# MS50U Tech Sheet

**Customer:** **Master Spas**

**Part Number:** 56510-04 800 Incoloy 4kW


| | |
|---|---|
| Custom Box Overlay | ☐ |
| Box Overlay Part Number | N/A |
| UL System Model: | BP501-MS50U-AS |
| Software Version ID: | M100_201 V38.0 |
| Software Version: | 38.0 |
| File Name: | BP501_38.0_MS50U.hex |
| Configuration Signature: | 52D716BD |
| Eng. Project Number: | 5007 |

Control Panels (See later pages for more information):

| | |
|---|---|
| spaTouch™2 | Any generic version (version 2.0 or later required for bba™2 fully integrated functionality) |
| Icon spaTouch™ | Any generic version (version 3.36 or later required for bba™2 fully integrated functionality) |
| Menued spaTouch™ | Any generic version (version 2.8 or later required for bba™2 integrated functionality) |
| TP800 | Version 3.1 and later (Version 3.13 or later required for bba™; version 4.11 or later required for bba™2 integrated functionality) |
| TP600 | Version 2.7 and later (Version 2.12 or later required for bba™/bba™2 On/Off control via menu) |

# System Revision History

| Part # | EPN | Date | Originator | Changes Made |
|---|---|---|---|---|
| 56510 | 4094 | 10-16-13 | Customer | Convert MS35U to BP501, plus add 1-pump-no-light Setup and spaTouch™ support. Add GFCI Trip (but not GFCI Automatic Text). |
| 56510-01 | 4610 | 10-15-15 | Customer | Updated to latest software version, adding topside-intergrated bba™ support. |
| ZT000214 | 4610 | 10-22-15 | Customer | Temporary PN for sample. |
| 56510-01 | 4610 | 11-11-15 | Customer | Approved for production. |
| 56510-02 | 4779 | 10-12-16 | BWG | Updated to latest software version, adding topside-intergrated bba™2 support. Released to production. |
| 56510-03 | 4988 | 12-12-17 | Customer | Updated software to latest version, which resolves the filter end time issue in the previous version, and which adds bba™/ bba™2 On/Off support to TP600/TP400 Menus. Released to production.. |
| 56510-04 | 5007 | 02-09-18 | BWG | Redesigned BP501 board. |
| | | | | |
| | | | | |
| | | | | |

bba™ & bba™2 (Balboa Bluetooth Amp) connection is documented seperately.

bba™ is integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600/TP400, use the “BT” entry on the menu to toggle bba™ power On/Off.

bba™2 is integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600/TP400, use the “BT” entry on the menu to toggle bba™2 power On/Off.





BALBOA water group

# Basic Functions Setup 1 - 5

## Power Requirements:

240VAC, 50/60Hz*, 48A, Class A GFCI-protected service (Circuit Breaker = 60A max.),
4 wires [hot, hot, neutral, ground]

**HiPot Testing Note:**
Disconnect slip terminal with green wires from J52 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test. Reconnect terminal to J52 after successful completion of HiPot test.

*BP systems automatically detect 50Hz vs 60Hz. However, power frequency (50Hz vs 60Hz) is just one of many differences between North American (UL) and CE power, and it is because of these other differences that different BP systems must be used for UL vs CE territories. Also, there are a few countries that use CE power but 60 Hz (such as South Korea) which need CE systems, and a few countries that use UL power but 50 Hz which need UL systems.

## System Ouputs:

| | | | | |
|---|---|---|---|---|
| Pump 1 | 240VAC* | 2-Speed | 12A max | 15-minute timer (30-minute timer for P1 Low in non-circ setups only)<br>in Setups 1, 3, 5, this is the heater pump.<br>Must deliver 20 GPM through heater<br>1 Speed in Setups in Setups 2 & 4 |
| Pump 2 | 240VAC | 1-Speed | 12A max | 15-minute timer<br>Used in Setups 1 & 2 |
| Circ Pump | 240VAC* | 1-Speed | 2A max | 24-hour with 3˚F shutoff (outside of filter cycles)<br>This is the heater pump in Setups 2 & 4.<br>Must deliver 20 GPM through heater |
| Ozone | 240VAC* | | .5A max | Slaved to Circ Pump in Circ Setups and to Pump 1 Low in Non-Circ Setups |
| Spa Light | 10VAC | On/Off | 2A max | 240-minute timer.<br>Not used in Setup 5 |
| A/V (Stereo) | 120VAC | Hot | 4A max | Always on |
| Heater | 4kW @ 240VAC max | | | |

*Pump 1, Circ Pump and Ozone must be the same voltage.

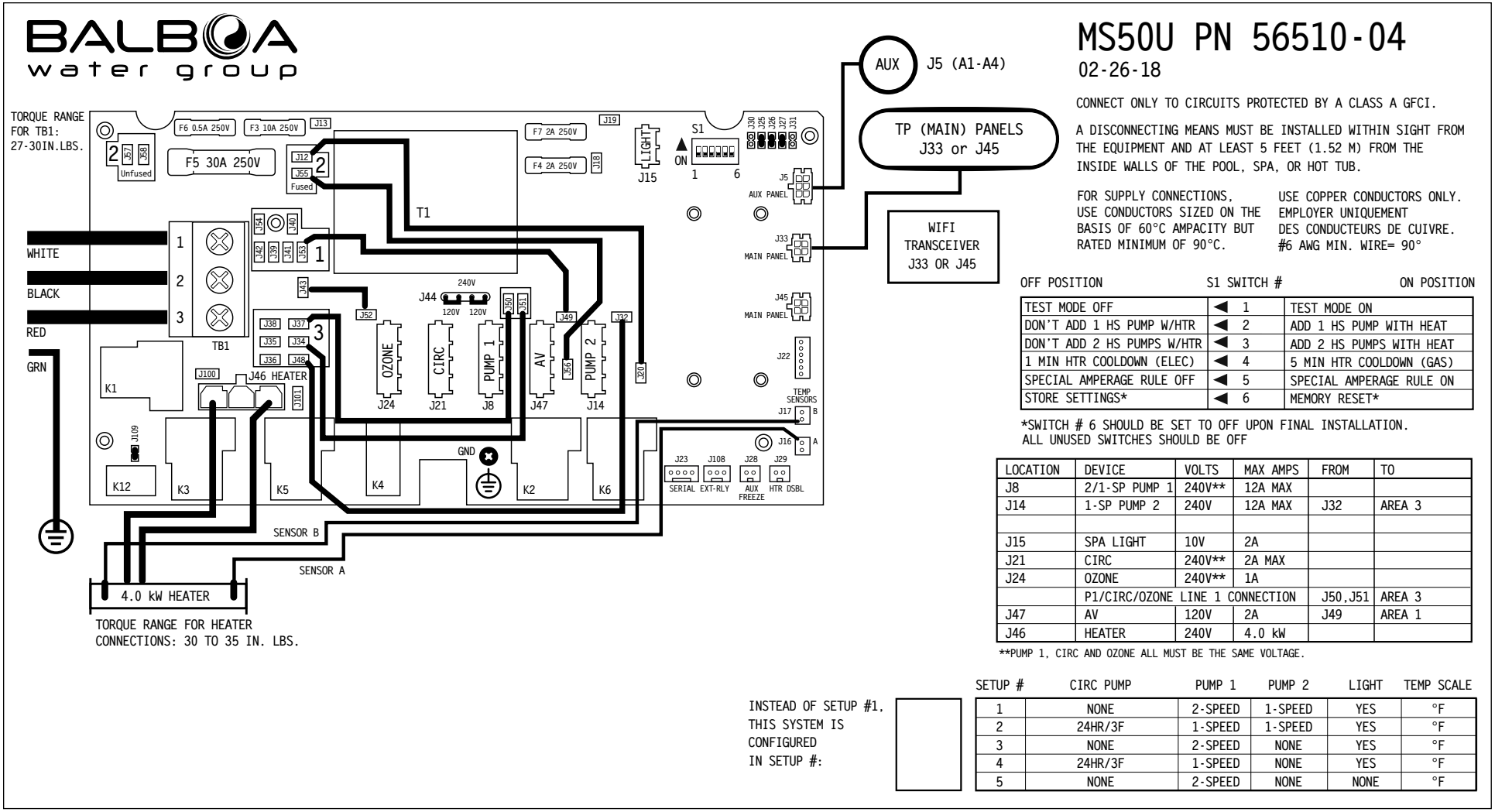




BALBOA water group

# Hardware Setup

## Wiring Diagram




CONNECT ONLY TO CIRCUITS PROTECTED BY A CLASS A GFCI.

A DISCONNECTING MEANS MUST BE INSTALLED WITHIN SIGHT FROM THE EQUIPMENT AND AT LEAST 5 FEET (1.52 M) FROM THE INSIDE WALLS OF THE POOL, SPA, OR HOT TUB.

FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM OF 90°C.

USE COPPER CONDUCTORS ONLY. EMPLOYER UNIQUEMENT DES CONDUCTEURS DE CUIVRE. #6 AWG MIN. WIRE= 90°

| OFF POSITION | S1 SWITCH # | ON POSITION |
|---|---|---|
| TEST MODE OFF | ◀ 1 | TEST MODE ON |
| DON'T ADD 1 HS PUMP W/HTR | ◀ 2 | ADD 1 HS PUMP WITH HEAT |
| DON'T ADD 2 HS PUMPS W/HTR | ◀ 3 | ADD 2 HS PUMPS WITH HEAT |
| 1 MIN HTR COOLDOWN (ELEC) | ◀ 4 | 5 MIN HTR COOLDOWN (GAS) |
| SPECIAL AMPERAGE RULE OFF | ◀ 5 | SPECIAL AMPERAGE RULE ON |
| STORE SETTINGS* | ◀ 6 | MEMORY RESET* |

*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION. ALL UNUSED SWITCHES SHOULD BE OFF

| LOCATION | DEVICE | VOLTS | MAX AMPS | FROM | TO |
|---|---|---|---|---|---|
| J8 | 2/1-SP PUMP 1 | 240V** | 12A MAX | | |
| J14 | 1-SP PUMP 2 | 240V | 12A MAX | J32 | AREA 3 |
| | | | | | |
| J15 | SPA LIGHT | 10V | 2A | | |
| J21 | CIRC | 240V** | 2A MAX | | |
| J24 | OZONE | 240V** | 1A | | |
| | P1/CIRC/OZONE LINE 1 CONNECTION | | | J50,J51 | AREA 3 |
| J47 | AV | 120V | 2A | J49 | AREA 1 |
| J46 | HEATER | 240V | 4.0 kW | | |

**PUMP 1, CIRC AND OZONE ALL MUST BE THE SAME VOLTAGE.

INSTEAD OF SETUP #1, THIS SYSTEM IS CONFIGURED IN SETUP #:

| SETUP # | CIRC PUMP | PUMP 1 | PUMP 2 | LIGHT | TEMP SCALE |
|---|---|---|---|---|---|
| 1 | NONE | 2-SPEED | 1-SPEED | YES | °F |
| 2 | 24HR/3F | 1-SPEED | 1-SPEED | YES | °F |
| 3 | NONE | 2-SPEED | NONE | YES | °F |
| 4 | 24HR/3F | 1-SPEED | NONE | YES | °F |
| 5 | NONE | 2-SPEED | NONE | NONE | °F |





BALBOA water group

# Setup Reference Table

| Setup # | Circ Pump | Pump 1 | Pump 2 | Light | Temp Scale |
|---|---|---|---|---|---|
| **1** | None | 2-Speed | 1-Speed | Yes | °F |
| **2** | 24hr/3°F | 1-Speed | 1-Speed | Yes | °F |
| **3** | None | 2-Speed | None | Yes | °F |
| **4** | 24hr/3°F | 1-Speed | None | Yes | °F |
| **5** | None | 2-Speed | None | None | °F |

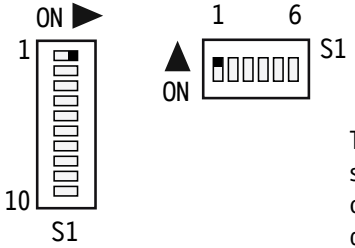
**System** (and any replacement board)
**is shipped in Setup 1**

# Changing Software Setups with spaTouch™ Icon-Driven Panels

## Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

***DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!***

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON. The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

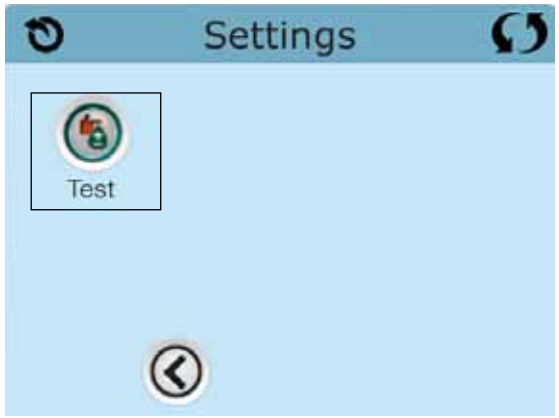


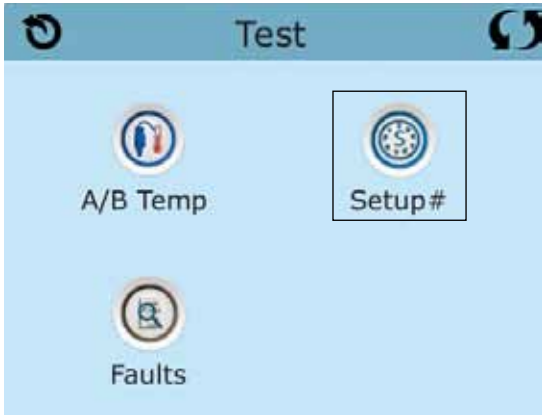

The example screens shown here are from the spaTouch 1 Icon-Driven Panel, but the screens on the spaTouch 2 Panel are similar. The main difference is that the spaTouch 2 display is wider.

## To Change Software Setups:

While in Test Mode, press the indicated icons to move from screen to screen.

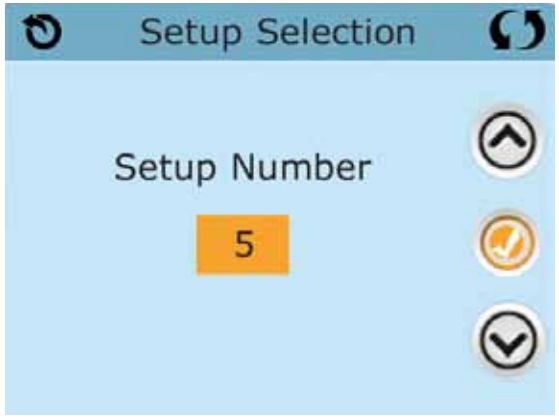





Once on the Setup Selection screen, press the Up or Down icon to select the desired Setup Number, then press the Check Mark icon to confirm and to have the spa restart.

After the system restarts, you may see a message that "The settings have been reset"; this is normal after changing Setups with DIP Switch 6 in the OFF position. Press "Clear" to dismiss this message.

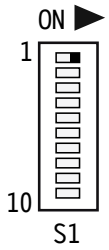


# Changing Software Setups with TP800 / TP900 / spaTouch™ Menued Panel

## Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

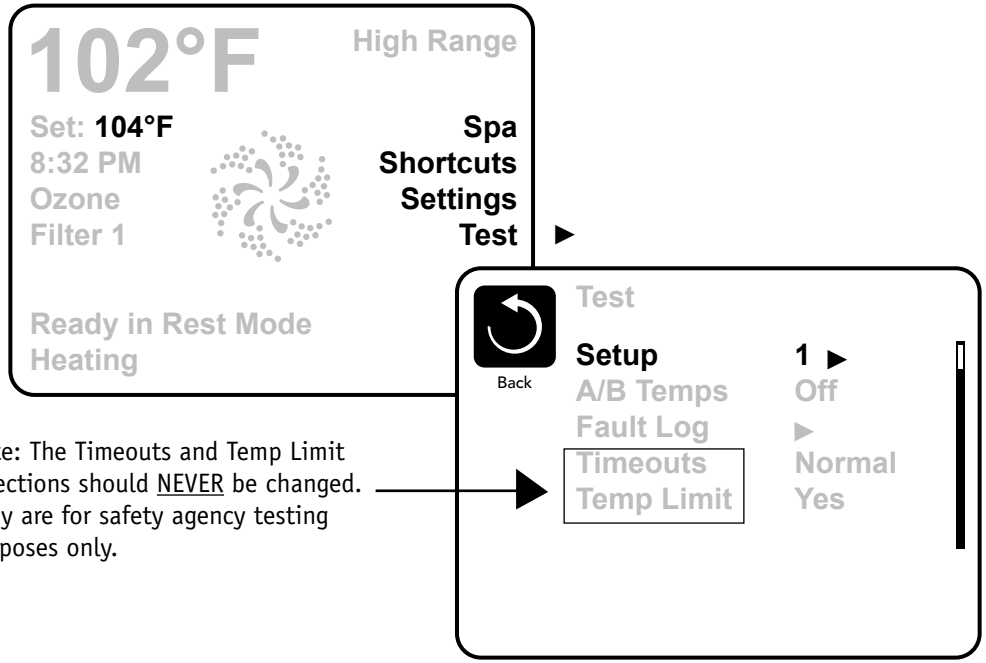
***DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!***

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON.
The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.




## Software Setups

Under the TEST Menu, the Setup screen will allow changing the Setup from 1 to any number established by the Manufacturer. Changing the Setup may require wiring changes as well.




Note: The Timeouts and Temp Limit selections should NEVER be changed. They are for safety agency testing purposes only.

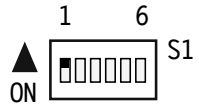
# Changing Software Setups with TP600 / TP400

## Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

***DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!***

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON.
The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

As soon as Switch #1 is placed in the ON position, the temperature will show "T" after it instead of F or C, indicating the System is in Test Mode

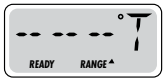



## Software Setups

Under the TEST Menu, the Setup screen will allow changing the Setup from 1 to any number established by the Manufacturer. Changing the Setup may require wiring changes as well.

**You will have 1 minute** to complete the setup change after you manually exit Priming Mode. (Once familiar with the process, the Setup change should take less than 15 seconds.)


When the panel displays RUN PMPS PURG AIR, press any Temperature button ONCE to exit Priming Mode.
You should see "---T" where the T indicates the system is in Test Mode.




**Continued on Next Page.**

# Changing Software Setups with TP600 / TP400 Continued

Again, **You will have 1 minute** to complete the setup change after you manually exit Priming Mode.

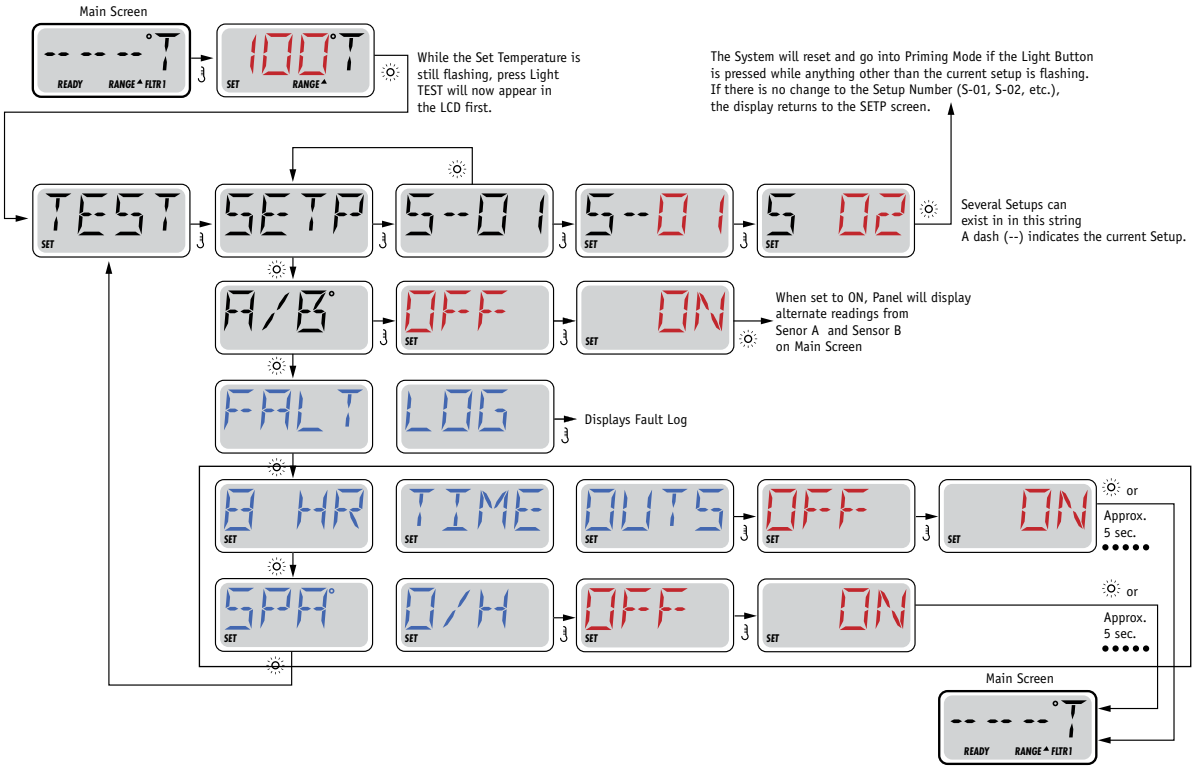
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the diplay shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset, using the newly-selected Setup from that point on.

Move DIP Switch 1 to the OFF position to take the spa out of Test Mode. °F or °C will replace °T.

**Using a permanent marker, write the Setup number on the Setup label mounted inside the system lid (right). This is very important to any service person in the future who may need to replace a circuit board or system and needs to change the Setup on a replacement part while in the field.**

NOTE: Changing the Setup may require wiring changes as well - refer to the wiring diagram or wiring diagram addendum.

THIS SYSTEM IS CONFIGURED AS SETUP #




**Key**

- Indicates Flashing or Changing Segment
- Indicates Alternating or Progressive Message - every 1/2 second
- A temperature button, used for "Action"
- Light or dedicated "Choose" button, depending on control panel configuration
- ••••• Waiting time - varies depending on function

Note: The Timeouts and Spa O/H selections should NEVER be changed. They are for safety agency testing purposes only.

*If the Control Panel does not have a Warm (Up) button, but rather a single Temp button, use the Temp button in place of the Warm button in the instruction above. (The flow chart assumes a single Temperature Button.)

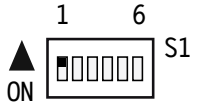
# Equipment Expansion

## Expansion Features

| Control Connection | Default | Fuse |
|---|---|---|
| Relay 1/2 (J108) | None | N/A |

# DIP Switch Functions

**Fixed-fuction DIP Switches**




| | |
|---|---|
| A1 | Test Mode (normally Off). |
| A2 | In “ON” position, add one high-speed pump (or blower) with Heater. |
| A3 | In “ON” position, add two high-speed pumps (or 1 HS Pump and Blower) with Heater. |
| A5 | In “ON” position, enables Special Amperage Rule B. See Special Features section under Configuration Options for functionality with your system.<br>In “OFF” position, enables Special Amperage Rule A. |
| A6 | Persistent memory reset (Used when the spa is powering up to restore factory settings as determined by software configuration). |

**A2 and A3** work in combination to determine the number of high-speed devices and blowers that can run before the heat is disabled. i.e. A2 and A3 in the ON position will allow the heater to operate with up to 3 high-speed pumps (or two HS Pumps and Blower) running at the same time. Heat is disabled when the fourth high-speed pump or blower is turned on.

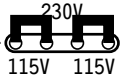
***Note:*** *A2/A3 all off = No heat with any high-speed pump or blower.*

**Assignable DIP Switches**

| | |
|---|---|
| A4 | In “ON” position, enables a 5-minute cooldown for some gas heaters (Cooling Time B).<br>In “OFF” position, enables a 1-minute cooldown for electric heaters (Cooling Time A). |

*Undesignated switches are not assigned a function.*

# Jumper Definitions

| | | |
|---|---|---|
| **J109** | GFCI Test/Trip Enable/Disable<br>***Note:*** *This feature must be enabled in software as well.* | J109  |
| **J30** | Do Not Use | |
| **J31** | Non Applicable on UL models<br>*(Used on CE models only)* | J31  |
| **J29** | Heater Disable Switch Connection. If J29 is shorted by any means, the heater will not run until J29 is no longer shorted.<br>If J29 is shorted during power-up "J29" will appear on the panel.<br>The message can be dismissed with a button press, and is the only control panel notification of J29 being shorted.<br>No message is displayed if J29 is shorted after power-up, but the heater will not run until J29 is no longer shorted.<br>J29 expects a switch closure (not a voltage) as the command signal.<br>In some areas, a local power company may offer discounts based on voluntary "power shedding" devices that may be installed in conjunction with the spa. | J29  |
| **J25, J26, J27** | Heater Type Settings.<br>***Note:*** *Factory Configured do not change.* | J27<br>J25   J26 |
| **J44** | Jumper on center two pins (230V) when no neutral wire is used (240V-dedicated).<br>Two Jumpers installed; one on left 2 pins and one on right 2 pins (115V) when neutral wire is used. | J44  |

## Warning!

Setting DIP switches or jumpers 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.

# Replacement Parts

**PCBA:**

| | |
|---|---|
| Main PCBA: | 56942 |
| Expander PCBA: | N/A |

**HEATER(s):**

| | |
|---|---|
| Plug + Click Heater Kit: | 58303 |
| Temp Sensor Kit: | 53605 |

**CABLES:** N/A

**FUSES:**

| Part Number | Amperage | Location |
|---|---|---|
| 30136 | 30A | F5 |
| 26307 | 2A | F4, F7 |
| 26905 | 0.5A SLO | F6 |
| 26904 | 10A | F3 |

# BP501 Configuration Options

## General Features

| Feature | Default | |
|---|---|---|
| Pump 1 in Filter Cycle (Circ Only) | No | |
| Pump 1 Low Timer | *30 Minutes* | Applies in non-circ Setups (configurations) only |
| General Pump Timer | 15 Minutes | |
| Blower Timer | 15 Minutes | |
| Mister Timer | 15 Minutes | |
| Light Timer | 240 Minutes | |
| Circ (when enabled) | *24 hr with 3˚F shutoff (outside of filter cycles)* | |
| Cleanup Cycle | *Disabled* | |
| Cleaup as Preference setting | *Yes* | |
| Ozone | With Heater Pump* | |
| Ozone Suppression | OFF | |
| Pump Purge | 60 Seconds | |
| Blower Purge | 30 Seconds | |
| Mister Purge | 5 Seconds | |
| Purge Type | Serial - Pumps at lowest speed | |

* The heater Pump can be either a Circ Pump or Pump 1 Low.

# BP501 Configuration Options

## Temperature Features

| Feature | Default |
|---|---|
| Temperature Display | °F |

*All temperatures must be specified in °F. The system converts °F to °C dynamically. If Celsius is required for default settings, choose a desired °C value that (after rounding) corresponds to a Fahrenheit value.*

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| °C | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| °F | 39 | 41 | 43 | 45 | 46 | 48 | 50 | 52 | 54 | 55 | 57 | 59 | 61 | 63 | 64 | 66 | 68 | 70 | 72 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| °C | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| °F | 73 | 75 | 77 | 79 | 81 | 82 | 84 | 86 | 88 | 90 | 91 | 93 | 95 | 97 | 99 | 100 | 102 | 104 |

| | |
|---|---|
| Hi-Range Min. Set Temp | 80°F |
| Hi-Range Max. Set Temp | 104°F |
| Hi-Range Default Temp* | 100°F |
| Lo-Range Min. Set Temp | 50°F |
| Lo-Range Max. Set Temp | 99°F |
| Lo-Range Default Temp* | 70°F |
| Freeze Threshold | 44°F |
| Freeze Type | Rotating - Pumps at Lowest Speed |
| Temp Lock Type | Temp + Settings |

**May be changed by end-user (if enabled)*

# BP501 Configuration Options

## Time Features

| Feature | Default |
|---|---|
| Time Format* | 12 Hour |
| Filter 1 Start Hour* | 20:00 (8:00 PM) |
| Filter 1 Duration* | 2 Hours |
| Filter Cycle 2 Default* | *ON* |
| Filter 2 Start Hour* | 08:00 (8:00 AM) |
| Filter 2 Duration* | *2 Hours* |
| Light Cycle | Disabled |
| Light Cycle Default* | OFF |
| Light Cycle Start Hour* | 21:00 (9:00 PM) |
| Light Cycle Duration* | 15 Minutes |
| Cooling Time A | 1 Minute |
| Cooling Time B | 5 Minutes |

**May be changed by end-user (if enabled)*

# BP501 Configuration Options

## Reminder Features

| Feature | Default |
|---|---|
| Reminders Shown* | No |
| Check pH | *OFF* |
| Check Sanitizer | *OFF* |
| Clean Filter | 30 Days |
| Test GFCI | *65 Days* |
| Drain Water | *100 Days* |
| Change Cartridge | OFF |
| Clean Cover | *OFF* |
| Treat Wood | *OFF* |
| Change Filter | 365 Days |

**May be changed by end-user (if enabled)*

# BP501 Configuration Options

## Special Features

| Feature | Default |
|---|---|
| Special Amperage Rule A | No Limitation |
| Special Amperage Rule B | No Limitation |
| Drain Mode | Disabled |
| Demo Mode | Disabled |
| GFCI Trip | Enabled |
| Automatic GFCI Test | Disabled |
| Ozone Slaved to Heater Pump | *Yes* |
| Dual Voltage Heater | Always Input Voltage |
| Safety Suction | Disabled |
| Menu Style | *Simplified in Setups 1-4*<br>*Standard in Setup 5* |

# TP800 Panel Configuration

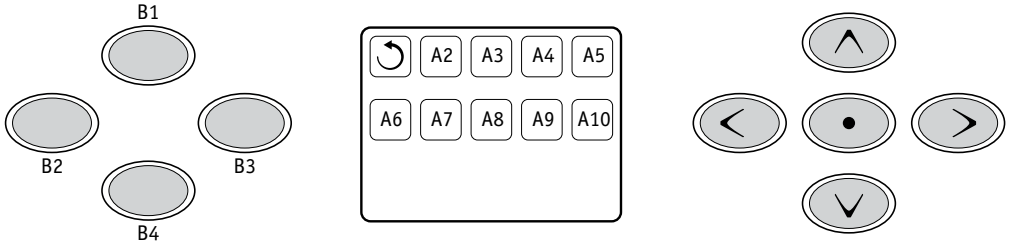
## Button Layout Table

| Feature # | Setup 1 | Setup 2 | Setup 3 | Setup 4 | Setup 5 |
|---|---|---|---|---|---|
| **A1** | N/A | N/A | N/A | N/A | N/A |
| **A2** | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **A3** | Jets 2 | Jets 2 | Light 1 | Light 1 | Invert |
| **A4** | Light 1 | Light 1 | Invert | Invert | Undefined |
| **A5** | Invert | Invert | Undefined | (Circ Icon) | Undefined |
| **A6** | Undefined | (Circ Icon) | Undefined | Undefined | Undefined |
| **A7** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A8** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A9** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A10** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A11** | N/A | N/A | N/A | N/A | N/A |
| **A12** | N/A | N/A | N/A | N/A | N/A |
| **A13** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A14** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A15** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **A16** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **B1** | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **B2** | Jets 2 | Jets 2 | Undefined | Undefined | Undefined |
| **B3** | Undefined | Undefined | Undefined | Undefined | Undefined |
| **B4** | Light 1 | Light 1 | Light 1 | Light 1 | Undefined |

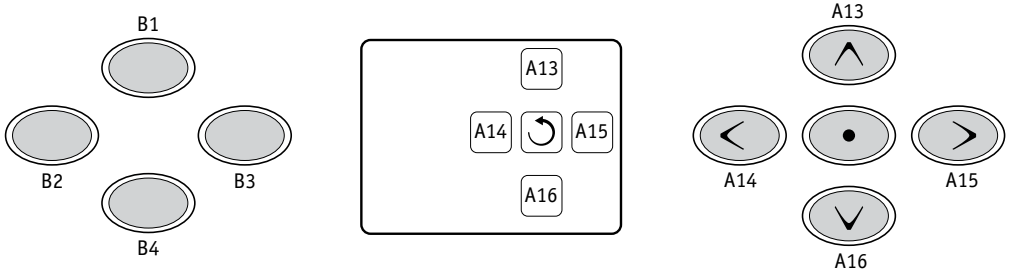
**Buttons A1 - A10 are also used for the Spa screen on the spaTouch™ panel.**

# TP800 Panel Configuration

## Spa Screen




## Shortcuts Screen



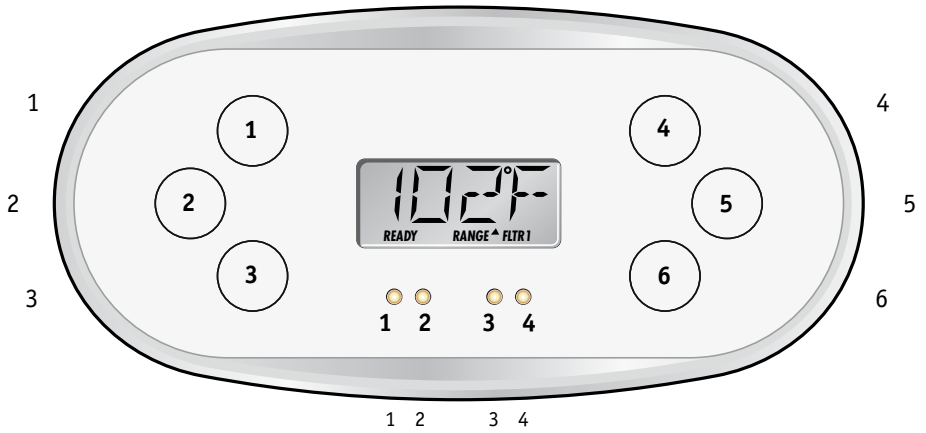

***Note:*** *Buttons 11 and 12 are not used in this configuration.*

*Button 1 is fixed.*

# TP600 Panel Configuration

## Button Layout Table

| Button # | Setups 1 & 2 | Setups 3 & 4 | Setup 5 |
|---|---|---|---|
| **1** | Jets 1 | Jets 1 | Jets 1 |
| **2** | Jets 2 | Undefined | Undefined |
| **3** | Invert | Invert | Invert |
| **4** | Up | Up | Up |
| **5** | Light 1 | Light 1 | Menu |
| **6** | Down | Down | Down |
| **LED 1** | Jets 1 | Jets 1 | Jets 1 |
| **LED 2** | Jets 2 | Undefined | Undefined |
| **LED 3** | Light 1 | Light 1 | Undefined |
| **LED 4** | Heat On | Heat On | Heat On |



# BP501 Configuration Options

## Auxilliary Panel Features on Bank 1*

| Feature | Default |
|---|---|
| Aux Button A1 | Jets 1 |
| Aux Button A2 | Jets 2 |
| Aux Button A3 | Undefined |
| Aux Button A4 | Light |

*Bank 1 consists of J5 on the Main Circuit Board.

**Aux Connection Splitter PN 25257 may be required.**

Buttons that are assigned to equipment that is not defined in a Setup will not do anything in that Setup.

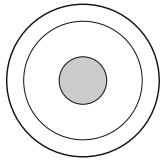
# BP501 Configuration Options

## Auxilliary Panel Features

**Call Customer Service for additional information about Auxiliary Panels.**

### AX10 Panels on Bank 1*

| | | |
|---|---|---|
| A1, AX10A1 | No O/L | 52803 |
| A2, AX10A2 | No O/L | 52804 |
| A3, AX10A3 | No O/L | 52805 ▶ |
| A4, AX10A4 | No O/L | 52806 |

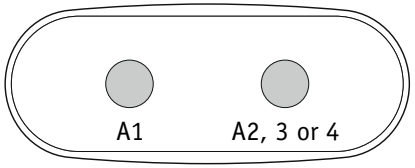


*Bank 1 consists of J5 on the Main Circuit Board.

**Aux Connection Splitter PN 25257 may be required.**

### AX20

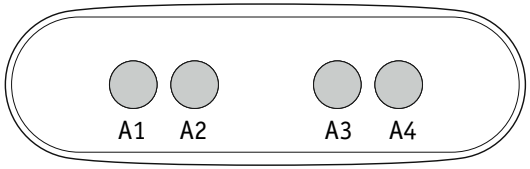
| | | |
|---|---|---|
| AX20 A1A2 | No O/L | 52800 |
| AX20 A1A3 | No O/L | 52801 |
| AX20 A1A4 | No O/L | 52802 |




**AX20 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 or A4.**

### AX40

| | | |
|---|---|---|
| AX40 | No O/L | 52799 |




**AX40 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 and A4.**