

# BP25P3BC Tech Sheet

DRAFT

**Customer:** Balboa Water Group

**Part Number:** 55963

Custom Box Overlay

Box Overlay Part Number N/A

UL System Model: BM25-BP25P3BC-AM

Software Version (SSID): M100\_210 V3

File Name: BP2500\_3.0\_BP25P3BC\_1.HEX

Configuration Signature: D8C5B6E3

Eng. Project Number: 3343

Base PCBA: 55964

Bare Board: 22614\_A

Control Panels:

TP901 55995

Software Version 1.2 and later

Auxiliary Panels

See Page 19

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.

# System Revision History

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Part #	EPN	Date	Originator	Changes Made
55963	3343	03-15-10	BWG	Initial Release Generic BP2500

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.



## Basic Functions Setup 1

### Power Requirements:

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

### System Outputs:

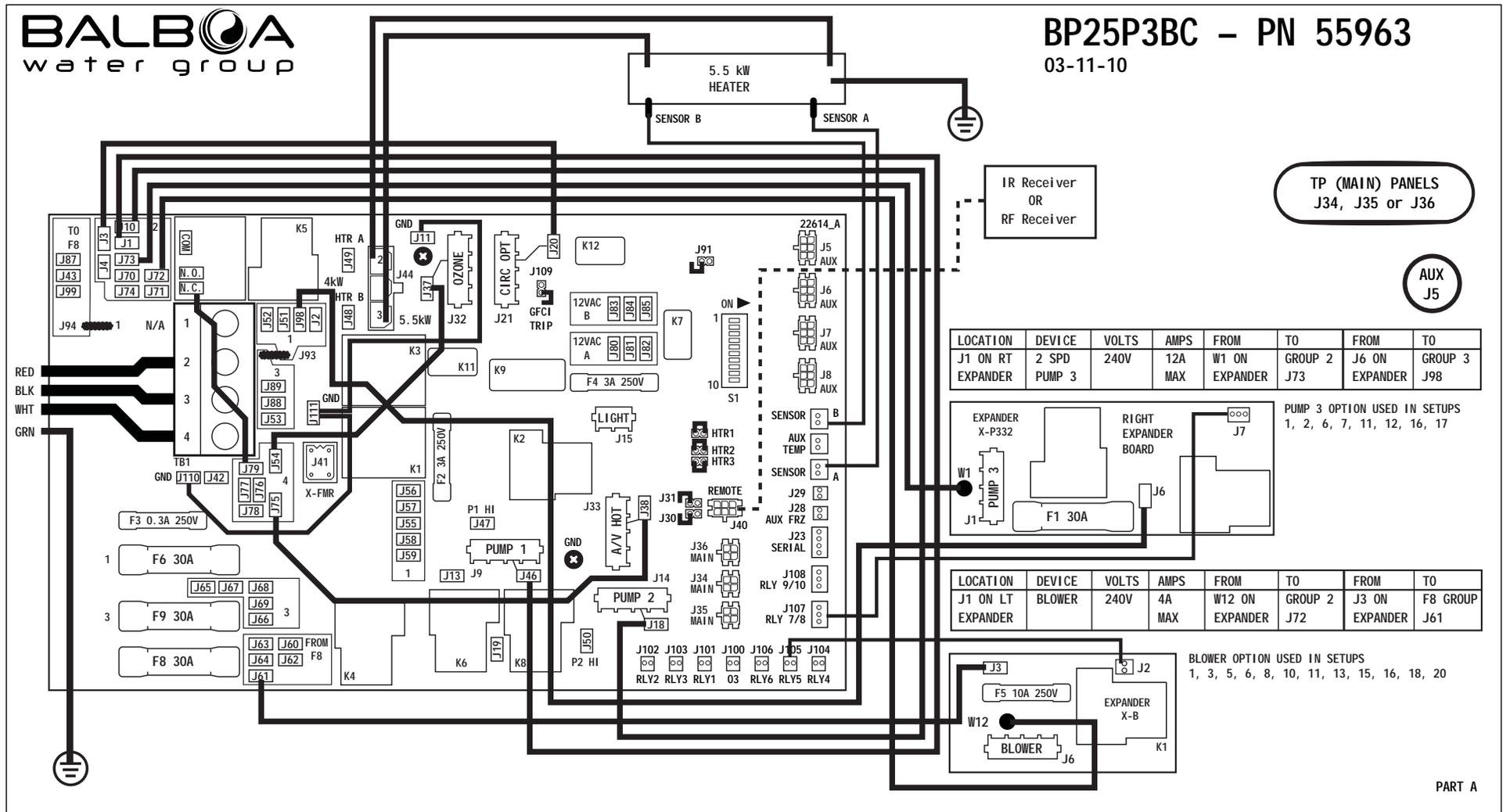
Pump 1	240VAC	2-Speed	12A max	15-minute timer for High Speed, 15-Minute timer for Low Speed
Pump 2	240VAC	2-Speed	12A max	15-minute timer
Pump 3	240VAC	2-Speed	12A max	15-minute timer
Blower	240VAC	1-Speed	12A max	15-minute timer
Circ Pump	240VAC	1-Speed	2A max	Programmable Filtration Cycles + Polling
	This is the heater pump Must deliver 20 GPM through heater			
Ozone	120VAC		.5A max	Separate Relay
Spa Light	12VAC	On/Off	2A max	240-minute timer.
A/V (Stereo)	120VAC	Hot	5A max	Always on
Heater	5.5kW @ 240VAC max			

\*A 120VAC light may allow more than 1A max.

# Hardware Setup

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## Wiring Diagram



Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending.

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# Hardware Setup

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## Settings

LOCATION	DEVICE	VOLTS	MAX AMPS	FROM	TO
J9	2-SP PUMP 1	240V	12A MAX	J46	J1-GROUP 2
J14	2-SP PUMP 2	240V	12A MAX	J18	J10-GROUP 2
J15	SPA LIGHT	12V	2A		
J21	CIRC OPTION	240V	1A MAX	J20	J3-GROUP 2
J32	OZONE	120V	1A	J37	J54-GROUP 4
J33	TV / AV	120V	5A	J38	J75-GROUP 4
J44	HEATER	240V	5.5 kW		

CIRC PUMP OPTION  
 PROGRAMMABLE FILTRATION CYCLES + POLLING  
 USED IN SETUPS  
 1, 2, 3, 4, 5, 11, 12, 13, 14, 15

SETUPS 1-10 ARE IDENTICAL TO SETUPS 11-20, EXCEPT 11-20 DISPLAY TEMPERATURE IN °C

SETUP #	CIRC PUMP	PUMP 1	PUMP 2	PUMP 3	BLOWER	TEMP SCALE
1	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED	2-SPEED	1-SPEED	°F
2	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED	2-SPEED		°F
3	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED		1-SPEED	°F
4	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED			°F
5	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	1-SPEED		1-SPEED	°F
6		2-SPEED	2-SPEED	2-SPEED	1-SPEED	°F
7		2-SPEED	2-SPEED	2-SPEED		°F
8		2-SPEED	2-SPEED		1-SPEED	°F
9		2-SPEED	2-SPEED			°F
10		2-SPEED	1-SPEED		1-SPEED	°F
11	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED	2-SPEED	1-SPEED	°C
12	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED	2-SPEED		°C
13	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED		1-SPEED	°C
14	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	2-SPEED			°C
15	PROGRAMMABLE FILTRATION + POLLING	2-SPEED	1-SPEED		1-SPEED	°C
16		2-SPEED	2-SPEED	2-SPEED	1-SPEED	°C
17		2-SPEED	2-SPEED	2-SPEED		°C
18		2-SPEED	2-SPEED		1-SPEED	°C
19		2-SPEED	2-SPEED			°C
20		2-SPEED	1-SPEED		1-SPEED	°C

SYSTEM WILL BE IN  
 SETUP #1 UNLESS  
 MARKED OTHERWISE BELOW

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



PUMP 1 LOW TIMEOUT IS 15 MINUTES FOR CIRC SYSTEMS.  
 PUMP 1 LOW TIMEOUT IS 120 MINUTES FOR NON-CIRC SYSTEMS.

### SWITCHBANK S1 OFF

TEST MODE OFF	◀ A1
DON'T ADD 1 HS PUMP W/HTR	A2 ▶
DON'T ADD 2 HS PUMPS W/HTR	◀ A3
DON'T ADD 4 HS PUMPS W/HTR	◀ A4
SPECIAL AMPERAGE RULE A	◀ A5
STORE SETTINGS*	◀ A6
NOT ASSIGNED	◀ A7
NOT ASSIGNED	◀ A8
NOT ASSIGNED	◀ A9
NOT ASSIGNED	◀ A10

### SWITCHBANK S1 ON

TEST MODE ON	
ADD 1 HS PUMP WITH HEAT	
ADD 2 HS PUMPS WITH HEAT	
ADD 4 HS PUMPS WITH HEAT	
SPECIAL AMPERAGE RULE A	
MEMORY RESET*	
NOT ASSIGNED	

\*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.

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

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

TORQUE RANGE FOR MAIN TERMINAL BLOCK (TB1):  
 27-30 IN. LBS. (31.1-34.5 kg cm)

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.

TOTAL OUTPUT AMP DRAW NOT TO EXCEED MAX INPUT RATING OF SPA  
 USE EARTH GROUND CONNECTIONS AS INDICATED INSIDE THE SYSTEM ENCLOSURE



**BP25P3BC – PN 55963**  
 03-19-10

PART B



# Setup Reference Table

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Setup #	Circ Pump	Pump 1	Pump 2	Pump 3	Blower	Temp Scale	TP900 Panel Map
1	Programmable Filtration + Polling	2-Speed	2-Speed	2-Speed	1-Speed	°F	6
2	Programmable Filtration + Polling	2-Speed	2-Speed	2-Speed		°F	7
3	Programmable Filtration + Polling	2-Speed	2-Speed		1-Speed	°F	8
4	Programmable Filtration + Polling	2-Speed	2-Speed			°F	9
5	Programmable Filtration + Polling	2-Speed	1-Speed		1-Speed	°F	8
6		2-Speed	2-Speed	2-Speed	1-Speed	°F	2
7		2-Speed	2-Speed	2-Speed		°F	3
8		2-Speed	2-Speed		1-Speed	°F	4
9		2-Speed	2-Speed			°F	5
10		2-Speed	1-Speed		1-Speed	°F	4
11	Programmable Filtration + Polling	2-Speed	2-Speed	2-Speed	1-Speed	°C	6
12	Programmable Filtration + Polling	2-Speed	2-Speed	2-Speed		°C	7
13	Programmable Filtration + Polling	2-Speed	2-Speed		1-Speed	°C	8
14	Programmable Filtration + Polling	2-Speed	2-Speed			°C	9
15	Programmable Filtration + Polling	2-Speed	1-Speed		1-Speed	°C	8
16		2-Speed	2-Speed	2-Speed	1-Speed	°C	2
17		2-Speed	2-Speed	2-Speed		°C	3
18		2-Speed	2-Speed		1-Speed	°C	4
19		2-Speed	2-Speed			°C	5
20		2-Speed	1-Speed		1-Speed	°C	4

System is shipped in Setup 1

Setups 11-20 are identical to 1-10 except for °C.

Pump 1 Low timeout is 15 minutes for Circ systems.

Pump 1 Low timeout is 120 minutes for Non-Circ systems.

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.

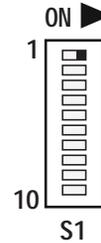


## Changing Software Setups

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

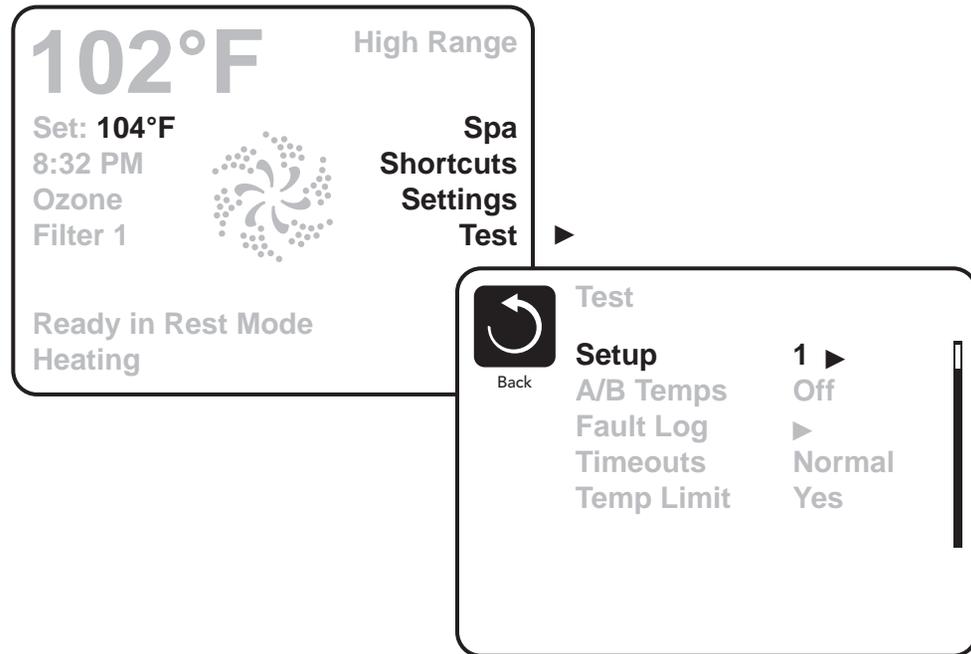
**DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!**

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.



# Equipment Expansion

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## Expansion Features

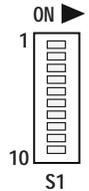
Control Connection	Default	Fuse
Relay 1 (J101)	Undefined	None
Relay 2 (J102)	Undefined	None
Relay 3 (J103)	Undefined	None
Relay 4 (J104)	Undefined	None
Relay 5 (J105)	Blower	10A
Relay 6 (J106)	Undefined	None
Relay 7/8 (J107)	Pump 3	30A
Relay 9/10 (J108)	Undefined	None

# DIP Switch Functions

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## Fixed-function 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.
- A4 In "ON" position, add four high-speed pumps (or 3 HS Pumps 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.  
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, A3, and A4** 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 and A4 in the OFF 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/A4 all off = No heat with any high-speed pump or blower.

*Undesignated switches are not assigned a function.*

# Jumper Definitions

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<b>J93 J94</b>	Must be soldered in place for UL and cUL <b>Note:</b> <i>Single service, 50A or 60A.</i>	J94  J93 
<b>J109</b>	GFCI Test/Trip Enable <b>Note:</b> <i>This feature must be enabled in software as well.</i>	J109 
<b>J91</b>	Real Time Clock Enable/Disable <b>Note:</b> <i>This Jumper should NOT be shorted when the Control Panel can display time of day.</i>	J91 
<b>J30 J31</b>	Do Not Use	
<b>J29</b>	Do Not Use	J29 
<b>HTR 1, 2, 3</b>	Heater Type Settings. <b>Note:</b> <i>Factory Configured.</i>	

## 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.

# BP2500/2600 Configuration Options

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## General Features

Feature	Default
Pump 1 in Filter Cycle (Circ Only)	No
Pump 1 Low Timer	<i>15 Minutes with Circ</i> <i>120 Minutes Non-Circ</i>
General Pump Timer	15 Minutes
Blower Timer	15 Minutes
Mister Timer	15 Minutes
Light Timer	240 Minutes
Circ (when enabled)	Programmable + Polling
Cleanup Cycle	<i>30 Minutes</i>
Cleanup as Preference setting	<i>Yes</i>
Ozone	Always
Ozone Suppression	OFF
Pump Purge	60 Seconds
Blower Purge	30 Seconds
Mister Purge	5 Seconds

*Blue Indicates New Custom Configuration Default (Setup 1)*

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.

# BP2500/2600 Configuration Options

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## Temperature Features

Feature	Default
Temperature Display	°F in Setups 1-10 °C in Setups 11-20

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

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°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
Temp Lock Type	Temp + Settings

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

Blue Indicates New Custom Configuration Default (Setup 1)

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.



# BP2500/2600 Configuration Options

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## 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*	OFF
Filter 2 Start Hour*	08:00 (8:00 AM)
Filter 2 Duration*	15 Minutes
Light Cycle	Disabled
Light Cycle Default*	OFF
Light Cycle Start Hour*	21:00 (9:00 PM)
Light Cycle Duration*	15 Minutes

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

*Blue Indicates New Custom Configuration Default (Setup 1)*

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.

# BP2500/2600 Configuration Options

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## Reminder Features

Feature	Default
Reminders Shown*	<i>Yes</i>
Check pH	<i>OFF</i>
Check Sanitizer	<i>OFF</i>
Clean Filter	30 Days
Test GFCI	<i>65 Days</i>
Drain Water	<i>100 Days</i>
Change Cartridge	OFF
Clean Cover	<i>OFF</i>
Treat Wood	<i>OFF</i>
Change Filter	365 Days

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

*Blue Indicates New Custom Configuration Default (Setup 1)*

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright 2009 Balboa Water Group.

# BP2500/2600 Configuration Options

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## Special Features

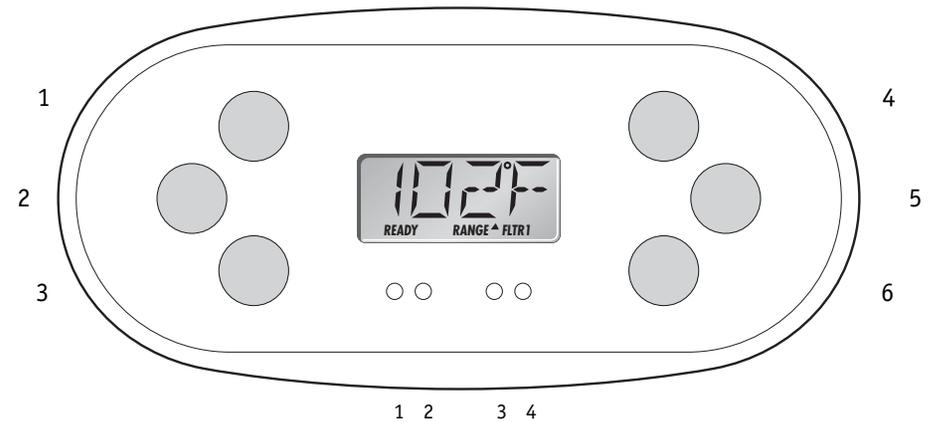
Feature	Default
Special Amperage Rule A	No Limitation
Special Amperage Rule B	No Limitation
Drain Mode	Disabled
Demo Mode	Disabled
Automatic GFCI Test	Disabled
Ozone Slaved to Heater Pump	No
Dual Voltage Heater	Always Input Voltage
Safety Suction	Disabled

# BP2500/2600 Configuration Options

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## TP600 Panel Features

Feature	Default
Button 1	Jets 1
Button 2	Jets 2
Button 3	Blower
Button 4	Up
Button 5	Light 1
Button 6	Down
LED 1	Jets 1
LED 2	Jets 2
LED 3	Light
LED 4	Heat



# TP900 Panel Configuration

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## Button Layout Table

Button #	Default	No Blower	No Pump 3	No Blower or Pump 3
1*	Undefined	Undefined	Undefined	Undefined
2	Jets 1	Jets 1	Jets 1	Jets 1
3	Jets 2	Jets 2	Jets 2	Jets 2
4	Jets 3	Jets 3	Blower	Light 1
5	Blower	Light 1	Light 1	Invert
6	Light 1	Invert	Invert	(Circ Icon)
7	Invert	(Circ Icon)	(Circ Icon)	Undefined
8	(Circ Icon)	Undefined	Undefined	Undefined
9	Undefined	Undefined	Undefined	Undefined
10	Undefined	Undefined	Undefined	Undefined
11*	Undefined	Undefined	Undefined	Undefined
12*	Undefined	Undefined	Undefined	Undefined
13	Jets 1	Jets 1	Jets 1	Jets 1
14	Jets 2	Jets 2	Jets 2	Jets 2
15	Blower	Jets 3	Blower	Undefined
16	Light 1	Light 1	Light 1	Light 1

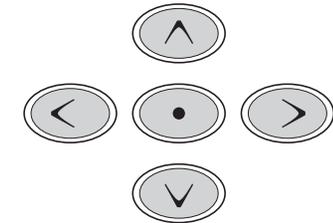
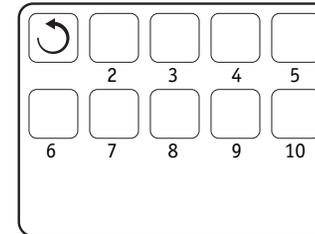
**\*Note:** Buttons 1, 11 and 12 cannot be configured in this model.

A Circ Icon will appear when a Circ Pump is configured using Setups 1, 2, 3, 4, 5, 11, 12, 13, 14, 15

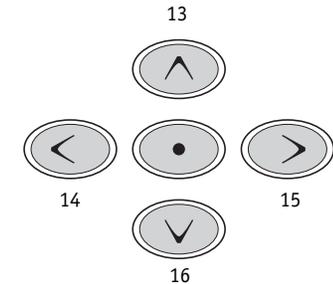
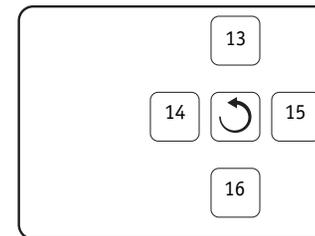
## Panel Map

Circ	6	7	8	9
Non-Circ	2	3	4	5

## Spa Screen



## Shortcuts Screen



# BP2500/2600 Configuration Options

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## Auxilliary Panel Features on Bank 1\*

Feature	Default
Aux Button A1	Jets 1
Aux Button A2	Jets 2
Aux Button A3	Jets 3
Aux Button A4	Light

## Auxilliary Panel Features on Bank 2\*

Feature	Default
Aux Button A5	Jets 1
Aux Button A6	Jets 2
Aux Button A7	Blower
Aux Button A8	Light

\*Bank 1 consists on J5 and J6 on the Main Circuit Board.  
Bank 2 consists on J7 and J8 on the Main Circuit Board.  
**Aux Connection Splitter PN4XXXX may be required.**

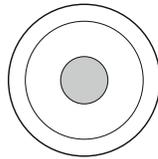
# BP2500/2600 Configuration Options

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## Auxilliary Panel Features

### AX10 Panels on Bank 1\*

A1, AX10A1	No O/L	52803	
A2, AX10A2	No O/L	52804	
A3, AX10A3	No O/L	55805	▶
A4, AX10A4	No O/L	52806	



Call Customer Service for additional information about Auxiliary Panels.

Auxiliary Panel Part Number \_\_\_\_\_

Overlay Part Number \_\_\_\_\_

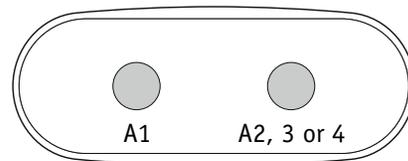
### AX10 Panels on Bank 2\*

A5, AX10A1	No O/L	52803
A6, AX10A2	No O/L	52804
A7, AX10A3	No O/L	52805
A8, AX10A4	No O/L	52806

\*Bank 1 consists on J5 and J6 on the Main Circuit Board.  
Bank 2 consists on J7 and J8 on the Main Circuit Board.  
**Aux Connection Splitter PN4XXXX may be required.**

### AX20

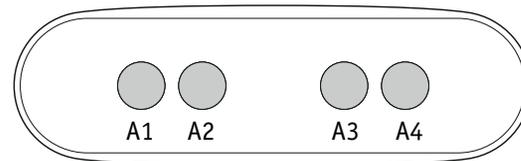
AX20 A1A2	No O/L	52800
AX20 A1A3	No O/L	52801
AX20 A1A4	No O/L	52802



**AX20 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 or A4.**  
**AX20 Auxiliary Panel plugged into Bank 2 will operate A5 + A6, A7 or A8.**

### AX40

AX40	No O/L	52799
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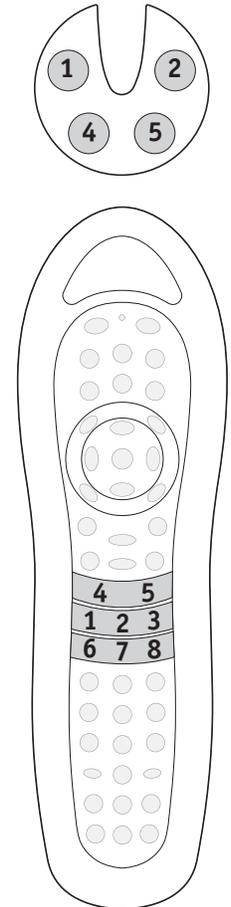
**AX40 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 and A4.**  
**AX40 Auxiliary Panel plugged into Bank 2 will operate A5 + A6, A7 and A8.**

# BP2500/2600 Configuration Options

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## Remote Panel Features

Feature	Default
Remote Button A1	Jets 1
Remote Button A2	Jets 2
Remote Button A3	Jets 3
Remote Button A4	Blower
Remote Button A5	Light
Remote Button A6	Undefined
Remote Button A7	Undefined
Remote Button A8	Undefined



Remote Panel Part Number \_\_\_\_\_  
 Overlay Part Number \_\_\_\_\_