# BP21P4BC Tech Sheet

| | |
|---|---|
| **Customer:** | **Balboa Water Group** |
| **Part Number:** | 56626-03 825 Incoloy 3kW |
| | 56627-03 Titanium 3kW |
| Custom Box Overlay | ☐ |
| Box Overlay Part Number | N/A |
| CE System Model: | BP21-BP21P4BC-RCA3.0K |
| Software Version ID: | M100_225 V65.0 |
| Software Version: | 65.0 |
| File Name: | BP2100_65.0_BP21P4BC_TP6.hex |
| Configuration Signature: | 99DB30F1 |
| Eng. Project Number: | 5663 |

spafix

Control Panels:

| | |
|---|---|
| spaTouch™3 | Any version (version 3.2 or later required for Clim8zone™ heat pump support) |
| spaTouch™2 | Any version (version 2.19 or later required for CHROMAZON∃™ support; version 2.36 or later required for Clim8zone™ heat pump 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) |
| TP700 | Any version |
| TP600 | Version 2.7 and later (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.
© Copyright 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# System Revision History

| Part # | EPN | Date | Originator | Changes Made |
|---|---|---|---|---|
| ZT000084 | 4248 | 04-10-14 | BWG | New generic BP2100 with 4 Pumps plus optional blower and/or Circ. |
| 56625<br>56626<br>56627 | 4248 | 05-01-14 | BWG | Released to production. |
| 56625-01<br>56626-01<br>56627-01 | 4776 | 10-27-16 | BWG | Updated to latest software version, adding topside-intergrated bba™2 support. Also added TP600 support. Released to production. |
| 56626-02<br>56627-02 | 5098 | 01-27-21 | BWG | Redesigned BP2100 board + updated software to support CHROMAZON∃™ & M8. 56625-XX (800 Incoloy version) discontinued. |
| 56626-03<br>56627-03 | 5663 | 06-09-22 | BWG | Update to support Clim8zone™ heat pump. Update transformer fuse. |
| | | | | |
| | | | | |

bba™2 / bba™3 (Balboa Bluetooth Amp) connection is documented separately.

bba™2 / bba™3 is integrated into graphic display panels (TP700, TP800, TP900 and spaTouch™).
With TP600, use the “BT” entry on the menu to toggle bba™2 / bba™3 power On/Off.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Basic Functions Setup 1-8

## Power Requirements:

**Single Service** [3 wires (line, neutral, ground)] – RESTRICTED OPERATIONS (See page 5)
230VAC, 50/60Hz*, 1þ, 32A, (Circuit Breaker rating = 40A max.)

**Dual Service** N/A

**3-Service** [5 wires (line 1, line 2, line 3, neutral, ground)]
230VAC line-to-neutral**, 50/60Hz*, 3þ, 16A, (Circuit Breaker rating = 20A max each phase line.)

**HiPot Testing Note:**
Disconnect slip terminal with green wires from J6 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test. Reconnect terminal to J6 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.

** 3-phase service measured line-to-line will read about 400V, but BP systems do not use it line-to-line.

**IMPORTANT -** Service must include a neutral wire, with a line to neutral voltage of 230VAC.

**In 3x16A Service:**

Pump 2 and Blower (if any) are on one service.

Pump 3, Pump 4, and the heater are on another service.

Everything else is on the remaining service.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Basic Functions Setup 1-8

## System Ouputs:

| | | | | |
|---|---|---|---|---|
| Pump 1 | 230VAC | 2-Speed<br>1-Speed in Setups 4 & 5 | 11A max* | 15-minute timer for High Speed, 15-Minute timer for Low Speed |
| | This is the heater pump in Setups 6-8<br>Must deliver 20 GPM through heater | | | |
| Pump 2 | 230VAC | 2-Speed<br>1-Speed in Setups 2-5, 7–8 | 11A max* | 15-minute timer |
| Pump 3 | 230VAC | 1-Speed | 8A max* | 15-minute timer |
| Pump 4 | 230VAC | 1-Speed | 8A max* | 15-minute timer |
| Blower | 230VAC | 1 Speed<br>Unused in Setups 1, 3, 5, 6 & 8 | 5A max* | 15-minute timer |
| Circ Pump | 230VAC | 1-Speed | 2A max* | Programmable Filtration Cycles + Polling |
| | This is the heater pump in Setups 1–5<br>Must deliver 20 GPM through heater | | | |
| Ozone | 230VAC | | .5A max* | Slaved to Circ Pump in Setups 1-5<br>Independent in Setups 6-8 |
| Spa Light | 10VAC | On/Off | 2A*** max | 240-minute timer. |
| AV + C8Z** | 230VAC | Hot | 2A*+8A max | Always on |
| Heater | 3.0kW @ 240VAC max | | | |

* These are individual maximums but depending on the electrical services they may need to be reduced. See restrictions on next page.

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

*** Optional splitter PN 22934 can be used to connect two things, such as an audio device and Clim8zone™(C8Z), to J33.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Basic Functions Setup 1-8

**Restrictions:**

In 3x16A, all equipment (if within the individual maximums listed on page 4) can run together, except the heater turns off with any high-speed pump or blower. (DIP switch A5 must be OFF.)

In 1x32A, DIP switch A5 must be ON. With DIP Switch A5 ON, only 3 pumps (any 3 pumps) can be ON at high speed at any one time, and the blower will not run when 3 pumps are ON at high speed.

In 1x40A, with DIP switch A5 ON, it works just like at 1x32A.

To be able to use 1x40A with DIP switch A5 OFF (ie, no restrictions except for the heater), all the 230V equipment used in the spa (except for the heater) must add up to no more than 39.5 Amps. This means all 4 pumps, the blower (if any), the circ pump (if any), the ozone, and A/V (if any). (There is 0.5 Amps at 230V reserved for board and panel power as well as 10V equipment including the spa lights. That is why the 230V equipment must add up to 39.5 Amps rather than 40.0 Amps.)

**See this chart for some 1x40A examples:**

| | | | |
|---|---|---|---|
| Pump 1 | 11A | 11A | 8.5A |
| Pump 2 | 11A | 11A | 8.5A |
| Pump 3 | 8A | 8A | 7.5A |
| Pump 4 | 8A | 8A | 7.5A |
| Blower | 3A | None | 3A |
| Circ | 2A | None | 2a |
| Ozone | 0.5A | 0.5A | 0.5A |
| A/V | None | None | 2A |
| Total | 42.5A | 38.5A | 39.5A |
| Will it work? | No | Yes | Yes |

Spafix

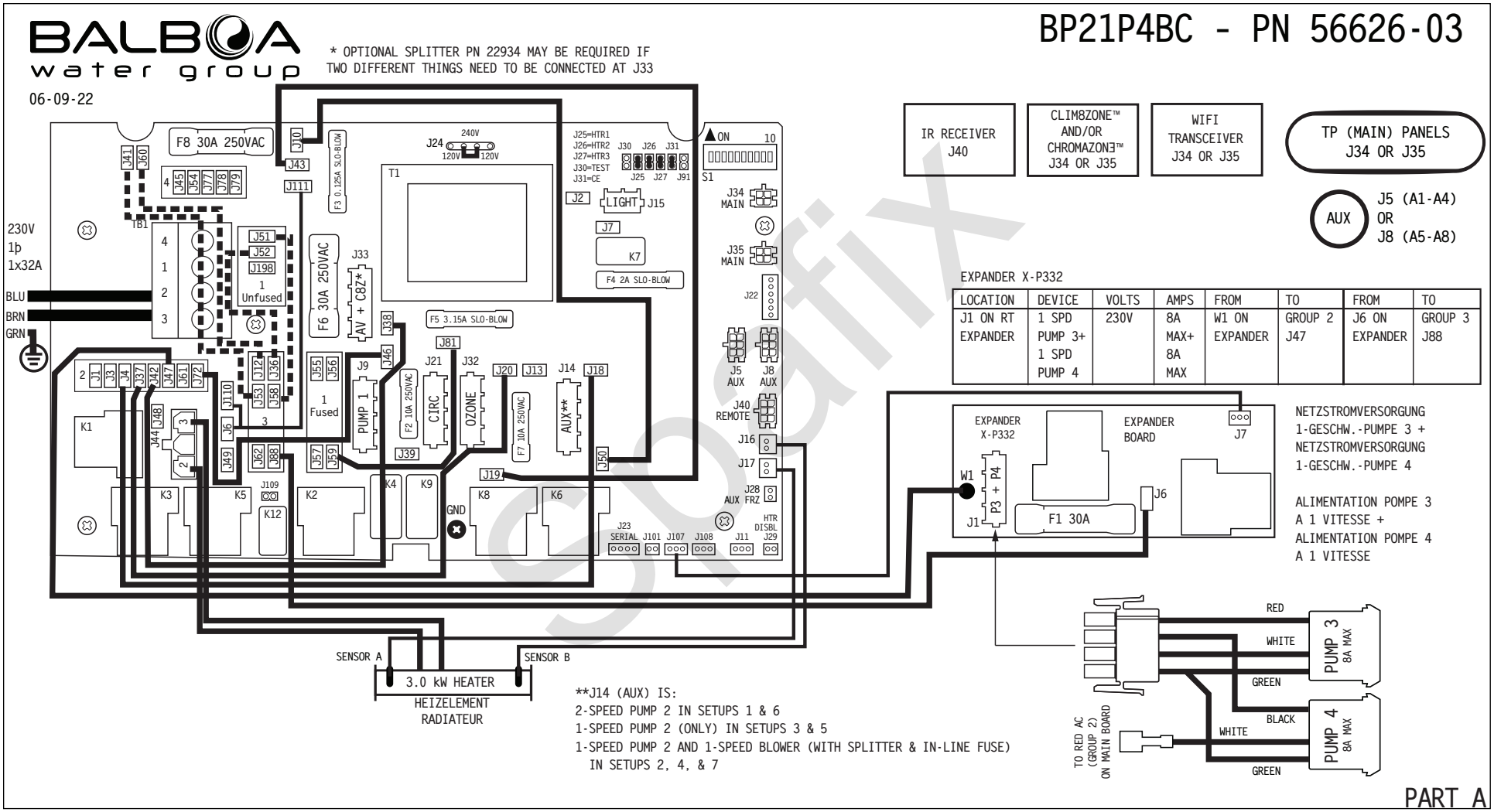
Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending.
© Copyright 2012 Balboa Water Group.



www.spafix.dk info@spafix.dk

# Hardware Setup

## 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.
© Copyright 2012 Balboa Water Group.



BALBOA water group
www.spafix.dk
info@spafix.dk

# Hardware Setup

## Settings

SINGLE SERVICE 230V 1þ / 1x32A, THREE-SERVICE 230V 3þ / 3x16A

| LOCATION | DEVICE | MAX AMPS |
|---|---|---|
| J9 | NETZSTROMVERSORGUNG 2-GESCHW.-PUMPE 1<br>ALIMENTATION POMPE 1 A 2 VITESSES 2-SPD PUMP 1 | 11A |
| J14 | 2/1-SPD PUMP 2 + BLOWER<br>NETZSTROMVERSORGUNG 2/1-GESCHW.-PUMPE 2 + SPRUDELGEBLASE<br>ALIMENTATION POMPE 2 A 2/1 VITESSES + VENTILATEUR | 11A + 5A |
| J15 | 10V BELEUCHTUNG ECLAIRAGE BAIN HYDRO SPA LIGHT | 2A* (@10V) |
| J21 | KREISLAUF PUMPE POMPE DE CIRCULATION CIRC PUMP | 2A |
| J32 | OZONGENERATOR GENERATOROZONE OZONE GENERATOR | 0.5A |
| J33 | AV + CLIM8ZONE™ (C8Z) | 2A + 8A |
| J44 | HEATER | 3.0kW |

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

| SETUP # | CIRC PUMP | PUMP 1 | PUMP 2 | PUMP 3 | PUMP 4 | BLOWER | TEMP SCALE |
|---|---|---|---|---|---|---|---|
| 1 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 2-SPEED | 1-SPEED | 1-SPEED | NONE | °C |
| 2 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | °C |
| 3 | PROGRAMMABLE FILTRATION + POLLING | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | °C |
| 4 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | °C |
| 5 | PROGRAMMABLE FILTRATION + POLLING | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | °C |
| 6 | NONE | 2-SPEED | 2-SPEED | 1-SPEED | 1-SPEED | NONE | °C |
| 7 | NONE | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | °C |
| 8 | NONE | 2-SPEED | 1-SPEED | 1-SPEED | 1-SPEED | NONE | °C |

INSTEAD OF SETUP #5, THIS SYSTEM IS CONFIGURED IN SETUP #: ☐

BALBOA water group

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

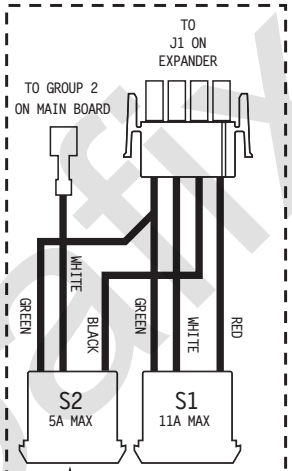
FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM OF 90°C.

USE COPPER CONDUCTORS ONLY. EMPLOYER UNIQUEMENT DES CONDUCTEURS DE CUIVRE.

230V 1þ 1x32A

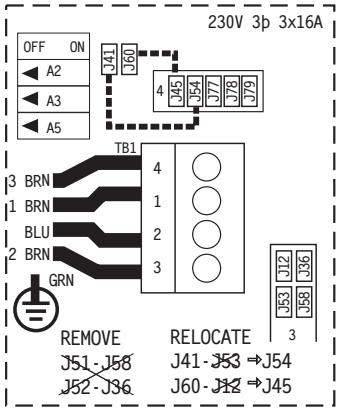
| SWITCHBANK S1 OFF | | SWITCHBANK S1 ON |
|---|---|---|
| TEST MODE OFF | ◀ A1 | TEST MODE ON |
| DON'T ADD 1 HS PUMP W/HTR | ◀ A2 | ADD 1 HS PUMP WITH HEAT |
| DON'T ADD 2 HS PUMPS W/HTR | ◀ A3 | ADD 2 HS PUMPS WITH HEAT |
| DON'T ADD 4 HS PUMPS W/HTR | ◀ A4 | ADD 4 HS PUMPS WITH HEAT |
| SPECIAL AMPERAGE RULE A | A5 ▶ | SPECIAL AMPERAGE RULE B |
| STORE SETTINGS* | ◀ A6 | MEMORY RESET* |
| 1 MIN HTR COOLDOWN (ELEC) | ◀ A7 | 5 MIN HTR COOLDOWN (GAS) |
| NOT ASSIGNED | ◀ A8 | NOT ASSIGNED |
| NOT ASSIGNED | ◀ A9 | NOT ASSIGNED |
| NOT ASSIGNED | ◀ A10 | NOT ASSIGNED |

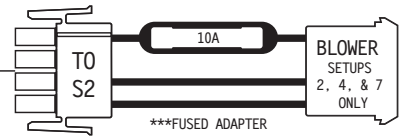
*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.




SPLITTER OPTIONS:

S1 = PUMP 2
S2 = FUSED ADAPTER




‡ OPTIONAL BP2X-WIRE KIT PN 30893 - REQUIRED FOR SETUPS 2, 4, & 7

06-09-22

BP21P4BC - PN 56626-03 PART B

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 2012 Balboa Water Group.



BALBOA water group

www.spafix.dk info@spafix.dk

# Setup Reference Table

| Setup # | Circ Pump | Pump 1 | Pump 2 | Pump 3 | Pump 4 | Blower | Temp Scale |
|---|---|---|---|---|---|---|---|
| 1 | Programmable Filtration + Polling | 2-Speed | 2-Speed | 1-Speed | 1-Speed | None | °C |
| 2 | Programmable Filtration + Polling | 2-Speed | 1-Speed | 1-Speed | 1-Speed | 1-Speed | °C |
| 3 | Programmable Filtration + Polling | 2-Speed | 1-Speed | 1-Speed | 1-Speed | None | °C |
| 4 | Programmable Filtration + Polling | 1-Speed | 1-Speed | 1-Speed | 1-Speed | 1-Speed | °C |
| 5 | Programmable Filtration + Polling | 1-Speed | 1-Speed | 1-Speed | 1-Speed | None | °C |
| 6 | None | 2-Speed | 2-Speed | 1-Speed | 1-Speed | None | °C |
| 7 | None | 2-Speed | 1-Speed | 1-Speed | 1-Speed | 1-Speed | °C |
| 8 | None | 2-Speed | 1-Speed | 1-Speed | 1-Speed | None | °C |

**System** (and any replacement board) **is shipped in Setup 5**

| Color Key | Output |
|---|---|
| | XP332 and Splitter |
| | J14 (Aux) and splitter and in-line Blower fuse |
| | J14 (Aux) on Main Board |

Spafix

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 2012 Balboa Water Group.



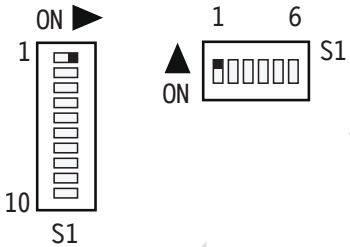
www.spafix.dk
info@spafix.dk

# 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!***

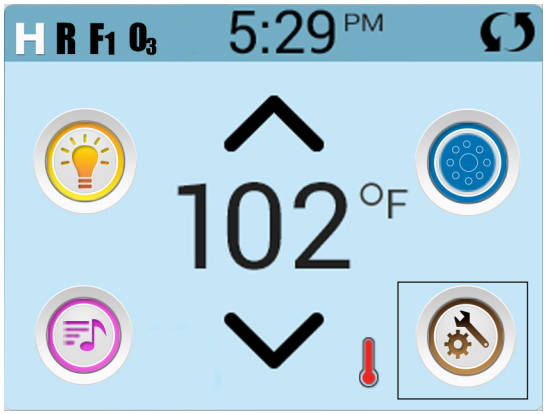
While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON. The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

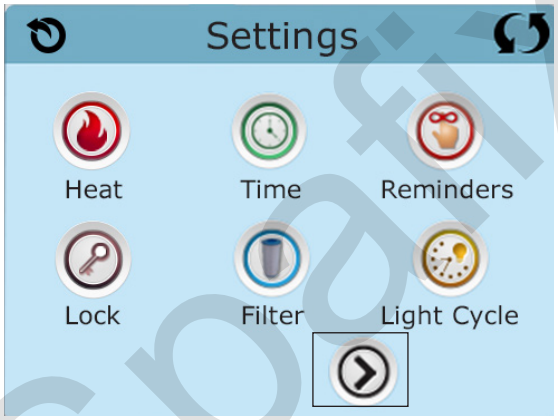


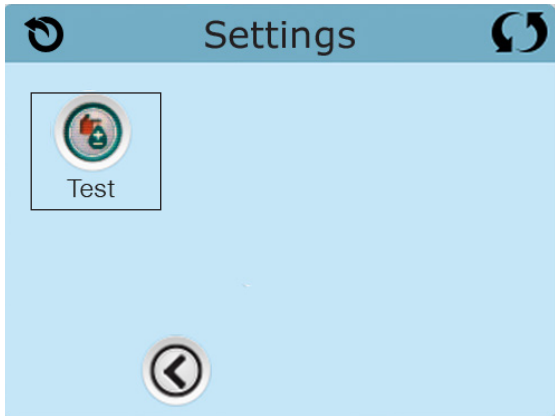

## To Change Software Setups:

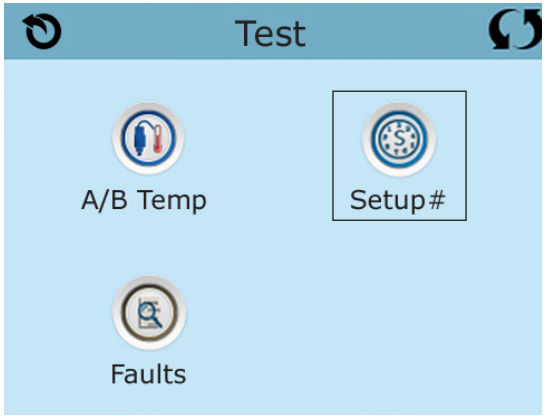
While in Test Mode, press the indicated icons to move from screen to screen.

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.



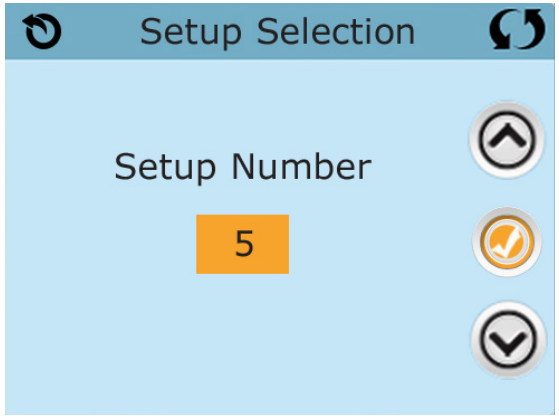




Once on the Setup Selection screen, press the Up or Down icon to select the desired Setup Number, then press the Check Mark icon to confirm and to have the spa restart.

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 2012 Balboa Water Group.



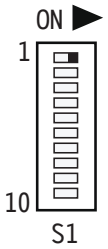
www.spafix.dk
info@spafix.dk

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

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

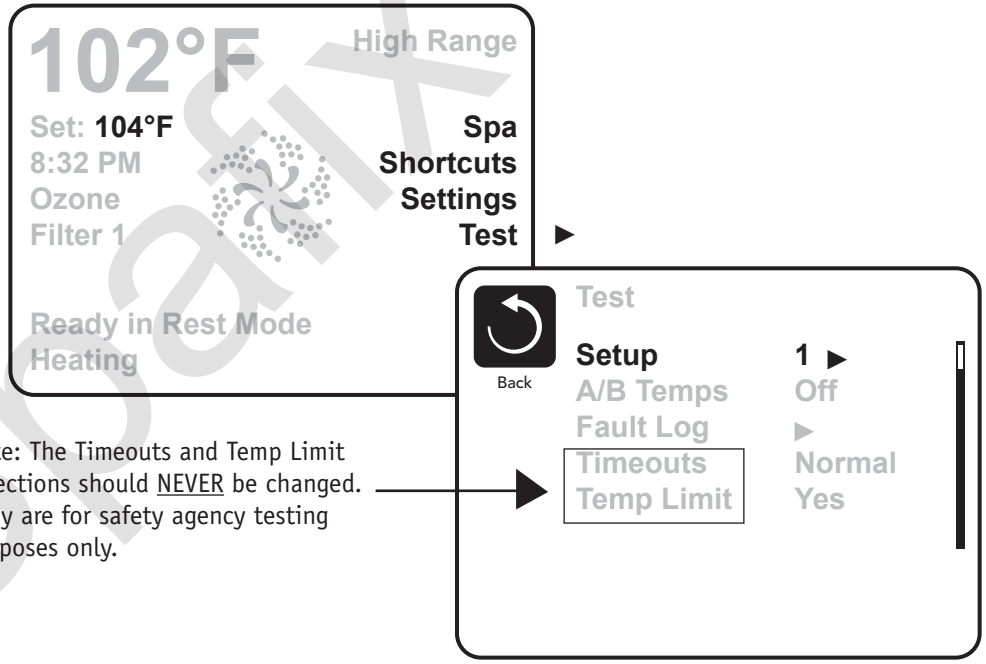
***DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!***

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.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

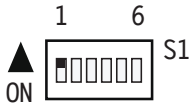
# Changing Software Setups with TP600 / TP400

## 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

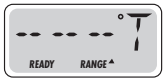



## Software Setups

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.**

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Changing Software Setups with TP600 / TP400 Continued

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

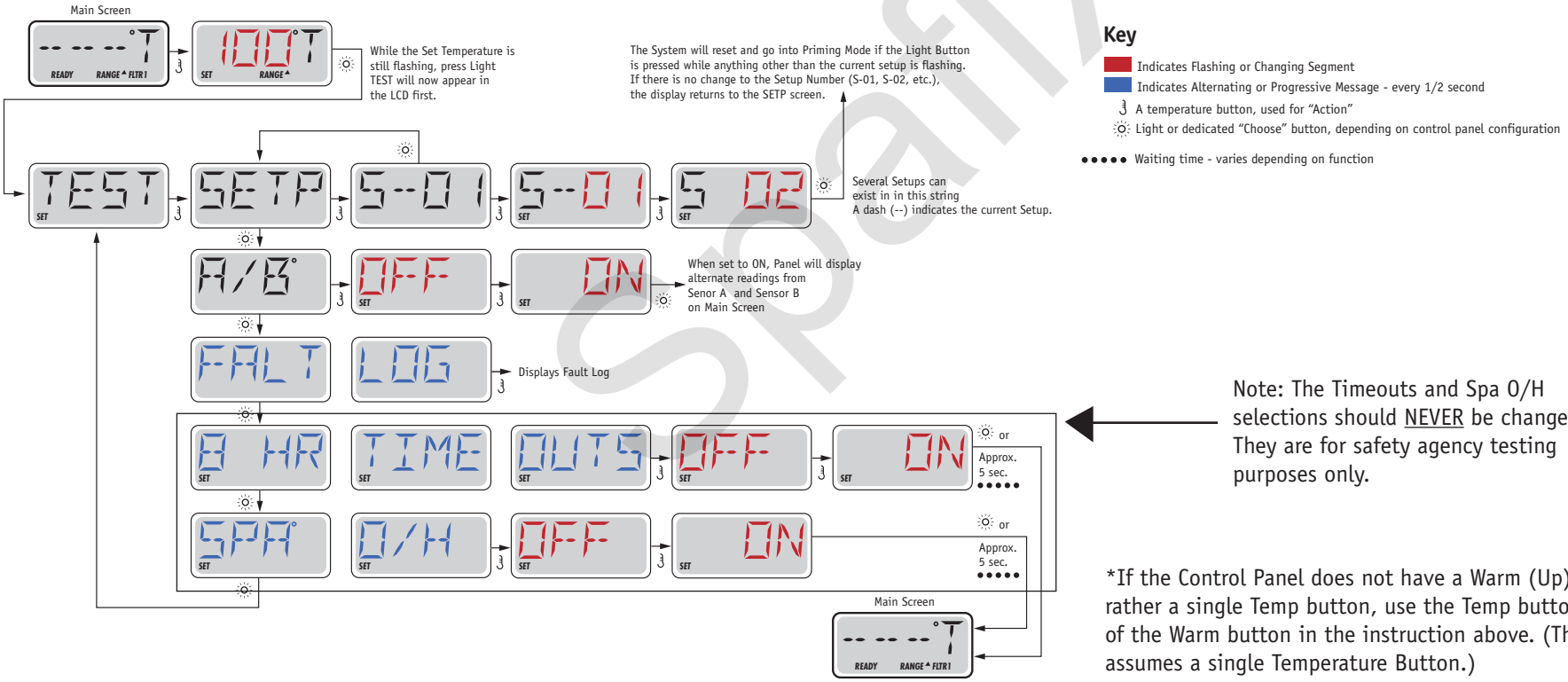
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the diplay shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset,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




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.)

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Equipment Expansion

## Expansion Features

| Control Connection | Default | Fuse |
|---|---|---|
| Relay 1 (J101) | Undefined | None |
| Relay 7/8 (J107) | See Below<br>1-Speed Pump 3 And 1-Speed Pump 4 (With Splitter) | 30A |
| Relay 9/10 (J108) | Undefined | None |

Spafix

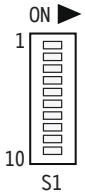
Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending.
© Copyright 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# 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. |
| 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.<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, 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).<br>In “OFF” position, enables a 1-minute cooldown for electric heaters (Cooling Time A). |

*Undesignated switches are not assigned a function.*

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# Jumper Definitions

| | | |
|---|---|---|
| **J109** | Non Applicable on CE models | J109 |
| **J91** | Real Time Clock Enable/Disable<br>***Note:*** *This Jumper should NOT be shorted when the Control Panel can display time of day.* | J91 |
| **J30** | Do Not Use | |
| **J31** | Jumper on 1 pin with 2.0kW or smaller heater<br>Jumper on 2 pins with a 3.0kW or higher heater | 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 |
| **J24** | Jumper on center two pins (230V) when heater is running at 240V.<br>Two Jumpers installed; one on left 2 pins and one on right 2 pins (115V) when heater is running at 120V. | 230V<br>J24<br>115 15V |

## 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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk
Spafix

# Replacement Parts

**PCBA:**

| | |
|---|---|
| Main PCBA: | 59538-01 |
| Expander PCBA: | 59097 |

**HEATER(s):**

| | |
|---|---|
| Plug + Click Heater Kit: | 58107R16 3.0kW 825Inc |
| | 55626R16 3.0kW Titanium |
| Temp Sensor Kit: | 53605 |

**CABLES:** 25093 P3/P4 Adapter

**FUSES:**

| Part Number | Amperage* | Location |
|---|---|---|
| 30136 | 30A | F6, F8, F1 (Expander) |
| 26307 | 2A | F4 |
| 24825 | 0.125A | F3 |
| 30122 | 10A | F2, F7 |
| 26976 | 3.15A | F5 |

* The amperages shown above are only intended for identifying fuses on our boards. They are not complete descriptions of those fuses. Please use the part numbers at the left to order fuses directly from Balboa.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk info@spafix.dk

# BP2100 Configuration Options

## General Features

| Feature | Default |
|---|---|
| Pump 1 in Filter Cycle (Circ Only) | No |
| Pump 1 Low Timer | *15 Minutes* |
| General Pump Timer | 15 Minutes |
| Blower Timer | 15 Minutes |
| Mister Timer | 15 Minutes |
| Light Timer | 240 Minutes |
| Circ (when enabled) | Programmable + Polling |
| Cleanup Cycle | *30 Minutes* |
| Cleanup 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.

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# BP2100 Configuration Options

## Temperature Features

| Feature | Default |
|---|---|
| Temperature Display | °C |

*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)*

Spafix

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 2012 Balboa Water Group.



www.spafix.dk info@spafix.dk

# BP2100 Configuration Options

## Time Features

| Feature | Default |
|---|---|
| Time Format* | 24 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)*

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# BP2100 Configuration Options

## Reminder Features

| Feature | Default |
|---|---|
| Reminders Shown* | *Yes* |
| 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 |

Spafix

**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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# BP2100 Configuration Options

## Special Features

| Feature | Default |
|---|---|
| Special Amperage Rule A | No Limitation |
| Special Amperage Rule B | 3 high-speed pumps max. Blower turns off with 3 high speed pumps |
| Drain Mode | Disabled |
| Demo Mode | Disabled |
| GFCI Trip | Not Applicable for CE Models |
| Ozone Slaved to Heater Pump | *Yes in circ setups*<br>*No in non-circ setups* |
| Dual Voltage Heater | Always Input Voltage |
| Safety Suction | Disabled |

Spafix

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 2012 Balboa Water Group.

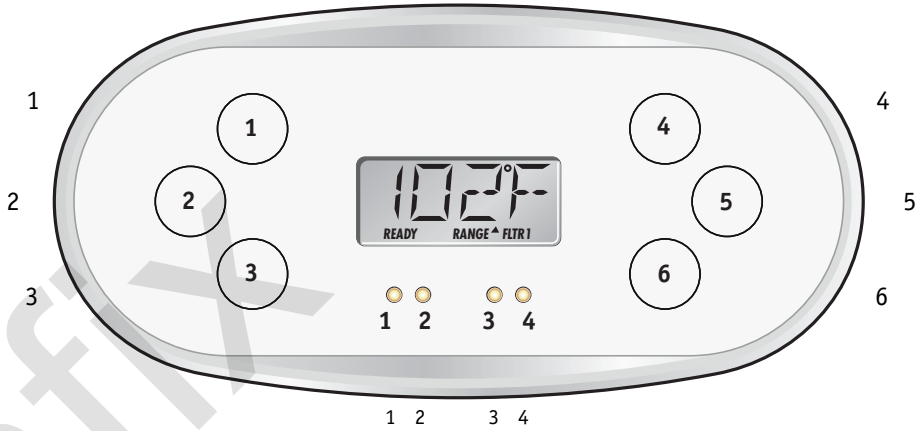


www.spafix.dk
info@spafix.dk

# TP600 Panel Configuration

## Button Layout Table

| Button # | Setups 1 - 8 |
|---|---|
| 1 | Jets 1 |
| 2 | Jets 2 |
| 3 | Jets 3 |
| 4 | Temperature |
| 5 | Light 1 |
| 6 | Jets 4 |
| LED 1 | Jets 1 |
| LED 2 | Jets 2 |
| LED 3 | Light 1 |
| LED 4 | Heat On |




In all Setups, the button labeled "AUX" on overlay 13579 (shown below) controls Jets 4.

In Setups 2, 4, 7 (which have a Blower), an AX10A3 auxiliary panel plugged into J5 (Bank 1) must be used to control the Blower.

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# TP800 Panel Configuration

## Button Layout Table

| Feature # | Blower & Circ<br>Setups 2 & 4 | NO Blower & Circ<br>Setups 1, 3, & 5 | Blower & No Circ<br>Setup 7 | NO Blower & No Circ<br>Setups 6 & 8 |
|---|---|---|---|---|
| **A1** | N/A | N/A | N/A | N/A |
| **A2** | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **A3** | Jets 2 | Jets 2 | Jets 2 | Jets 2 |
| **A4** | Jets 3 | Jets 3 | Jets 3 | Jets 3 |
| **A5** | Jets 4 | Jets 4 | Jets 4 | Jets 4 |
| **A6** | Blower | Light 1 | Blower | Light 1 |
| **A7** | Light 1 | Invert | Light 1 | Invert |
| **A8** | Invert | (Circ Icon) | Invert | Undefined |
| **A9** | (Circ Icon) | Undefined | Undefined | Undefined |
| **A10** | Undefined | Undefined | Undefined | Undefined |
| **A11** | N/A | N/A | N/A | N/A |
| **A12** | N/A | N/A | N/A | N/A |
| **A13** | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **A14** | Jets 2 | Jets 2 | Jets 2 | Jets 2 |
| **A15** | Jet 3 | Jet 3 | Jet 3 | Jet 3 |
| **A16** | Jet 4 | Jet 4 | Jet 4 | Jet 4 |
| **B1** | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **B2** | Jets 2 | Jets 2 | Jets 2 | Jets 2 |
| **B3** | Blower | Jets 3 | Blower | Jets 3 |
| **B4** | Light 1 | Light 1 | Light 1 | Light 1 |

Overlay Part Number 12512.

Button labled "AUX" controls Blower in Setups 2, 4, & 7, and controls Jets 3 in all other Setups.

Spafix

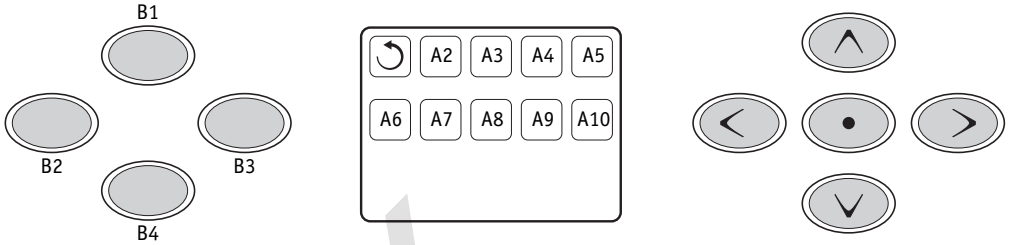
Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7030343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending.
© Copyright 2012 Balboa Water Group.



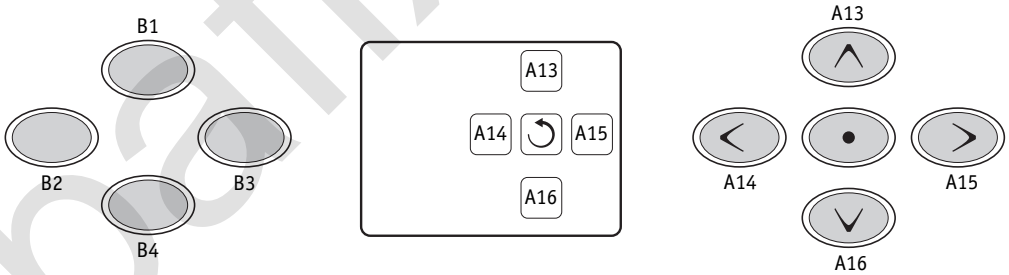
www.spafix.dk
info@spafix.dk

# TP800 Panel Configuration

## Spa Screen




## Shortcuts Screen




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

*Button 1 is fixed.*

*A Circ Icon will appear when a Circ Pump is configured.*

Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# TP900 Panel Configuration

## Button Layout Table

| Feature # | Blower & Circ<br>Setups 2 & 4 | NO Blower & Circ<br>Setups 1, 3, & 5 | Blower & No Circ<br>Setup 7 | NO Blower & No Circ<br>Setups 6 & 8 |
|---|---|---|---|---|
| **A1** | N/A | N/A | N/A | N/A |
| **A2** | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **A3** | Jets 2 | Jets 2 | Jets 2 | Jets 2 |
| **A4** | Jets 3 | Jets 3 | Jets 3 | Jets 3 |
| **A5** | Jets 4 | Jets 4 | Jets 4 | Jets 4 |
| **A6** | Blower | Light 1 | Blower | Light 1 |
| **A7** | Light 1 | Invert | Light 1 | Invert |
| **A8** | Invert | (Circ Icon) | Invert | Undefined |
| **A9** | (Circ Icon) | Undefined | Undefined | Undefined |
| **A10** | Undefined | Undefined | Undefined | Undefined |
| **11** | N/A | N/A | N/A | N/A |
| **12** | N/A | N/A | N/A | N/A |
| **13** | Jets 1 | Jets 1 | Jets 1 | Jets 1 |
| **14** | Jets 2 | Jets 2 | Jets 2 | Jets 2 |
| **15** | Jets 3 | Jets 3 | Jets 3 | Jets 3 |
| **16** | Jet 4 | Jet 4 | Jet 4 | Jet 4 |

*A Circ Icon will appear when a Circ Pump is configured.*

Spafix

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 2012 Balboa Water Group.

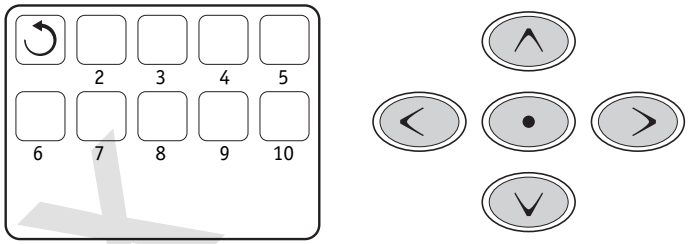


www.spafix.dk
info@spafix.dk

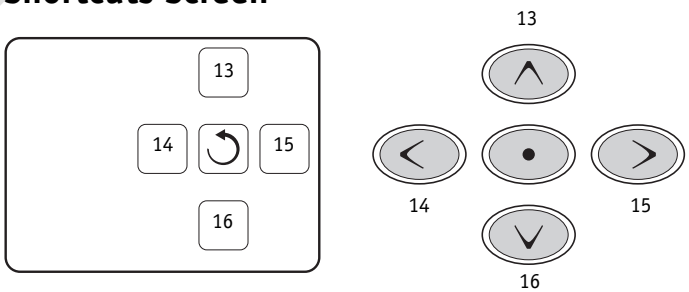
# TP900 Panel Configuration

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

## Spa Screen




## Shortcuts Screen




Spafix

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk

# BP2100 Configuration Options

## Auxiliary Panel Features on Bank 1*

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

## Auxiliary Panel Features on Bank 2*

| Feature | Default |
|---|---|
| Aux Button A5 | Jets 1 |
| Aux Button A6 | Jets 2 |
| Aux Button A7 | Jets 3 |
| Aux Button A8 | *Jets 4* |

Spafix

*Bank 1 consists of J5 on the Main Circuit Board.
Bank 2 consists of J8 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.

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 2012 Balboa Water Group.



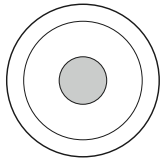
www.spafix.dk
info@spafix.dk

# BP2100 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.**

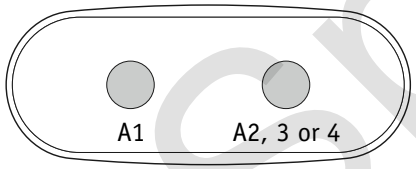
### AX10 Panels on Bank 2*

| | | |
|---|---|---|
| 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 of J5 on the Main Circuit Board.
Bank 2 consists of J8 on the Main Circuit Board.
**Aux Connection Splitter PN 25257 may be required.**

### AX20

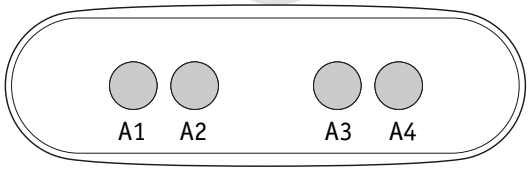
| | | |
|---|---|---|
| AX20 A1A2 | No O/L | 52800 |
| AX20 A1A3 | No O/L | 52801 |
| AX20 A1A4 | No O/L | 52802 |




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

### AX40

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




**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.**

Spafix

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 2012 Balboa Water Group.

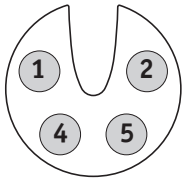


www.spafix.dk
info@spafix.dk

# BP2100 Configuration Options

## Remote Panel Features

| Feature | Default |
|---|---|
| Remote Button A1 | Jets 1 |
| Remote Button A2 | Jets 2 |
| Remote Button A3 | *Undefined* |
| Remote Button A4 | *Jets 3* |
| Remote Button A5 | *Jets 4* |
| Remote Button A6 | Undefined |
| Remote Button A7 | Undefined |
| Remote Button A8 | Undefined |




Spafix

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

**Remote Panel Part Number** _____

Overlay Part Number _____

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 2012 Balboa Water Group.



www.spafix.dk
info@spafix.dk