Single Phase Simplex

SJE Rhombus® Type 111

Installation Instructions and Operation/Troubleshooting Manual

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.

Call factory with servicing questions:

1-800-RHOMBUS
(1-800-746-6287)

Manufactured by:

SJE RHOMBUS®

Technical support: +1-800-746-6287
E-mail: techsupport@sjeinc.com
Website: www.sjerhombus.com

PN1008707D 04/19

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.

All conduit running from the sump or tank to the control panel must be sealed with conduit sealant to prevent moisture or gases from entering the panel.

NEMA 1 enclosures are for indoor use only. Cable connectors are not required to be liquid-tight in NEMA 1 enclosures. **Do not use NEMA 1 enclosures if subjected to rain, splashing water, or hose-directed water**.

NEMA 4X enclosures are for indoor or outdoor use, primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water and hose-directed water. **Cable connectors must be liquid-tight in NEMA 4X enclosures.**

Installation

A standard Type 111 panel with motor contactor is designed to operate with two floats. A standard Type 111 panel with pump switch control is designed to operate with a single pump switch or SJE Double Float™. These floats operate pump stop and pump start functions.

NOTE: Options ordered may affect the number of floats and their functions. Please reference the schematic provided with the control panel for proper installation.

Installation of Floats

CAUTION: If control switch cables are not wired and mounted in the correct order, the pump system will not function properly.

WARNING: Turn off all power before installing floats in pump chamber. Failure to do so could result in serious or fatal electrical shock.

1. Use float label kit to identify and label cables on both the float and stripped ends (stop, start). See schematic for float options.
2. Determine your normal operating level, as illustrated in **Figures 1-2**.
3. Mount float switches at appropriate levels as illustrated in **Figures 3**. Be sure that floats have free range of motion without touching each other or other equipment in the basin.
4. For mounting clamp installation: place the cord into the clamp as shown in **Figure 3**. Locate the clamp at the desired activation level and secure the clamp to the discharge pipe as shown in **Figure 3**.

   NOTE: Do not install cord under hose clamp.
5. Tighten the hose clamp using a screwdriver. Over tightening may result in damage to the plastic clamp. Make sure the float cable is not allowed to touch the excess hose clamp band during operation.

   NOTE: All hose clamp components are made of 18-8 stainless steel material. See your SJE Rhombus® supplier for replacements.

Installation Instructions

Mounting the Control Panel

1. Determine mounting location for panel. If distance exceeds the length of either the float switch cables or the pump power cables, splicing will be required. For outdoor or wet installation, we recommend the use of an SJE Rhombus® liquid-tight junction box with liquid-tight connectors to make required connections. **You must use conduit sealant to prevent moisture or gases from entering the panel.**

2. Mount control panel with mounting devices furnished.

3. Determine conduit entrance locations on control panel. Check local codes and schematic for the number of power circuits required.

   NOTE: Be sure the incoming power, voltage, amperage, and phase meet the requirements of the pump motor being installed. If in doubt, see the pump identification plate for electrical requirements.

4. Drill proper size holes for type of connectors being used.

   NOTE: If using conduit, be sure that it is of adequate size to pull the pump and switch cables through.

5. Attach cable connectors and/or conduit connectors to control panel.

FOR INSTALLATION REQUIRING A SPLICE, FOLLOW STEPS 6-9; FOR INSTALLATION WITHOUT A SPLICE, GO TO STEP 10.

6. Determine location for mounting junction box according to state and local code requirements. Mount junction box to proper support. **Do not** mount the junction box inside the sump or basin.

7. Run conduit to junction box. Drill proper size holes for the type of conduit used. Attach connectors to junction box.

8. Identify and label each wire before pulling through conduit into control panel and junction box. Pull pump power cables and control switch cables through connectors into junction box. Make wire splice connections at junction box.

9. Firmly tighten all fittings on junction box.

10. If a junction box is not required, pull cables through conduit into control panel.

11. Connect pump and float wires to proper position on terminals. See schematic inside control panel for terminal connections.

12. Connect pump power conductors to proper position on terminals. See schematic inside control panel for terminal connections.

VERIFY CORRECT OPERATION OF CONTROL PANEL AFTER INSTALLATION IS COMPLETE.

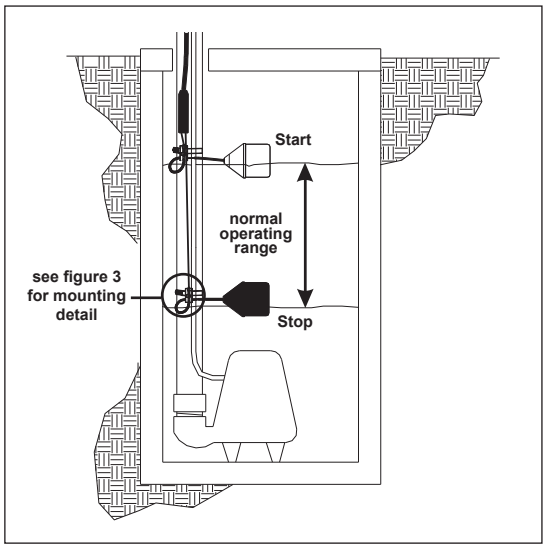

FIGURE 1 - Two float contactor or SJE Double Float™ - pump down installation

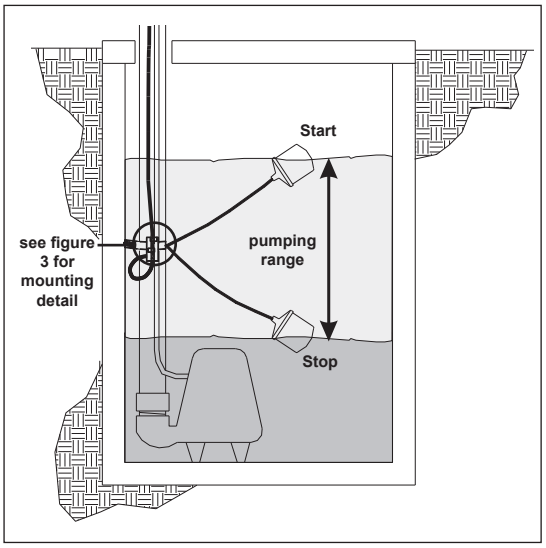

FIGURE 2 - SJE wide angle float system *SuperSingle®, SJE PumpMaster® Plus, or SJE AmpMaster™ - pump down installation
(see chart on next page to determine pumping range).

Installation Instructions

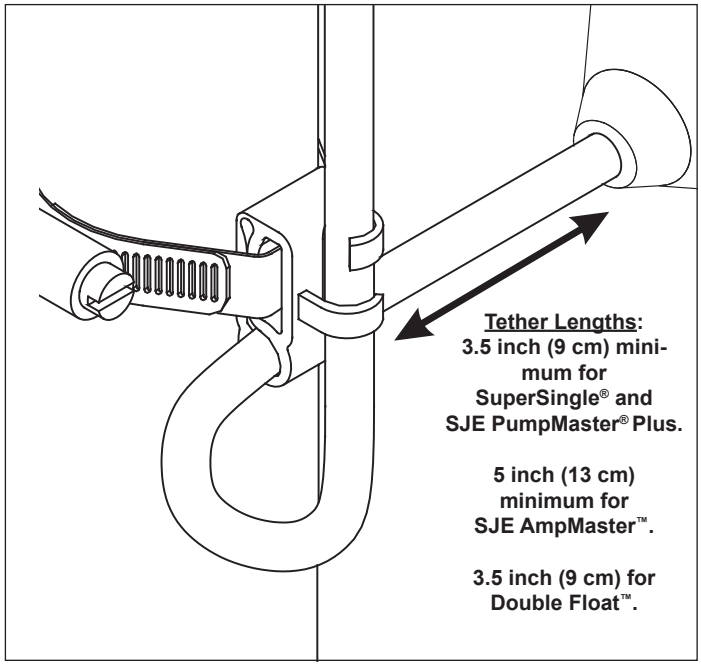

FIGURE 3 - Mounting clamp detail

Determining Pumping Range (in Inches)

Super Single® pumping range	tether length	3.5	5	7	9	11	13	15
	pumping range	6.5	7.5	8.5	10	11	12.5	13.5
SJE PumpMaster Plus® pumping range	tether length	3.5	6	10	14	18	22	24
	pumping range	7	10	16	22	28	33	36
SJE AmpMaster™ pumping range	tether length	5	10	14	18	22		
	pumping range	9	13	17	21	24		

Use only as a guide. Pumping ranges are based on testing in non-turbulent conditions. Range may vary due to water temperature and cord shape. **Note:** As the tether length increases, so does the variance of the pumping range.

Operations

SJE Rhombus® type 111 panels are single phase simplex panels designed for use with a wide angle pump switch, two control floats, or an SJE Double Float™. When all floats are open or in the OFF position, the panel is inactive. As the liquid level changes and closes the pump switch, the pump will start, providing the HOA switch is in the AUTOMATIC mode and the power is ON. If two control floats or an SJE Double Float™ is used, both floats must be in the ON position before the pump will start. The pump will remain ON until both floats are returned to the OFF position.

HOA Switch

A hand-off-automatic switch is provided for the pump. In the hand mode the pump will turn on unless other safety features are employed. In the automatic mode, the pump will turn on from commands by the float switch(es).

Pump Run Light

The run light will be on in either the hand or the automatic mode when the pump is called to run.

NOTE: Some options ordered may not be included in this manual.

For information regarding the operations of options not listed here or servicing questions, please call a SJE Rhombus customer service technician at

1-800-RHOMBUS

(1-800-746-6287)

Warranty void if panel is modified.

Troubleshooting

Float Controls

Check the floats during their entire range of operation. Clean, adjust, or replace floats.

Checking the float resistance - The float resistance can be measured to determine if the float is operating correctly or is defective. Use the following procedure to measure the float resistance:

1. Isolate the float by disconnecting one or both of the float leads from the float terminals.

2. Place one ohmmeter lead on one of the float wires, and the other ohmmeter lead on the other float wire.

3. Place the ohmmeter dial to read ohms and place on the R X 1 scale. With the float in the "off" position, the scale should read infinity (high resistance). Replace the float if you do not get this reading. With the float in the ON position, the scale should read nearly zero (very low resistance). Replace the float if you do not get this reading.

NOTE: Readings may vary depending on the length of wire and accuracy of the measuring device.

Fuses

Check the continuity of the fuse. With power OFF, pull the fuse out of the fuse block. With the ohmmeter on the R X 1 scale, measure resistance. A reading of infinity indicates a blown fuse and must be replaced. Replace fuse with same type, voltage and amp rating.

Magnetic Contactor Coil

Measure the coil by disconnecting one of the coil leads. Measure the coil resistance by setting the ohmmeter on the R X 1 scale. A defective coil will read zero or infinity, indicating a short or opened coil respectively. Replace defective contactor with same type.

NOTE: Readings may vary depending on accuracy of the measuring device.

SJE Rhombus® Five-Year Limited Warranty

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

NOTICE!
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.