

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, 5A @ 120 VAC/250 VAC/28 VDC
 High Amp _____ 180°F, 11 A @ 120 VAC/250 VAC
 High Temp _____ 400°F, 5A @ 120 VAC

Operating Pressure:
 316 Stainless Steel Float (std.) _____ 1500 psig
 Urethane Float _____ 1500 psig
 Polypropylene Float _____ 5000 psig

Level Differential _____ Approximately 1"
 Specific Gravity (w/o Arm Extension) _____ 0.6 minimum

Electrical Conduit Connection _____ 1/2" Female Pipe Thread
 Process Connection _____ 1-1/2" MNPT or 2" MNPT

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

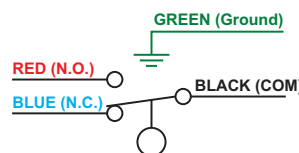
Electric Connection

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

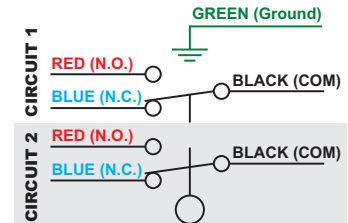
- 1 BLACK (COM)
- 2 BLUE (Normally CLOSED)
- 3 RED (Normally OPEN)

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

SPDT (Snap Switch)



DPDT (Snap Switch)

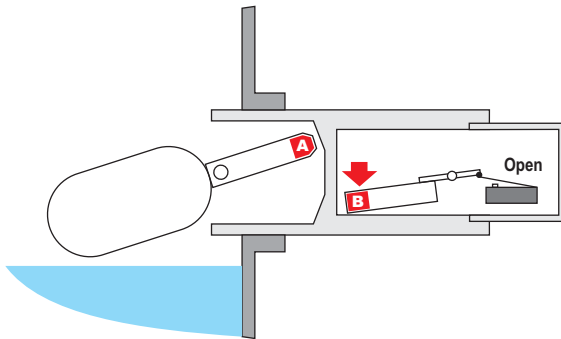


Operation

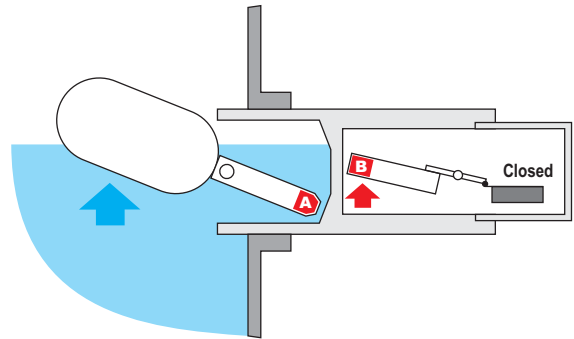
The Series 790 Level Control is a side-mounted float-operated level switch. The switch uniquely employs a magnetic repulsion feature which enables the float movement to magnetically actuate an externally-located electrical switch. Since the switch is operated by magnetic linkage across a solid stainless steel wall, there is no mechanical through-connection and therefore no seals such as O-rings 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 to the closed or *activated* position. Since the design incorporates a SPDT or DPDT switches, the level switch can be simply wired to energize at either a high or low level position.



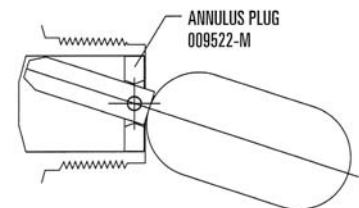
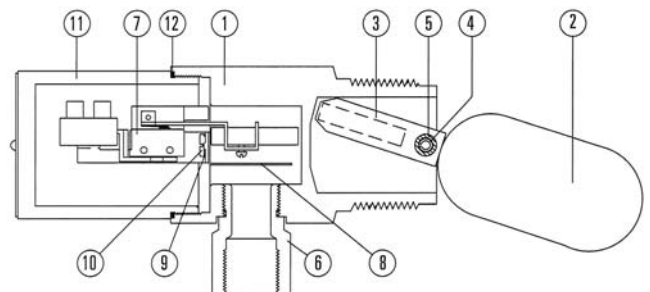
Maintenance

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

Item	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

* Not shown



OPTIONAL PARTS FOR 790