BP601NJ Tech Sheet

Customer: **Balboa Water Group**

Part Number: 56702-04 3.0kW Titanium

Custom Box Overlay	☐
Box Overlay Part Number	N/A
CE System Model:	BP6-BP601NJ-RCA-3.0KW
Software Version ID:	M100_206 V65.0
Software Version:	65.0
File Name:	BP601_65.0_BP601NJ.hex
Configuration Signature:	F9AE0A11
Eng. Project Number:	5663

Control Panels (See later pages for more information):

spaTouch™ Mini	Any version (version 1.0 or later required for Clim8zone™ heat pump support)
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 2.37 or later required for Clim8zone™ heat pump support)
TP400T CE	Version 2.7 and later (TP400T US should not be used)

System Revision History

Part #	EPN	Date	Originator	Changes Made
ZT000122	4408	11-12-14	BWG	“Soaking” system with no jet pump.
56700 56701 56702	4408	12-11-14	BWG	Release to production.
“	4524	05-20-15	BWG	Correct TB1 BRN/BLU wiring.
56700-01 56701-01 56702-01	4776	10-12-16	BWG	Updated to latest software version, adding topside-intergrated bba™2 support. Released to production.
56702-02	5007	08-22-18	BWG	Redesigned BP601 board. (56700-XX and 56701-XX not updated because they have been discontinued.)
56702-03	5264	04-01-20	BWG	Updated software to support CHROMAZON∃™ & M8.
56702-04	5663	11-29=23	BWG	Update to support Clim8zone™ heat pump.

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

bba™2 / bba™3 is integrated into graphic display panels (including spaTouch™).
With TP400, use the “BT” entry on the menu to toggle bba™2 / bba™3 power On/Off.

Basic Functions Setup 1

Power Requirements:

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

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

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

System Ouputs:

Circ Pump	230VAC	1-Speed This is the heater pump Must deliver 20 GPM through heater	2A max	Programmable Filtration Cycles + Polling
Ozone	230VAC		0.5A max	Slaved to Circ Pump
Spa Light	10VAC	On/Off	2A** max	240-minute timer
AV + C8Z**	230VAC	Hot	2A + 8A max	Always on
Heater	3.0kW @ 240VAC max			

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

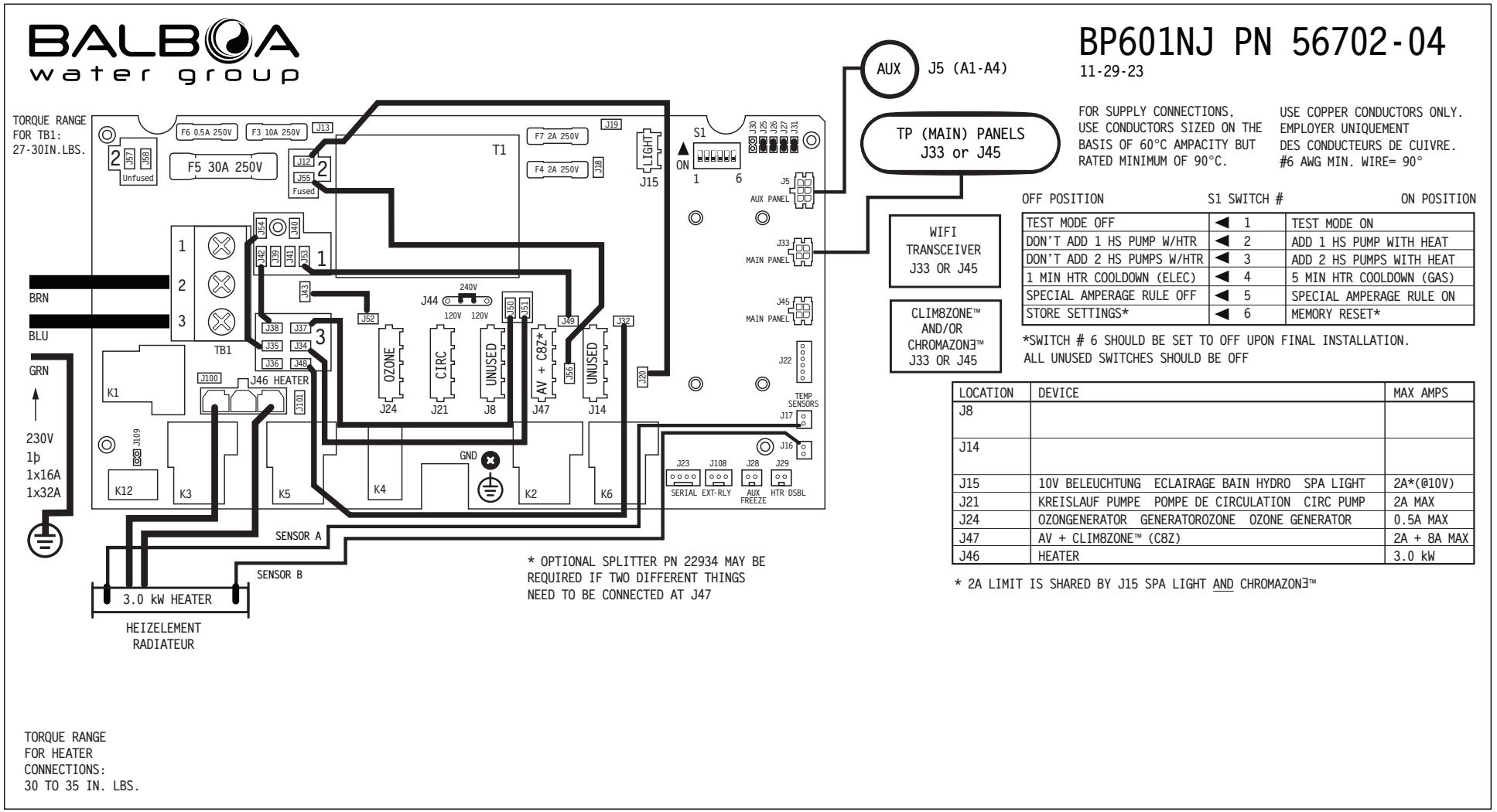
** Optional splitter PN 22934 can be used to connect two things, such as an audio device and Clim8zone™(C8Z), to J47.

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

BALBOA water group

Hardware Setup

Wiring Diagram



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

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

LOCATION	DEVICE	MAX AMPS
J8		
J14		
J15	10V BELEUCHTUNG ECLAIRAGE BAIN HYDRO SPA LIGHT	2A*(@10V)
J21	KREISLAUF PUMPE POMPE DE CIRCULATION CIRC PUMP	2A MAX
J24	OZONGENERATOR GENERATOROZONE OZONE GENERATOR	0.5A MAX
J47	AV + CLIM8ZONE™ (C8Z)	2A + 8A MAX
J46	HEATER	3.0 kW

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

BALBOA water group

Setup Reference Table

Setup #	Circ Pump	Temp Scale
1	Programmed Filtration + Polling	°C

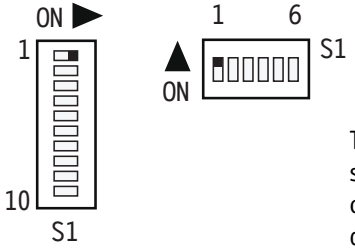
System (and any replacement board) **is shipped in Setup 1**

Changing Software Setups with spaTouch™ Icon-Driven Panels

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

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

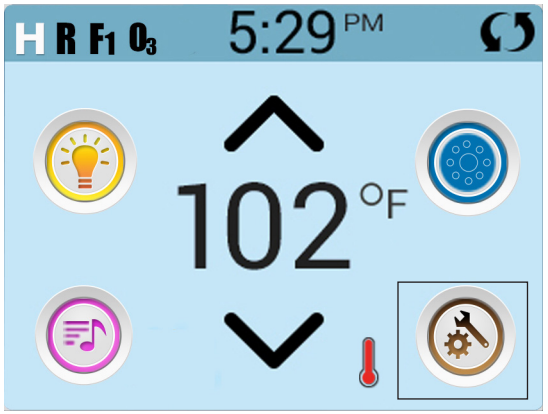
While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON. The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

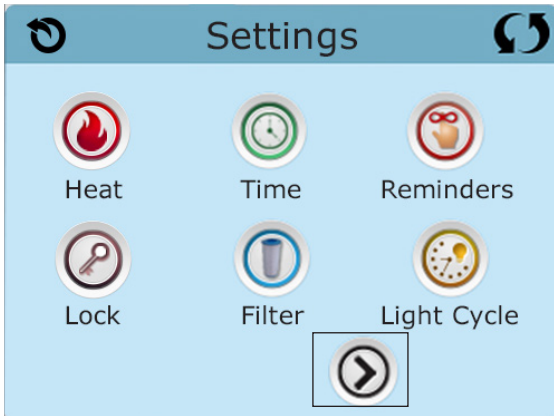


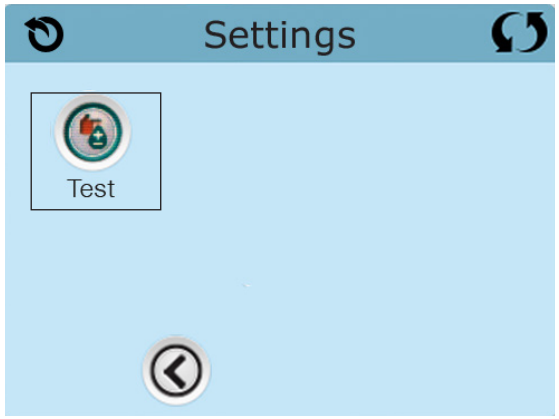
To Change Software Setups:

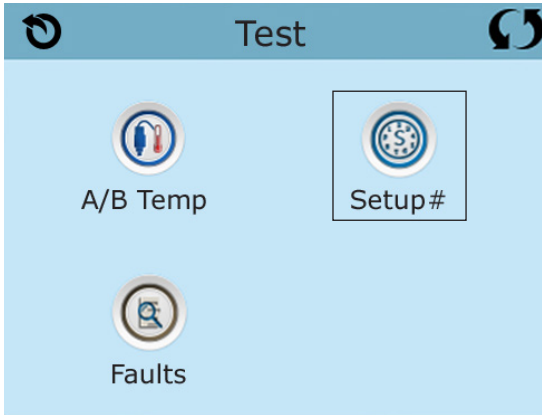
While in Test Mode, press the indicated icons to move from screen to screen.

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.



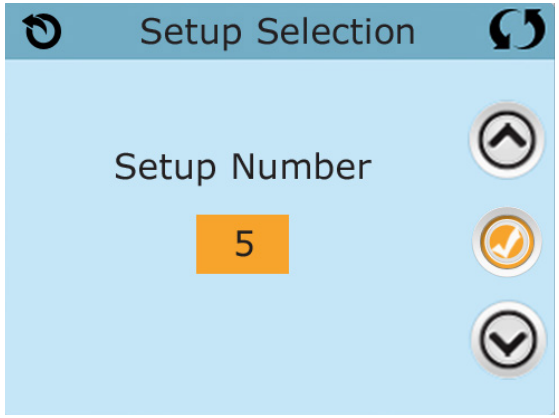






Once on the Setup Selection screen, press the Up or Down icon to select the desired Setup Number, then press the Check Mark icon to confirm and to have the spa restart.

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.



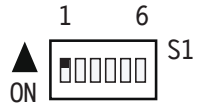
Changing Software Setups with TP600 / TP400

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

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

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

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

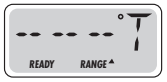


Software Setups

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

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

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



Continued on Next Page.

Changing Software Setups with TP600 / TP400 Continued

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

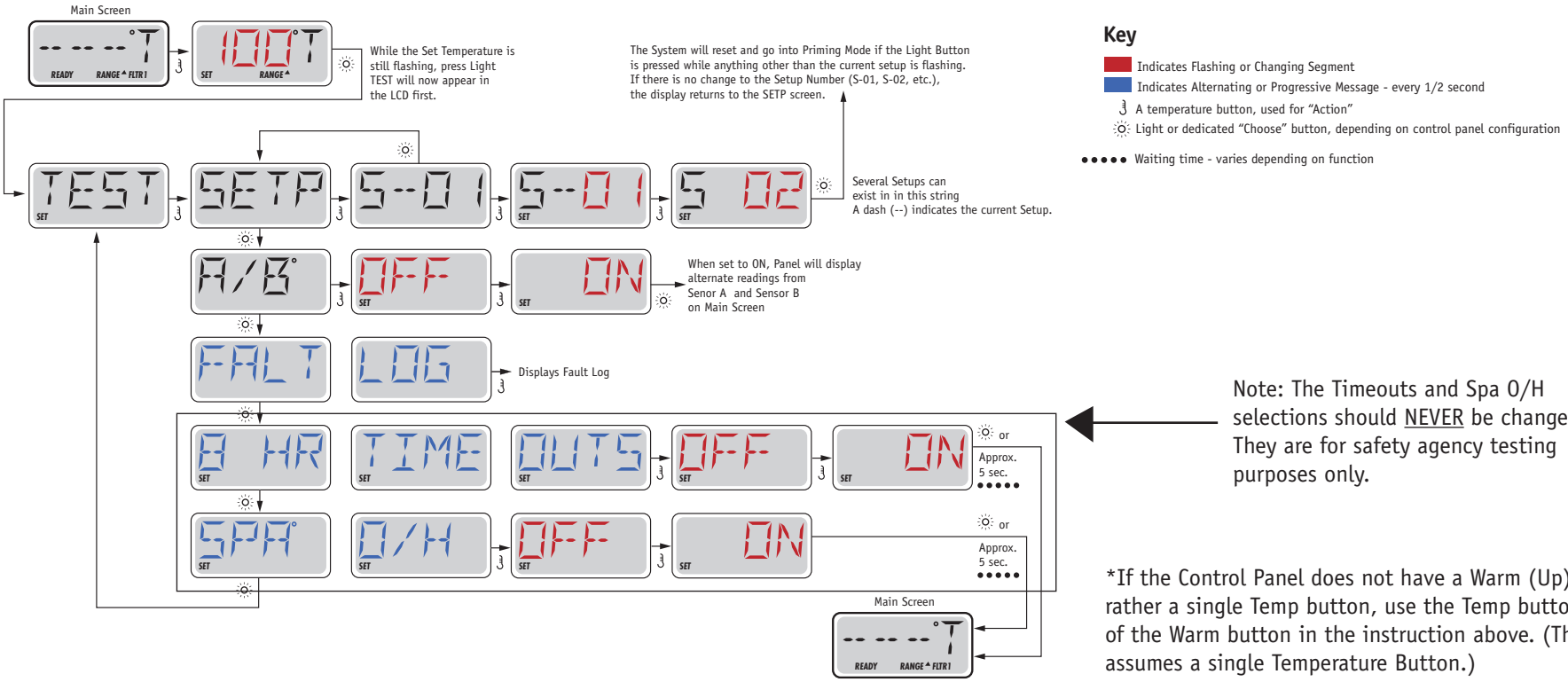
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the diplay shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset,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

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

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

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

THIS SYSTEM IS CONFIGURED AS SETUP #



Key

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

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

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

BALBOA water group

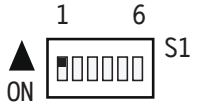
Equipment Expansion

Expansion Features

Control Connection	Default	Fuse
Relay 1/2 (J108)	None	None

DIP Switch Functions

Fixed-fuction DIP Switches



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

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

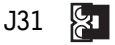
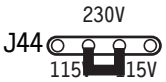
Note: *A2/A3 all off = No heat with any high-speed pump or blower.*

Assignable DIP Switches

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

Undesignated switches are not assigned a function.

Jumper Definitions

J109	Non Applicable on CE models	
J30	Do Not Use	
31	Jumper on 1 pin with 2.0kW or smaller heater Jumper on 2 pins with a 3.0kW or higher heater	
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.	
J25, J26, J27	Heater Type Settings. ***Note:*** *Factory Configured do not change.*	
J44	Jumper must be on center two pins (230V) for CE Systems.	

Warning!

Setting DIP switches or jumpers incorrectly may cause abnormal system behavior and/or damage to system components.

Refer to Switchbank illustration on Wiring Configuration page for correct settings for this system.

Contact Balboa if you require additional configuration pages added to this tech sheet.

Replacement Parts

PCBA:

Main PCBA:	59106-02
Expander PCBA:	N/A

HEATER(s):

Plug + Click Heater Kit:	55626R16 3.0kW Titanium
Temp Sensor Kit:	53605

CABLES: N/A

FUSES:

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

* 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.

BP601 Configuration Options

General Features

Feature	Default	
Pump 1 in Filter Cycle (Circ Only)	No	
Pump 1 Low Timer	*30 Minutes*	Applies in non-circ Setups (configurations) only
General Pump Timer	15 Minutes	
Blower Timer	15 Minutes	
MicroSilk® Timer	30 Minutes	
Light Timer	240 Minutes	
Circ (when enabled)	Programmable + Polling	
Cleanup Cycle	Disabled	
Cleanup as Preference setting	No	
Ozone	With Heater Pump*	
Ozone Suppression	OFF	
Pump Purge	60 Seconds	
Blower/MicroSilk® 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.

BP601 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	*48°F*
Freeze Type	Rotating - Pumps at Lowest Speed
Temp Lock Type	Temp + Settings

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

BP601 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)*

BALBOA water group

BP601 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

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

BP601 Configuration Options

Special Features

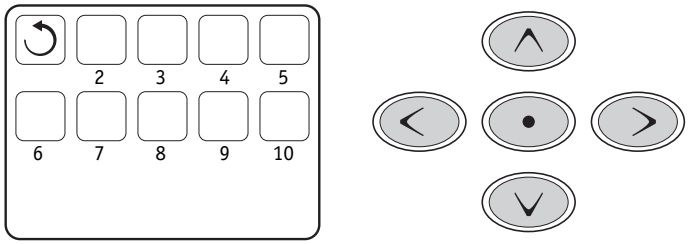
Feature	Default
Special Amperage Rule A	No Limitation
Special Amperage Rule B	No Limitation
Drain Mode	Disabled
Demo Mode	Disabled
GFCI Trip	Not Applicable for CE Models
Automatic GFCI Test	Disabled
Ozone Slaved to Heater Pump	*Yes*
Dual Voltage Heater	Always Input Voltage
Safety Suction	Disabled

TP900 Panel Configuration

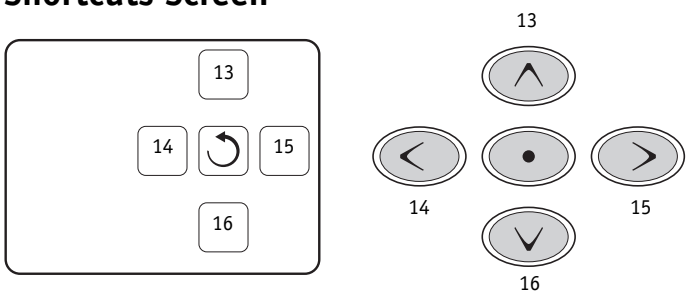
Button Layout Table

Button #	Setup 1
1	N/A
2	Light 1
3	Invert
4	(Circ Icon)
5	Undefined
6	Undefined
7	Undefined
8	Undefined
9	Undefined
10	Undefined
11	N/A
12	N/A
13	Undefined
14	Undefined
15	Undefined
16	Undefined

Spa Screen



Shortcuts Screen

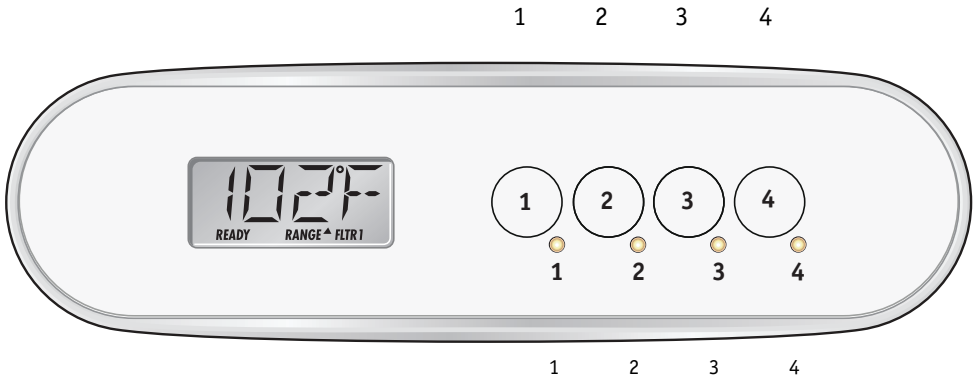


A Circ Icon will appear when a Circ Pump is configured.

TP400 Panel Configuration

Button Layout Table for TP400T

Button #	Setup 1
1	Up
2	Down
3	Light 1
4	Undefined
LED 1	Heater ON
LED 2	Undefined
LED 3	Light ON
LED 4	Undefined



TP400T

BP501 Configuration Options

Auxiliary Panel Features on Bank 1*

Feature	Default
Aux Button A1	Undefined
Aux Button A2	Undefined
Aux Button A3	Undefined
Aux Button A4	Light

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

Aux Connection Splitter PN 25257 may be required.

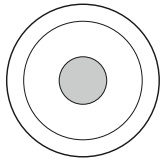
Buttons that are assigned to equipment that is not defined in a Setup will not do anything in that Setup.

BP601 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



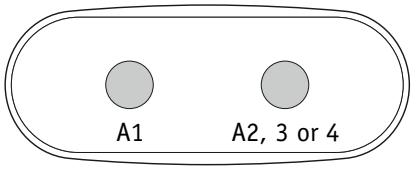
Call Customer Service for additional information about Auxiliary Panels.

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

Aux Connection Splitter PN 25257 may be required.

AX20

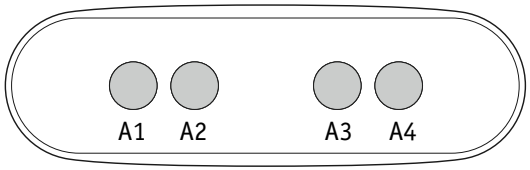
AX20 A1A2	No O/L	52800
AX20 A1A3	No O/L	52801
AX20 A1A4	No O/L	52802



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.