Aqua Pulse Spas

POOL & SPA SUPPLIES

USER MANUAL

Noosa Luxury Spa

TABLE OF CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

Your physiological response to hot water is very subjective and depends on your age, health and medical history. If you don't know your tolerance to hot water or experience dizziness, headaches or nausea you should exit the spa immediately and cool down.

WARNINGS

1. Children in and around the spa should be supervised at all times by a responsible adult.
2. Use caution when entering or exiting the spa, where practical install a safety grab bar or handrail. Turn off all the jets before entering or exiting the spa to improve visibility while entering or exiting the spa. Remember that wet surfaces can be slippery.
3. Do not allow anyone to submerge their head under the water.
4. Do not use the spa unless all suction guards are installed to prevent body and hair entrapment. Do not sit in front of or on top of the suction fittings or skimmer. This will obstruct proper circulation of the water and may result in personal injury.
5. Never operate the spa pump/s without having all suction and return lines open.
6. Always keep the hardcover installed and locked when the spa is not in use.
7. Never allow anyone to sit or stand on the hardcover.
8. People using medications and or having any adverse medical history should consult a physician before using the spa.
9. People with infectious diseases should not use the spa.
10. Do not use the spa if you are under the influence of alcohol or drugs.
11. Do not consume alcohol or drugs while using the spa.
12. Pregnant women should consult a physician before using the spa.
13. As prolonged immersion in water temperatures in excess of 38°C (100°F) may damage your health, we recommend measuring the water temperature with an accurate thermometer before entering the spa. We also recommend establishing lower temperatures and shorter periods of use for users who may be affected by hot water temperature.
14. In order to avoid the possibility of hyperthermia (heat stress) occurring it is recommended that the average temperature of spa-pool water should not exceed 38°
15. Do not use the spa immediately following strenuous exercise.
16. You must use a qualified electrician to connect the spa to power.
17. The power should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
18. If your power supply cable is damaged switch the spa off at the residual current device inside your houses meter box, contact a qualified electrician to replace the cable.
19. Live parts and connections must be inaccessible to any person in the spa.
20. Earthed appliances must be permanently connected to fixed wiring.
21. Do not permit or use electric appliances (such as lighting, telephone, radios, televisions etc.) within 1.5 meters of the spa, unless the appliance is rated at 12VDC or less.
22. Parts incorporating electrical components except remote control devices must be located or fixed so that they cannot fall into the spa.
23. Test the GFCI (Ground Fault Circuit Interrupter) or residual current device (RCD) monthly.
24. If water is leaking from the spa stop using the spa until a qualified technician has resolved the problem.
25. Do not leave the spa empty for any period of time.
26. Post emergency phone numbers for Police, Fire Department and Ambulance at the nearest phone.
27. Install a CPR Resuscitation chart within easy view of the spa.
28. Check with your local council to see if your spa is required to be fenced.

HYPOTHERMIA

Since your spa can be set to reach temperatures of 40°C (104°F) users should be aware that extended submersion in water that exceeds normal body temperature can lead to hypothermia. Hypothermia occurs when the internal temperature of the body reaches several degrees above the normal body temperature of 37°C (98.6°F). The symptoms of hypothermia include drowsiness, lethargy and an increase in the internal temperature of the body. The effects of hypothermia include:

- Unawareness of impending hazard
- Failure to perceive heat
- Failure to recognize the need to exit the spa
- Physical inability to exit the spa
- Fetal damage in pregnant woman
- Unconsciousness resulting in the danger of drowning

If you feel any of the symptoms of hypothermia safely exit the spa immediately. Please note that the use of Alcohol, Drugs or Medication can significantly increase the risk of Hypothermia.

INFORMATION TO ASSIST YOU LOCATING THE SPA

The following information will assist you in choosing the right location for your spa. When making your decision always remember that spas can be enjoyed all year round, indoors or out regardless of the climate. Many spa owners report that their favourite seasons are the cooler winter months while others enjoy using their spa in the warmer summer months.

OUTDOOR LOCATIONS

For a variety of reasons outdoor locations are a far more popular choice, some of the reasons include:
Limited indoor space.

- Delivery complications due to door openings, stairwells etc.
- Desire for an outdoor entertainment areas.
- The spa is being installed adjacent to an existing or planned swimming pool
- Concerns over splashing water inside the home.

For those who choose an outdoor location, spa operating temperatures can be adjusted to match the season. In colder months many owners will operate their spa in the range of 36-38°C. During warmer months an operating temperature of 26-28°C will provide a refreshing retreat.

LOCATION CONSIDERATIONS

- Contact your local council to determine if a building permit is necessary and for information on applicable bylaws (distance from property lines, buildings, fencing requirements etc.).
- If you are doing any excavating contact Dial before You Dig on 1100 to ensure that there are no underground lines.
- Locate the spa where possible within close distance of a door to the house, this will maximize potential winter use.
- Ensure that your pump(s), controls, drain-valve and thermal probe are easily accessible and protected.
- If possible locate the spa where you will enjoy some privacy. If this is not possible a partial privacy or wind partition or proper placement of the optional cover lifter should provide adequate privacy.

SPA BASE

Your spa needs a good solid foundation, the foundation on which your spa sits must be able to support the weight of the spa the water in it and the weight of its users. If the foundation is inadequate the spa may shift, this will cause stress to the shell which may lead to the shell cracking. Damage caused by an inadequate or improper foundation is not covered under warranty. It is the responsibility of the spa owner to provide a proper foundation for the spa.

SPA BASE CONTINUED

A spa containing both water and people is extremely heavy, if you are installing the spa onto decking or any other elevated structure it is advisable to consult a structural engineer to ensure that the structure will support the weight of the spa.

Ideally the spa should be installed onto a concrete base at least 4” thick with reinforcing steel inside the slab.

If you are installing your spa indoors ensure that your choice of flooring is impermeable to water. Ensure that water drains away from the spa protecting the cabinet and electrical components from water damage.

WATER SUPPLY

Spas do not require a permanent water supply however there must be a water supply and hose within reach in order to fill the spa. A hose is also used for emptying the spa via the bottom drain or by using a submersible pump.

SAFETY

Do not place your spa within 3 metres of overhead power lines. Make sure your spa is positioned so that access to the equipment compartment and side panels will not be blocked.

TAKING DELIVERY

Depending on the delivery service you have ordered we will either drop the spa to curb side or bring the spa into position (as long as there is clear access).

Check the dimensions of your spa and compare them to the width of any gates and paths along the delivery route between the road and the installation site. It may be necessary for you to remove a gate or partially remove a fence in order to provide an unobstructed passageway.

If the delivery route will require a 90° turn, don't forget to check the measurements to ensure the spa will fit through. Also look for any protruding utility meters, low roof eaves, overhanging trees or gutters that might cause an obstruction.

In some circumstances it might be necessary to hire a crane for the installation.

ELECTRICAL INSTALLATION

You will need a suitable electrical supply to run the spa.
The Noosa Luxury Spa requires a 32Amp Power Connection. Your electrician needs to hardwire the spa straight to the meter box in your house.

ALL ELECTRICAL CONNECTIONS REQUIRE YOUR ELECTRICIAN TO INSTALL THE APPROPRIATE SIZED RCD IN THE HOUSES METER BOX.

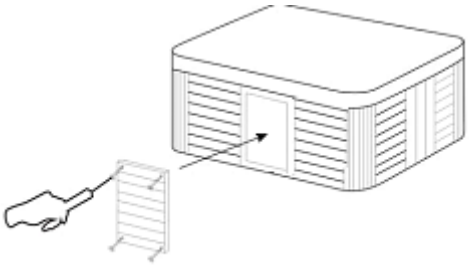
When appointing an electrician to prepare your spas electrics check that they are suitably qualified and licenced to do so. Do not attempt to install the spas electrics yourself if you are not a fully qualified electrician.
The spa must be hard wired on its own fused circuit back to your household meter box. The spa should not be sharing power supply with any other appliances.

If your spa is being hardwired we recommend you install a Rotary Isolation Switch so that the spa can be isolated from the power supply in an emergency or for service work. This is simply a rotary on/off switch but should be sited more than 2 metres away for the spa so that users cannot be in the spa whilst operating the switch.

3 Pin Plug Not Allowed

Recommended Rotary Isolation Switch

To locate the electrical connection point unscrew and remove the cabinet panels underneath the spas touch pad.



ELECTRICAL CONNECTION POINT LOCATION

GS523DZ Tech Sheet

Balboa
System PN 54763-01

System Model # GS5-GS523DZ-RCA-3.0
Software Version # 43
EPN # 2808

Base PCBA - PN 55857-01
PCB GS500Z - PN 22015 Rev B

Base Panels
VL801D (Serial Deluxe) – PN 54121
VL802D – PN 54562

Template used: 40599_97_0.pdf 11/08/2008
54763-01_97_D.pdf 03/17/2009

BALBOA water group

System Revision History

System PN	EPN	Date	Requested By	Changes Made
54763-01	2808	02.10.2009	Balboa	Update software to version 43.
54763-01	2808	03.17.09	Balboa	Update Tech Sheet Electrical Service Config Pages

Basic System Features and Functions

Power Requirements

Single Service [3 wires (line, neutral, ground)]

- 230VAC, 50Hz, 1~, 32A, (Circuit Breaker rating = 40A max.)

Dual Service [5 wires (line 1, neutral 1, line 2, neutral 2, ground)]

- 230VAC, 50Hz, 1~, 2x 16A, (Circuit Breaker rating = 20A max each service.)

3-Phase Service [5 wires (line 1, line 2, line 3, neutral, ground)] **Requires PCB Rev B.**

- 400VAC, 50Hz, 3N~, 16A, (Circuit Breaker rating = 20A max each phase line.)
- IMPORTANT - Service must include a neutral wire, with a line to neutral voltage of 230VAC.

System Outputs

Setup 1 (As Manufactured)

- 230V Pump 1, 2-Speed
- 230V Pump 2, 1-Speed
- 230V Pump 3, 1-Speed
- 230V Blower
- 230V Ozone
- 10V Spa Light
- 230V AV (Stereo)
- 3.0kW Heater *

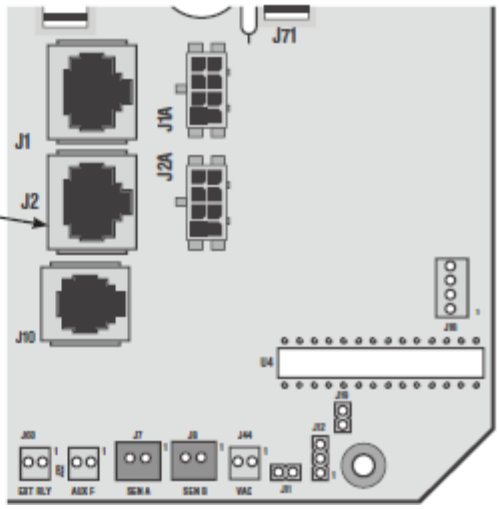
Setup 2

- 230V Pump 1, 2-Speed
- 230V Pump 2, 1-Speed
- 230V Pump 3, 1-Speed
- 230V Blower
- 230V Ozone
- 230V Circ Pump
- 10V Spa Light
- 230V AV (Stereo)
- 3.0kW Heater *

* Heater wattage is rated at 240V.

Additional Options

- Full Feature Dolphin Remote
  and Spa-only Dolphin Remote
- IR Receiver Module
  Connects to terminal J1 or J2
  (Must be 8-pin connector)
- 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.

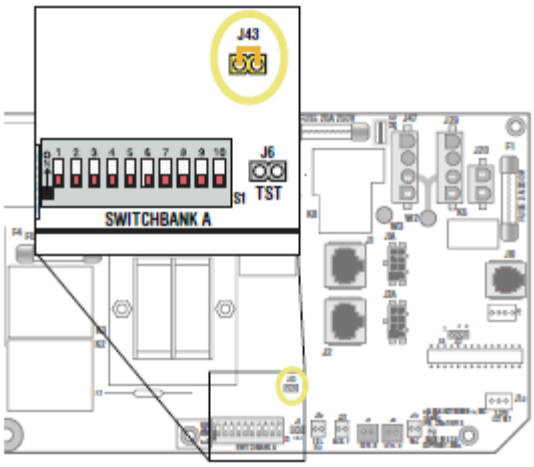
To reset Persistent Memory:

- 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.



J43 on VS5xxZ and VS300 Series Main Board Shown.
J43 on GS5xxZ Series is located in approximately the same position.

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

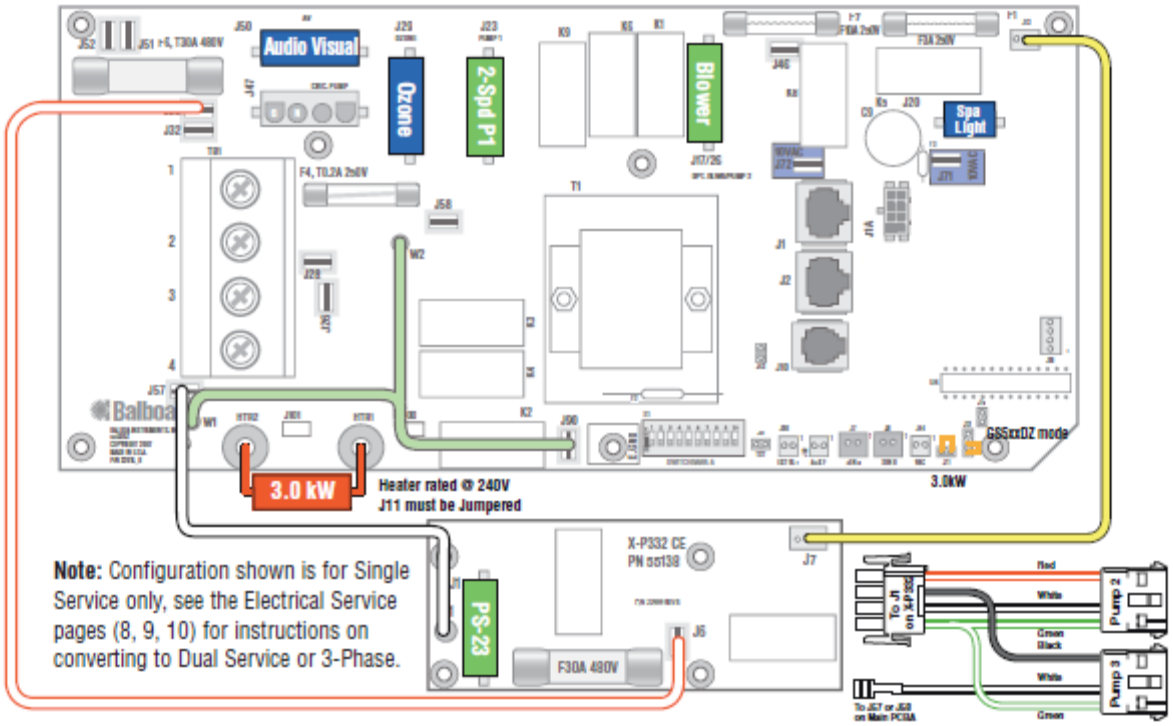
Setup 1 (As Manufactured)

- 230V Pump 1, 2-Speed
- 230V Pump 2, 1-Speed
- 230V Pump 3, 1-Speed
- 230V Blower
- 230V Ozone
- 10V Spa Light
- 230V AV (Stereo)
- 3.0kW Heater
- Deluxe Main Panel

HiPot Testing Note:

Disconnect slip terminal with green wires from J90 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test.

Reconnect terminal to J90 after successful completion of HiPot test.

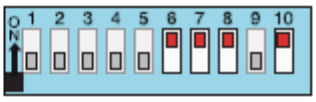


Note: Configuration shown is for Single Service only, see the Electrical Service pages (8, 9, 10) for instructions on converting to Dual Service or 3-Phase.

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
91
43

Switchbank A



A1, Test Mode OFF
A2, See Table 1
A3, N/A
A4, Aux Freeze
A5, 2-speed P1
A6, 50 Hz
A7, J17/26 Enabled
A8, Degrees C
A9, Non-Circ Mode
A10, See Table 1

J11 — 3.0kW Heater

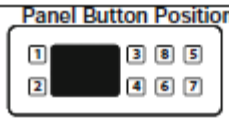
GS523DZ Software
J12

J43 Memory Reset

Panel Button Assignments

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

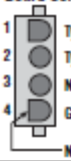
Panel Button Positions



Wiring Color Key

- Neutral (Common) AC Connections
- Special AC Connections
- Line AC Connections
- 10 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

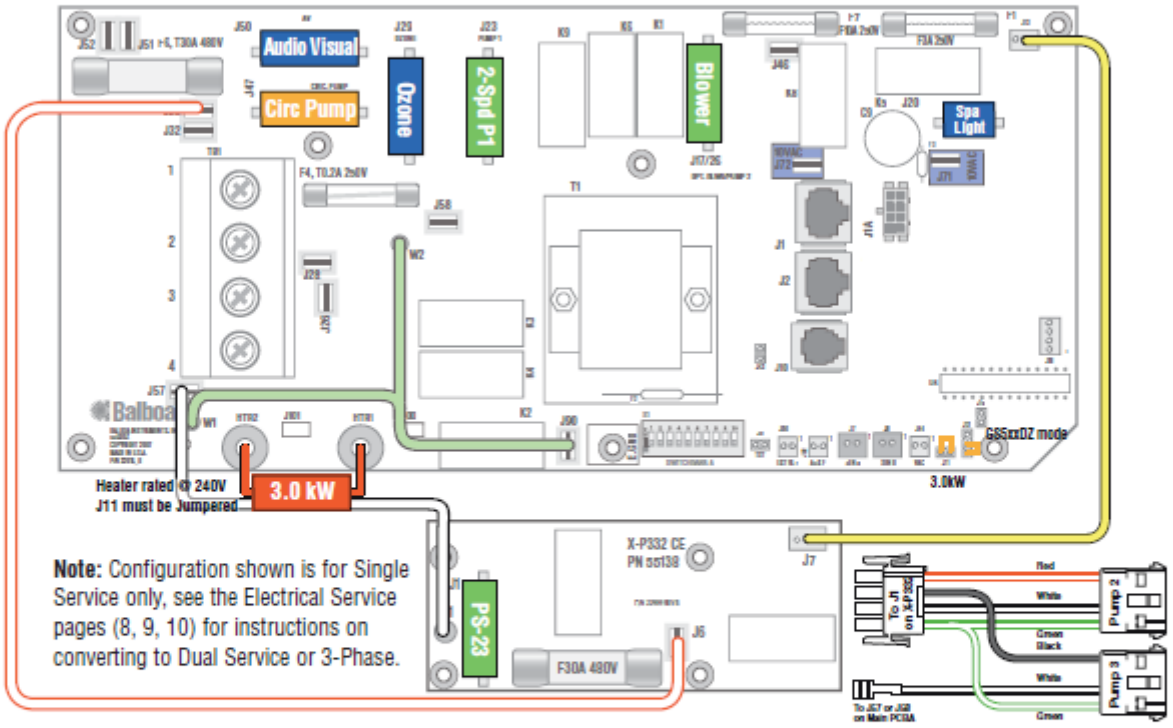
Note flat sides in connector

Wiring Configuration and DIP Settings

Setup 2

- 230V Pump 1, 2-Speed
- 230V Pump 2, 1-Speed
- 230V Pump 3, 1-Speed
- 230V Blower
- 230V Ozone
- 230V Circ Pump
- 10V Spa Light
- 230V AV (Stereo)
- 3.0kW Heater
- Deluxe Main Panel

HiPot Testing Note:
Disconnect slip terminal with green wires from J90 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test.
Reconnect terminal to J90 after successful completion of HiPot test.

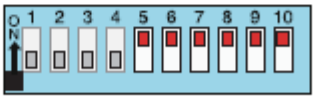


Note: Configuration shown is for Single Service only, see the Electrical Service pages (8, 9, 10) for instructions on converting to Dual Service or 3-Phase.

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
91
43

Switchbank A



A1, Test Mode OFF
A2, See Table 1
A3, N/A
A4, Aux Freeze
A5, 2-speed P1
A6, 50 Hz
A7, J17/26 Enabled
A8, Degrees C
A9, 24 Hour 3°F Circ Pump
A10, See Table 1

J11 — 3.0kW Heater

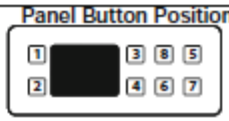
GS523DZ Software
J12

J43 Memory Reset

Panel Button Assignments

1=Time	5=Light
2=Mode/Prog	6=Pump 1
3=Temp Up	7=Pump 2
4=Temp Down	8=J17/26

Panel Button Positions



Wiring Color Key

- Neutral (Common) AC Connections
- Special AC Connections
- Line AC Connections
- 10 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 91 43 Base Model GS523DZ

DIP Switch Key

A1 Test Mode (normally OFF)
A2+A10 Control amp draw requirements (See Table 1)
A3 N/A (must be OFF)
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 Enabled for Blower or 1-speed Pump 4.
"OFF" position: J17/26 Disabled.
A8 "ON" position: temperature is displayed in degrees Celsius
"OFF" position: temperature is displayed in degrees Fahrenheit

Table 1 — # of Hi-Speed Pumps/Blower Before Heat Disabled

A2	A10	
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3

Alert:
Pump 2 and Pump 3 are required, use X-P332 CE expander board with PS-23 splitter cable.
To add Blower or 1-speed Pump 4, use J17/26.

Jumper Key

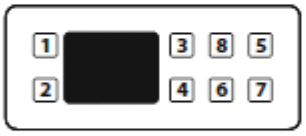
J11 If using 3kW or higher wattage heater, jumper can be set in either position, but may perform better on Pins 1 and 2.
If using 2.5kW or lower wattage heater, jumper must be set on 1 Pin only.

J12 **Factory set. DO NOT MOVE.**
Jumper must be on Pins 1 and 2 for GS51xZ/GS52xZ/GS5xxSZ/GS5xxDZ software.
Jumper must be on Pins 2 and 3 for GS50xZ 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

1=Time
2=Mode/Prog
3=Temp Up
4=Temp Down
5=Light
6=Pump 1
7=Pump 2+Pump 3
8=J17/26 (when A7 is ON)

Aux Panel Information

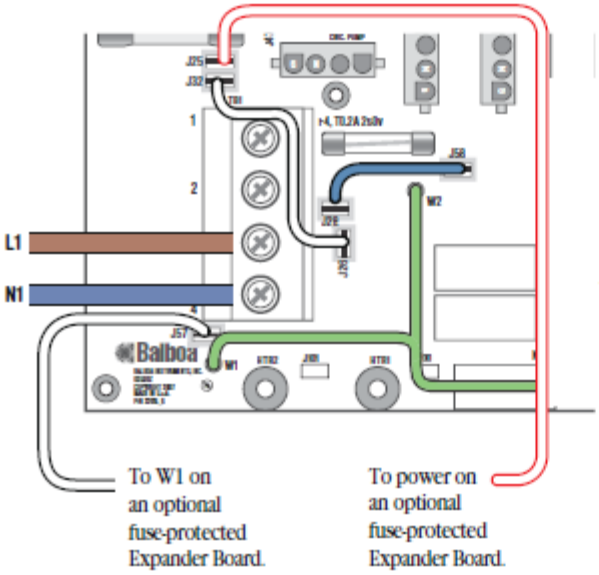
Supports 2-button aux panel

Supports 4-button aux panel

Electrical Service Configuration Options

Systems with PCB Rev B Only

AS MANUFACTURED



Single Service, TN and TT Electrical Systems (1 x 32 Amp)
3 Wires (1 Line + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked.

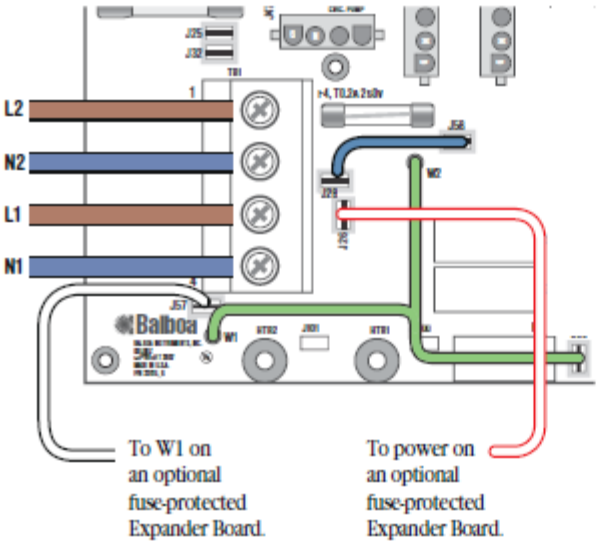
This option is configured and shipped as the default.

All equipment (pumps, blower, heater and any expander board) runs on service line L1.

Systems using only 1 DIP switch (A10) for heat disable:
- 1 x 16 Amp Service is not supported:
- For 1 x 32 Amp Service:
  - Set DIP Switch A10 such that total system amperage draw never exceeds rated service input.

Systems using multiple DIP switches for heat disable:
- Refer to system Hot Sheet DIP Switch Definition page and set the switches shown in Table 1 such that total system amperage draw never exceeds rated service input.

OPTIONAL



Dual Service, TN and TT Electrical Systems (2 x 16 Amp)
5 Wires (2 Lines + 2 Neutrals + 1 Protective Earth)

Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked.

The heater and any expander board run on service line L1, while all other equipment, such as pumps and blowers, run on service line L2.

Completely remove the white wire from J26 and J32.
Note: J32 and J25 are electrically identical. The white wire may be attached to either terminal before removal.

Systems using only 1 DIP switch (A10) for heat disable:
- DIP Switch A10 must be OFF.

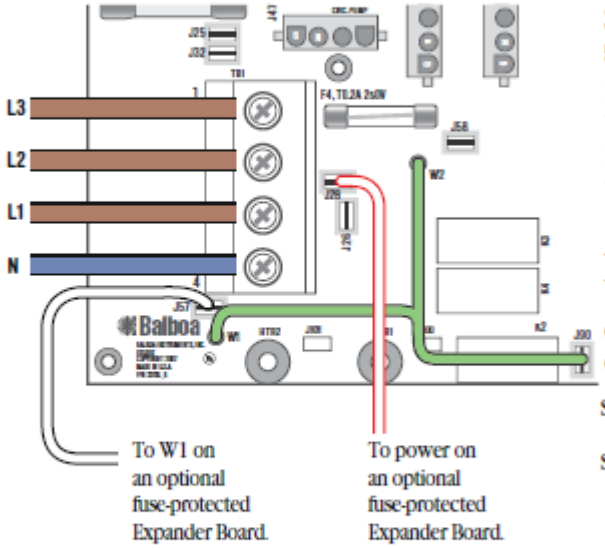
Systems using multiple DIP switches for heat disable:
- Refer to system Hot Sheet DIP Switch Definition page and set both switches shown in Table 1 to ON positions.

If using an Expander Board:
Systems using multiple DIP switches for heat disable:
- Refer to system Hot Sheet DIP Switch Definition page and set both switches shown in Table 1 to OFF positions.

Electrical Service Configuration Options

Systems with PCB Rev B Only

OPTIONAL



3-Phase Service, TN and TT Electrical Systems
5 Wires (3 Lines + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked.

IMPORTANT - Service MUST include a neutral wire, with a line to neutral voltage of 230VAC.

The heater runs on service line L1.
All main-board equipment run on service line L3.
Addtional equipment, such as expansion boards, run on service line L2.

Completely remove the white wire from J26 and J32, or J25.

Completely remove the blue wire from J28 and J58.

Systems using only 1 DIP switch (A10) for heat disable:
DIP Switch A10 must be OFF.

Systems using multiple DIP switches for heat disable:
Refer to system Hot Sheet DIP Switch Definition page and set both switches shown in Table 1 to ON positions.

NOTE:
- Not all GS5xxZ systems can support 3-Phase.
- 3-Phase requires System PCB Rev B.
- If using an expansion board, the board must have fuse-protection.

Electrical Service Application Notes

This page is specific to the GS523DZ model with 7A max pumps.
(The preceeding pages cover all possible GS applications.)

As manufactured, this system comes configured for Single Service.
See the preceding pages for instructions on moving wires for Dual Service or Three-Phase configurations.

Use the following guidelines for setting DIP Switches appropriately for the particular service configuration chosen.

For 1x16A Service:

Not Supported.

For 1x32A Service:

Switch A2 must be OFF and A10 can be ON.

For 2x16A Service:

Switches A2 and A10 must be OFF (because Pumps 2 and 3 are on the same service as the Heater).

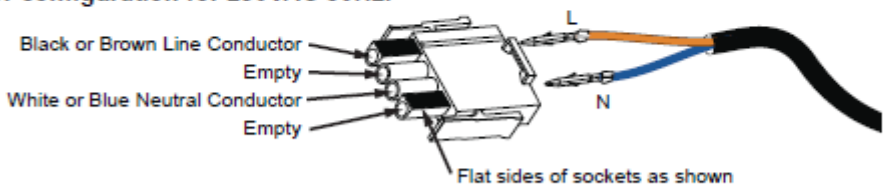
For 3-phase Service (16A per phase):

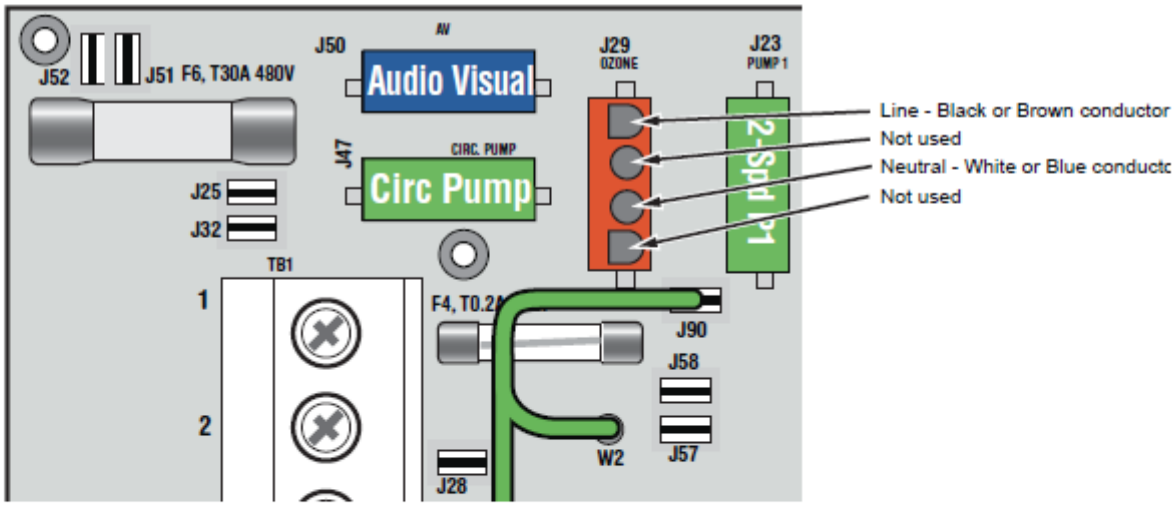
Pump 1 and blower are on one phase, Pumps 2 and 3 are on another phase, and the Heater is on its own phase. So there are no limitations needed on equipment running together. Thus switches A2 and A10 can both be ON.

Ozone Connections

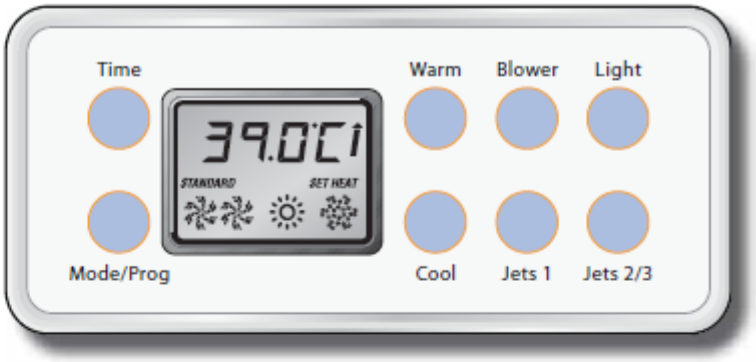
Note: A special tool is required to remove the pins from the connector body once they are snapped in place. Check with your Balboa Account Manager for information on purchasing a pin-removal tool.

Balboa Ozone connector configuration for 230VAC 50Hz:

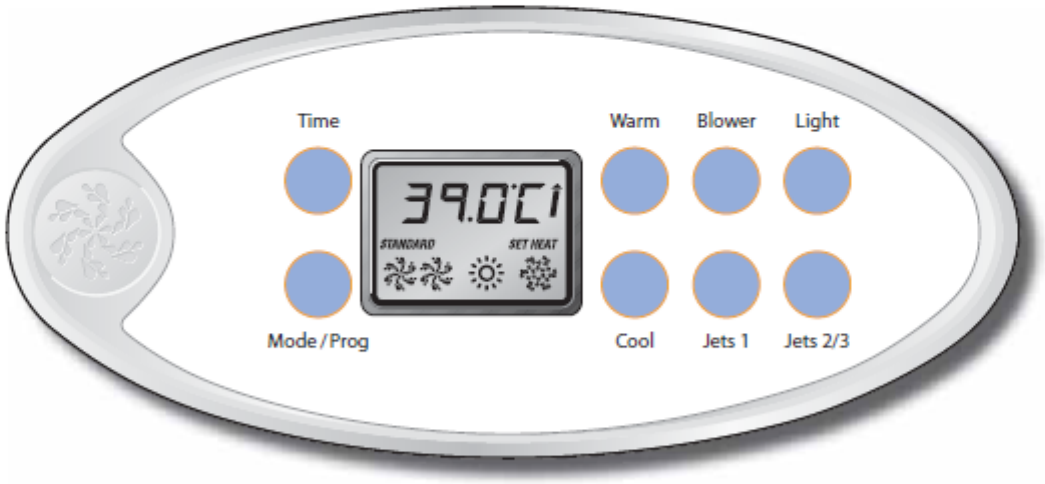




Serial Deluxe Panel Configurations



VL801D (Serial Deluxe)
PN 54121 no Overlay
• Connects to Main Board terminal J1 only*



VL802D
PN 54562 no Overlay
• Connects to Main Board terminal J1 only*

*** 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.**

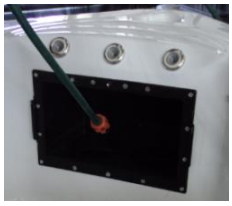
IMPORTANT USAGE WARNINGS – NON WARRANTY FAULTS

Spas are extremely delicate products and require regular maintenance. Below we will list a number of common causes of problems which are not covered under warranty. Should we ever need to visit you to repair your spa you will be charged the full cost of a repair if we found that the cause was the result of poor maintenance or customer negligence. Paying full attention to the issues below will help to reduce the risk of damage to your spa.

WATER TREATMENT

One of the most crucial aspects of spa maintenance is water treatment. Improper water balance of Lithium, Peroxide, pH, Alkalinity or Calcium may cause damage to the spa surface, pumps, jets, heaters and headrests. If we find improper water balance in your spa, these parts will not be covered under warranty.
Please note that your spas headrest are sensitive to chemical exposure and will discolour immediately if you over sanitize the water or allow them to float in the water, this will not be covered under warranty. Do not clean the spas headrests with the spas water only use fresh tap water to clean the headrests. If you are sanitizing the spa on a once a week program it is recommended to remove the spas headrest on the day you sanitize the spa and replace them a day later to avoid over exposure to your sanitiser.
Different chemical packs have different methods of caring for the water. You will need to refer to the guide that came which your chosen chemical pack for exact details on how to treat your water.

THE USE OF BROMINE TABLES WILL VOID YOUR SPAS WARRANTY



FILLING YOUR SPA WITH WATER – AIR LOCKS

The correct way to fill up your spa is to remove the spas filter/s and place your hose inside the filter box. Some customers place the hose inside the spas main seating area however doing this may cause a build-up of air inside the plumbing creating an air lock. Air locks can cause damage to the spas pumps and heater. Damaged caused by an air lock will not be covered under warranty. To avoid this problem ensure you fill up the spa through the filter box. You can tell if you have an air lock by turning on the pumps, if no water appears to circulate through the system it is very likely that you have an air lock. To resolve this problem, loosen the unions at the side of the suction end of the pump until water begins to flow through. Alternatively contact the store of purchase for advice on other ways to remove an air lock.
Note: Please ensure drain fitting is closed before filling the spa, see instructions on page 11 for how to remove the spas filters.

FILTERS

Before you use the spa, please make sure the plastic wrap has been removed from the filters.
Poor filter conditions are one of the biggest causes of faults that are not covered under warranty. Poor filter conditions allow particles to roam in the spas water. These tiny particles can cause damage to the spas components. One of the first things our technician will check when visiting your spa is the condition of your filter/s. If we find your filter/s are in poor condition your repair will not be covered under warranty.
We recommend that you regularly soak your spas filter/s in filter cleaner every week. You should also replace your spas filters every 12 months. It is advised to purchase a spare set of filters at the time of ordering your spa and alternate between the two sets each week to make the cleaning process easier.

USE OF HARDCOVER

Your spas hardcover must be locked to the spas cabinet when the spa is not in use. Leaving the cover off exposes your spa to the elements which can cause damage to the spas acrylic and also allows leaves, dust etc. to enter your spa. Debris in the spa can cause blockages or damage to the equipment, if our technician finds items such as leaves or dirt inside your spa your repair will not be covered under warranty.

CARING FOR REAL CEDAR CABINETS

Wood skirting has a tendency to fade and lose its like-new appearance with time. You should re-stain your spa's skirting once every three months. Lightly sand the surfaces to remove any dirt and smoothen rough surfaces, re-stain the wood surfaces using a suitable stain. Do not use varnishes, shellacs or surface sealants. Warranty on spa skirting is only valid if spas have been regularly stained.

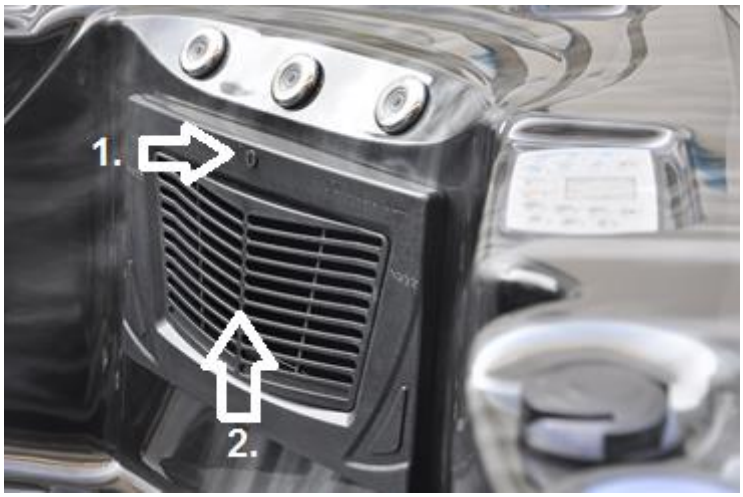
EMPTY SPAS

Your Spa must be filled with water at all times, an empty spa on a hot day will cause crazing or blistering in the spas acrylic. This can happen within 30 minutes of the spa being emptied. Your repair will not be covered under warranty for this issue.

HOW TO REMOVE YOUR SPAS FILTERS

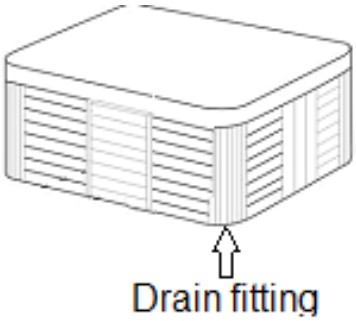
WARNING: Be careful not to force the filter face past the waterfalls attached to the spa as this can break the waterfall fittings, if you apply a small amount of pressure to push the filter face away from the waterfall fitting as you remove the filter face you will clear the waterfall fittings without causing damage.

1. Remove the flat head screw in the Filter box face (Do not re fit the screw it can be thrown away).
2. Lift the face plate off the filter box vertically until it separates away from the filter box.
3. Remove the leaf catcher by sliding it horizontally toward the centre of the spa.
4. You will see the filters inside the filter box, to remove them turn the handle on the top of the filter anti-clockwise until you can lift the filter out of the filter box.
5. To reinstall the filters reverse these steps.



USING THE DRAIN

The drain is closed when the drain fitting is inside the fibreglass base. To fit the hose fitting supplied to drain the spa you need to turn and pull the drain fitting completely out from the fibreglass base.



DRAINING THE SPA

1. Attach the supplied hose fitting.
2. Connect your garden hose.
3. Start draining by pushing the drain fitting half way back towards the fibreglass base.
4. When finished draining the spa push the drain fitting back into the fibreglass base.

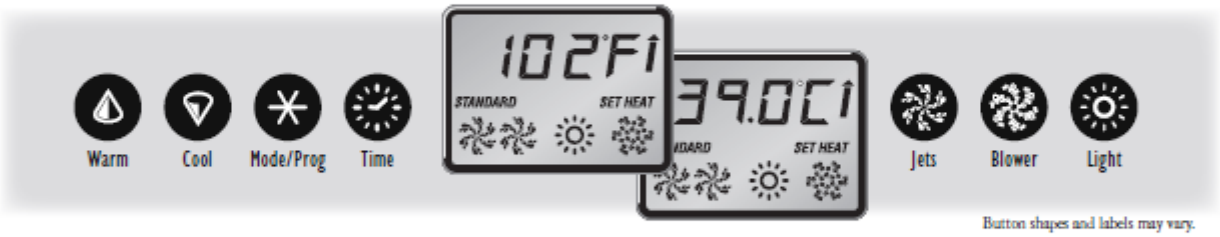
Balboa 500DZ-Series Operation Guide

Initial Start-up

Your spa will enter Priming Mode (Pr) when it is energized. **During Priming Mode, press "Jets" button(s) repeatedly and be sure all pumps are free of air.** Priming Mode lasts less than 5 minutes. Press "Warm" or "Cool" to exit. After Priming Mode, the spa will run in Standard Mode (see Mode/Prog section).

The pump responsible for heating and filtration (pump 1 low-speed on non-circ system, or the circ pump on circ systems) will be referred to simply as the pump.

In multi-button sequences, if the buttons are pressed too quickly in the sequence, they may not register.



Button shapes and labels may vary.

Temp Control (80°F - 104°F / 26.0°C - 40.0°C)

The last measured water temperature is constantly displayed.

The water temperature displayed is current only when the pump has been running for at least 2 minutes.

To display the set temperature, press "Warm" or "Cool" once. To change the set temp, press a temp button again before the display stops flashing. After three seconds, the display will stop flashing and begin to display the current spa temperature.

Jets 1

Press "Jets 1" to turn pump 1 on or off, and to shift between low and high speeds (if equipped). The low-speed will turn off after 4 hours. High-speed will turn off after 15 minutes. Low-speed may run automatically at times, during which it cannot be deactivated from the panel, but high-speed may be operated.

Jets 2/Jets 3/Blower (If equipped)

Press the corresponding button once to turn the device on or off. The device will turn off after 15 minutes. Pump 2 may be two-speed on some systems.

Light

Press "Light" to operate the spa light. Turns off after 4 hours.

Setting the Time of Day

When the spa is first powered up, the words ***SET TIME*** will flash on the display. Press "Time," then "Mode/Prog," then "Warm" or "Cool." The time will begin changing in one-minute increments. Press "Warm" or "Cool" to stop the time from changing. Press "Time" to confirm.

Mode/Prog

Mode is changed by pressing "Warm" or "Cool," then pressing "Mode/Prog" button.

Standard Mode maintains set temperature and the ***STANDARD*** icon will be displayed.

Economy Mode heats the spa to the set temperature only during filter cycles. Ecn will display when water temp is not current, and will alternate with water temp when the pump is running. The ***ECONOMY*** icon will be displayed.

Sleep Mode heats the spa to within 20°F/10°C of the set temperature only during filter cycles. SLP will display when water temp is not current, and will alternate with current water temp when the pump is running.

Preset Filter Cycles

The first preset filter cycle starts at 8:00 AM and ends at 10:00 AM. The second preset filter cycle starts at 8:00 PM and ends at 10:00 PM.

For non-circ systems, low-speed pump 1 and the ozone generator (if installed) run during filtration.

For 24 hour circulation systems, the circ pump and the ozone generator (if installed) run 24 hours. In hot environments, the circ pump may turn off for 30 minute periods, except during filter cycles.

For non-24 hour circulation systems, the circ pump and ozone generator (if installed) run during filtration (and may also run automatically at other times).

At the beginning of each filter cycle all other equipment will run briefly to purge the plumbing.

Optional Filter Cycle Programming

You are not required to change the filter cycles, but if you wish to, press "Time," "Mode/Prog," "Mode/Prog" within 3 seconds. ***SET START FILTER 1*** (AM) will appear. Press "Warm" or "Cool" to reset the filter start time.

Press "Mode/Prog" to see ***SET STOP FILTER 1*** and adjust the time with "Warm" or "Cool" as done above. Press "Mode/Prog" to see ***SET START FILTER 2*** (PM) and proceed as above. Press "Mode/Prog" to see ***SET STOP FILTER 2*** and proceed as above. Press "Mode/Prog" to confirm.

This document covers VS and GS systems 500DZ through 520DZ with Balboa Panels VL801D or VL802D.
http://www.balboawatergroup.com/

BALBOA water group

Locking the Panel

Press "Time," "Blower," and "Warm" within 3 seconds. The Panel is now locked.

To unlock the panel, press the "Time," "Blower," and "Cool" within 2 seconds.

Locking the Temperature

Press "Warm," "Time," "Blower," and "Warm" within 3 seconds. The "Warm" and "Cool" buttons are now disabled.

To unlock the temperature, press "Time," "Blower," and "Cool" within 2 seconds.

Note: On some systems, "Jets 1," instead of "Blower," is used in Lock/Unlock sequences.

Diagnostic Messages

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Spa settings will be preserved until next power up.
--	Temperature unknown.	After the pump has been running for 2 minutes, the current water temperature will be displayed.
OHH	"Overheat" - The spa has shut down.* One of the sensors has detected 118°F/47.8°C at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
OHS	"Overheat" - The spa has shut down.* One of the sensors has detected that the spa water is 110°F/43.5°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/41.7°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
SnA	Spa is shut down.* The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition).
Snb	Spa is shut down.* The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition).
SnS	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.*	If the problem persists, contact your dealer or service organization.
HFL	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	If the water level is normal, make sure all pumps have been primed. If problem persists, contact your dealer or service organization.
LF	Persistent low flow problems. (Displays on the fifth occurrence of HFL message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for HFL message. Heating capability of the spa will not reset automatically; you may press any button to reset.
dr	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	If water level is normal, make sure all pumps have been primed. Press any button to reset. This message will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dry	Inadequate water detected in heater. (Displays on third occurrence of dr message.) Spa is shut down.*	Follow action required for dr message. Spa will not automatically reset. Press any button to reset manually.
ICE	"Ice" - Potential freeze condition detected. ** - Even when spa is shut down, some equipment will turn on if freeze protection is needed.*	No action required. All equipment will automatically activate regardless of spa status. The equipment stays on 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher. An optional freeze sensor may be added to protect against extraordinary freeze conditions. Auxiliary freeze sensor protection is advisable is colder climates. See your dealer for details.

Warning! Shock Hazard! No User Serviceable Parts.

Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

P/N 40788_E 04/22/2010

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UNLESS YOU HAVE THE APPROPRIATE ELECTRICAL LICENCE DO NOT OPEN THE SPAS COMPUTER BOX, PLEASE CONTACT THE STORE OF PURCHASE FOR DETAILS OF A LICENCED CONTRACTOR.