

INFORMATION REGARDING 220 VOLT CONTROLLERS

Supplemental Instructions for Licensed Electricians

All electrical components are intended to be installed by a licensed electrician who is experienced in spas and hot tubs. A properly installed Spa GFCI and Grounding must be installed with any spa system. Installation should be permitted and inspected prior to use.

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220 VOLT VS510SZ AND VS520SZ CONTROLLERS

In addition to the instructions provided, please note that this installation requires 4 dedicated wire connections to the power terminal block (TB1) on the Circuit Board. These include **Line 1, Line 2, Neutral** and **Ground**. Connect Line 1 wire to Line 1 terminal. Connect Line 2 wire to Line 2 terminal. Connect Neutral wire to Neutral terminal. If a dedicated Neutral wire is not connected, the heater will never come on and/or the system will not operate properly. Lastly, connect Ground to the Grounding Bar located on the side of the controller box. Since this system is not equipped with a GFCI, it is **REQUIRED** by the National Electrical Code to install an external Spa GFCI for safety and protection. Any mis-wiring or improper installation will void the warranty and could cause personal injury, death, fire and/or property damage.

Do NOT follow the color of the original power wires, Black, Red, White and Green. **DON'T ASSUME THESE WIRES ARE ACCORDING TO LOCAL CODES.** Some original wirings can have the wires mixed up. Get a voltage meter and verify each wire to make sure which colored wire is Line 1, Line 2, Neutral and Ground. Failure to do so will cause major electrical damage to the controller and/or equipment, and void the warranty.

DO NOT POWER UP THE SPA UNTIL THE SYSTEM IS COMPLETELY INSTALLED AND THE SPA IS COMPLETELY FILLED UP WITH WATER. Doing so can cause a DRY FIRE, which can damage the heater and controller, and will void the warranty.

This system will work if the pump draws or discharge water through the heater. **MINIMUM water flow required is 25 GPM.** This system is equipped with M7 Technology (no pressure switch). There are dual sensors installed on the heater to measure the water temperature flowing through the heater. When installing an In-Line Filter System, either install it before the heat pump and controller or after the heat pump and controller. NEVER install the filter system in between the heat pump and controller. Make sure to create a water flow bypass plumbing around the filter for sufficient water flow. For systems installed near or above water level, and more than 5 feet from the tub, install the In-Line Filter System after the heat pump and controller with a water flow bypass plumbing. A water flow bypass plumbing allows half the water to go through the filter and half the water to go around the filter. This way water flow is not restricted. We recommend NSF rated flexible PVC for simpler connections. Go to this link for more info: www.spaguts.com/ez-install-plumbing-kit-42

Pump Motor Wiring: The primary pump cord will have 4 wires for two speed operation. This system utilize the RED wire for High Speed and Black Wire for Low Speed in Two-Speed pump circuits. The White wire is for Line/Common connection, and the Green wire is for Ground. Keep this in mind when connecting a Two-Speed pump that has not been purchased with this system. If using a Single Speed Pump as the primary pump, cap off the Red wire.

Circulation Pump Circuit: This system is not setup to operate a circ pump as the heat pump (unless it was specified over the phone at the time of order for "Factory Configuration"). If a small circ pump is connected to the system and being used as the heat pump, make sure to follow the wiring diagram to setup the dip switches and wiring setup so that the system works properly with the circ pump. (Minimum water flow is 25 GPM with minimum 1.5 inch plumbing).

After installation is complete, completely fill the spa with water. Then power up the spa and purge the water line to help remove air from the plumbing lines. You may also bleed air out of the plumbing by loosening the plumbing fittings a bit. During the startup process, the system will go through the purge cycle "Pr" for 5-7 minutes.

*For more information on Installation and Operation of the controller unit you have purchased, please go to www.spaguts.com, type in the controller model number in the search box (VS510 or VS520) and click on the tabs within that controller model page to download available supporting documentations.