VS501Z Tech Sheet

Balboa Water Group
System PN 54379-04

System Model # VSP-VS501Z-CCAJ
Software Version # 43
EPN # 5427

Base PCBA - PN 54357-04

Base Panels
VL401 (LCD Lite Duplex) – PN 54094
VL403 (LED Lite Duplex) – PN 51676-01

Optional Base Panels
VL200 (Mini bath) – PN 52144

Template used: 40600_P.pdf 01/07/2008
54379-04_97_B.pdf 07/30/2020

BALBOA water group

System Revision History

System PN	EPN	Date	Requested By	Changes Made
54379-01	1801	08.01.2006	Balboa	Software update to v35
54379-02	2570	09.24.2007	Balboa	Software update to v38
54379-03	2720	01.31.2008	Balboa	Software update to v43
54379-03		12.16.2009	BWG	Tech Sheet Update - Setup order
54379-03	N/A	04.09.12	BWG	Add Alert box on page 7
54379-03	5069	05.02.2018	BWG	Add Setup 3 with pump 2 instead of blower.,
54379-04	5427	07.07.2020	BWG	Install 120V heater jumper..

Basic System Features and Functions

Power Requirements

- 120/240VAC, 60Hz, 16/32A, Class A GFCI-protected service (Circuit Breaker rating = 20/40A max.)
- 3 or 4 wires [hot, hot (optional), neutral, ground]

System Outputs

Setup 1 (As Manufactured)

- 120V Pump 1, 2-Speed
- 120V Blower
- 120V Ozone *
- 12V Spa Light
- 120V AV (Stereo)
- 120V 1.0kW Heater (4.0kW@240V)**

Optional Devices

- 120V Circ Pump *

Setup 2

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

Optional Devices

- 240V Circ Pump *

Setup 3

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

Optional Devices

- 240V Circ Pump *

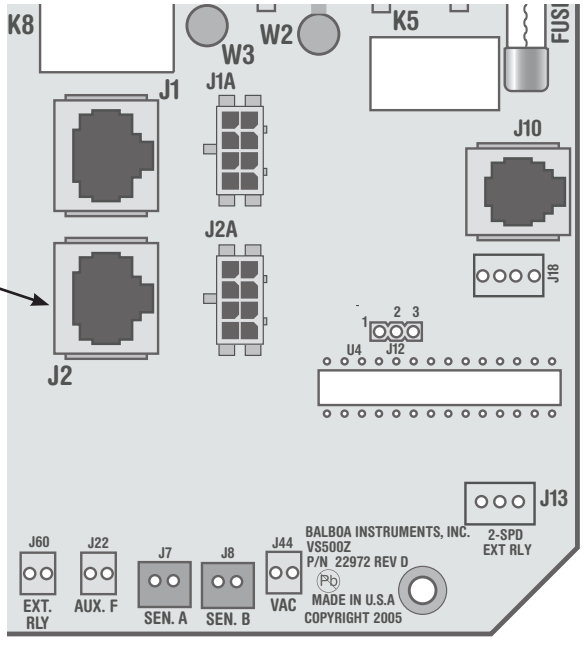
Note: **If using 120V GFCI cord, service is limited to 12A.**

* 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

- IR Receiver Module
  Connects to terminal J1 or J2



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.

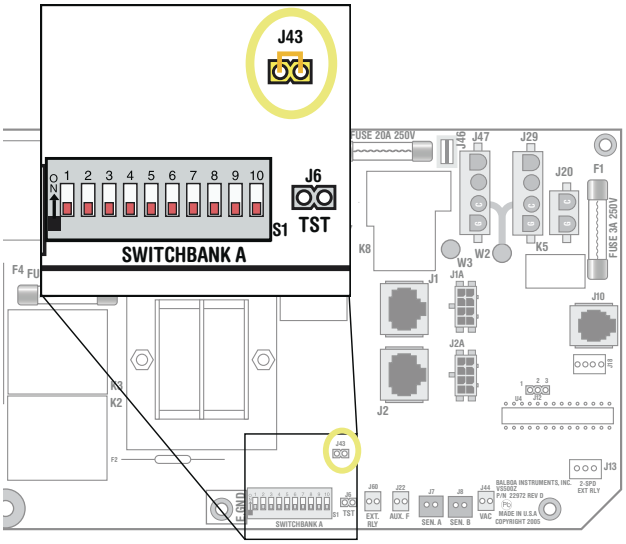
To reset Persistent Memory:

- 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:

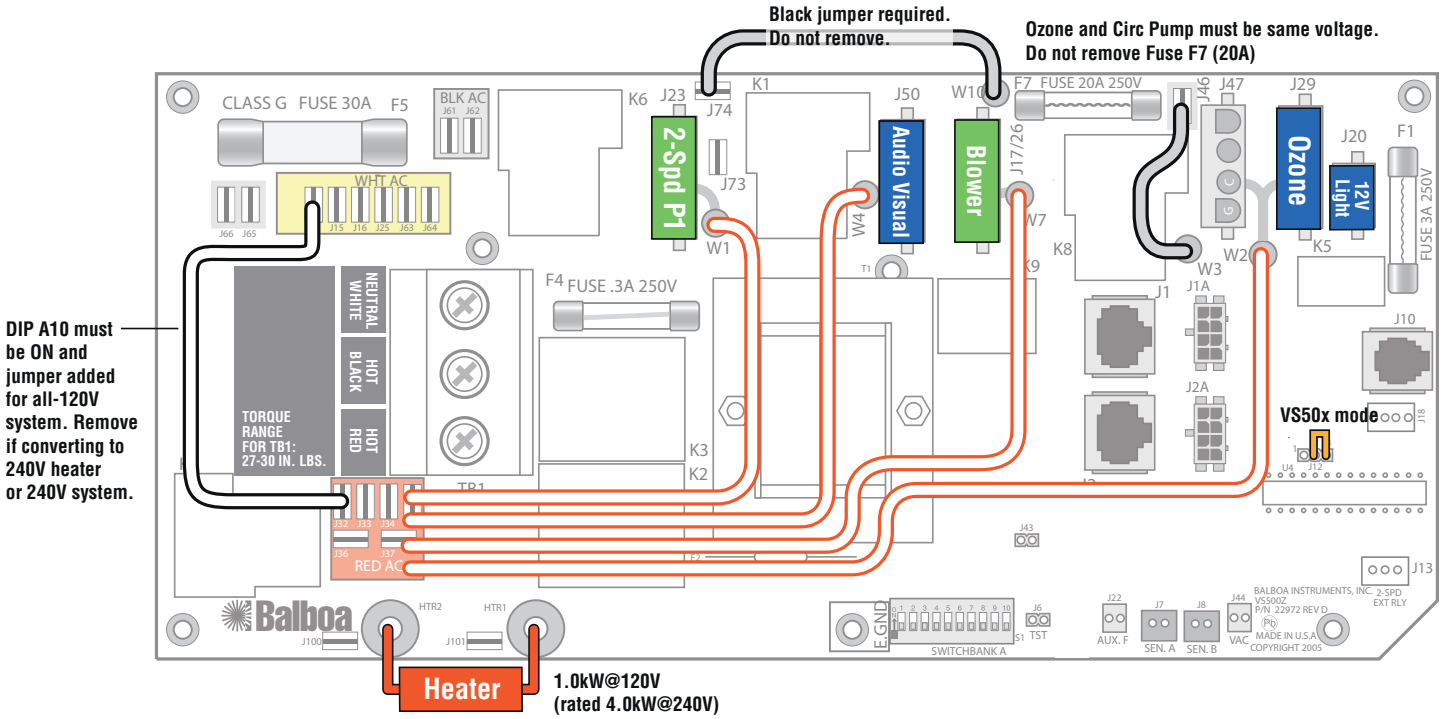
- Three numbers in a row, which are the SSID (the System Software ID). The third display of these numbers is the Software Version, which should match the version of your system. For example, if these three numbers are 100 67 38, that is a VS511SZ at version 38.
- Displayed next is: "24" (indicating the 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 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.

Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

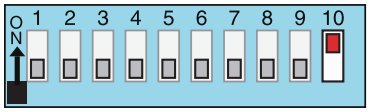
- 120V Pump 1, 2-Speed
- 120V Blower
- 120V Ozone
- 12V Spa Light
- 120V A\V (Stereo)
- 120V 1.0kW Heater (4.0kw@240V)
- Duplex Main Panel
- 120V Circ Pump (optional)



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
63
43

Switchbank A



A1, Test Mode OFF
A2, Mode changes allowed
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 60 Hz
A7, J17/26, P1, TE, LT
A8, Degrees F
A9, Non-Circ Mode
A10, Low Amp mode

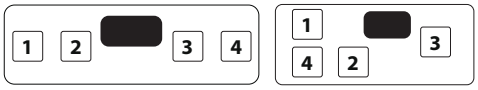
VS50x Compatible

J43

Panel Button Assignments

1=J17/26
2=Pump 1
3=Temp
4=Light

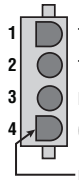
Panel Button Positions



Wiring Color Key

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

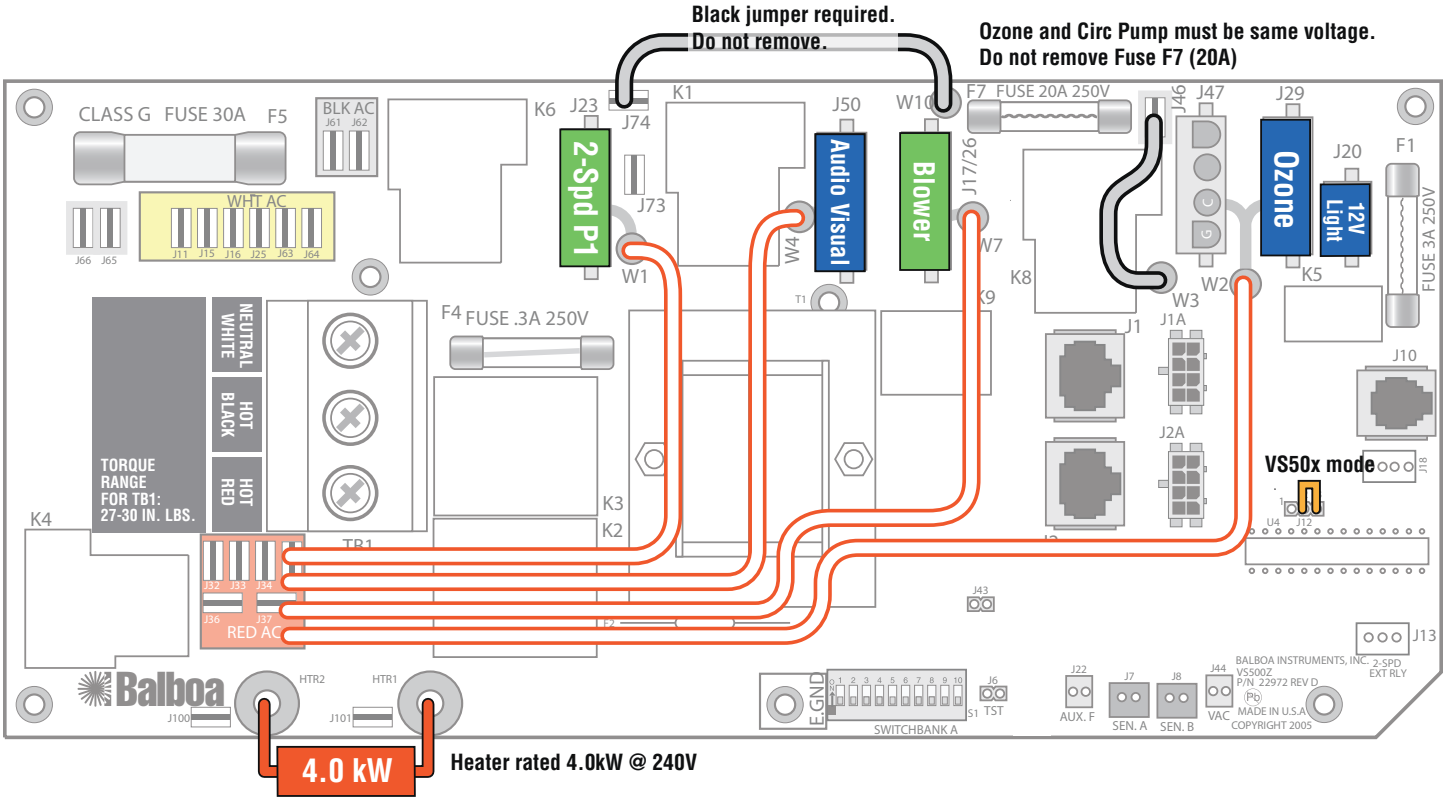
Board Connector Key



Wiring Configuration and DIP Settings

Setup 2

- 240V Pump 1, 2-Speed
- 240V Blower
- 240V Ozone
- 12V Spa Light
- 240V A\V (Stereo)
- 240V 4.0kW Heater
- Duplex Main Panel
- 240V Circ Pump (optional)



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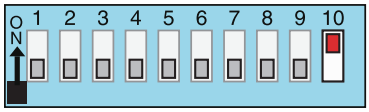
Switchbank A



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A5, 2-speed P1
A6, 60 Hz
A7, J17/26, P1, TE, LT
A8, Degrees F
A9, Non-Circ Mode
A10, Low Amp mode

VS50x Compatible

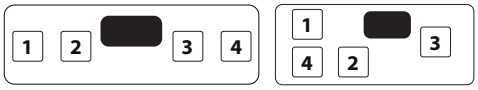
J43

Memory Reset

Panel Button Assignments

1=J17/26
2=Pump 1
3=Temp
4=Light

Panel Button Positions



Wiring Color Key

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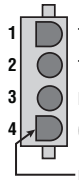
- 240 Volt Connections
- Black AC Jumpers
- 12 Volt Connections
- Relay Control Wires

Board Connector Key

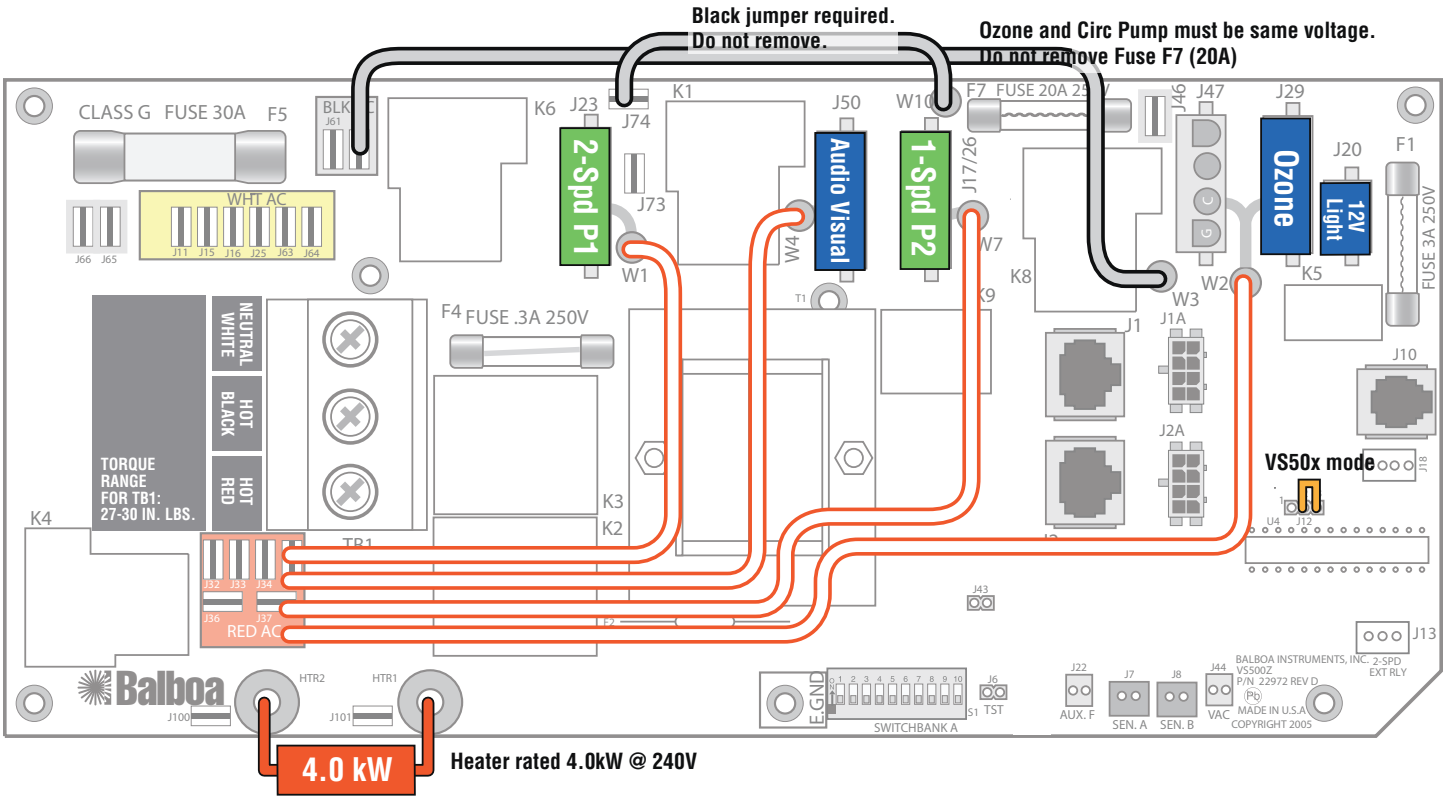


Note flat sides in connector

Wiring Configuration and DIP Settings

Setup 3

- 240V Pump 1, 2-Speed
- 240V Pump 2, 1-Speed
- 240V Ozone
- 12V Spa Light
- 240V A\V (Stereo)
- 240V 4.0kW Heater
- Duplex Main Panel
- 240V Circ Pump (optional)



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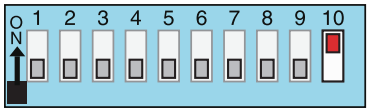
Switchbank A



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A5, 2-speed P1
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A7, J17/26, P1, TE, LT
A8, Degrees F
A9, Non-Circ Mode
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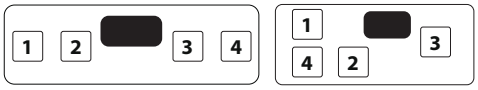
VS50x Compatible

J43

Panel Button Assignments

1=J17/26
2=Pump 1
3=Temp
4=Light

Panel Button Positions



Wiring Color Key

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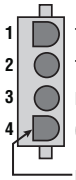
Board Connector Key



DIP Switches and Jumpers Definitions

SSID 100 63 43 Base Model VS501Z

DIP Switch Key

A1 Test Mode (normally OFF)

A2 "ON" position: Standard mode only
"OFF" position: Std/Ecn/Sleep mode changes allowed

A3 "ON" position: use Mini Panel *
"OFF" position: use Digital Duplex or Light Duplex panel

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: Button layout will be: Pump 1, Light, Temp Down, Temp Up with J17/26 on 1-button Aux panel **
"OFF" position: Button layout will be: J17/26, Pump 1, Temp, Light

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

A10 "ON" position: heater is disabled while any high-speed pump or blower is running (low amperage mode)
"OFF" position: heater can run while any/all high-speed pumps or blowers are running (high amperage mode)

Alert:
Blower or 1-speed Pump 2 is required, connect to J17/26.
For no Blower and no Pump 2, use VS500Z or VS515Z.

* Panels with button layout are not compatible when either A3 or A7 is ON.

** J2 panel connector on Main Board must be a 6-pin connector. IR Receiver is not compatible.

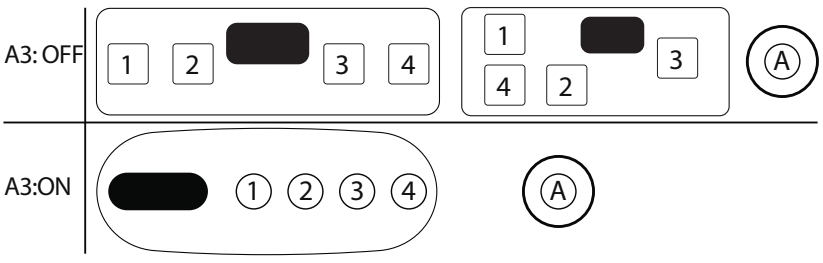
Note: J17/26 is required. For no J17/26, use VS500Z.

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 hot sheet.

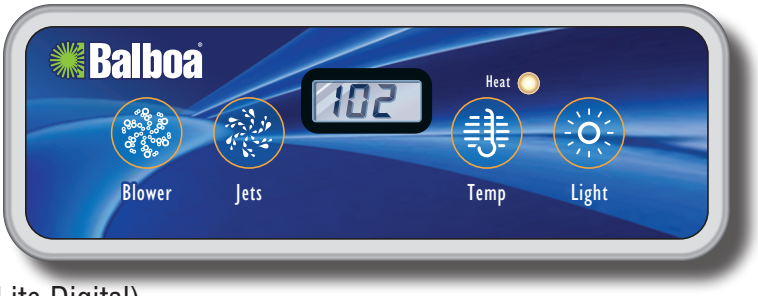


Panel Button Assignments

A7: OFF	**1=J17/26** **2=Pump 1**	**3=Temp** **4=Light**	
A7:ON	**1=Pump 1** **2=Light**	**3=Temp Down** **4=Temp Up**	**Aux=J17/26**

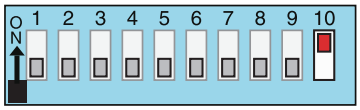
Duplex Panel Configurations

Setups 1-2

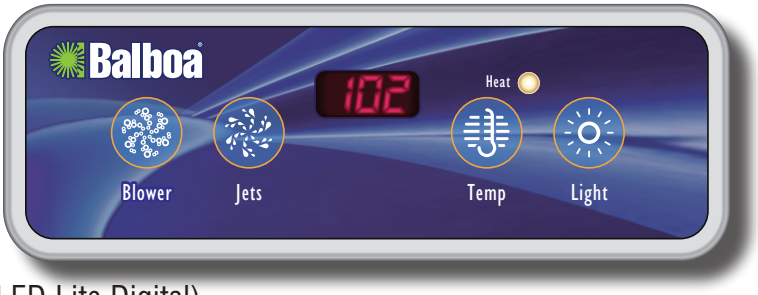


VL401 (Lite Digital)
PN 54094 with Overlay PN 10669
• Connects to Main Panel terminal J1

Switchbank A

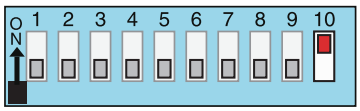


A3 must be OFF



VL403 (LED Lite Digital)
PN 51676-01 with Overlay PN 10671
• Connects to Main Panel terminal J1

Switchbank A

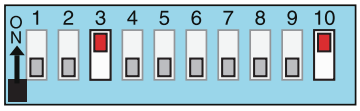


A3 must be OFF

Optional Panel

VL200 (Mini Panel)
PN 52144 with Overlay PN 11095
• Connects to Main Panel terminal J1

Switchbank A



A3 must be ON