SJE RHOMBUS

Model 324

Three Phase Duplex Intrinsically Safe

Installation and Operation Manual

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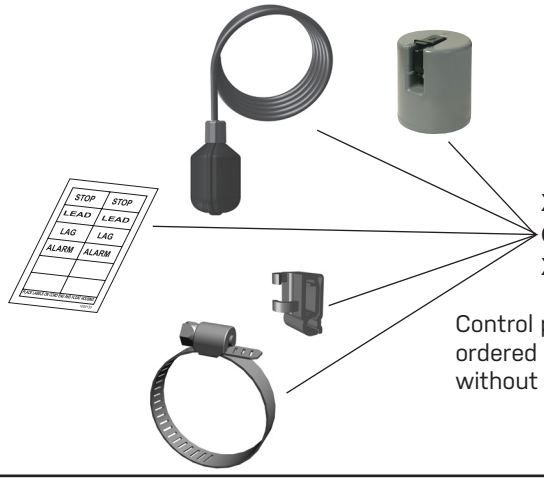
Parts Included



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.

Warranty void if panel is modified.

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.

When installed according to these instructions and Article 504 of the National Electrical Code (NFPA 70) this control panel provides intrinsically safe sensing circuits for interface with Class 1, Division 1, Groups C and D hazardous locations. Intrinsically safe wiring must be in accordance with the enclosed control drawing of the specific intrinsically safe relay manufacturer.

For information regarding operation, available options, or servicing questions, please call an SJE Rhombus customer service technician:

1-800-Rhombus (1-800-746-6287)
Monday-Friday, 7:00 AM to 6:00 PM Central Time

SJE Rhombus offers a five-year limited warranty.
For complete terms and conditions, please visit www.sjerhombus.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.

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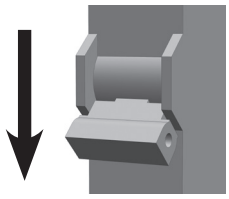
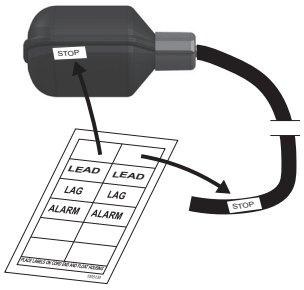
Installing the Float Switches

The Model 324 Three Phase Duplex control panel operates with float switches. They 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.



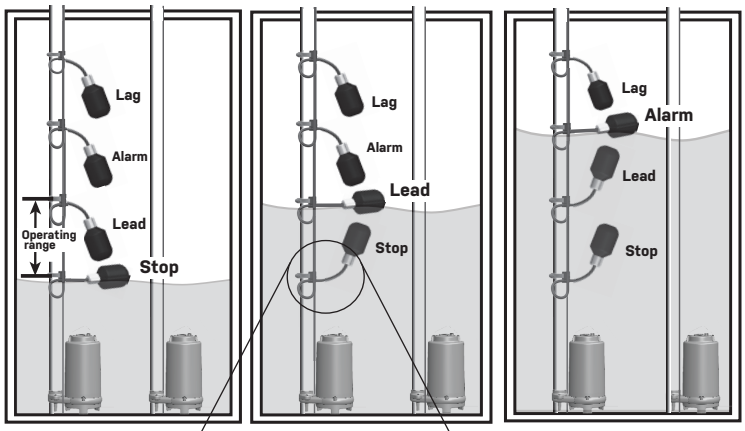
2 Label each float and cord end with the provided pairs of STOP, LEAD, LAG, and ALARM stickers.

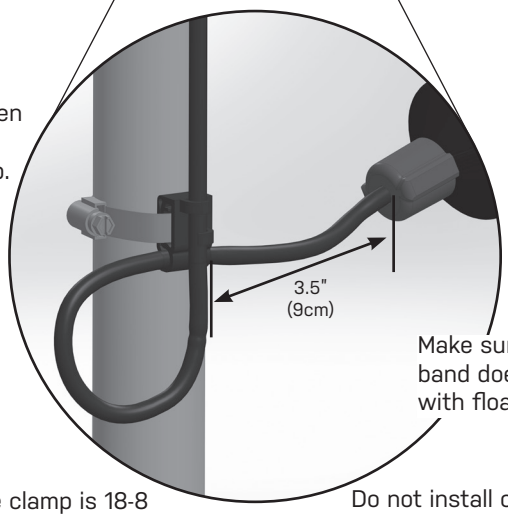


3 **⚠ CAUTION!**
If the floats are not properly mounted and connected in the correct order, the pumps will not function properly.

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

Pipe Clamp Mounting





Tighten the clamp.

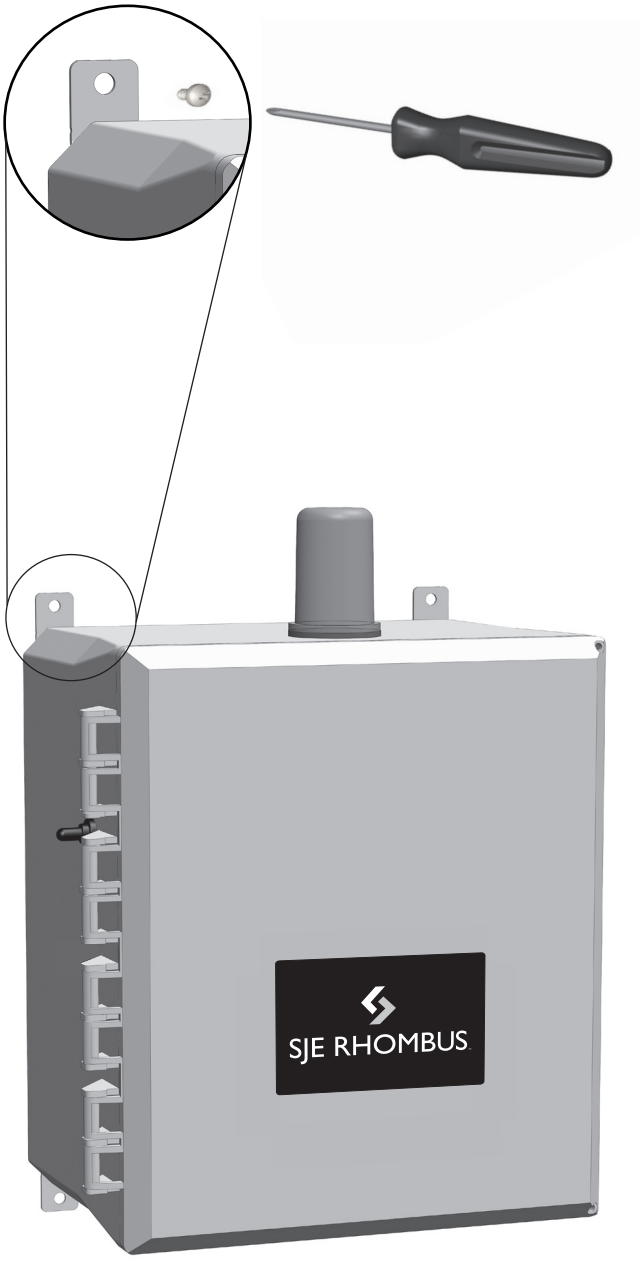
Make sure hose clamp band does not interfere with float operation.

Hose clamp is 18-8 stainless steel.

Do not install cord under hose clamp.

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 an SJE Rhombus UL Type 4X junction box.



Wiring the Control Panel

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

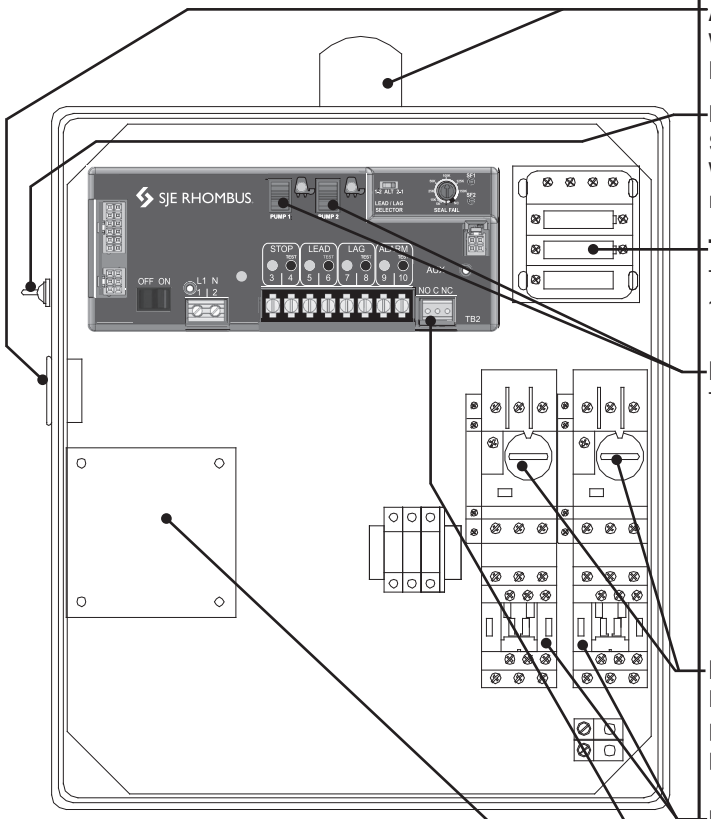
⚠ CAUTION!

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
- pump 2
- float switches

See schematic on inside cover of the 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

SJE Rhombus Model 324 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/NORMAL/SILENCE** switch is moved to the SILENCE position and released, the horn will be silenced. When the alarm condition is cleared, the alarm system is reset.

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

Hand-Off-Auto (HOA) Switches
The HOA 3-way switches control pump functions.

In HAND mode, the pump will turn ON.

OFF turns the pump OFF.

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.

Motor Contactors
Motor contactors control pumps by switching electrical lines.

Auxiliary Contact
Form C - Can be wired normally open or normally closed.

Intrinsically Safe Module
The intrinsically safe module limits the amount of energy to switches preventing ignition of flammable gases.

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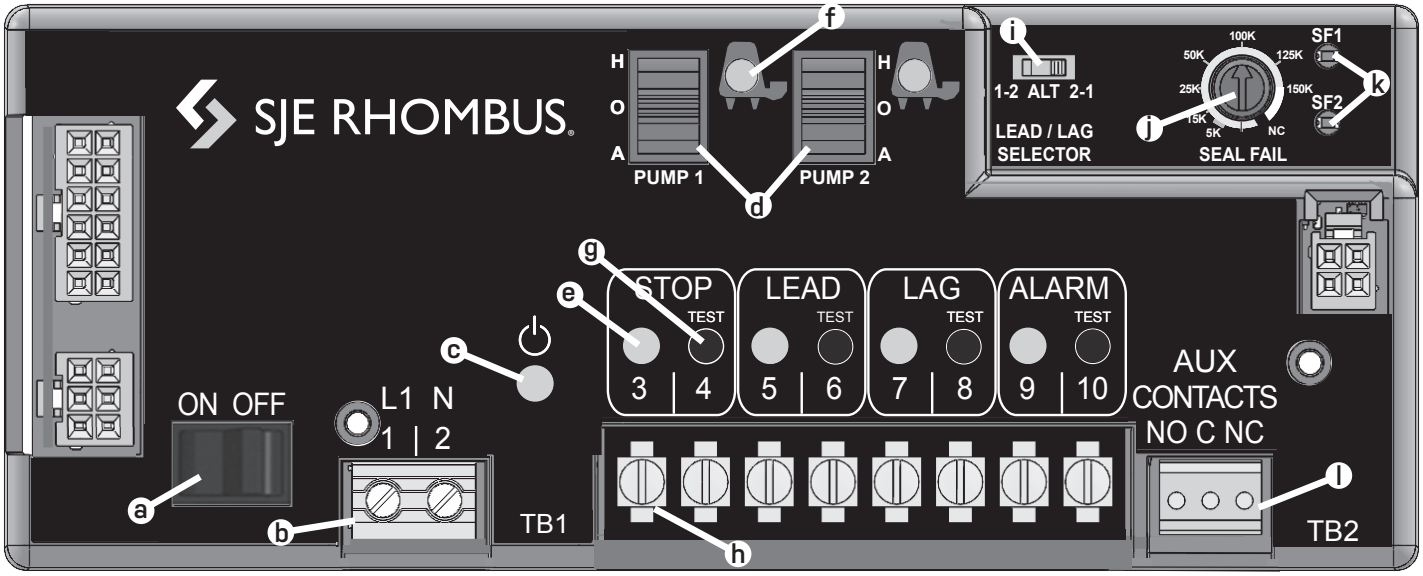

Model shown contains optional Seal Fail circuitry.

COMPONENTS

a. ON/OFF Switch - Control/Alarm Power
b. 120V Incoming Power Terminals
c. Power LED - (Green)
d. Pump HOA Switches
e. Float LEDs - (Red) x4
f. Pump LEDs x2
   Pump Run - (Green)
   Pump Fail - (Red)
g. Simulate Float Buttons x4
h. Float Terminals x8
i. Lead/Lag Selecter Switch
j. Dual Seal Fail Pot - (Optional)
k. Dual Seal Fail LEDs - (Red) - (Optional)
l. Auxiliary Alarm Terminals

PROGRAMMING INSTRUCTIONS			
WITH POWER ON, HOA's OFF, FLOATS OFF OR DISCONNECTED, PRESS DESIRED FLOAT BUTTON RAPIDLY 4 TIMES AND HOLD			
PUMP LEDs WILL FLASH UPON SUCCESSFUL PROGRAMMING			
OPTIONS	**FLOAT BUTTON**	**DEFAULT**	**OPERATION**
PUMP FAIL ALARM	STOP	ON	ACTIVATES IF A PUMP CAUSES "LAG" 3 CYCLES IN A ROW
MANUAL ALARM RESET	LEAD	OFF	LATCHES HIGH ALARM: CLEAR WITH EXTERNAL TEST SWITCH
SEAL FAIL HORN	LAG	OFF	ACTIVATES HORN UPON SEAL FAIL
ALARM FLASHER	ALARM	OFF	FLASHES BEACON UPON HIGH ALARM

ALARM CONDITIONS			
ALARM	**BEACON**	**CONTROLLER LED**	**HORN**
PUMP FAIL	FLASHING	RED PUMP LIGHT	NO
SEAL FAIL	FLASHING	SF1, SF2	PROG
FLOAT FAIL	FLASHING	BAD FLOAT NOT LIT	NO
HIGH ALARM	SOLID	ALARM FLOAT	YES

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