Orenco SYSTEMS

*Technical Data Sheet*

# Float Switch Assemblies

## Applications

Float switches are used to signal liquid level positions for alarm and pump control applications. Orenco float switch assemblies can be mounted in pump vaults, effluent screens, pump basins, and risers.

*The "On" and "Off" positions describe normally open floats. For normally closed floats, the functions are reversed.*

## Materials of Construction

| | |
|---|---|
| Float housing | Impact-resistant, noncorrosive PVC plastic for use in liquids up to 140˚ F (60˚ C) |
| Float cord | Flexible 2-conductor (UL, CSA) SJOW; CPE cord jacket with EPDM insulated conductors |
| Float collar | ABS |

## General

All models listed are UL listed and CSA certified for use in water or sewage. Non-mercury float switches (models B, C, N, and P) are used where components containing mercury are prohibited.

Float switches are typically ordered in assemblies that include one or more switches mounted on a 1-inch PVC float stem. ABS float collars are used to provide secure mounting that is easily adjustable.

Normally-open "P" float switches have a blue cap for easy identification; normally-closed "N" float switches have a red cap.

## Standard Models

B, C, G, N, P

## Product Code Diagram

**MF [3] [PBN] - [21] [V] - [ ]**

Cord length option:
Blank = 10 ft (3 m), standard
20 = 20 ft (6 m)
30 = 30 ft (9 m)
50 = 50 ft (15 m)

Application:
FS = field set
FTL = elbow-style (base-inlet filters only)
PB = pump basin
V = pump vault (standard float settings)
STEP = Standard float settings for STEP
STEPRO = Standard float settings for STEP with redundant off
SVCOM = Standard float settings for VCOM simplex

Float stem length:
Blank = no float stem (floats and collars only)
19, 21, 27, 33, 37, 39, 45, 51, 57, 66 = stem length, in.
5, 11 = stem length, in. (for elbow-style float brackets)

Float switch models (listed in order from the top of the float stem down):
B, C, G, N, P

Number of float switches (when using multiples of the same float switch model):
Blank = no multiples of the same float switch model

Float switch assembly

Note:

When ordering float switch assemblies, remember to list float switches from the top of the float stem down. An "MFPBN-" product code indicates one "P" switch at the top of the stem, one "B" in the middle of the stem, and one "N" switch at the bottom of the stem; an "MF2PN-" indicates "P" switches at the top and middle of the stem, and one "N" switch at the bottom of the stem.

# Signal- and Motor-Rated Float Switch Matrix

| Float | State[1] | Type | IR[2] | Volts | Amps | hp | Tether | X | Y | Drawdown[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| **Signal-rated mechanical floats[4] (for control switch applications)** | | | | | | | | | | |
| P Model[a] | Normally open | Mechanical | Yes | n/a | n/a | n/a | 2.00 in. | 1.50 in. | 0.50 in. | 2.00 in. |
| N Model[a] | Normally closed | Mechanical | Yes | n/a | n/a | n/a | 2.00 in. | 1.50 in. | 0.50 in. | 2.00 in. |
| **Motor-rated floats[4] (for pump switch applications)** | | | | | | | | | | |
| B Model | Normally open | Mechanical | No | 120V | 13A | 1/2 hp | 2.00 in.[b] | 2.50 in. | 1.50 in. | 4.00 in. |
| | | | | 240V | 13A | 1 hp | 3.00 in. | 3.00 in. | 1.50 in. | 4.50 in. |
| | | | | | | | 4.00 in. | 3.25 in. | 1.50 in. | 4.75 in. |
| C Model | Normally open | Mechanical | No | 120V | 13A | 1/2 hp | 2.00 in. | 3.00 in. | 2.50 in. | 5.50 in. |
| | | | | 240V | 15A | 2 hp | 3.00 in.[b] | 3.50 in. | 3.00 in. | 6.50 in. |
| | | | | | | | 4.00 in. | 4.00 in. | 3.50 in. | 7.50 in. |
| | | | | | | | 5.00 in. | 4.50 in. | 4.00 in. | 8.50 in. |
| | | | | | | | 6.00 in. | 5.25 in. | 4.25 in. | 9.50 in. |
| G Model | Normally open | Mercury | Yes | 120V | 15A | 3/4 hp | 2.00 in. | 1.50 in. | 3.00 in. | 4.50 in. |
| | | | | 240V | 15A | 2 hp | 3.00 in.[b] | 1.75 in. | 3.00 in. | 4.75 in. |
| | | | | | | | 4.00 in. | 2.00 in. | 3.50 in. | 5.50 in. |

*a. Suitable for use with VCOM and MVP.*

*b. Standard tether length*

# Notes

[1] *State: normally open or normally closed*

*The default state of a float — normally open or normally closed — refers to the contact positions in the float when the float is resting (down). Float switches have an internal contact. The terms "normally open" (N/O) and "normally closed" (N/C) refer to the state of the float switch contact in the down position. A normally open float switch has an open contact (off) in the down position and a normally closed float switch has a closed contact (on) in the down position. Different panel functions require different types of float switches. Most applications require float switches that are normally open. One notable exception is the redundant off and low-level alarm function that requires a normally closed float switch, except with MVP and VCOM panels.*

[2] *IR (intrinsically safe relay)*

*Approved for use with intrinsically safe, Class I, Division 1 applications, where reliable float switch operation with very low current is required.*

[3] *Drawdown*

*Drawdown (in inches) refers to the difference in liquid level between a float switch's activation and deactivation points. Drawdown can be altered by adjusting the tether length of the float switch cord. When selecting float switches, keep in mind that any float switch that can directly start and stop a pump (one that has no motor contactor in the control panel) should have a drawdown capability, to avoid rapid cycling of the pump.*

[4] *Signal-rated or motor-rated*

*Every float has a maximum amount of current it can handle. Exceeding these limits may cause premature failure. Signal-rated or "control" floats are used to activate pump control panels and alarms. Only low-amperage signals pass through these float switches, hence the float switch is "signal-rated." All Orenco panels that use motor contactors can use signal-rated float switches. In some systems, a float switch is used to directly start and stop a pump. In this application, the current that is running the pump passes through the float switch as well, and the float switch must be "motor-rated." In most instances, a motor-rated float switch can be used as a signal float switch.*



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