

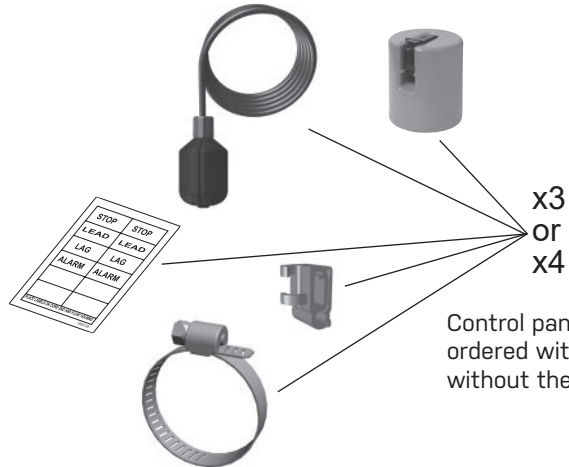


# Fusion™ Three Phase Duplex

## Installation and Operation Manual



### Parts Included



x3  
or  
x4  
Control panel may be ordered with or without these items.

**⚠ WARNING!**  
**ELECTRICAL SHOCK HAZARD**  
Disconnect all power sources before servicing. Failure to do so could result in serious injury or death.

This control panel must be installed and serviced by a licensed electrician in accordance with the National Electric Code NFPA-70, state and local electrical codes. UL Type 4X enclosures are for indoor or outdoor use.

**Warranty void if panel is modified.**

**?** For information regarding operation, available options, or servicing questions, please call CSI Controls Technical Support.

CSI Controls offers a five-year limited warranty. For complete terms and conditions, please visit [www.csicontrols.com](http://www.csicontrols.com).  
Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment to ensure that employees will not be exposed to health hazards in handling said material. All applicable laws and regulations shall apply.

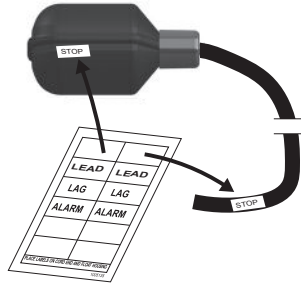
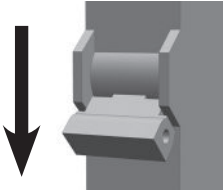
## Installing the Float Switches

The Fusion™ Three Phase Duplex control panel operates with 3 or 4 float switches to activate pump STOP, LEAD pump START, LAG pump START and high-level ALARM functions.

### 1 **⚠ WARNING!**

Ensure all power is turned OFF before installing floats in tank. Failure to do so could result in serious or fatal shock.

2 Label each float and cord end with the provided pairs of STOP, LEAD, LAG, and ALARM stickers.



### 3 **⚠ CAUTION!**

If the floats are not properly mounted and connected in the correct order, the pumps will not function properly.

## Mounting the Control Panel

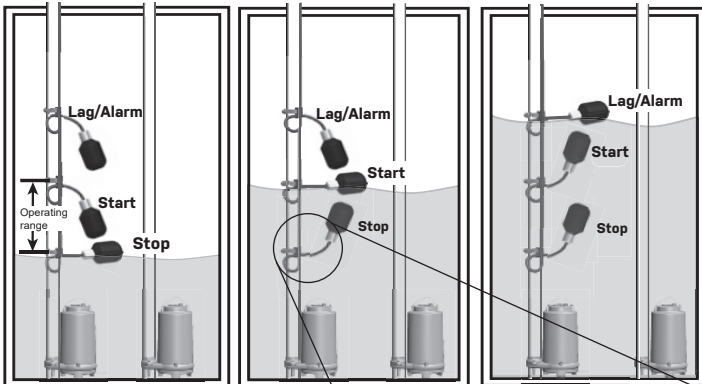
### **NOTE**

If the distance to the control panel exceeds the length of the float switch cords or the pump power cord, splicing in a liquid-tight junction box will be required. For outdoor or wet installation, we recommend a CSI Controls UL Type 4X junction box.

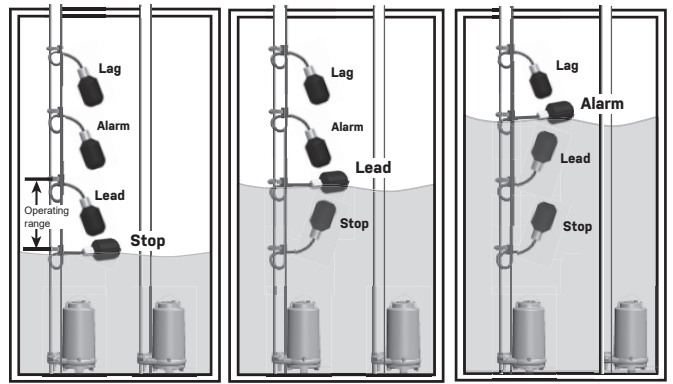


Floats require free range of motion. They must not touch each other or any equipment in the pump chamber.

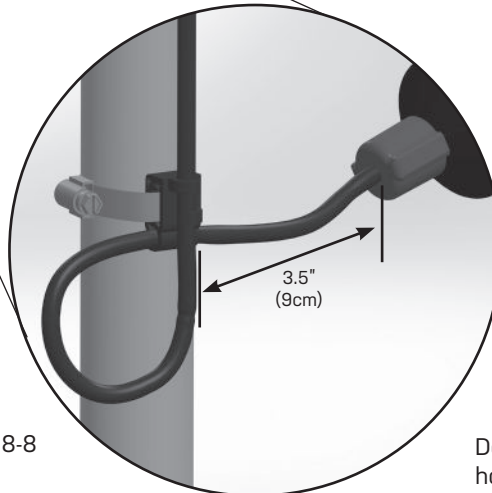
Pipe Clamp Mounting  
3 Float Operation



Pipe Clamp Mounting  
4 Float Operation



Tighten the clamp.



Make sure hose clamp band does not interfere with float operation.

Hose clamp is 18-8 stainless steel.

Do not install cord under hose clamp.

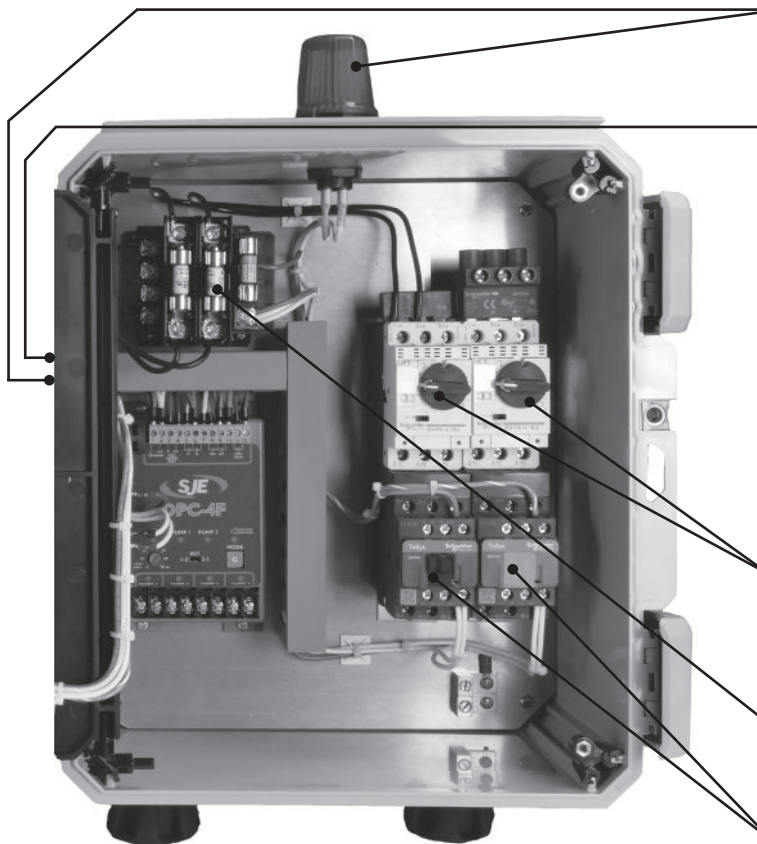
## Wiring the Control Panel

- 1 Determine conduit entrance locations on control panel as shown. Check local codes and schematic inside the panel for the number of power circuits required.

### **CAUTION!**

Be sure the pump power voltage and phase are the same as the pump motor being installed.

- 2 Connect the following wires to the proper terminal positions:
  - incoming power
  - pump 1 and 2
  - float switchesSee schematic inside control panel for details.



Typical Layout (May vary with options ordered).

**CAUTION!** You must use conduit sealant to prevent moisture or gases from entering the panel.

Type 4X conduit must be used to maintain a Type 4X rating of the control panel.

- 3 Verify correct operation of control panel after installation is complete.

## Operation

Fusion™ Three Phase Duplex control panel operates with float switches. When all floats are in the open or OFF position, the panel is inactive. As the liquid level rises and closes the STOP float, the panel remains inactive until the LEAD float closes. At this point the LEAD pump will turn ON (if the Hand-Off-Auto switch is in the AUTO mode and the power is ON). The pump will remain ON until both the STOP and LEAD floats return to their OFF positions. If the liquid level rises beyond both the STOP and LEAD floats to reach the LAG float, the lag pump will turn ON (if the Hand-Off-Auto switch is in the AUTO mode and the power is ON). Both pumps will remain ON until the STOP, LEAD, and LAG floats return to their OFF positions. If the liquid level rises to reach the ALARM float, the alarm will be activated.

### **Alarm System (Indicator Light and Horn)**

When an alarm condition occurs, the red light and horn will be activated.

If the **TEST/SILENCE** button is pressed when alarm is present, it will silence the horn until the alarm condition is reset. If the alarm is not present, the TEST/SILENCE button will activate the alarm until the button is released.

### **Hand-Off-Auto (HOA) Switches (Not pictured)**

The HOA 3-way switches control pump functions.

HAND OFF AUTO



In HAND mode, the pump will turn ON.

HAND OFF AUTO



OFF turns the pump OFF.

HAND OFF AUTO



In AUTO mode, commands from the float switches turn each pump ON and OFF.

### **Motor Protective Switches**

Each pump circuit has motor protective switches that provides pump disconnect, overload, and branch circuit protection. Adjust overload to pump FLA.

### **Transformer**

The transformer converts incoming three phase power to 120V to be used for control and alarm.

### **Motor Contactors**

Motor contactors control pumps by switching electrical lines.

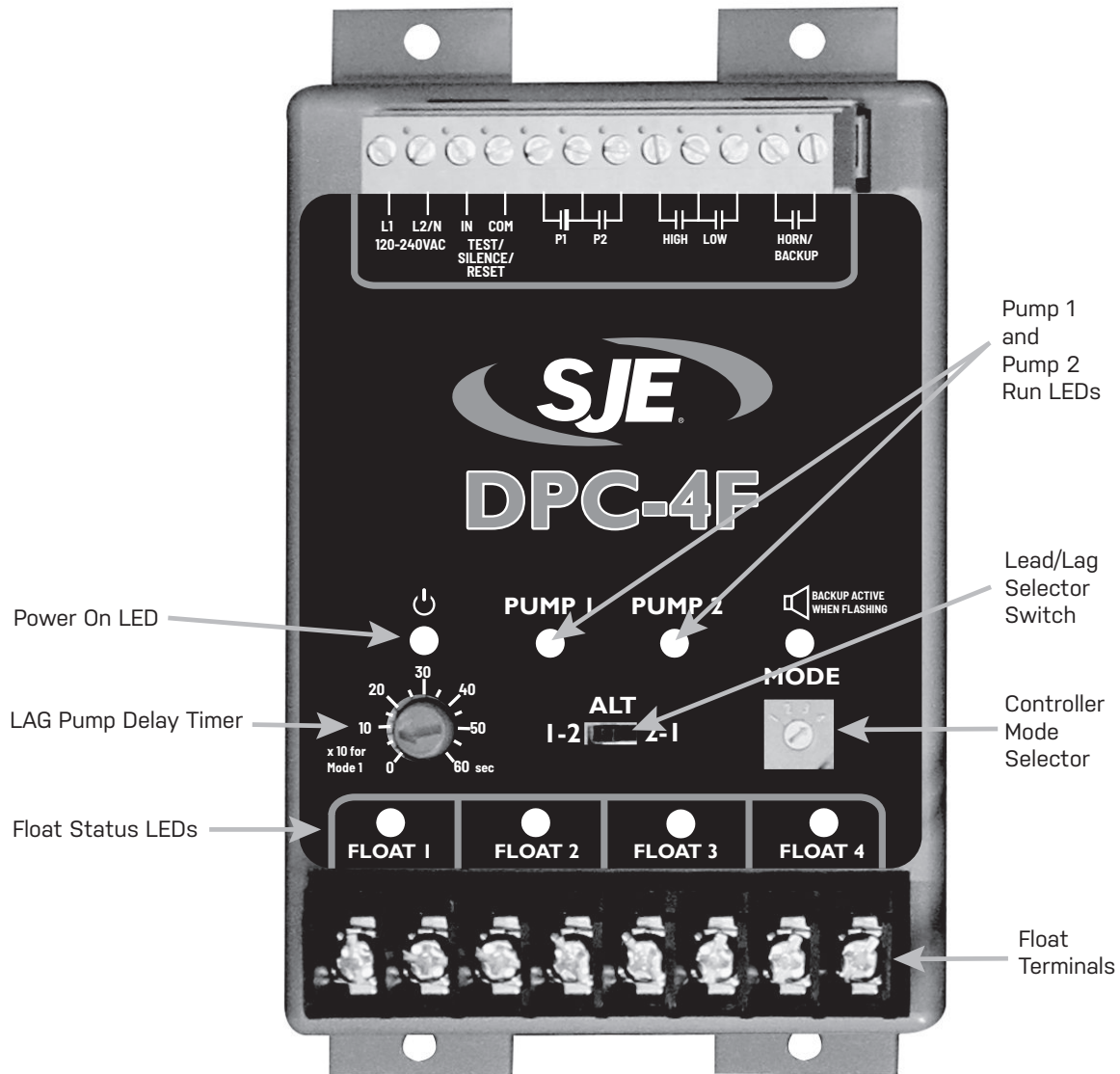


### **Technical support, service questions:**

+1-800-746-6287  
techsupport@sjeinc.com

Monday - Friday  
7:00 AM to 6:00 PM Central Time

## DPC-4F DUPLEX PUMP CONTROL FOUR FLOAT CONTROLLER



### MODE 4: Four Float Duplex Operation

Basic Operation:

Lead Pump turns on when Float 2 closes. Lag pump turns on when Float 3 closes. Pumps turn off when Float 1 opens.

Timer Dial: Controls lag pump delay time (0-60 seconds).

Float Out-of-Sequence: If a float closes or opens in the incorrect sequence, the alarm will activate. The Out-of-Sequence fault will clear if the failed float returns to the correct position.



# CSI Controls®

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