Timed Dosing Control

SJE Rhombus® Type PS11/PS12

Installation Instructions and Operation/Troubleshooting Manual

PN 1022733D

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.

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 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.**

Warranty void if panel is modified.

Call factory with servicing questions:

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

Manufactured by:

SJE RHOMBUS®

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Technical Support Hours:
Monday - Friday, 7 A.M. to 6 P.M. Central Time

PN 1022733D 01/21

Installation

Type PS11 control panels are designed to control both a pump chamber pump and a sand filter pump. Both the pump chamber and sand filter systems require 3 floats: a redundant off float, a pump on/off float, and a high level alarm float (high level alarm / pump chamber cutout for sand filter).

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 float and stripped ends. Use three of the two-wire floats for the pump chamber. Use the fourth two-wire float for the redundant off in the sand filter chamber. Use the three-wire float as the sand filter high level alarm. Use the last float (the vertical one) as the pump on/off in the sand filter.

2. Determine your normal operating level, as illustrated in **Figures 1-2**.

3. Mount float switches at appropriate levels via stationary device as illustrated in **Figures 3-4**. 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.

6. In the pump chamber, mount the redundant off float slightly below the low level cutout float but above the pump as shown in **Figure 1**. In the sand filter, mount the redundant off float slightly below the pump ON/OFF float, but above the pump as shown in **Figure 2**.

7. Mounting sand filter pump ON/OFF switch as shown in **Figure 2 & 4**. Determine pumping range. SJE VerticalMaster® or sand filter pump on/off switch has an adjustable range .75" to 6.5". Adjust for that range by moving the float stop up or down the lift rod.

8. When connecting the sand filter high alarm (3 wire switch), connect the red wire to position 10, the black wire to position 6, and the white wire to position 1 on TB1.

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 flanges furnished.

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

   CAUTION: Be sure the proper power supply voltage, amperage, and phase meet the requirements of the pump motors being installed. If in doubt, see the pump identification plate for electrical requirements.

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

   CAUTION: 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 6-10; FOR INSTALLATION WITHOUT A SPLICE, GO TO STEP 11.

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

7. Mount junction box to proper support.

8. Run conduit to junction box. Drill proper size holes for the type of conduit used.

9. Identify and label each wire before pulling through conduit into control panel and junction box. Make wire splice connections at junction box.

10. Firmly tighten all fittings on junction box.

11. If a junction box is not required, pull cables through conduit or cable connectors into control panel.

12. Connect pump wires and float switch wires to the proper terminals as seen in **Figure 5**.

13. Connect "power-in" conductors to proper locations as shown in **Figure 5**.

VERIFY CORRECT OPERATION OF CONTROL PANEL AFTER INSTALLATION IS COMPLETE.

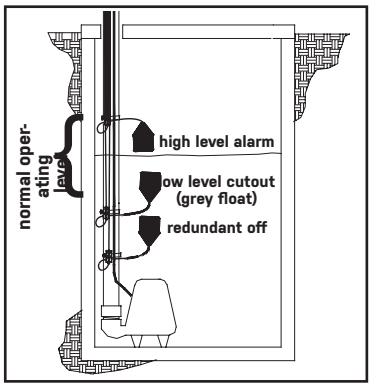


FIGURE 1 - Pump chamber three float system

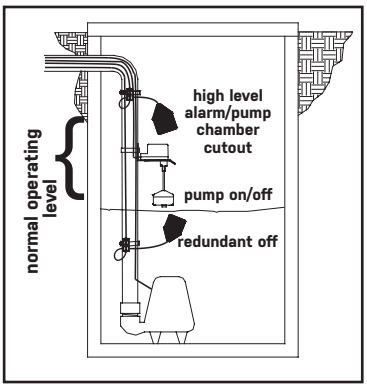


FIGURE 2 - Sand filter redundant off system

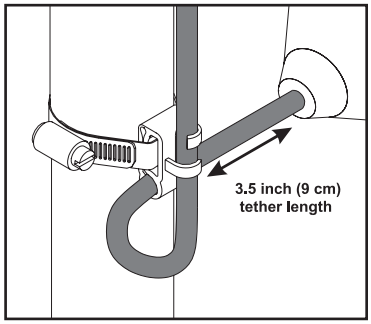


FIGURE 3 - Mounting clamp detail

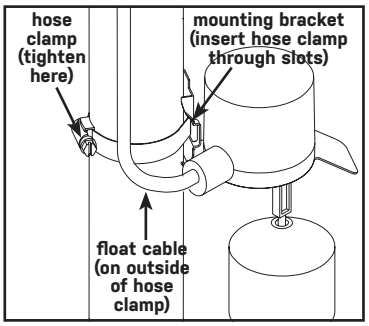


FIGURE 4 - Sand filter ON/OFF

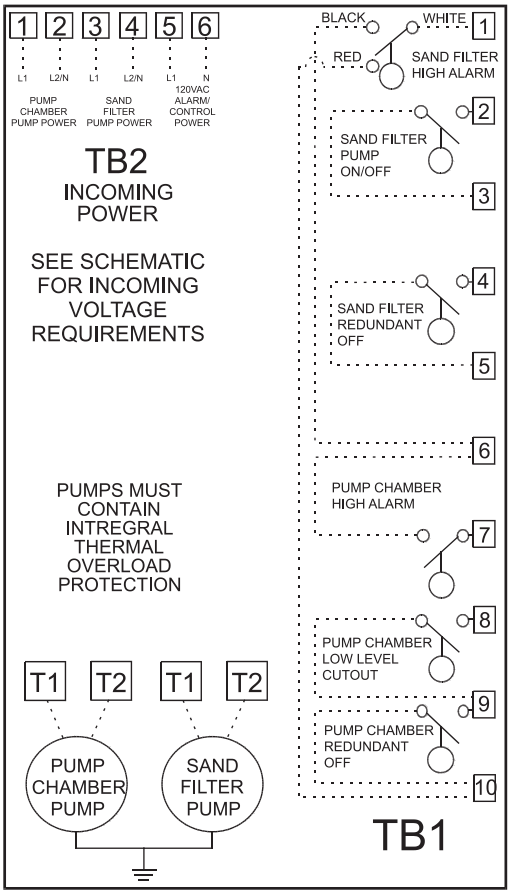


FIGURE 5 - PS11 120V pump wiring diagram

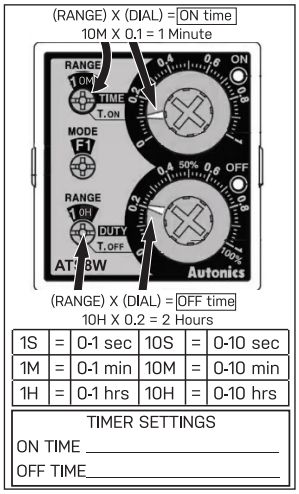
Installation Instructions

Setting the timer

Remove the timer by clipping the tie strap and pulling it straight out of the socket.

1. Determine the pump "on and off" time.
2. Adjust the OFF time range selector to the appropriate period (e.g. 10H).
3. Adjust the OFF dial so the pointer indicates the off time period required (e.g. 0.2).
4. Adjust the ON time range selector to the appropriate period (e.g. 10M).
5. Adjust the ON dial so the red pointer indicates the on time period required (e.g. 0.1).
6. When setting is complete, place the timer back in the socket.
7. In the example shown, the pump would be off for 2 hours and then on for 1 minute. This cycle would continue as long as there was enough liquid in the tank to float the low level cutoff switch.

NOTE: "OFF" time is cycled first.



1S	=	0-1 sec	10S	=	0-10 sec
1M	=	0-1 min	10M	=	0-10 min
1H	=	0-1 hrs	10H	=	0-10 hrs

TIMER SETTINGS
ON TIME _____
OFF TIME_____

FIGURE 6 - Timer detail

Operations

PS11 series control panels control both pump chamber and sand filter pumps. The pump chamber consists of a "low level cutout" float, a "high level alarm" float, and a "redundant off" float positioned slightly below the "low level cutout" float, but above the pump. The normal operating level is determined by the "low level cutout" float on and off positions.

The pump chamber control begins by timing the "off" sequence when the "low level cutout" float is activated. Once the timer completes the "off" sequence, the timer will start the pump and continue to run until the programmed "on" sequence is complete. At this point the "off" sequence begins timing again and the cycle repeats.

The sand filter system consists of three floats: the sand filter "redundant off" float, pump "on/off" float and the sand filter "high level alarm" float. The "high level alarm" float activates the audio/visual alarm and stops the pump chamber pump from dosing the sand filter.

Testing the Panel

With power applied to all incoming circuits, the PS11/ PS12 is ready to test. It will be necessary to adjust the programmable timer for testing parameters. To do so, remove the timer from the 8-pin receptacle. Using a small screwdriver, turn the small dial in the bottom left hand corner to adjust the numbers on the face of the timer. The numbers should show 0-12. Next adjust the small dial in the upper right hand corner to show "sec" (seconds). Finally, adjust the small dial in the lower right hand corner to show "sec" (seconds). Now adjust the dials on the timer face so that the red and green pointers line up on the 5 or 6.

Fill the pump chamber with water so that the bottom 2 floats move into an upright position. Make sure the floats are at an upright angle that is sufficient to active them (greater than 45 degrees). With both floats in the upright position the status indicator lights on the timer should be switching back and forth from green to red (every 5 or 6 seconds). Now switch the HOA for the pump chamber to the AUTO position. The motor contactor should engage and disengage on the ON/OFF cycle of the timer. Now, switch the pump chamber circuit breaker to the ON position and the pump will cycle on and off with the ON/OFF cycle of the timer. The elapsed time meter in the panel should begin to run (a small dial on the ETM can be seen moving and it can be heard). **NOTE**: Do not cycle the pump more than two or three times in this manner. Finally, with a hook device, lift the top float in the pump chamber to the upright position. An audible alarm should sound and the alarm light on top of the enclosure should be on. The pump chamber is tested.

Fill the sand filter with water so that the bottom 2 floats move into an activated position. Once again, make sure the floats are actually engaged by sufficient water level. Switch the HOA for the sand filter to the AUTO position. Now switch the sand filter circuit breaker to the ON position and the pump should start to run. The elapsed time meter in the panel should begin to run (a small dial on the ETM can be seen moving and it can be heard). Finally, with a hook device, raise the top float to the up position. Again, the alarm horn should sound and the light should activate. To further test the function of this float, turn the pump chamber HOA switch to the MANUAL position so that the pump chamber pump activates. Now lift the top float in the sand filter again and the alarm will activate and the pump chamber pump should turn off. The sand filter is now tested.

Reset timer for correct pump ON/OFF times.

Troubleshooting

Alarm Light
Activate the alarm float. The alarm light should turn on. If not, replace the bulb with same type.

Alarm Horn
Activate the alarm float. The alarm horn should turn on. If not, replace the horn with same type.

Float Controls
1. Check the floats during their entire range of operation. Clean, adjust, replace and repair damaged floats.

2. Measure the float resistance to determine if the float is operating properly.

WARNING: Disconnect all power before measuring resistance.

To measure float resistance:

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

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

c. Set 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), if not replace the float.

With the float in the ON position, the scale should read close to 0, if not replace the float. **Readings may vary depending on the accuracy of the measuring device.**

Magnetic Contactor Coil
To measure the coil, disconnect 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 indicating a short, or infinity (high resistance) indicating an opened coil. Replace defective contactor.

Fuses
To check the continuity of the fuse, pull the fuse out of the fuse holder. With the ohmmeter on the R X 1 scale, measure resistance. A reading of infinity (high resistance) indicates a blown fuse that must be replaced with a fuse of the same type, voltage, and amp rating.

SJE Rhombus® Five-Year Limited Warranty

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