

VS501SZ Tech Sheet

Balboa Instruments System PN 54377-02

System Model # VSP-VS501SZ-ACAH

Software Version # 43

EPN # 2765

Base PCBA - PN 54378-02

PCB VS500Z - PN 22972 Rev C or D

Base Panels

VL600S – PN 54547-01

VL701S (Serial Standard) – PN 51057-01



System Revision History

| System PN | EPN | Date | Requested By | Changes Made |
|-----------|------|------------|--------------|------------------------|
| 54377-01 | 1801 | 10.03.2006 | Balboa | n/a |
| 54377-02 | 2765 | 04.10.2008 | Balboa | Software update to v43 |
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Basic System Features and Functions

Power Requirements

- 120/240VAC, 60Hz, 16/40A, Class A GFCI-protected service (Circuit Breaker rating = 20/50A max.)
- 3 or 4 wires [hot, hot (optional), neutral, ground]

System Outputs

Setup 1 (As Manufactured)

- 240V Pump 1, 2-Speed
- 240V Blower
- 120V Ozone *
- 12V Spa Light
- 120V AV (Stereo)
- 240V 5.5kW Heater **

Optional Devices

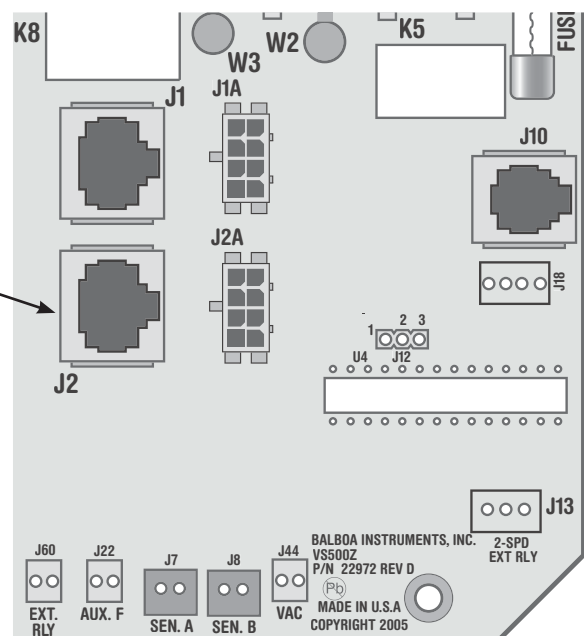
- 120V Circ Pump *

* Ozone and Circ Pump must be same voltage.

** Heater wattage is rated at 240V. When running 120V to heater, output is approximately 25%.

Additional Options

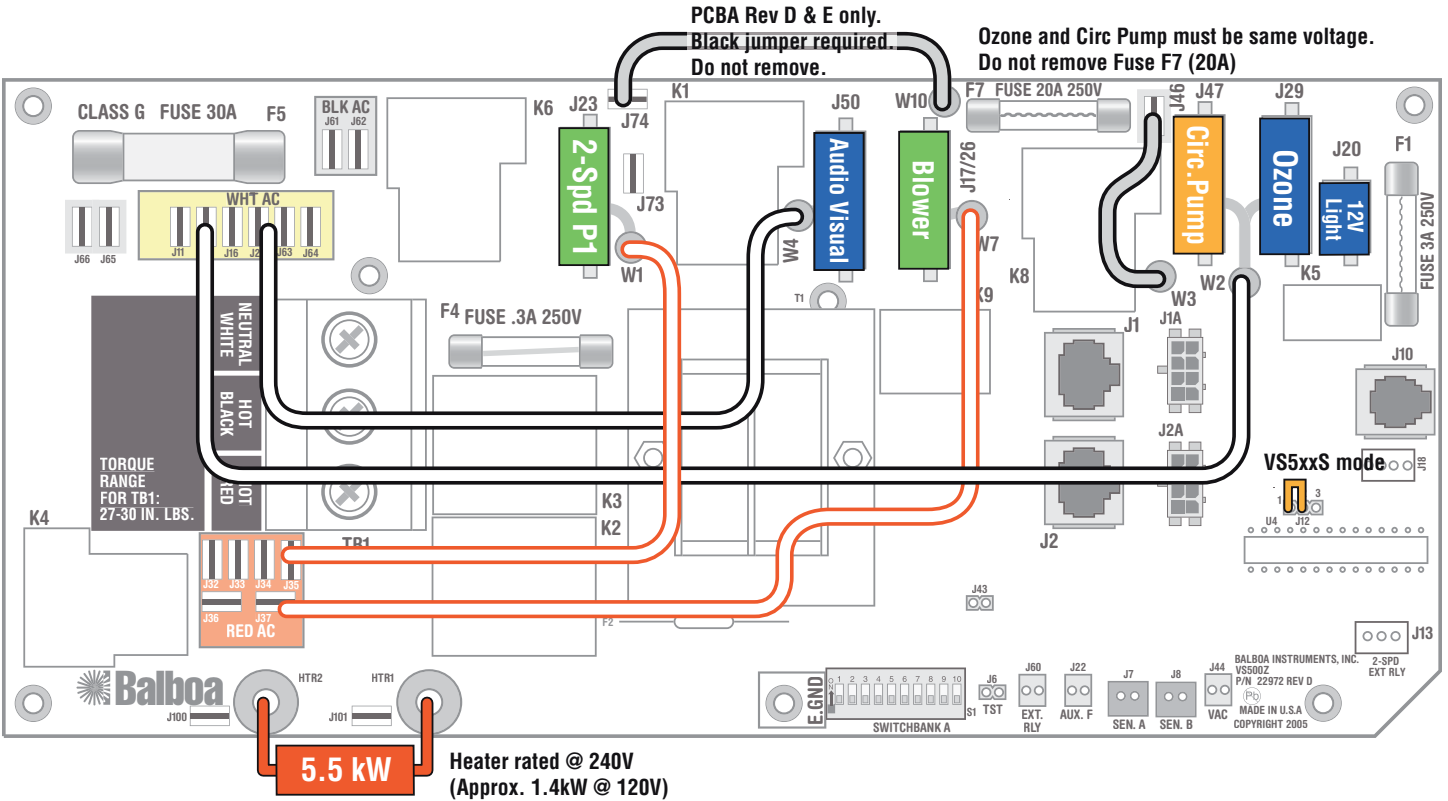
- Full Feature Dolphin Remote and Spa-only Dolphin Remote
- IR Receiver Module
Connects to terminal J1 or J2
- MoodEFX Lighting
Connects to Spa Light terminal J20
- FiberEFX Lighting
Connects to Spa Light terminal J20



Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

- 240V Pump 1, 2-Speed
- 240V Blower
- 120V Ozone
- 12V Spa Light
- 120V AV (Stereo)
- 240V 5.5kW Heater
- VL600S, VL701S Main Panel
- 120V Circ Pump (optional)



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)

SSID #

100
65
43

Switchbank A

A1, Test Mode OFF A6, 60 Hz
 A2, See Table 1 A7, J17/26 Enabled
 A3, Off-board Pump disabled A8, Degrees F
 A4, Aux Freeze A9, Non-Circ Mode
 A5, 2-speed P1 A10, See Table 1

VS51x/VS5xxS/VS5xxD Compatible

J12

Wiring Color Key

- 120 Volt Connections
- 240 Volt Connections
- Black AC Jumpers
- 12 Volt Connections
- Relay Control Wires

Board Connector Key

1 Typically Line voltage
 2 Typically Line voltage for 2-speed pumps
 3 Neutral (Common)
 4 Ground

Note flat sides in connector

Panel Button Assignments

1=Mode 5=Pump 1
 2=Temp Up 6=J17/26
 3=Temp Down 7=Unused
 4=Light

Panel Button Positions

DIP Switches and Jumpers Definitions

SSID 100 65 43


Base Model VS500SZ-VS501SZ-VS510SZ

DIP Switch Key

- A1 Test Mode (normally OFF)
- A2+A10 Control amp draw requirements (See Table 1)
- A3 "ON" position: off-board pump enabled *
"OFF" position: off-board pump 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 |

- A6 "ON" position: 50Hz operation
"OFF" position: 60Hz operation
- A7 "ON" position: J17/26 equipment enabled *
"OFF" position: J17/26 equipment disabled
- A8 "ON" position: temperature is displayed in degrees Celsius
"OFF" position: temperature is displayed in degrees Fahrenheit

* Panel with button layout  is not compatible when both A3 and A7 are ON.

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

Jumper Key

J12 Factory set. DO NOT MOVE.

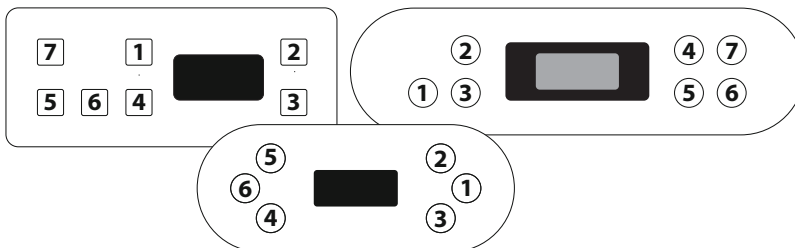
Jumper must be on Pins 1 and 2 for VS51xZ/VS5xxSZ/VS5xxDZ software.
Jumper must be on Pins 2 and 3 for VS50xZ software.

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



Panel Button Assignments

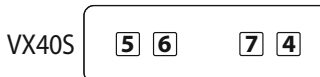
| | A7: OFF | A7: ON |
|--------------------|----------|----------|
| 1=Mode | | |
| 2=Temp Up | | |
| 3=Temp Down | | |
| 4=Light | | |
| 5=Pump 1 | | |
| | A3: OFF | A3: ON |
| | 6=Unused | 6=J17/26 |
| | 7=Unused | 7=Unused |
| | 6=Pump 2 | 6=Pump 2 |
| | 7=Unused | 7=J17/26 |

Aux Panel Information

Supports 2-button aux panel



Supports 4-button aux panel



Ozone Connections

Ozone Connector Voltage: The VS500Z circuit board is factory configured to deliver a preset voltage (120V or 240V) to the on-board ozone connector (J29). See the ratings table on the wiring diagram attached to the cover of the enclosure for the configured voltage. For 240V output W2 connects to Red AC and for 120V output W2 connects to White AC.

The voltage to the ozone connector can be changed in the field if required. W2 just needs to be set for the required voltage.

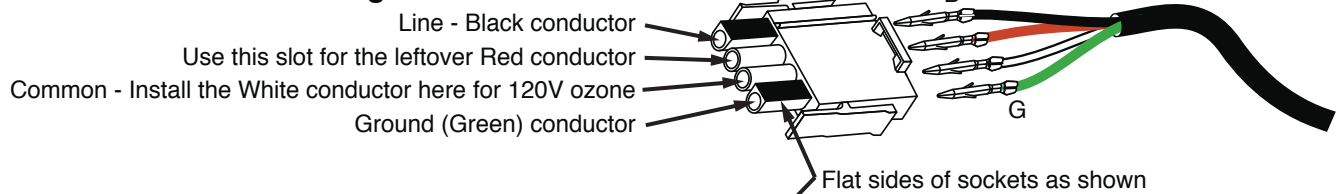
WARNING: Changing the voltage of the ozone connector also effects the voltage supplied to the circ pump connector (J47). Any equipment controlled by that connector may be damaged if the wrong voltage is selected.

Balboa Ozone Generator: If the board is set up to operate a 120V ozone generator, the connector on the ozone generator is likely to be configured correctly, but should be compared to the illustration below.

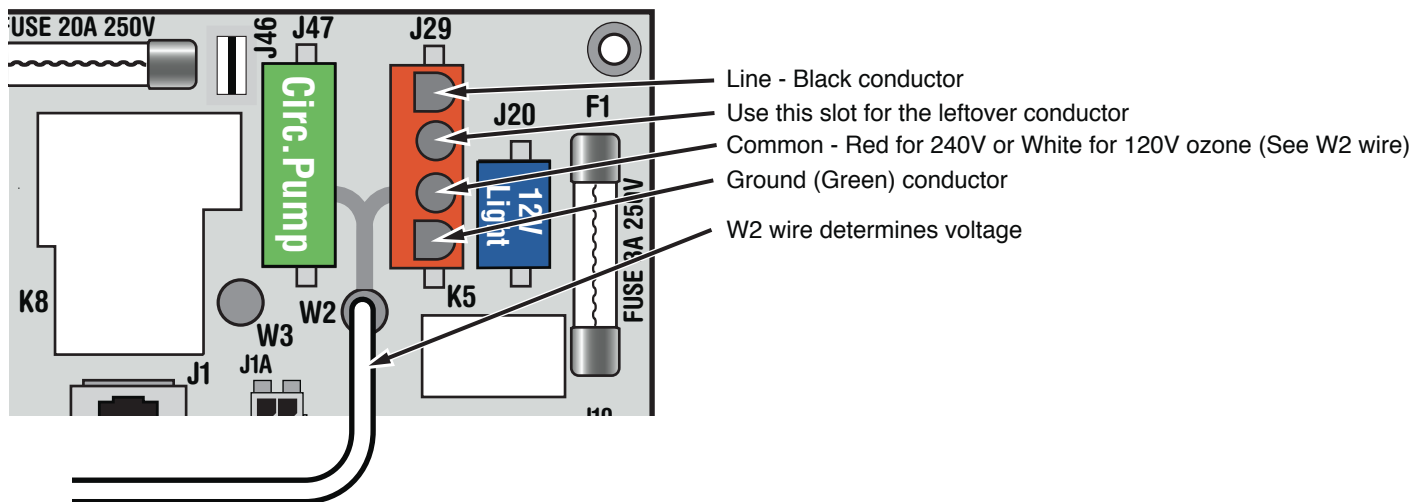
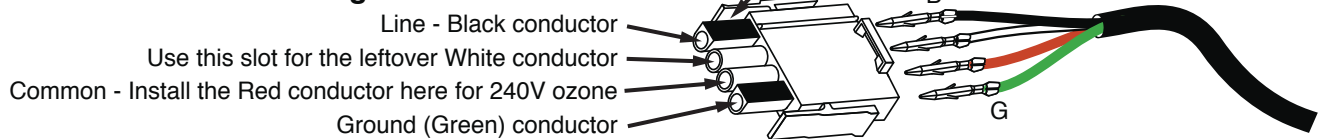
If a 240V ozone generator is required, be sure the red wire in the ozone cord is positioned in the connector next to the green ground wire as described below.

Note: A special tool is required to remove the pins from the connector body once they are snapped in place. Check with your Balboa Account Manager for information on purchasing a pin-removal tool.

Balboa Ozone connector configuration for 120V 60Hz



Balboa Ozone connector configuration for 240V 60Hz



Serial Standard Panel Configurations



VL600S

PN 54547-01 with Overlay PN 11773

- Connects to Main Board terminal J1 only*
- Not compatible with fully-equipped VS510SZ VS503/504/514SZ, or VS520SZ.



VL701S (Serial Standard)

PN 51057-01 with Overlay PN 10328

- Connects to Main Board terminal J1 only*

SETUP 1

* 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.