Balboa Water Group
System PN 56094

System Model # MM7-GS100-DCA-2.0K
Software Version # 41
EPN # 3449

Base PCBA - PN 54677
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
**Basic System Features and Functions**

**Power Requirements**
- 230VAC, 1~, 16A, 50Hz
- 3 wires (line, neutral, ground)

**System Outputs**

**Setup 1 (As Manufactured)**
- 230V Pump 1, 2-Speed
- 230V Ozone
- 10V Spa Light
- 230V 2.0kW Heater
  PN 56095

**Additional Options**

- MoodEFX Lighting
  Connects to Spa Light terminal J20
- FiberEFX Lighting
  Connects to Spa Light terminal J20
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 “P” 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 Software 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 well as all GS models. (*A heater which is rated at 4 kW at 240VAC function as a 1 kW heater at 120VAC.)
- “P” 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 Day if using a Serial Deluxe style panel.
Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

- 230V Pump 1, 2-Speed
- 10V Spa Light
- 230V Ozone
- 230V 2.0kW Heater PN 56095
- 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)

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

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**SSID #**

<table>
<thead>
<tr>
<th>SSID #</th>
<th>Memory Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

**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, 50 Hz
- A7, Mode changes allowed
- A8, Degrees C
- A9, P1-low timeout, Table 1
- A10, Low Amp mode

**Panel Button Assignments**

<table>
<thead>
<tr>
<th>Panel Button Assignments</th>
<th>Panel Button Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=Pump 1</td>
<td>1</td>
</tr>
<tr>
<td>2=Light</td>
<td>2</td>
</tr>
<tr>
<td>3=Temp Down</td>
<td>3</td>
</tr>
<tr>
<td>4=Temp Up</td>
<td>4</td>
</tr>
</tbody>
</table>

**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 59 41  
Base Model GS100

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)

* Panels with button layout are not compatible when A2 or A3 is ON.

Note: No blower or second pump available.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Pump 1 Timeouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5</td>
<td>A9</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Panel Button Assignments</th>
</tr>
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<tbody>
<tr>
<td>A2:OFF</td>
</tr>
<tr>
<td>1=Unused 3=Temp</td>
</tr>
<tr>
<td>2=Pump 4=Light</td>
</tr>
<tr>
<td>A2:ON</td>
</tr>
<tr>
<td>1=Pump 3=Temp Down</td>
</tr>
<tr>
<td>2=Light 4=Temp Up</td>
</tr>
</tbody>
</table>

Panel Button Assignments

<table>
<thead>
<tr>
<th>Panel Button Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3:OFF</td>
</tr>
<tr>
<td>1 2 3 4</td>
</tr>
<tr>
<td>A3:ON</td>
</tr>
<tr>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

Note: No blower or second pump available.
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:

- Black or Brown Line Conductor
- Empty
- White or Blue Neutral Conductor
- Empty

Flat sides of sockets as shown

Not used
Neutral - White or Blue conductor
Not used
Line - Black or Brown conductor
Duplex Panel Configurations

**SETUP (AS MANUFACTURED)**

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

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

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