Balboa Instruments
System PN 54521

System Model # GS5-GS511SZ-RCA-3.0k
Software Version # 36
EPN # 1843

Base PCBA - PN 54522
PCB GS500Z - PN 22015 Rev A

Base Panels
Serial Standard – PN 51247
**Power Requirements**
- 230VAC, 1~, 16A or 32A, 50Hz
- 3 wires (line, neutral, ground)

**System Outputs (As Configured)**
- 230V Pump 1, 2-Speed
- 230V Pump 2, 2-Speed
- 230V Circ Pump
- 230V Ozone
- 10V Spa Light
- 230V AV (Stereo)
- 230V 3.0kW Heater

**Additional Options**
- Full Feature Dolphin Remote and Spa-only Dolphin Remote
- IR Receiver Module
  Connects to terminal J1 or J2
- Ozone Generator
  Connects to terminal J29
- MoodEFX Lighting
  Connects to Spa Light terminal J20
- FiberEFX Lighting
  Connects to Spa Light terminal J20
- Stereo System
  Connects to A.V. terminal J50
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.
Single Service (1 x 16 Amp or 1 x 32 Amp)

This option is configured and shipped as the default.
For 1 x 32 Amp Service:
DIP Switch A10 can be ON
For 1 x 16 Amp Service:
DIP Switch A10 must be OFF

Dual Service Option (2 x 16 Amp)

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.

DIP Switch A10 must be ON
## Configuration Options

### Output Features

<table>
<thead>
<tr>
<th>Output Feature</th>
<th>Quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>J50 Audio Visual (always hot - no relay)</td>
<td>3-A</td>
</tr>
<tr>
<td>J47 Circ Pump</td>
<td>3-A</td>
</tr>
<tr>
<td>J29 Ozone</td>
<td>4-A</td>
</tr>
</tbody>
</table>

Note: If a circ pump and ozone need a separate relay, use the X-03 CE Expander board.

- J23 2-Speed Pump 1 | 4-A
- J20 Spa Light | 8-B

System can be factory configured for either a Duplex Topside Panel, a Serial Standard Panel, or a Digital Deluxe Panel.

Note: Some panels styles are not available depending on system configuration. Consult your Balboa product representative for details.

### NOTE Regarding J12 (Quadrant 9-E):

When J12 on the Main Board is jumpered on pins 2 & 3, the system is in GS50xZ compatibility mode.

If J12 on the Main Board is jumpered on pins 1 & 2, the system is in GS51xZ/GS5xxSZ/GS5xxDZ compatibility mode.

### X-Mount P

PN 53933

Used for mounting any Expander Board in a plastic enclosure. Standoffs attach to heater mounting bracket.
Expander Options

**X-P CE**
Used for a 1-speed Pump output.
- J4 on X-P CE connects directly to Line AC using J52 or J51 on the main GS500Z PCBA.
- J2 on X-P CE connects to J60 on the main board.
- W12 on X-P CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.

**X-B CE**
Used for a Blower output ONLY.
- J3 on X-B CE connects directly to Line AC using J52 or J51 on the main GS500Z PCBA.
- J2 on X-B CE connects to J60 on the main board.
- W12 on X-B CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.

**X-P231 CE**
Can replace the X-P CE in cases where branch circuit protection is needed for high amperage devices that would over-burden power input fuse F6 (1-A) on the main PCBA.
- J6 on X-P231 CE connects directly to Line AC using J25 or J32 on the main GS500Z PCBA, depending on AC Service Configuration.
- J7 on X-P231 CE connects to J60 on the main board.
- W1 on X-P231 CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.

**X-P332 CE**
Can replace the X-P CE in cases where branch circuit protection is needed for high amperage devices that would over-burden power input fuse F6 (1-A) on the main PCBA.
- J6 on X-P332 CE connects directly to Line AC using J25 or J32 on the main GS500Z PCBA, depending on AC Service Configuration.
- J7 on X-P332 CE connects to J13 on the main board.
- W1 on X-P332 CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.

**X-2SP CE Kit**
Adapter PN 25339 is used in conjunction with an X-O3 CE to run a 2-speed Pump 2. No Blower is available when this kit is used.
- J4 on X-03 CE connects directly to Line AC using J52 or J51 on the main GS500Z PCBA.
- J2 on X-P CE connects to J60 on the main board.
- W12 on X-P CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.
- J5 on X-P CE connects J17/26 connector on the main GS500Z PCBA using adapter wire VS-P2.
DIP Switches and Jumpers

Switchbank A

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Test Mode OFF</td>
</tr>
<tr>
<td>A2</td>
<td>Generic Panel layout</td>
</tr>
<tr>
<td>A3</td>
<td>Off-board Pump enabled</td>
</tr>
<tr>
<td>A4</td>
<td>Aux Freeze</td>
</tr>
<tr>
<td>A5</td>
<td>1-speed P1 w/Circ</td>
</tr>
<tr>
<td>A6</td>
<td>50 Hz</td>
</tr>
<tr>
<td>A7</td>
<td>N/A</td>
</tr>
<tr>
<td>A8</td>
<td>Degrees C</td>
</tr>
<tr>
<td>A9</td>
<td>Circ Pump OFF</td>
</tr>
<tr>
<td>A10</td>
<td>Low Amp mode</td>
</tr>
</tbody>
</table>

DIP Switch Key

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Test Mode (normally Off)</td>
</tr>
<tr>
<td>A2</td>
<td>In “ON” position, Long Serial Standard panel (customer specific)</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Generic Balboa Serial Standard panel layout</td>
</tr>
<tr>
<td>A3</td>
<td>In “ON” position, off-board pump enabled</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, off-board pump disabled</td>
</tr>
<tr>
<td>A4</td>
<td>Aux Freeze (must be OFF)</td>
</tr>
<tr>
<td>A5</td>
<td>In “ON” position, Two-speed pump 1</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, One-speed pump 1 (A9 must be On and a circ pump installed)</td>
</tr>
<tr>
<td>A6</td>
<td>In “ON” position, 50Hz operation</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, 60Hz operation</td>
</tr>
<tr>
<td>A7</td>
<td>N/A</td>
</tr>
<tr>
<td>A8</td>
<td>In “ON” position, temperature is displayed in degrees Celsius</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, temperature is displayed in degrees Fahrenheit</td>
</tr>
<tr>
<td>A9</td>
<td>In “ON” Position, 24 Hour Circ Pump with 3°F shut off</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, no circ pump</td>
</tr>
<tr>
<td>A10</td>
<td>In “ON” Position, heater is disabled while any high-speed pump or blower is running (low amperage mode)</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, heater can run while any/all high-speed pumps or blowers are running (high amperage mode)</td>
</tr>
</tbody>
</table>

Note: Panel layout is always Jets2, Jets1, Temp, Light

Jumper Key

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J12</td>
<td>Jumper on Pin 1 and 2 will enable GS51x/GS5xxS/GS5xxD compatibility mode.</td>
</tr>
<tr>
<td></td>
<td>Jumper on Pin 2 and 3 will enable GS50x compatibility mode (Do not use with Serial or Deluxe Panels).</td>
</tr>
<tr>
<td>J43</td>
<td>When jumper is placed on 2 pins during power-up, system will reset persistent memory.</td>
</tr>
<tr>
<td></td>
<td>Leave on 1 pin only to enable persistent memory feature.</td>
</tr>
</tbody>
</table>
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:

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

Flat sides of sockets as shown

Line - Black or Brown conductor
Neutral - White or Blue conductor
Not used
Not used

Audio Visual
Circ Pump

F4, T0.3A 250V
F4, T0.3A 250V
Serial Standard
PN 51247 with Overlay PN 10402
• Connects to Main Panel terminal J1