

# GS510SZ Hot Sheet

## Balboa Instruments System PN 54517

System Model # GS5-GS510SZ-RCA-3.0k

Software Version # 36

EPN # 1780

Base PCBA - PN 54518

PCB GS500Z - PN 22015 Rev A

Base Panels

Serial Standard – PN 53189



# Basic System Features and Functions

## Power Requirements

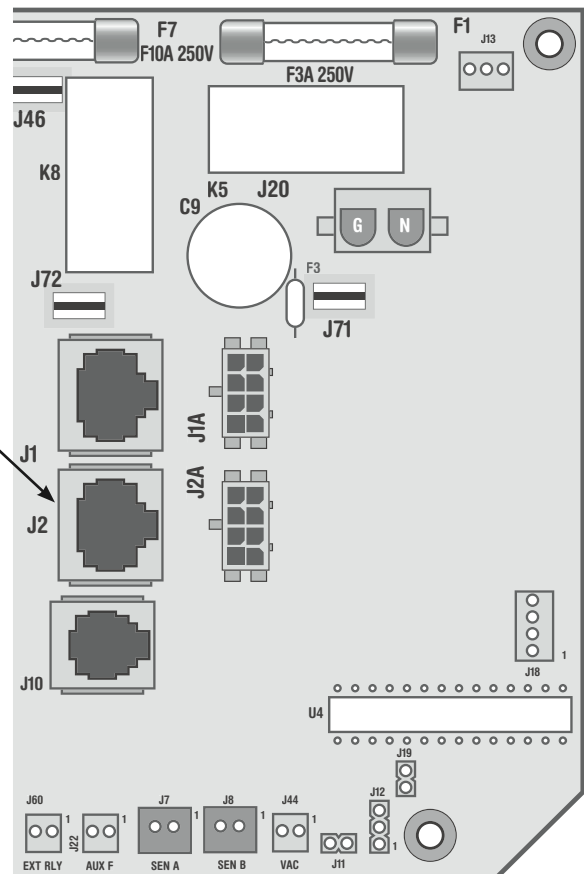
- 230VAC, 1~, 16A or 32A, 50Hz
- 3 wires (line, neutral, ground)

## System Outputs (As Configured)

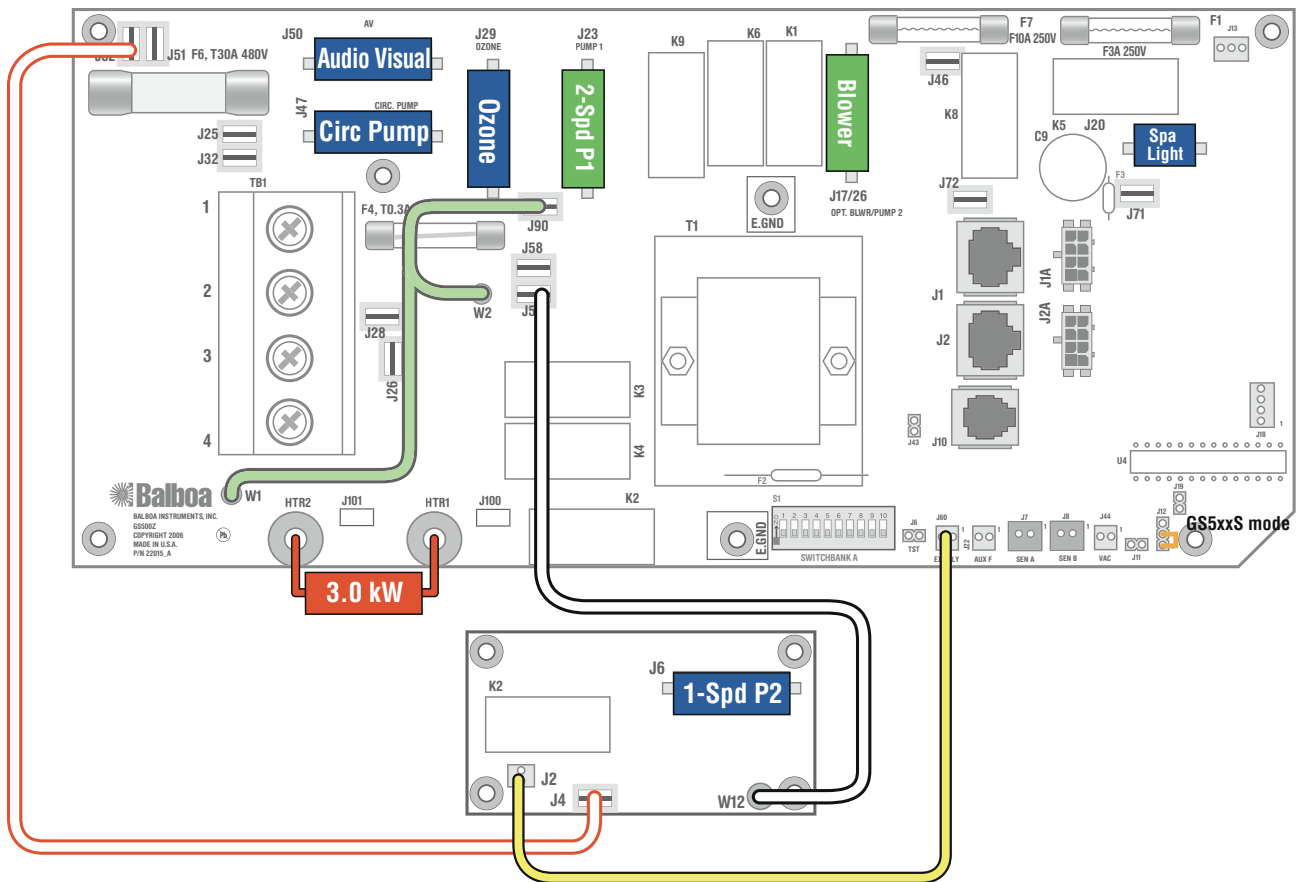
- 230V Pump 1, 2-Speed
- 230V Pump 2, 1-Speed
- 230V Blower
- 230V Circ Pump
- 230V Ozone
- 10V Spa Light
- 230V AV (Stereo)
- 230V 3.0kW Heater

## 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



# Wiring Configuration



## Wiring Color Key

- Neutral (Common) AC Connections
- Special AC Connections
- Line AC Connections
- 10 Volt Connections
- Relay Control Wires

## Connector Key

- Typically Line voltage
  - Typically Line voltage for 2-speed pumps
  - Neutral (Common)
  - Ground
- Note flat sides in connector

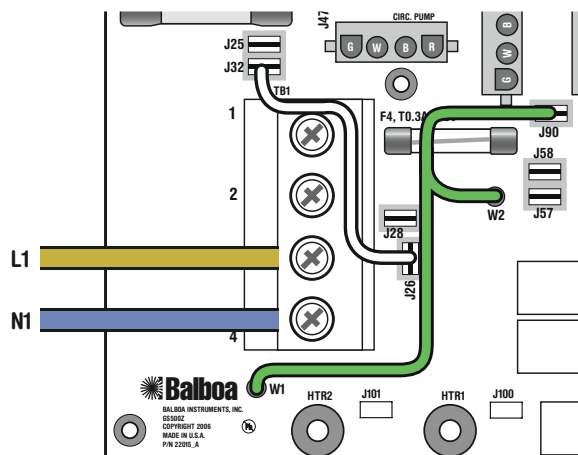
## HiPot Testing Note:

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.

PCB Revision	History
A	Production Release

# Electrical Service Configuration Options



## Single Service (1 x 16 Amp or 1 x 32 Amp)

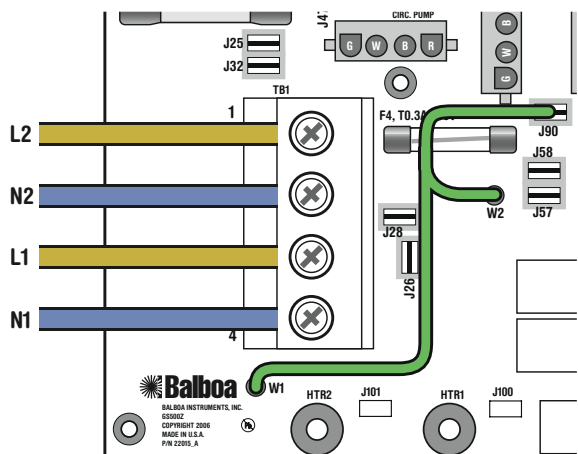
This option is configured and shipped as the default.

For 1 x 32 Amp Service:

DIP Switch A10 can be ON

For 1 x 16 Amp Service:

DIP Switch A10 must be OFF



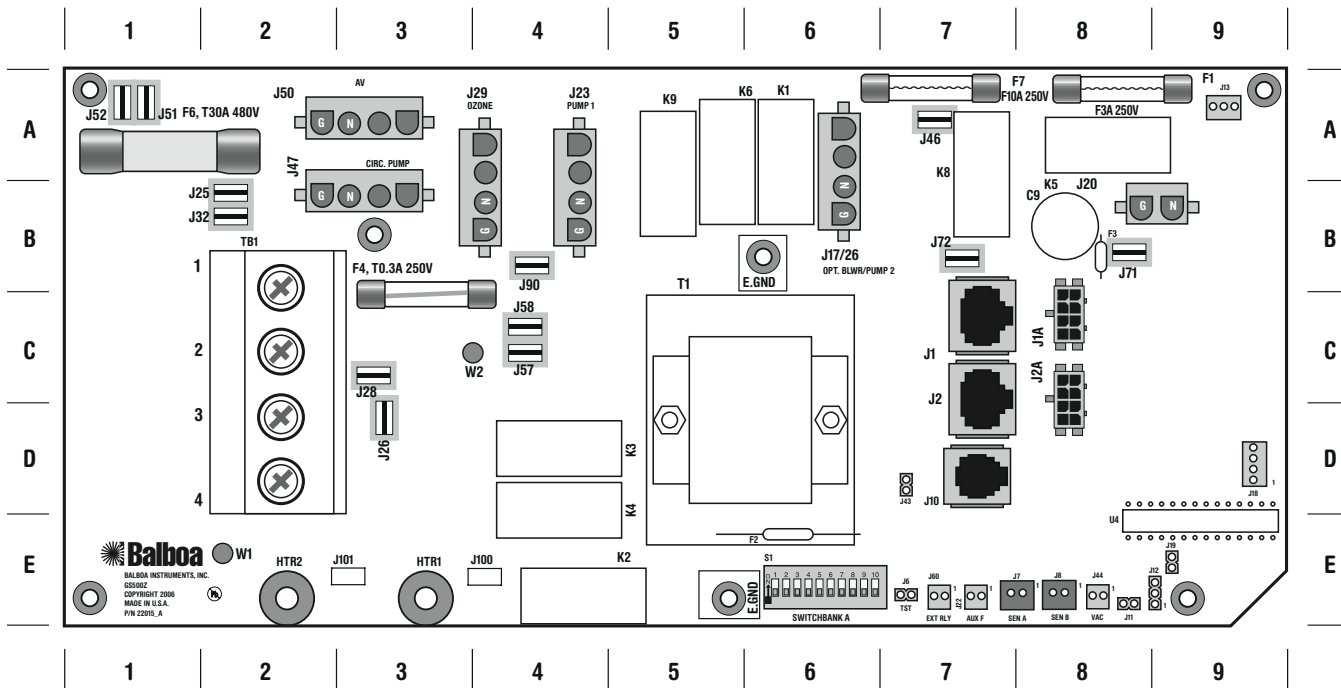
## Dual Service Option (2 x 16 Amp)

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

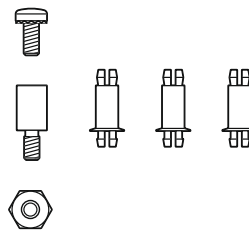
- J50 Audio Visual (always hot - no relay)
- J47 Circ Pump
- J29 Ozone

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

- J23 2-Speed Pump 1
- J20 Spa Light

## Quadrant

- 3-A
- 3-A
- 4-A
- 4-A
- 4-A
- 8-B



## X-Mount P

PN 53933

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

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

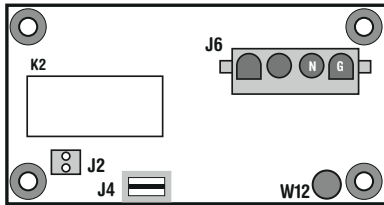
Note: Some panels styles are not available depending on system configuration. Consult your Balboa product representative for details.

## 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.

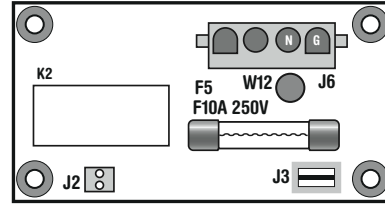
# Expander Options



**X-P CE PN 53547**

Used for a 1-speed Pump output.

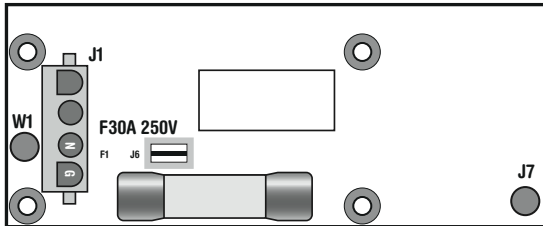
- J4 on X-P CE connects directly to Line AC using J52 or J51 on the main GS500Z PCBA.
- J2 on X-P CE connects to J60 on the main board.
- W12 on X-P CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.



**X-B CE PN 53311**

Used for a Blower output ONLY.

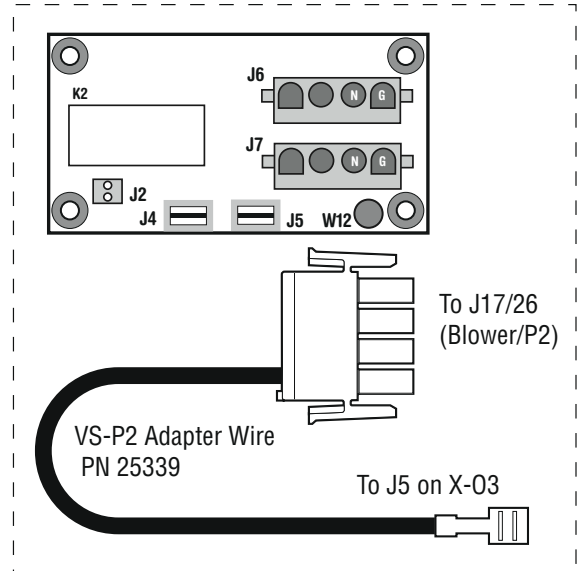
- J3 on X-B CE connects directly to Line AC using J52 or J51 on the main GS500Z PCBA.
- J2 on X-B CE connects to J60 on the main board.
- W12 on X-B CE connects directly to Neutral AC using J57 or J58 on the main GS500Z PCBA.



**X-P231 CE PN 55025**

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.

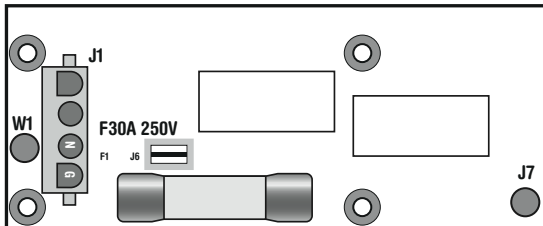


**X-2SP CE Kit PN 53985**

Adapter PN 25339 is used in conjunction with an X-03 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.



**X-P332 CE PN 55138**

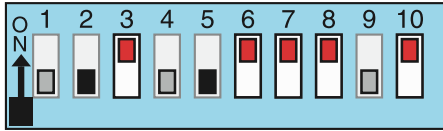
Can replace the X-P CE in cases where branch circuit protection is needed for high amperage devices that would over-burden power input fuse F6 (1-A) on the main PCBA.

- 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.

# DIP Switches and Jumpers

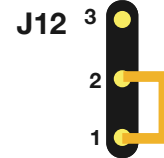
**SSID #**  
100  
65  
36

## Switchbank A



- |                                   |                           |
|-----------------------------------|---------------------------|
| <b>A1, Test Mode OFF</b>          | <b>A6, 50 Hz</b>          |
| <b>A2, Generic Panel layout</b>   | <b>A7, J17/26 Enabled</b> |
| <b>A3, Off-board Pump enabled</b> | <b>A8, Degrees C</b>      |
| <b>A4, Aux Freeze</b>             | <b>A9, Circ Pump OFF</b>  |
| <b>A5, 1-speed P1 w/Circ</b>      | <b>A10, Low Amp mode</b>  |

## GS51x/GS5xxS/GS5xxD Compatible



## J43



### DIP Switch Key

- |     |       |  |
|-----|-------|--|
| A1  | ..... | Test Mode (normally Off)   |
| A2  | ..... | In "ON" position, Long Serial Standard panel (customer specific)   |
|     | ..... | In "OFF" position, Generic Balboa Serial Standard panel layout   |
| A3  | ..... | In "ON" position, off-board pump enabled   |
|     | ..... | In "OFF" position, off-board pump disabled   |
| A4  | ..... | Aux Freeze (must be OFF)   |
| A5  | ..... | In "ON" position, Two-speed pump 1   |
|     | ..... | In "OFF" position, One-speed pump 1 (A9 must be On and a circ pump installed)                                |
| A6  | ..... | In "ON" position, 50Hz operation   |
|     | ..... | In "OFF" position, 60Hz operation  |
| A7  | ..... | In "ON" position, J17/26 equipment enabled   |
|     | ..... | In "OFF" position, J17/26 equipment disabled   |
| A8  | ..... | In "ON" position, temperature is displayed in degrees Celsius  |
|     | ..... | In "OFF" position, temperature is displayed in degrees Fahrenheit  |
| A9  | ..... | In "ON" Position, 24 Hour Circ Pump with 3°F shut off  |
|     | ..... | In "OFF" position, no circ pump  |
| A10 | ..... | In "ON" Position, heater is disabled while any high-speed pump or blower is running (low amperage mode)      |
|     | ..... | In "OFF" position, heater can run while any/all high-speed pumps or blowers are running (high amperage mode) |

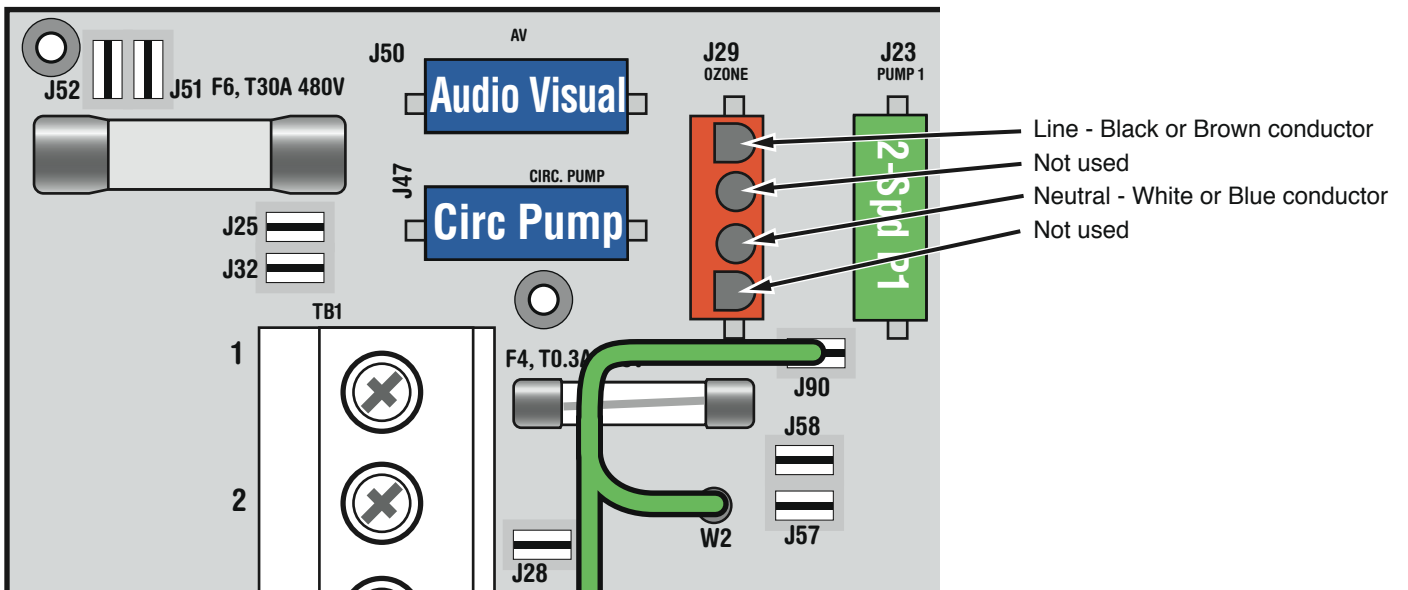
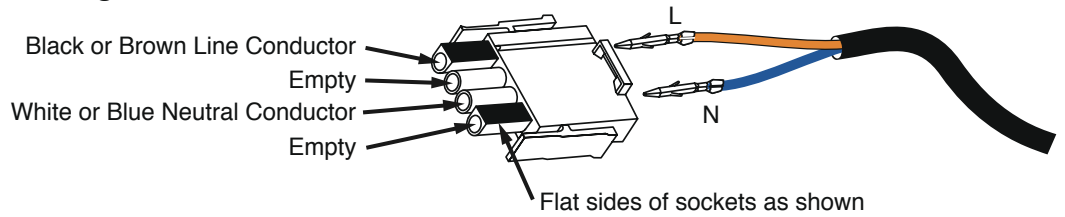
### Jumper Key

- J12** Jumper on Pin 1 and 2 will enable GS51x/GS5xxS/GS5xxD compatibility mode.  
Jumper on Pin 2 and 3 will enable GS50x compatibility mode (Do not use with Serial or Deluxe Panels).
- 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.

# 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 Panel Configurations



Serial Standard

PN 53189 with Overlay PN 10430

- Connects to Main Panel terminal J1