VS504SZ Tech Sheet

Balboa Instruments System PN 55370-01

System Model # VSP-VS504SZ-DCAJ Software Version # 43 EPN # 2808

Base PCBA - PN 54638-01 PCB VS500Z - PN 22972 Rev C or D

Base Panels VL701S (Serial Standard) – PN 52298-01





System Revision History

System PN	EPN	Date	Requested By	Changes Made	
55370-01	2808	08.27.2008	Balboa	Software update to version 43.	

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Basic System Features and Functions

Power Requirements

- 240VAC, 60Hz, 40A, Class A GFCI-protected service (Circuit Breaker rating = 50A max.)
- 4 wires [hot, hot, neutral, ground]

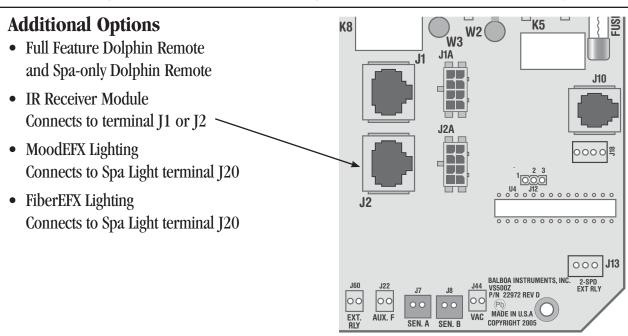
System Outputs

Setup 1 (As Manufactured)

- 240V Pump 1, 2-Speed
- 240V Pump 2, 1-Speed
- 240V Ozone *
- 12V Spa Light
- 120V AV (Stereo)
- 240V 4.0kW Heater **

Optional Devices

- 240V Circ Pump *
- * Ozone and Circ Pump must be same voltage.
- ** Heater wattage is rated at 240V. When running 120V to heater, output is approximately 25%.



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Basic System Features and Functions

Any time you change a DIP Switch, other than A1, you must reset Persistent Memory for your new DIP Switch Settings changes to take effect. If you do not reset Persistent Memory, your system may function improperly.

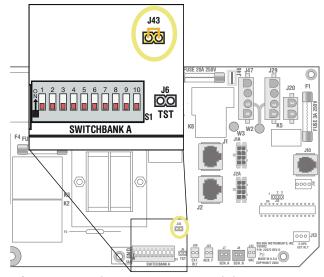
To reset Persistent Memory:

- Power down by disconnecting power source from spa.
- Put a jumper across J43, covering both pins. (See illustration below)
- Power up by connecting power source to spa.
- Wait until "Pr" is displayed on your panel.
- Power down again.
- Remove jumper from J43 (May also move to cover 1 pin only)
- Power up again.

About Persistent Memory and Time of Day Retention:

This system uses memory that doesn't require a battery to store a variety of settings. What we refer to as Persistent Memory stores the filter settings, the set temperature, and the heat mode.

Persistent Memory is not used for Time of Day. Only models with a Serial Deluxe panel installed (VS5xxDZ and GS5xxDZ) can display the time. However, during power loss to the spa, the system will lose the correct time, and reset to 12:00 PM when power is restored.



J43 on VS5xxZ and VS300 Series Main Board Shown.

Power Up Display Sequence

Upon power up, you should see the following on the display:

- Displayed next is: "ヹ゚゙゙゙゙゙゚゚゚゙゙゚゚゚ (indicating the system is configured for a heater between 3 and 6 kW) or "tヹ" (indicating the system is configured for a heater effectively* between 1 and 3 kW). "ヹ゚゙゙゙゙゙゙゙゙゙゚゚ 'ヹ゚゙ 'should appear for all VS models running at 240VAC. "tヹ" should appear for all VS models running at 120VAC, as well as all GS models. (*A heater which is rated at 4 kW at 240VAC will function as a 1 kW heater at 120VAC.)
- "Pr" will appear to signal the start of Priming Mode.

At this point, the power up sequence is complete. Refer to the Reference Card for the VS or GS System model of your spa for information about how the spa operates from this point on, including how to adjust the Time of Day if using a Serial Deluxe style panel.

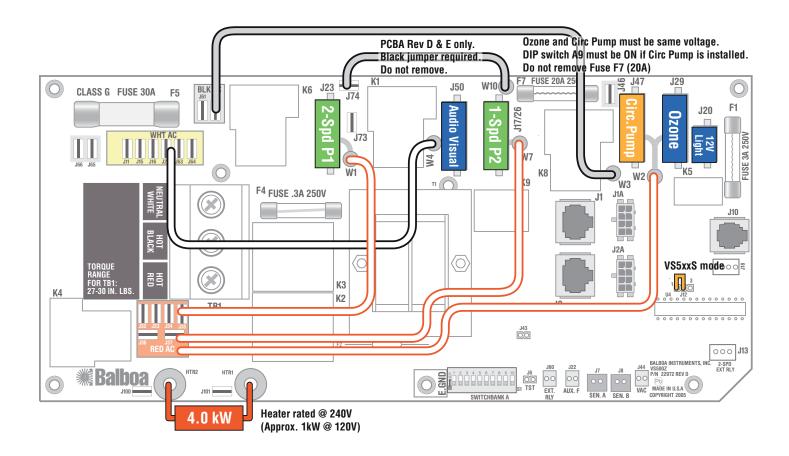
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Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

- 240V Pump 1, 2-Speed
- 240V Pump 2, 1-Speed
- 240V Circ Pump (opt)
- 240V Ozone
- 12V Spa Light
- 120V A\V (Stereo)

- 240V 4.0kW Heater
- VL701S Main Panel



WARNING: Main Power to system should be turned OFF BEFORE adjusting DIP switches. WARNING: Persistent Memory (J43) must be RESET to allow new DIP switch settings to take effect. (See Persistent Memory page) Switchbank A VS51x/VS5xxS/VS5xxD Wiring Color Key SSID# Compatible 4 5 120 Volt Connections 100 240 Volt Connections 93 **Black AC Jumpers** 43 12 Volt Connections A1, Test Mode OFF **Relay Control Wires** A2. See Table 1 A7, Exp Board Equip Disabled J43 A3, J17/26 Pump Enabled A8, Degrees F **Board Connector Key** Memory A4, Aux Freeze O Reset A9. Non-Circ Mode Typically Line voltage A5, 2-speed P1 A10, See Table 1 Typically Line voltage for 2-speed pumps **Panel Button Positions** Panel Button Assignments Neutral (Common) 1=Mode 5=Pump 1 74 1 Ground 6=Pump 2 2=Temp Up **(1) (3) (5) (6)** 5 6 7 3 3=Temp Down 7=Unused Note flat sides in connector 4=Light

DIP Switches and Jumpers Definitions

SSID 100 93 43 Base Model VS503SZ-VS504SZ-VS514SZ

DIP Switch Key

A1 Test Mode (normally OFF)

A2+A10 Control amp draw requirements (See Table 1) -

A3 "ON" position: J17/26 Enabled for 1-speed Pump only.

"OFF" position: J17/26 Disabled.

A4 Aux Freeze (must be OFF)

A5+A9 Pump 1 speeds and Circ Modes:

A5	A9	Circ Mode	Pump 1 Speed
OFF	OFF	Non-circ	2-speed
ON	OFF	Circ "acts like Pump 1 low" (filters/polls/ect)	1-speed
OFF	ON	24 hours with 3°F shut-off	1-speed
ON	ON	24 hours with 3°F shut-off	2-speed

Table 1 # of Hi-Speed Pumps/Blower **Before Heat Disabled A2** A10 **OFF** 0FF 0 ON 0FF 1 **OFF** ON 2 ON ON 3

A6 "ON" position: 50Hz operation

"OFF" position: 60Hz operation

A7 "ON" position: Expander Board Enabled for Blower or 1-speed Pump.

"OFF" position: Expander Board Disabled

A8 "ON" position: temperature is displayed in degrees Celsius

"OFF" position: temperature is displayed in degrees Fahrenheit

When using a Blower, use X-B expander board. When using a 1-speed Pump 3, use X-P or X-P231, depending on amperage requirements.

* Panel with button layout (% - %) is not compatible.

Jumper Key

J12 Factory set. DO NOT MOVE.

Jumper must be on Pins 1 and 2 for VS51xZ/VS52xZ/VS5xxSZ/VS5xxDZ software.

Jumper must be on Pins 2 and 3 for VS50xZ software.

J43 When jumper is placed on 2 pins during power-up, system will reset persistent memory.

Leave on 1 pin only to enable persistent memory feature.

WARNING:

- Setting DIP switches incorrectly may cause abnormal system behavior and/or damage to system components.
- Refer to Switchbank illustration on Wiring Configuration page for correct settings for this system.
- Contact Balboa if you require additional configuration pages added to this tech sheet.

Panel Button Positions





Aux Panel Information

Supports 2-button aux panel



Panel Button Assignments

1=Mode 5=Pump 1

2=Temp Up 6=Pump 2 (when A3 is ON) 3=Temp Down 7=Exp Board (when A7 is ON)

4=Light

Supports 4-button aux panel

VX40S **5 6 4 7**

Serial Standard Panel Configurations



VL701S (Serial Standard) PN 52298-01 with No Overlay (Example shown)

Connects to Main Board terminal J1*

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^{*} Panels with back-lighting (bulbs installed) should never be plugged into J2. Use J1 only. If the backlight bulbs are removed, then both J1 and J2 may be used.