnet **B**, driving it to its *low* position. This configuration results in the switch being in the open or deactivated position.





As liquid level rises and the float moves upward, magnet A passes magnet **B**. The repulsion of the two magnets drives magnet **B** to its

high position, thereby causing snap-action of the switch as it moves

## **Maintenance**

The Series 790 Liquid Level Control is pre-set at the factory and requires no routine maintenance. However, it is recommended that the user routinely check that free travel of the float within the vessel is not obstructed.

## **Parts List**

ltem	Description	Qty.	Part No.
1	BODY,1-1/2" MNPT, 316 Stainless Steel	1	009513-M
	BODY, 2" MNPT, 316 Stainless Steel	1	009527-M
2	FLOAT, 316 Stainless Steel	1	007418-P
3	COUNTER WEIGHT, 316 Stainless Steel	1	007361-W
4	PIVOT PIN, 316 Stainless Steel	1	007233-P
5	SPACER, 316 Stainless Steel	2	007114-M
6	ADAPTER, 303 Stainless Steel	1	009533-M
7	SWITCH ASSY., SPDT - Micro Switch	1	009584-A
'	SWITCH ASSY., DPDT - Micro Switch	1	009679-A
8	SWITCH PROTECTOR, 304 SS	1	009520-P
9	LOCKWASHER, SS	2	001804-P
10	SCREW, 18-8 SS	2	001504-P
11	CAP, 303 Stainless Steel	1	009514-M
12	O-RING, Buna-N	1	05000-0173
13*	SCREW, GROUND, 18-8 SS	1	001504-G
14*	GROUND CUP, SS	1	001800-P
15*	GROUND WIRE (for DPDT switch only)	1	000087-A

<sup>\*</sup> Not shown

