

BP7 Tech Sheet - for Aftermarket use only



Customer: Balboa Water Group - Aftermarket Division

Part Number: G4361 800 Incoloy 4.0kW
G5361 800 Incoloy 5.5kW



Genuine Balboa Box Overlay

UL System Model (5.5kw): BP20-BP7-AU

UL System Model (4.0kw): BP20-BP7-AS

Software Version ID: M100_221 V55.0

Software Version: 55.0

File Name: BP1800_55.0_BP7.hex

Configuration Signature: FF69032A

Eng. Project Number: 5342

Control Panels:

| | |
|------------------|---|
| spaTouch™ 3 | Version 1.02 and later |
| spaTouch™ 2 | Any version (version 2.0 or later required for bba™ 2 fully integrated functionality; version 2.19 or later required for CHROMAZON3™ support) |
| Icon spaTouch™ | Any version (version 3.36 or later required for bba™ 2 fully integrated functionality) |
| Menued spaTouch™ | Any version (version 2.8 or later required for bba™ 2 integrated functionality) |
| TP900 | Version 3.1 and later (Version 3.13 or later required for bba™) |
| 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) |
| TP500 | Any version -- Note: The TP500 works in the same Setups in which the TP400T works; see the TP400 page for details |
| TP400T US | Version 2.7 and later (TP400T CE may be used) (Version 2.12 or later required for bba™/bba™ 2 On/Off control via menu) |
| TP400W US | Version 2.7 and later (TP400W CE may be used) (Version 2.12 or later required for bba™/bba™ 2 On/Off control via menu) |

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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System Revision History

| Part # | EPN | Date | Originator | Changes Made |
|----------------|------|----------|------------|--|
| G4361 G5361 | 5342 | 03-11-20 | BWG | Stripped-down version of BP2000 board, with no remote support, no real-time clock, & no low speed relay for Pump 2, named the BP1800 board. Generic BP7 system for aftermarket use, based on this board, with 32 Setups. |
| | | | | |
| | | | | |
| | | | | |

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

bba™ is integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600/TP500/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/TP500/TP400, use the “BT” entry on the menu to toggle bba™2 power On/Off.

Basic Functions Setup 1-32

Power Requirements:

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

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

* 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.

HiPot Testing Note:

Disconnect slip terminal with green wires from J11 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test. Reconnect terminal to J11 after successful completion of HiPot test.

Basic Functions Setup 1-32

System Outputs:

| | | | | |
|--------------|----------------|---------|--------------|---|
| Pump 1 | 240VAC | 2-Speed | 12A max | 15-minute timer for High Speed, 15-Minute timer for Low Speed |
| | | | | 1-Speed in Setups 3, 5, 11, 14, 16, 24, 26 & 31 |
| | | | | This is the heater pump in Setups 6-8, 17-21, 27-29 & 32 |
| | | | | Must deliver 20 GPM through heater |
| Pump 2 | 240VAC | 2-Speed | 10A†/12A max | 15-minute timer |
| | | | | 1-Speed in Setups 2, 3, 7, 10, 11, 13, 14, 18, 20, 23, 24, 28 & 30-32 |
| | | | | Unused in Setups 4, 5, 8, 15, 16, 21, 25, 26 & 29 |
| Pump 3 | 240VAC | 1-Speed | 12A max | 15-minute timer |
| | | | | Unused in Setups 1-8, 12-16 & 19-29 |
| Pump 4 | 240VAC | 1-Speed | 10A† max | 15-minute timer |
| | | | | Unused in Setups 1-29 |
| Blower | 240VAC | 1 Speed | 4A max | 15-minute timer |
| | | | | Unused in Setups 9-32 |
| MicroSilk® | 240VAC | 1-Speed | 8A max* | 30-minute timer |
| | | | | Used in Setups 22-29 only |
| Circ Pump | 240VAC** | 1-Speed | 2A max | Programmable Filtration Cycles + Polling |
| | | | | This is the heater pump in Setups 1-5, 9-16, 22-26, 30 & 31 |
| | | | | Must deliver 20 GPM through heater |
| Ozone | 240VAC** | | .5A max | Slaved to Circ Pump in Setups 1-5, 9-16, 22-26, 30 & 31 |
| | | | | Independent in Setups 6-8, 17-21, 27-29 & 32 |
| Spa Light | 10VAC | On/Off | 2A* max | 240-minute timer. |
| A/V (Stereo) | 240VAC*** | Hot | 2A max | Always on |
| Heater | 5.5kW @ 240VAC | | | |
| | 4.0kW @ 240VAC | | | |

MicroSilk® is a registered trademark of Jason International

** Both the Circ pump and Ozone can be converted to 120V, however they will be the same voltage after conversion. (Both 120V or both 240V.)

*** A/V can be converted to 120V, however it may require more than 2A at 120V, in which case the pump amperages may need to be scaled back, especially in the 4-pump Setups 30-32.

† In Setups 30-32, where pump 2 and pump 4 are both on the expander board, pump 2 and pump 4 must add up to no more than 20A total. The above limits are for a 48A service (60A breaker). If using a smaller service, smaller maximums may be required, depending on the Setup.

* 2A max limit is shared by On/Off Spa Light and CHROMAZON3™.

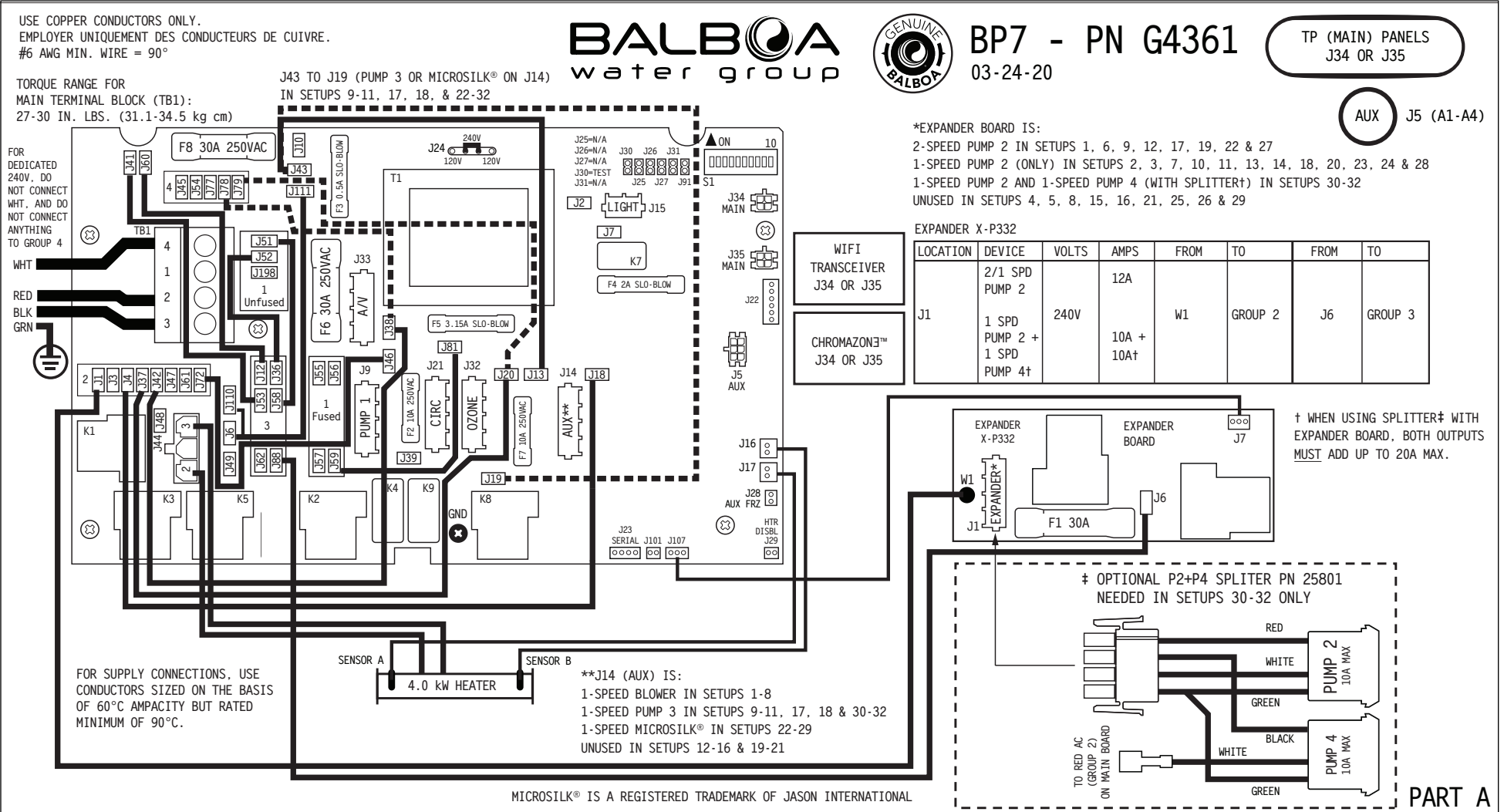
Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending.

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Hardware Setup

Wiring Diagram



Hardware Setup

Settings

| SETUP # | CIRC PUMP | PUMP 1 | PUMP 2 | PUMP 3 | PUMP 4 | BLOWER | MICROSILK® | TEMP SCALE |
|---------|-----------------------------------|---------|---------|---------|---------|---------|------------|------------|
| 1 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 2-SPEED | NONE | NONE | 1-SPEED | NONE | °F |
| 2 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | NONE | NONE | 1-SPEED | NONE | °F |
| 3 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | NONE | NONE | 1-SPEED | NONE | °F |
| 4 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | NONE | NONE | NONE | 1-SPEED | NONE | °F |
| 5 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | NONE | NONE | NONE | 1-SPEED | NONE | °F |
| 6 | NONE | 2-SPEED | 2-SPEED | NONE | NONE | 1-SPEED | NONE | °F |
| 7 | NONE | 2-SPEED | 1-SPEED | NONE | NONE | 1-SPEED | NONE | °F |
| 8 | NONE | 2-SPEED | NONE | NONE | NONE | 1-SPEED | NONE | °F |
| 9 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 2-SPEED | 1-SPEED | NONE | NONE | NONE | °F |
| 10 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | NONE | °F |
| 11 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | NONE | °F |
| 12 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 2-SPEED | NONE | NONE | NONE | NONE | °F |
| 13 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | NONE | NONE | NONE | NONE | °F |
| 14 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | NONE | NONE | NONE | NONE | °F |
| 15 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | NONE | NONE | NONE | NONE | NONE | °F |
| 16 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | NONE | NONE | NONE | NONE | NONE | °F |
| 17 | NONE | 2-SPEED | 2-SPEED | 1-SPEED | NONE | NONE | NONE | °F |
| 18 | NONE | 2-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | NONE | °F |
| 19 | NONE | 2-SPEED | 2-SPEED | NONE | NONE | NONE | NONE | °F |
| 20 | NONE | 2-SPEED | 1-SPEED | NONE | NONE | NONE | NONE | °F |
| 21 | NONE | 2-SPEED | NONE | NONE | NONE | NONE | NONE | °F |
| 22 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 2-SPEED | NONE | NONE | NONE | 1-SPEED | °F |
| 23 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | NONE | NONE | NONE | 1-SPEED | °F |
| 24 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | NONE | NONE | NONE | 1-SPEED | °F |
| 25 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | NONE | NONE | NONE | NONE | 1-SPEED | °F |
| 26 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | NONE | NONE | NONE | NONE | 1-SPEED | °F |
| 27 | NONE | 2-SPEED | 2-SPEED | NONE | NONE | NONE | 1-SPEED | °F |
| 28 | NONE | 2-SPEED | 1-SPEED | NONE | NONE | NONE | 1-SPEED | °F |
| 29 | NONE | 2-SPEED | NONE | NONE | NONE | NONE | 1-SPEED | °F |
| 30‡ | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | °F |
| 31‡ | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | °F |
| 32‡ | NONE | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | NONE | °F |

‡SETUPS 30-32 REQUIRE SPLITTER PN 25801



BP7 - PN G4361

03-24-20

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

----- INSTEAD OF
SETUP #21,
THIS SYSTEM IS
CONFIGURED IN
SETUP #:



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 |
| 1 MIN HTR COOLDOWN (ELEC) | ◀ 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 B | |
| MEMORY RESET** | |
| 5 MIN HTR COOLDOWN (GAS) | |
| NOT ASSIGNED | |
| NOT ASSIGNED | |
| NOT ASSIGNED | |

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

| LOCATION | DEVICE | VOLTS | MAX AMPS | FROM | TO |
|----------|--|---------|---------------------------------|------|---------|
| J9 | 2-SP PUMP 1 | 240V | 12A MAX | J46 | GROUP 2 |
| J14 | 1-SP BLOWER / 1-SP PUMP 3 / 1-SP MICROSILK® | 240V | 4A MAX / 12A MAX / 8A MAX | J18 | GROUP 2 |
| | J14 LINE 1 CONNECTION FOR BLOWER | | | J43 | J13 |
| | J14 LINE 1 CONNECTION FOR P3/MS | | | J43 | J19 |
| J15 | SPA LIGHT | 10V | 2A* | | |
| J21 | CIRC PUMP | 240V** | 2A MAX | J20 | GROUP 2 |
| J32 | OZONE | | 0.5A | | |
| | CIRC AND OZONE LINE 1 CONNECTION | | | J81 | J59 |
| J33 | TV / AV | 240V*** | 2A | J38 | GROUP 2 |
| J44 | HEATER | 240V | 4.0 kW | | |

* 2A LIMIT IS SHARED BY J15 SPA LIGHT AND CHROMAZON™

** CIRC PUMP + OZONE CAN BE 120V IF J20 IS CONNECTED TO GROUP 4

*** AV CAN BE 120V IF J38 IS CONNECTED TO GROUP 4, BUT IN THAT CASE IT MAY REQUIRE MORE THAN 2A, IN WHICH CASE PUMP AMPERAGES MAY NEED TO BE SCALED BACK, ESPECIALLY IN THE 4-PUMP SETUPS 30-32

PART B

Setup Reference Table for Setups 1-16 (Setups 17-32 on next page)

| Setup # | Circ Pump | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Blower | MicroSilk® | Temp Scale |
|---------|-----------------------------------|---------|---------|---------|--------|---------|------------|------------|
| 1 | Programmable Filtration + Polling | 2-Speed | 2-Speed | None | None | 1-Speed | None | °F |
| 2 | Programmable Filtration + Polling | 2-Speed | 1-Speed | None | None | 1-Speed | None | °F |
| 3 | Programmable Filtration + Polling | 1-Speed | 1-Speed | None | None | 1-Speed | None | °F |
| 4 | Programmable Filtration + Polling | 2-Speed | None | None | None | 1-Speed | None | °F |
| 5 | Programmable Filtration + Polling | 1-Speed | None | None | None | 1-Speed | None | °F |
| 6 | None | 2-Speed | 2-Speed | None | None | 1-Speed | None | °F |
| 7 | None | 2-Speed | 1-Speed | None | None | 1-Speed | None | °F |
| 8 | None | 2-Speed | None | None | None | 1-Speed | None | °F |
| 9 | Programmable Filtration + Polling | 2-Speed | 2-Speed | 1-Speed | None | None | None | °F |
| 10 | Programmable Filtration + Polling | 2-Speed | 1-Speed | 1-Speed | None | None | None | °F |
| 11 | Programmable Filtration + Polling | 1-Speed | 1-Speed | 1-Speed | None | None | None | °F |
| 12 | Programmable Filtration + Polling | 2-Speed | 2-Speed | None | None | None | None | °F |
| 13 | Programmable Filtration + Polling | 2-Speed | 1-Speed | None | None | None | None | °F |
| 14 | Programmable Filtration + Polling | 1-Speed | 1-Speed | None | None | None | None | °F |
| 15 | Programmable Filtration + Polling | 2-Speed | None | None | None | None | None | °F |
| 16 | Programmable Filtration + Polling | 1-Speed | None | None | None | None | None | °F |

| Color Key | Output |
|-----------|-------------------------|
| | XP332 |
| | XP332 and Splitter |
| | J14 (Aux) on Main Board |

Setup Reference Table for Setups 17-32 (Setups 1-16 on previous page)

| Setup # | Circ Pump | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Blower | MicroSilk® | Temp Scale |
|---------|-----------------------------------|---------|---------|---------|---------|--------|------------|------------|
| 17 | None | 2-Speed | 2-Speed | 1-Speed | None | None | None | °F |
| 18 | None | 2-Speed | 1-Speed | 1-Speed | None | None | None | °F |
| 19 | None | 2-Speed | 2-Speed | None | None | None | None | °F |
| 20 | None | 2-Speed | 1-Speed | None | None | None | None | °F |
| 21 | None | 2-Speed | None | None | None | None | None | °F |
| 22 | Programmable Filtration + Polling | 2-Speed | 2-Speed | None | None | None | 1-Speed | °F |
| 23 | Programmable Filtration + Polling | 2-Speed | 1-Speed | None | None | None | 1-Speed | °F |
| 24 | Programmable Filtration + Polling | 1-Speed | 1-Speed | None | None | None | 1-Speed | °F |
| 25 | Programmable Filtration + Polling | 2-Speed | None | None | None | None | 1-Speed | °F |
| 26 | Programmable Filtration + Polling | 1-Speed | None | None | None | None | 1-Speed | °F |
| 27 | None | 2-Speed | 2-Speed | None | None | None | 1-Speed | °F |
| 28 | None | 2-Speed | 1-Speed | None | None | None | 1-Speed | °F |
| 29 | None | 2-Speed | None | None | None | None | 1-Speed | °F |
| 30 | Programmable Filtration + Polling | 2-Speed | 1-Speed | 1-Speed | 1-Speed | None | None | °F |
| 31 | Programmable Filtration + Polling | 1-Speed | 1-Speed | 1-Speed | 1-Speed | None | None | °F |
| 32 | None | 2-Speed | 1-Speed | 1-Speed | 1-Speed | None | None | °F |

System (and any replacement board) **is shipped in Setup 21**

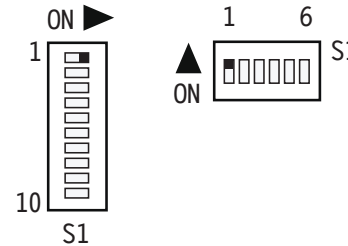
| Color Key | Output |
|-----------|-------------------------|
| | XP332 |
| | XP332 and Splitter |
| | J14 (Aux) on Main Board |

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!

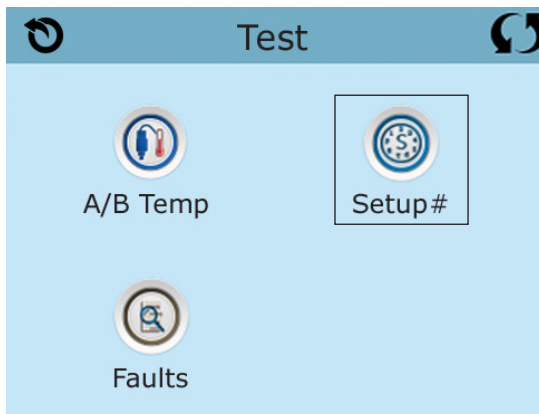
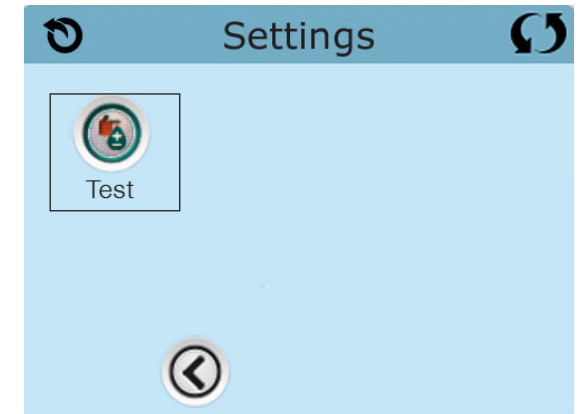
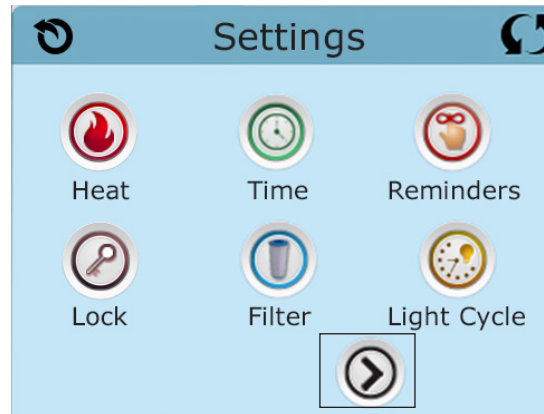
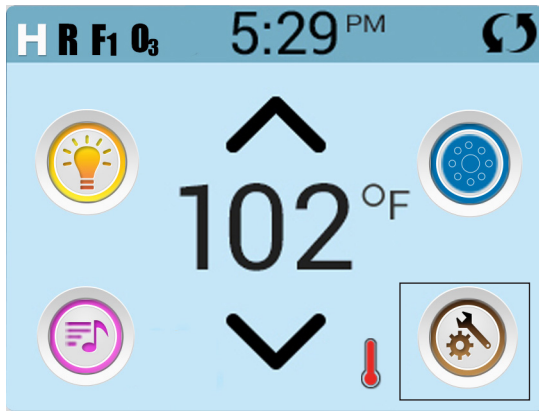
While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON. The system will enter Test Mode. Moving DIP Switch 1 to OFF will exit Test Mode.



To Change Software Setups:

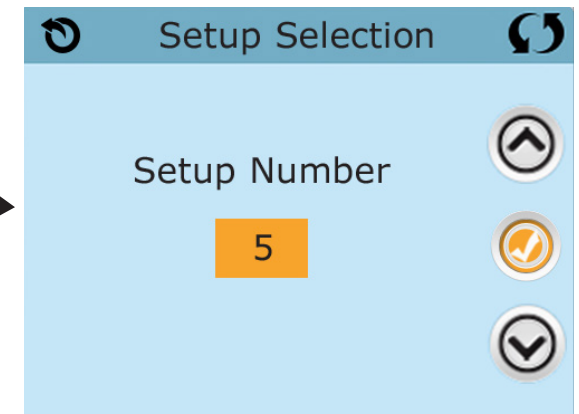
While in Test Mode, press the indicated icons to move from screen to screen.

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.



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.



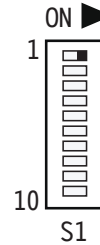
Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. © Copyright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

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

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

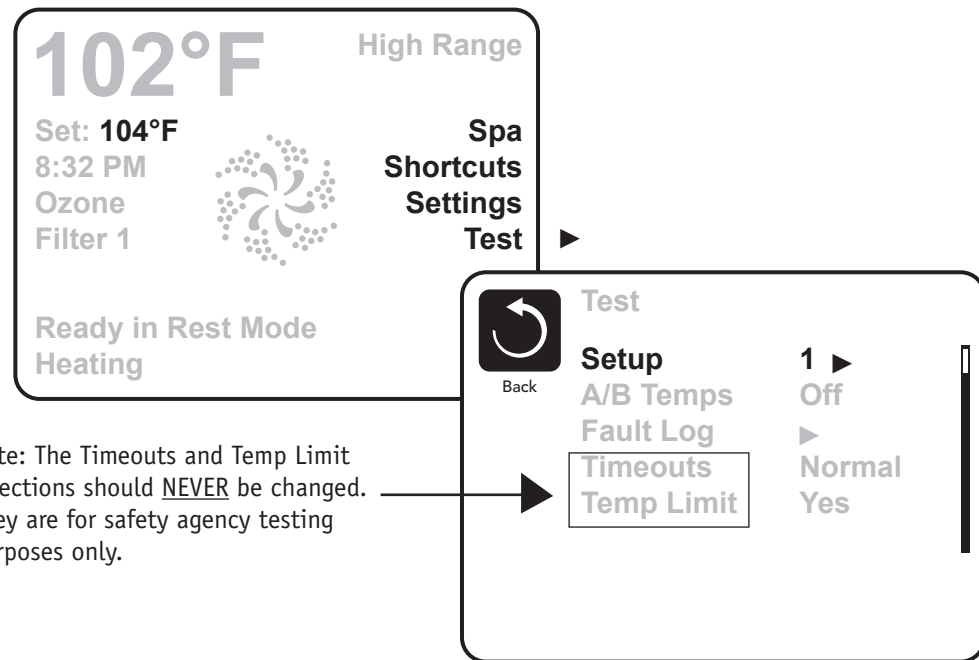
DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!

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.

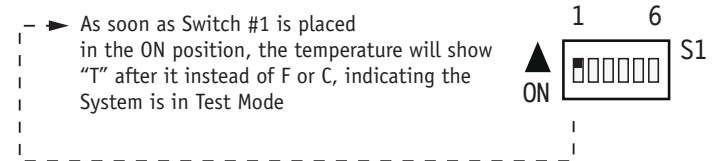


Changing Software Setups with TP600 / TP500 / TP400

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.



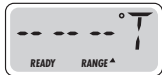
Software Setups

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 / TP500 / TP400 Continued

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

NOTE: Wherever the below says Warm or Temp followed by Light, on the TP500 press Menu instead of Warm or Temp followed by light. And whenever the chart below says Light, on the TP500 press Menu instead of Light.

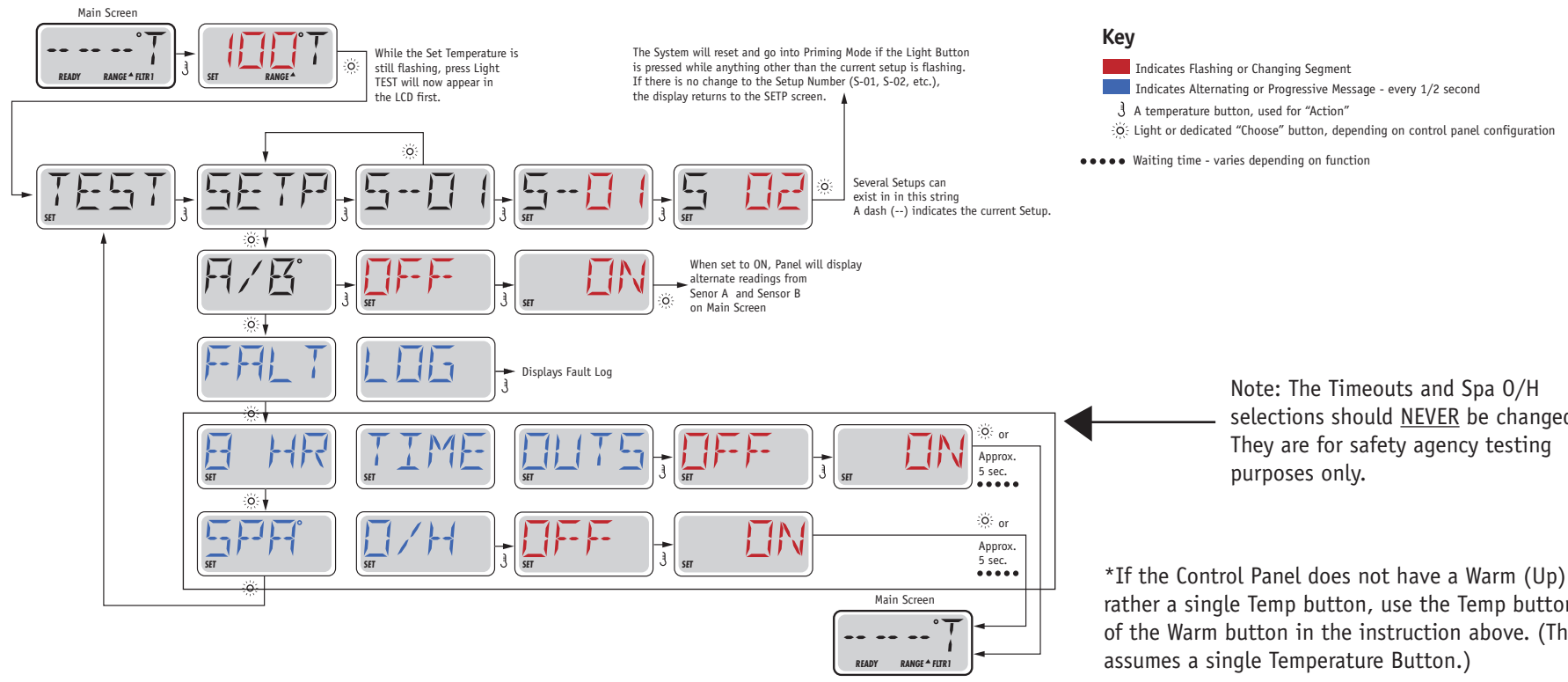
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the display shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset,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



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.



Equipment Expansion

Expansion Features

Control Connection

Relay 1 (J101)

Default

Undefined

Fuse

None

Relay 7/8 (J107)

See Below

30A

2-Speed Pump 2 in Setups 1, 6, 9, 12, 17, 19, 22 & 27

1-Speed Pump 2 (only) in Setups 2, 3, 7, 10, 11, 13, 14, 18, 20, 23, 24 & 28

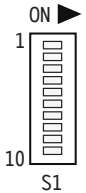
1-Speed Pump 2 And 1-Speed Pump 4 (With Splitter) in Setups 30-32

Unused in Setups 4, 5, 8, 15, 16, 21, 25, 26 & 29

DIP Switch Functions

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.



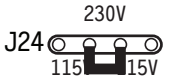
Note: A2/A3/A4 all off = No heat with any high-speed pump or blower.

Assignable DIP Switches

- | | |
|----|---|
| A7 | In "ON" position, enables a 5-minute cooldown for some gas heaters (Cooling Time B). 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 Note: <i>This feature must be enabled in software as well.</i> | J109  |
| J91 | Not used on BP1800 board. | |
| J30 | Do Not Use | |
| J31 | Not used on BP1800 board. | |
| J29 | Heater Disable Switch Connection. If J29 is shorted by any means, the heater will not run until J29 is no longer shorted. If J29 is shorted during power-up “J29” will appear on the panel. The message can be dismissed with a button press, and is the only control panel notification of J29 being shorted. No message is displayed if J29 is shorted after power-up, but the heater will not run until J29 is no longer shorted. J29 expects a switch closure (not a voltage) as the command signal. 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 | Not used on BP1800 board. Note: <i>Factory Configured do not change.</i> | |
| J24 | Jumper on center two pins (230V) when heater is running at 240V. Two Jumpers installed; one on left 2 pins and one on right 2 pins (115V) when heater is running at 120V. | J24  |

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.

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.

Replacement Parts

PCBA:

Main PCBA: G1361
Expander PCBA: 59097

HEATER(s):

Plug + Click Heater Kit: G7512 5.5kW 800Inc
G7412 4.0kW 800Inc
Temp Sensor Kit: 53605

CABLES:

N/A

FUSES:

| Part Number | Amperage | Location |
|-------------|-----------|-----------------------|
| 30136 | 30A | F6, F8, F1 (Expander) |
| 26307 | 2A SLO | F4 |
| 26905 | 0.5A SLO | F3 |
| 26904 | 10A | F2, F7 |
| 26976 | 3.15A SLO | F5 |

BP1800 Configuration Options

General Features

| Feature | Default |
|------------------------------------|--------------------------------|
| Pump 1 in Filter Cycle (Circ Only) | No |
| Pump 1 Low Timer | <i>15 Minutes</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 | 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.

BP1800 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)

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.

BP1800 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* | 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 |
| Cooling Time A | 1 Minute |
| Cooling Time B | 5 Minutes |

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

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.

BP1800 Configuration Options

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)*

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.

BP1800 Configuration Options

Special Features

Feature

Default

Special Amperage Rule A

MicroSilk® immediately turns OFF pumps in Setups 22-29; No Limitation in other Setups

Special Amperage Rule B

MicroSilk® immediately turns OFF pumps in Setups 22-29; 3 high-speed pumps maximum in Setups 30-32;
2 high-speed pumps maximum and blower suppressed when 2 pumps are on high-speed, in other Setups

Drain Mode

Disabled

Demo Mode

Disabled

GFCI Trip

Enabled

Automatic GFCI Test

Disabled

Ozone Slaved to Heater Pump

Yes in circ setups
No in non-circ setups

Dual Voltage Heater

Always Input Voltage

Safety Suction

Disabled

TP900 Panel Configuration

Button Layout Table

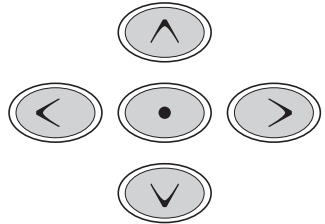
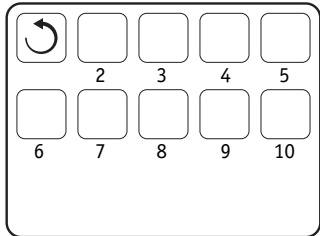
| Button # | Pump 3 AND Pump 4 Setups 30-32 | Pump 3 (no Pump 4) Setups 9-11, 17 & 18 | Blower + Pump 2 Setups 1-3, 6 & 7 | Blower (no Pump 2) Setups 4, 5 & 8 | MicroSilk® + Pump 2 Setups 22-24, 27 & 28 | MicroSilk® (no Pump 2) Setups 25, 26 & 29 | Pump 2 (no P3/BL/MS) Setup 12-14, 19 & 20 | Pump 1 (no P2/BL/MS) Setup 15, 16 & 21 |
|----------|-----------------------------------|--|--------------------------------------|---------------------------------------|--|--|--|---|
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| 3 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | MicroSilk® | Jets 2 | Light 1 |
| 4 | Jets 3 | Jets 3 | Blower | Light 1 | MicroSilk® | Light 1 | Light 1 | Invert |
| 5 | Jets 4 | Light 1 | Light 1 | Invert | Blower | Invert | Invert | (Circ Icon) |
| 6 | Light 1 | Invert | Invert | (Circ Icon) | Light 1 | (Circ Icon) | (Circ Icon) | Undefined |
| 7 | Invert | (Circ Icon) | (Circ Icon) | Undefined | Invert | Undefined | Undefined | Undefined |
| 8 | (Circ Icon*) | Undefined | Undefined | Undefined | (Circ Icon) | Undefined | Undefined | Undefined |
| 9 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| 10 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| 11 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 13 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| 14 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | Undefined | Jets 2 | Undefined |
| 15 | Jets 3 | Jets 3 | Blower | Light | MicroSilk® | MicroSilk® | Light | Light |
| 16 | Light | Light | Light | Invert | Light | Light | Invert | Invert |

* A Circ Icon will appear in Circ Setups 1–5, 9-16, 22-26, 30 & 31; it will not appear in non-Circ Setups 6–8, 17-21, 27-29 & 32.

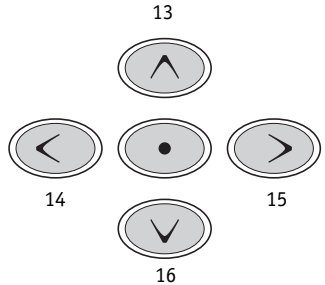
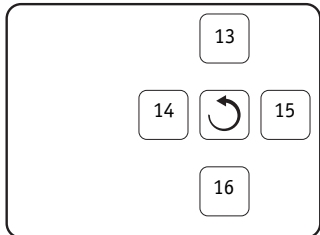
TP900 Panel Configuration

| Button # |
|----------|
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |

Spa Screen



Shortcuts Screen



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.



TP800 Panel Configuration

Button Layout Table

| Feature # | Pump 3 AND Pump 4 Setups 30-32 | Pump 3 (no Pump 4) Setups 9-11, 17 & 18 | Blower + Pump 2 Setups 1-3, 6 & 7 | Blower (no Pump 2) Setups 4, 5 & 8 | MicroSilk® + Pump 2 Setups 22-24, 27 & 28 | MicroSilk® (no Pump 2) Setups 25, 26 & 29 | Pump 2 (no P3/BL/MS) Setup 12-14, 19 & 20 | Pump 1 (no P2/BL/MS) Setup 15, 16 & 21 |
|-----------|-----------------------------------|--|--------------------------------------|---------------------------------------|--|--|--|---|
| A1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| A2 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| A3 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | MicroSilk® | Jets 2 | Light 1 |
| A4 | Jets 3 | Jets 3 | Blower | Light 1 | MicroSilk® | Light 1 | Light 1 | Invert |
| A5 | Jets 4 | Light 1 | Light 1 | Invert | Blower | Invert | Invert | (Circ Icon) |
| A6 | Light 1 | Invert | Invert | (Circ Icon) | Light 1 | (Circ Icon) | (Circ Icon) | Undefined |
| A7 | Invert | (Circ Icon) | (Circ Icon) | Undefined | Invert | Undefined | Undefined | Undefined |
| A8 | (Circ Icon*) | Undefined | Undefined | Undefined | (Circ Icon) | Undefined | Undefined | Undefined |
| A9 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| A10 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| A11 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| A12 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| A13 | Jets 1 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| A14 | Jets 2 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| A15 | Jets 3 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| A16 | Jets 4 | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined | Undefined |
| B1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| B2 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | Undefined | Jets 2 | Undefined |
| B3 | Jets 3 | Jets 3 | Blower | Undefined | MicroSilk® | MicroSilk® | Undefined | Undefined |
| B4 | Light | Light | Light | Light | Light | Light | Light | Light |

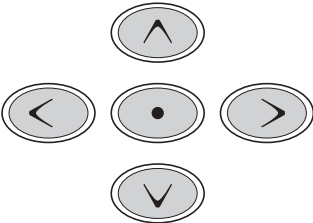
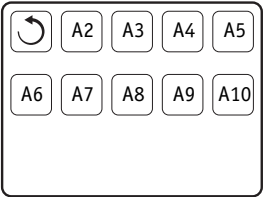
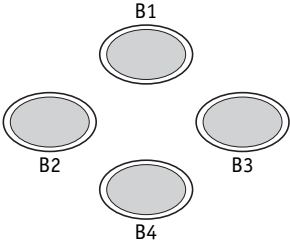
* A Circ Icon will appear in Circ Setups 1–5, 9-16, 22-26, 30 & 31; it will not appear in non-Circ Setups 6–8, 17-21, 27-29 & 32.

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.

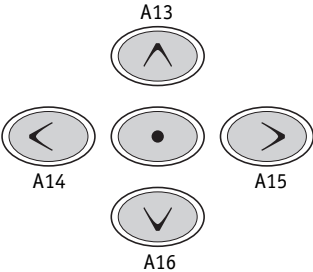
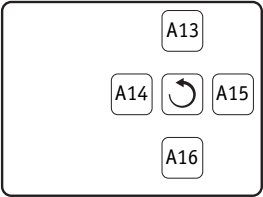
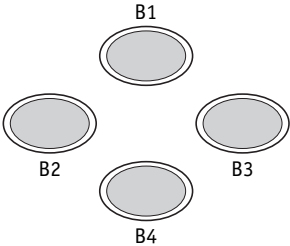


TP800 Panel Configuration

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 # | Pump 3 AND Pump 4 Setups 30-32 | Pump 3 (no Pump 4) Setups 9-11, 17 & 18 | Blower + Pump 2 Setups 1-3, 6 & 7 | Blower (no Pump 2) Setups 4, 5 & 8 | MicroSilk® + Pump 2 Setups 22-24, 27 & 28 | MicroSilk® (no Pump 2) Setups 25, 26 & 29 | Pump 2 (no P3/BL/MS) Setup 12-14, 19 & 20 | Pump 1 (no P2/BL/MS) Setup 15, 16 & 21 |
|-----------------|-----------------------------------|--|--------------------------------------|---------------------------------------|--|--|--|---|
| 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| 2 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | MicroSilk® | Jets 2 | Unused |
| 3 | Jets 3 | Jets 3 | Blower | Invert | MicroSilk® | Invert | Invert | Invert |
| 4 | Temperature | Up | Up | Up | Up | Up | Up | Up |
| 5 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 |
| 6 | Jets 4 | Down | Down | Down | Down | Down | Down | Down |
| LED 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| LED 2 | Jets 2 | Jets 2 | Jets 2 | Blower | Jets 2 | MicroSilk® | Jets 2 | Unused |
| LED 3 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 | Light 1 |
| LED 4 | Heat On | Heat On | Heat On | Heat On | Heat On | Heat On | Heat On | Heat On |
| Generic Overlay | 13579 | 12762 | 12762 | 12101 | 13142 | 12740 | 12198* | 13635* |

* Overlay 12101 can also be used



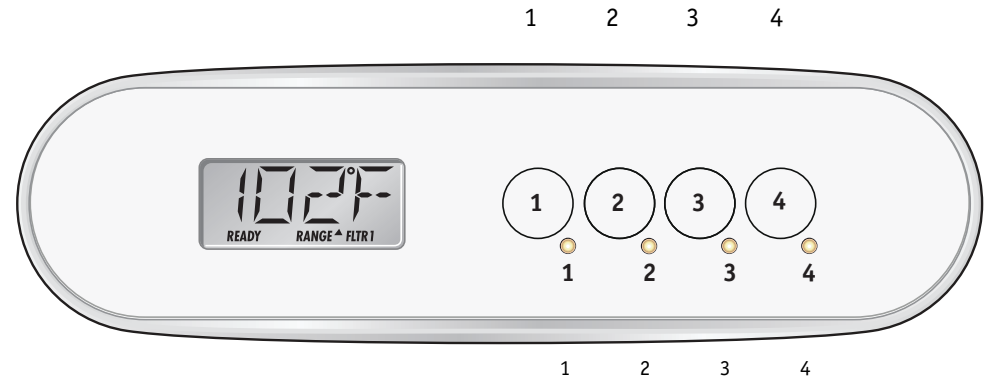
TP600

55676-XX - No Overlay

TP400 Panel Configuration

Button Layout Table for TP400T TP400T is not supported in Setups 1-3, 6, 7, 9-11, 17, 18, 22-24, 27, 28 & 30-32.

| Button # | Setups 4, 5, & 8 | Setups 12-14, 19 & 20 | Setups 15, 16 & 21 | Setups 25, 26 & 29 |
|----------|------------------|-----------------------|--------------------|--------------------|
| 1 | Temperature | Temperature | Temperature | Temperature |
| 2 | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| 3 | Light 1 | Light 1 | Light 1 | Light 1 |
| 4 | Blower | Jets 2 | Undefined | MicroSilk® |
| LED 1 | Heater ON | Heater ON | Heater ON | Heater ON |
| LED 2 | Jets 1 ON | Jets 1 ON | Jets 1 ON | Jets 1 ON |
| LED 3 | Light ON | Light ON | Light ON | Light ON |
| LED 4 | Blower ON | Jets 2 ON | Undefined | MicroSilk® ON |



TP400T US

50380-XX

Includes overlay PN 12511.

Button Layout Table for TP400W

| Button # | All Setups |
|----------|------------|
| 1 | Up |
| 2 | Down |
| 3 | Light 1 |
| 4 | Jets 1 |
| LED 1 | Heater ON |
| LED 2 | Undefined |
| LED 3 | Light ON |
| LED 4 | Jets 1 ON |

TP400W is supported in Setups 15, 16 & 21 only.

TP400W US

50384-XX

Includes overlay PN 12510.

BP1800 Configuration Options

Auxiliary Panel Features on Bank 1*

| Feature | Default |
|---------------|--|
| Aux Button A1 | Jets 1 |
| Aux Button A2 | Jets 2 |
| Aux Button A3 | <i>Jets 3 in Setups 9-11, 17, 18 & 30-32; MicroSilk® in Setups 22-29; Blower in all other Setups</i> |
| Aux Button A4 | Light |

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

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

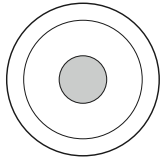
Aux Connection Splitter PN 25257 may be required.

BP1800 Configuration Options

Auxiliary Panel Features

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 |



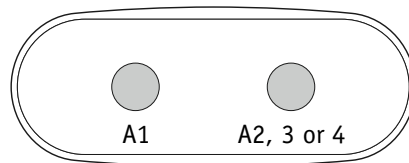
Call Customer Service for additional information about Auxiliary Panels.

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

Aux Connection Splitter PN 25257 may be required.

AX20

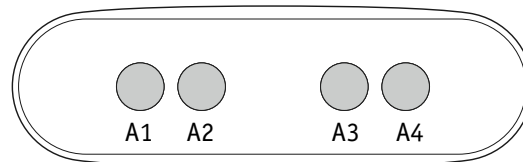
| | | |
|-----------|--------|-------|
| AX20 A1A2 | No O/L | 52800 |
| AX20 A1A3 | No O/L | 52801 |
| AX20 A1A4 | No O/L | 52802 |



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.