VS100 Tech Sheet

Balboa Water Group
System PN 54655

System Model # MM7-VS100-HCAK
Software Version # 41
EPN # 3450

Base PCBA - PN 54656
PCB VS100 - PN 22964 Rev B

Base Panels
VL200 (Mini) – PN 55123
VL240 (MVP240) – PN 55080
VL260 (MVP260) – PN 55081
VL401 (LCD Lite Duplex) – PN 54665
VL403 (LED Lite Duplex) – PN 54664

Template used: 40743_A.pdf 02/08/2007
54655_97_A.pdf 08/16/2010

BALBOA water group

Basic System Features and Functions

Power Requirements

- 120VAC, 60Hz, 12A, Class A GFCI-protected service (Circuit Breaker rating = 15A max.)
- 3 wires (hot, neutral, ground)

System Outputs

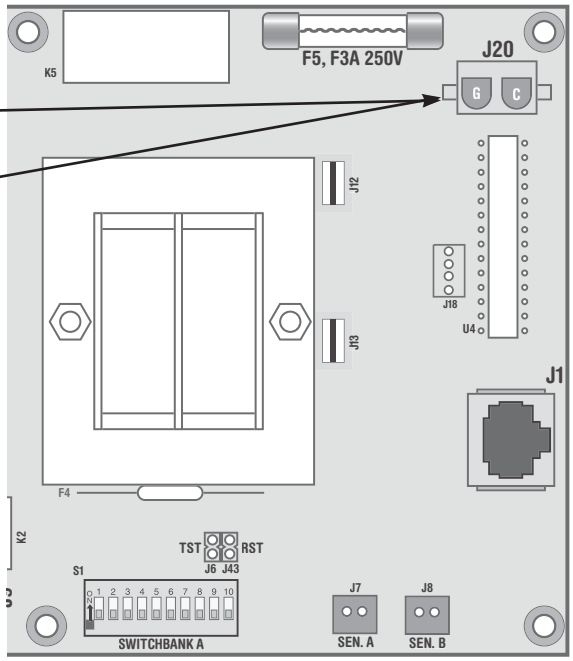
Setup 1 (As Manufactured)

- 120V Pump 1, 2-Speed
- 120V Ozone
- 12V Spa Light
- 120V 1.0kW Heater *

* Heater wattage is rated at 120V.

Additional Options

- MoodEFX Lighting
  Connects to Spa Light terminal J20
- FiberEFX Lighting
  Connects to Spa Light terminal J20



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.

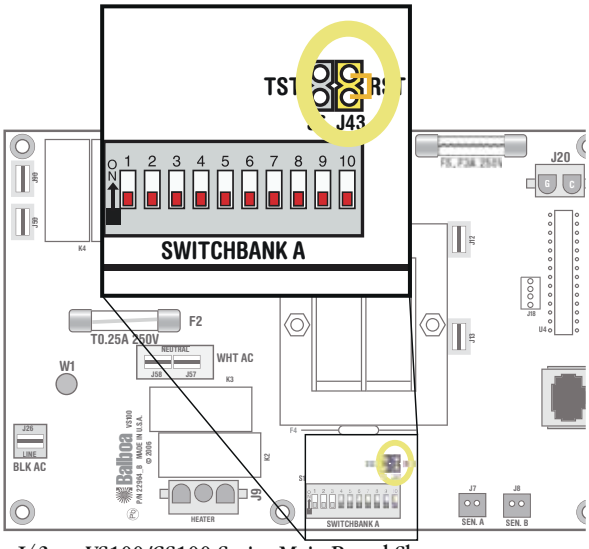
Persistent Memory is not used for Time of Day. Only models with a Serial Deluxe panel installed (VS5xxDZ and GS5xxDZ) can display the time. However, during power loss to the spa, the system will lose the correct time, and reset to 12:00 PM when power is restored.

Power Up Display Sequence

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

- Three numbers in a row, which are the SSID (the System Softwa ID). The third display of these numbers is the Software Version, which should match the version of your system. For example, if three numbers are 100 67 38, that is a VS511SZ at version
- Displayed next is: "24" (indicating the system is configured for a heater between 3 and 6 kW) or "12" (indicating the system is configured for a heater effectively* between 1 and 3 kW). "24" should appear for all VS models running at 240VAC. "12" should appear for all VS models running at 120VAC, as wel as all GS models. (*A heater which is rated at 4 kW at 240VAC v 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 Refere Card for the VS or GS System model of your spa for information abou the spa operates from this point on, including how to adjust the Time Day if using a Serial Deluxe style panel.



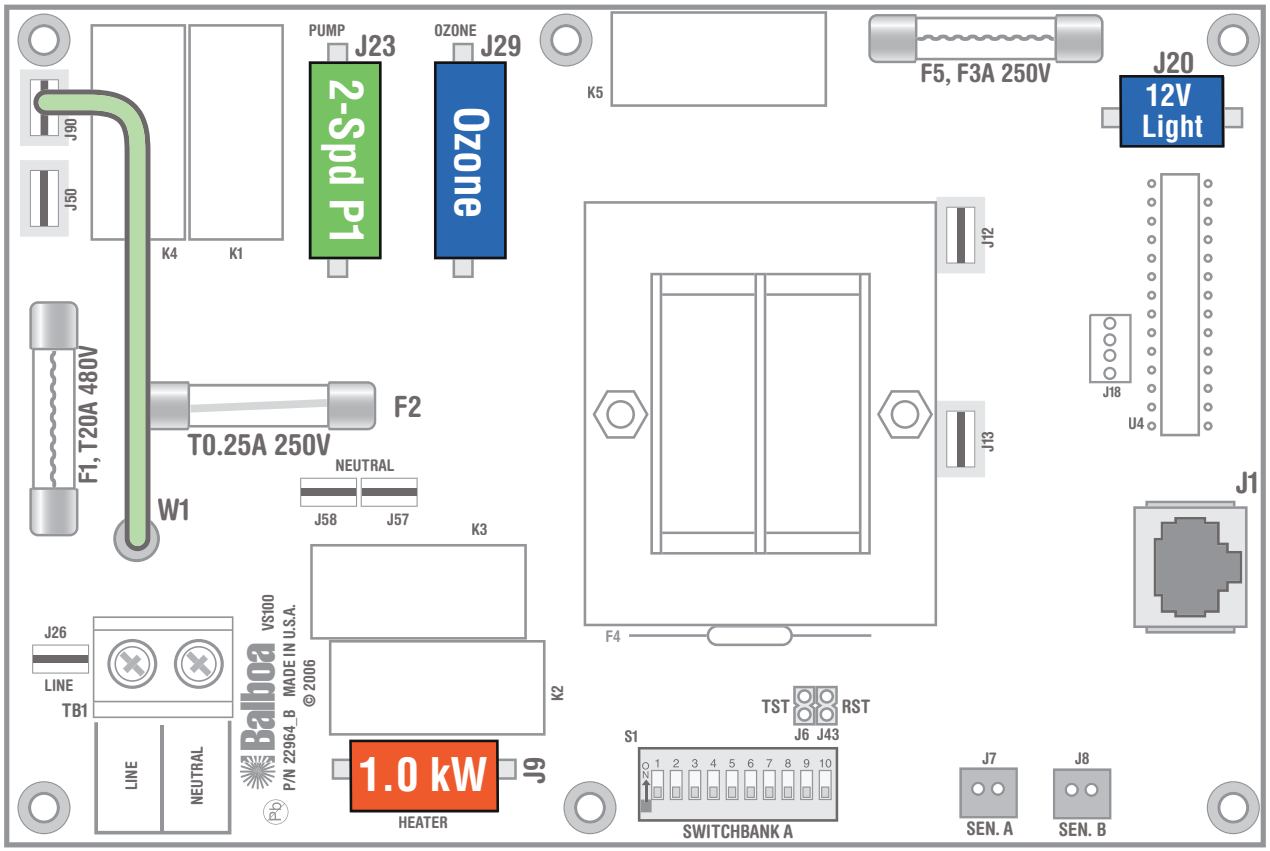
J43 on VS100/GS100 Series Main Board Shown.

Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

- 120V Pump 1, 2-Speed
- 12V Spa Light
- 120V Ozone
- 120V 1.0kW Heater
- VL401 Main Panel

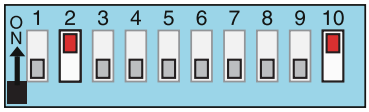
Ozone runs with Pump 1 low-speed.



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
59
41

Switchbank A



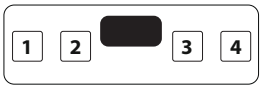
A1, Test Mode OFF
A2, P1, LT, TD, TU
A3, Duplex Panel
A4, N/A (must be OFF)
A5, P1-high timeout, Table 1
A6, 60 Hz
A7, Mode changes allowed
A8, Degrees F
A9, P1-low timeout, Table 1
A10, Low Amp mode

J43
Memory Reset

Panel Button Assignments

1=Pump 1
2=Light
3=Temp Down
4=Temp Up

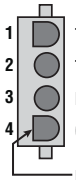
Panel Button Positions



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

DIP Switches and Jumpers Definitions

SSID 100 59 41 Base Model VS100

DIP Switch Key

A1 Test Mode (normally OFF)
A2 "ON" position: Button layout will be: Pump 1, Light, Temp Down, Temp Up *
"OFF" position: Button layout will be: Unused, Pump 1, Temp, Light
A3 "ON" position: use Mini Panel *
"OFF" position: use Lite Duplex or Digital Duplex panel
A4 N/A (must be OFF)
A5 Pump 1 high-speed timeout, see Table 1
A6 "ON" position: 50Hz operation
"OFF" position: 60Hz operation
A7 "ON" position: Standard mode only
"OFF" position: Std/Ecn/Sleep mode changes allowed
A8 "ON" position: temperature is displayed in degrees Celsius
"OFF" position: temperature is displayed in degrees Fahrenheit
A9 Pump 1 low-speed timeout, see Table 1
A10 "ON" position: heater is disabled while the high-speed pump is running (low amperage mode)
"OFF" position: heater can run while the high-speed pump is running (high amperage mode)

Table 1 Pump 1 Timeouts

A5	A9	Low-spd	Hi-spd
OFF	OFF	2 hours	15 min
ON	OFF	2 hours	30 min
OFF	ON	15 min	15 min
ON	ON	30 min	30 min

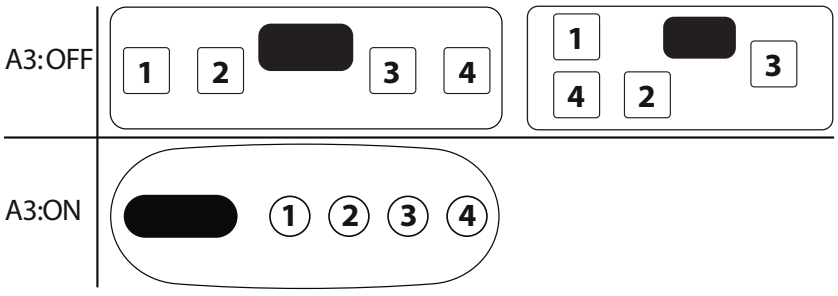
* Panels with button layout are not compatible when A2 or A3 is ON.
Note: No blower or second pump available.

Jumper Key

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

A2:OFF	**1=Unused**	**3=Temp**
	2=Pump 1	**4=Light**
A2:ON	**1=Pump 1**	**3=Temp Down**
	2=Light	**4=Temp Up**

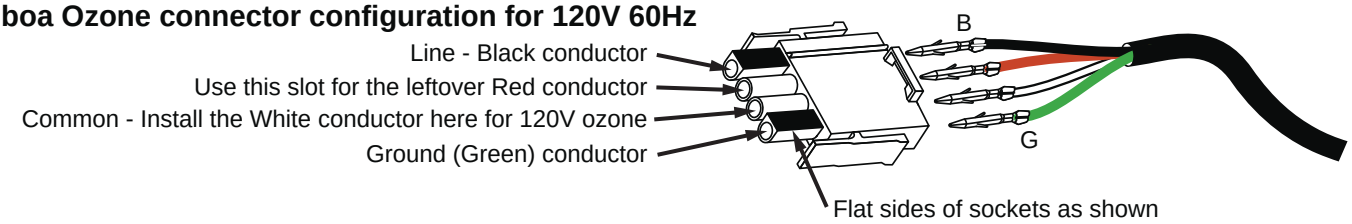
Ozone Connections

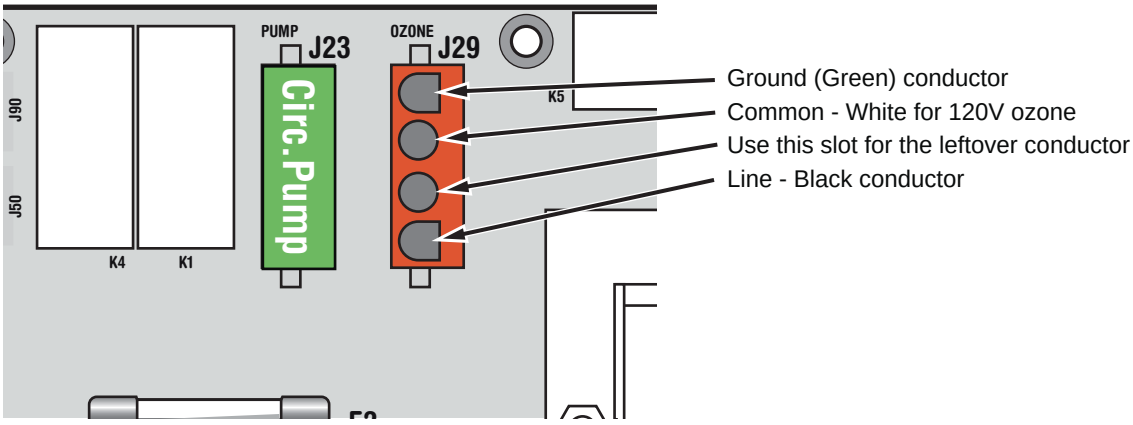
Ozone Connector Voltage: The VS100 circuit board is factory configured to deliver a preset voltage of 120V to the on-board ozone connector (J29).

Balboa Ozone Generator: 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.

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



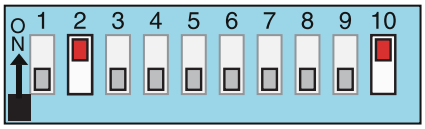


Duplex Panel Configurations

Setup (As Manufactured)

VL403 (Lite Digital)
PN 54664 with Overlay PN 11884
• Connects to Main Panel terminal J1

Switchbank A



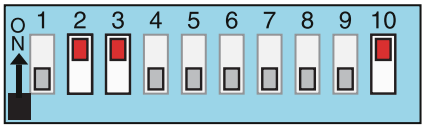
DIP switch A3 must be OFF

VL401 (Lite Digital)
PN 54665 with Overlay PN 11885
• Connects to Main Panel terminal J1

Optional Panels

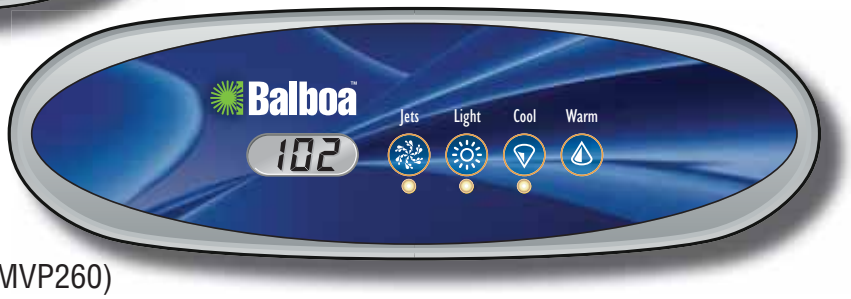
VL200 (Mini Panel)
PN 55123 with Overlay PN 11852
• Connects to Main Panel terminal J1

Switchbank A



DIP switch A3 must be ON

VL240 (MVP240)
PN 55080 with Overlay PN 11745
• Connects to Main Panel terminal J1



VL260 (MVP260)
PN 55081 with Overlay PN 11746
• Connects to Main Panel terminal J1