BP1600 Tech Sheet

Balboa Water Group

System Part Numbers:
55746 3kW 800 Incoloy Element
55748 3kW 800 Titanium Element

Compatible Plumbing Kits (Coupling nuts and seals included)
55911 2” Tailpieces (2-Speed Pump 1)
55914 1.5” Tailpieces (2-Speed Pump 1)
55912 1” Tailpiece Inserts (Circ)
55913 One Direct Circ Pump Coupling and one 1” Tailpiece Insert

System Model: BP1600
Software ID: M100_205 V3
Software Version: 3.0
Hex File: BP1600_3.0_BP16G6SU.hex
Configuration Signature: D3AC6D47

Eng. Project: 3351

Base PCBs / PCBA's:
Power Board: 22117_B / 56054
Logic Board: 22121_C / 55747

Control Panels:
TP600CE 50014
TP600 (non-CE) should not be used
Software Version 1.0 and later

Auxiliary Panels
AX10A2 55919

User Interface and Programming Guide:
http://service.balboa-instruments.com/zz40940_download.zip

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. All material copyright of Balboa Water Group.
System Revision History

<table>
<thead>
<tr>
<th>Part #</th>
<th>EPN</th>
<th>Date</th>
<th>Originator</th>
<th>Changes Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>55746 and 55748</td>
<td>3351</td>
<td>03-09-10</td>
<td>Balboa</td>
<td>Initial Generic Configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>800 Incoloy and Titanium models</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Initial release</td>
</tr>
</tbody>
</table>

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6252227, 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. All material copyright of Balboa Water Group.
Plumbing Fittings

2” Tailpiece kit PN 55911.
Standard 2” sockets to glue up to 2” PVC pipe.

1.5” Tailpiece kit PN 55914.
1.5” sockets to glue up to 1.5” PVC pipe with the I.D.
Be sure to orient the fittings so that the insert is at the 12:00 position to prevent trapped air.

1” Circ Pump Insert kit PN 55912.
1” barb fittings for use with 1” tubing.
Be sure to orient the fittings so that the insert is at the 12:00 position to prevent trapped air.

1” Circ Pump Insert kit PN 55913.
One fitting for direct coupling to the threaded suction of an appropriately-sized circ pump. A 1” barb fitting for use with 1” tubing is used on the other end of the heater.
Be sure to orient the fittings so that the insert is at the 12:00 position to prevent trapped air.
Setup 1-16 – As Manufactured

Power Requirements:

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

System Outputs - 16A Service:

<table>
<thead>
<tr>
<th>Component</th>
<th>Voltage</th>
<th>Speed</th>
<th>Current</th>
<th>Timer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump 1</td>
<td>230VAC</td>
<td>2-Speed</td>
<td>7.5A max</td>
<td>120-minute timer for Low Speed, 15 Minutes for High Speed</td>
</tr>
<tr>
<td>Pump 2</td>
<td>230VAC</td>
<td>1-Speed</td>
<td>7.5A max</td>
<td>15-minute timer</td>
</tr>
<tr>
<td>Ozone</td>
<td>230VAC</td>
<td>.5A</td>
<td></td>
<td>Uses the same relay as Pump 1 Low</td>
</tr>
<tr>
<td>Spa Light</td>
<td>10VAC</td>
<td>On/Off</td>
<td>.25A max</td>
<td>4-Hour timer.</td>
</tr>
</tbody>
</table>

Must deliver a minimum of 20 GPM through heater

Low Speed may not exceed 2A max

Light output is rated for LED lighting only - NOT for use with incandescent lights.

**Wiring Diagram and Settings**

DIP Switch Option | Orig. Setup 1 | Changes to

Special Amperage Rule ON. . . . . . . . . . . DIP Switch 5 OFF. . . . . . . . . . . . . . . . . . DIP Switch 5 ON

Use this only in cases where there is an overcurrent condition due to pump size.

This setting will not allow Pump 1 High and Pump 2 to run at the same time.

Refer to Page 3 to choose a suitable Plumbing Kit.

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5559705, 5559720, 5,883,459, 6255227, 6262370, 690188, 6976052, 6965815, 7,030,343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.
Setup 1-32

Power Requirements:

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

System Outputs - 32A Service:

Pump 1 230VAC 2-Speed 12A max 120-minute timer for Low Speed, 15 Minutes for High Speed
This is the heater pump
Must deliver a minimum of 20 GPM through heater

Pump 2 230VAC 1-Speed 12A max 15-minute timer

Ozone 230VAC .5A max Uses the same relay as Pump 1 Low

Spa Light 10VAC On/Off .25A max 4-Hour timer.
Light output is rated for LED lighting only - NOT for use with incandescent lights.

Heater 3kW @ 240VAC

Misc. J23 & J32 230VAC 4A max Hot output (Stereo). Fused equipment or in-line fuse required.

Wiring Diagram and Settings

For supply connections, use conductors sized on the basis of 60°C Amperage but rated min. new min. of 94°C.
Torque range for main terminal block (TB1): 27-30 in. lbs. (31.1-34.5 kg cm)

Configuration Changes based on Default

Feature J23 & J13. DIP Switch Option Orig. Setup 1 Changes to
Hot Output Useable
Add 1 High Speed Pump with Heat DIP Switch 2 OFF DIP Switch 2 ON

Refer to Page 3 to choose a suitable Plumbing Kit.
Setup 2-16

Power Requirements:

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

System Outputs - 16A Service:

<table>
<thead>
<tr>
<th>Pump 1</th>
<th>230VAC</th>
<th>1-Speed</th>
<th>6.5A max</th>
<th>15-minute timer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump 2</td>
<td>230VAC</td>
<td>1-Speed</td>
<td>6.5A max</td>
<td>15-minute timer</td>
</tr>
<tr>
<td>Circ Pump</td>
<td>230VAC</td>
<td>1-Speed</td>
<td>2A max</td>
<td>Programmable Filtration Cycles + Polling</td>
</tr>
</tbody>
</table>

This is the heater pump

Must deliver a minimum of 20 GPM through heater

Ozone | 230VOC | .5A max | Uses the same relay as the Circ Pump

Spa Light | 10VAC | On/Off | .25A max | 4-Hour timer.

Light output is rated for LED lighting only - NOT for use with incandescent lights.

Heater | 3kW @ 240VAC

Wiring Diagram and Settings

Configuration Changes based on Default

<table>
<thead>
<tr>
<th>Feature</th>
<th>Orig. Setup 1</th>
<th>Changes to</th>
</tr>
</thead>
<tbody>
<tr>
<td>J8</td>
<td>2-Speed Pump 1</td>
<td>1-Speed Pump 1</td>
</tr>
<tr>
<td>J21</td>
<td>Not Used (non-circ)</td>
<td>Circ Pump Enabled</td>
</tr>
</tbody>
</table>

Refer to Page 3 to choose a suitable Plumbing Kit.

Blue indicates changes from the original Setup 1 default

Manufactured under one or more of these patents. U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6253227, 6282370, 6590188, 6976052, 6965815, 7,003,434, 7,147,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.
Power Requirements:

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

**System Outputs - 32A Service:**

- **Pump 1**
  - 230VAC
  - 1-Speed
  - 12A max
  - 15-minute timer

- **Pump 2**
  - 230VAC
  - 1-Speed
  - 12A max
  - 15-minute timer

- **Circ Pump**
  - 230VAC
  - 1-Speed
  - 2A max
  - Programmable Filtration Cycles + Polling

This is the heater pump

- **Ozone**
  - 230VAC
  - .5A max
  - Uses the same relay as the Circ Pump

- **Spa Light**
  - 10VAC
  - On/Off
  - .25A max
  - 4-Hour timer.

- **Heater**
  - 3kW @ 240VAC

- **Misc.**
  - J23 & J32
  - 230VAC
  - 3A max
  - Hot output (Stereo). Fused equipment or in-line fuse required.

**Wiring Diagram and Settings**

---

**Configuration Changes based on Default**

- **Feature**
- **Orig. Setup 1**
- **Changes to**

- **J8**
  - 2-Speed Pump 1
  - 1-Speed Pump 1

- **J21**
  - Not Used (non-circ)
  - **Circ Pump Enabled**

- **J23 & J13**
  - Hot Output
  - **Useable**

**DIP Switch Option**

- Add 1 High Speed Pump with Heat
  - **DIP Switch 2 OFF**
  - **DIP Switch 2 ON**

---

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6255227, 6262370, 6950188, 6976052, 6965815, 7,030,343, 7,417,834 b2, Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.
**Setup 3-16**

**Power Requirements:**

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

**System Outputs - 16A Service:**

- **Pump 1**
  - 230VAC
  - 2-Speed
  - 10A max
  - 120-minute timer for Low Speed, 15 Minutes for High Speed
  - This is the heater pump
  - Must deliver a minimum of 20 GPM through heater
  - Low Speed may not exceed 2A max

- **Blower**
  - 230VAC
  - 1-Speed
  - 4A max
  - 15-minute timer

- **Ozone**
  - 230VAC
  - .5A max
  - Uses the same relay as Pump 1 Low

- **Spa Light**
  - 10VAC
  - On/Off
  - .25A max
  - 4-Hour timer.
  - Light output is rated for LED lighting only - NOT for use with incandescent lights.

- **Heater**
  - 3kW @ 240VAC

**Wiring Diagram and Settings**

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5550753, 5559720, 6,883,459, 6,253,227, 6,282,370, 6590188, 6976052, 6965815, 7,030,343, 7,417,834 b2,
Canadian Patent: 2342614, Australian patent: 2373248 other patents both foreign and domestic applied for and pending. All material copyright of Balboa Water Group.
### Setup 3-32

#### Power Requirements:

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

#### System Outputs - 32A Service:

<table>
<thead>
<tr>
<th>Component</th>
<th>Voltage</th>
<th>Speed</th>
<th>Current</th>
<th>Timer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump 1</td>
<td>230VAC</td>
<td>2-Speed</td>
<td>12A max</td>
<td>120-minute for Low Speed, 15 Minutes for High Speed</td>
</tr>
<tr>
<td>Blower</td>
<td>230VAC</td>
<td>1-Speed</td>
<td>4A max</td>
<td>15-minute timer</td>
</tr>
<tr>
<td>Ozone</td>
<td>230VAC</td>
<td>.5A max</td>
<td>Uses the same relay as Pump 1 Low</td>
<td></td>
</tr>
<tr>
<td>Spa Light</td>
<td>10VAC</td>
<td>On/Off</td>
<td>.25A max</td>
<td>4-Hour timer. Light output is rated for LED lighting only - <strong>NOT</strong> for use with incandescent lights.</td>
</tr>
<tr>
<td>Heater</td>
<td>3kW</td>
<td>@ 240VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc.</td>
<td>J23 &amp; J32</td>
<td>230VAC</td>
<td>3A max</td>
<td>Hot output (Stereo). Fused equipment or in-line fuse required.</td>
</tr>
</tbody>
</table>

### Wiring Diagram and Settings

For supply connections, use conductors sized on the basis of 60°C ampacity. Use COPPER conductors only. Employ unique only. Use copper conductors only. Torque range for main terminal block [TB1]: 27-30 in. lbs. (31.1-34.5 kg cm)

#### Configuration Changes based on Default

**Feature** | **Orig. Setup 1** | **Changes to**
--- | --- | ---
J14, TP600 Button 2, LED 2, AX10A2 | .... | **Blower**
J23 & J12 | ................ | **Usable**
**DIP Switch Option**
Add 1 High Speed Pump with Heat | .... | **DIP Switch 2 OFF** | **DIP Switch 2 ON**

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*
Power Requirements:

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

**System Outputs - 16A Service:**
- Pump 1 230VAC 1-Speed 8A max 15-minute timer
- Blower 230VAC 1-Speed 4A max 15-minute timer
- Circ Pump 230VAC 1-Speed 2A max Programmable Filtration Cycles + Polling
  This is the heater pump
  Must deliver a minimum of 20 GPM through heater
- Ozone 230VAC .5A max Uses the same relay as the Circ Pump
- Spa Light 10VAC On/Off .25A max 4-Hour timer.
  Light output is rated for LED lighting only - NOT for use with incandescent lights.
- Heater 4kW @ 240VAC

**Wiring Diagram and Settings**

**Configuration Changes based on Default**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Orig. Setup 1</th>
<th>Changes to</th>
</tr>
</thead>
<tbody>
<tr>
<td>J8</td>
<td>2-Speed Pump 1</td>
<td>1-Speed Pump 1</td>
</tr>
<tr>
<td>J14, TP600 Button 2, LED 2, AX10A2</td>
<td>Pump 2</td>
<td>Blower</td>
</tr>
<tr>
<td>J21</td>
<td>Not Used (non-circ)</td>
<td>Circ Pump Enabled</td>
</tr>
</tbody>
</table>

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*
**Power Requirements:**

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

**System Outputs - 32A Service:**

- **Pump 1**: 230VAC 1-Speed 12A max 15-minute timer
- **Blower**: 230VAC 1-Speed 4A max 15-minute timer
- **Circ Pump**: 230VAC 1-Speed 2A max Programmable Filtration Cycles + Polling  
  This is the heater pump  
  Must deliver a minimum of 20 GPM through heater
- **Ozone**: 230VAC .5A max Uses the same relay as the Circ Pump
- **Spa Light**: 10VAC On/Off .25A max 4-Hour timer.  
  Light output is rated for LED lighting only - NOT for use with incandescent lights.
- **Heater**: 4kW @ 240VAC
- **Misc.**: J23 & J32 230VAC 4A max Hot output (Stereo). Fused equipment or in-line fuse required.

**Wiring Diagram and Settings**

**Software Configuration Changes based on Default**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Orig. Setup 1</th>
<th>Changes to</th>
</tr>
</thead>
<tbody>
<tr>
<td>J8</td>
<td>2-Speed Pump 1</td>
<td>1-Speed Pump 1</td>
</tr>
<tr>
<td>J14, TP600 Button 2, LED 2, AX10A2</td>
<td>Pump 2</td>
<td>Blower</td>
</tr>
<tr>
<td>J21</td>
<td>Not Used (non-circ)</td>
<td>Circ Pump Enabled</td>
</tr>
<tr>
<td>J23 &amp; J12</td>
<td>Hot Output</td>
<td>Useable</td>
</tr>
</tbody>
</table>

"Blue indicates changes from the original Setup 1 default"

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5559753, 5559792, 5,883,459, 6252227, 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. All material copyright of Balboa Water Group.
**Setup 5-16**

**Power Requirements:**

*Single Service* [3 wires (line, neutral, ground)]

230VAC, 50Hz, 1p, 16A, (Circuit Breaker rating = 20A max.)

**System Outputs - 16A Service:**

- *Pump 1* 230VAC 2-Speed 12A max 120-minute timer for Low Speed, 15 Minutes for High Speed
  - This is the heater pump
  - Must deliver a minimum of 20 GPM through heater
  - Low Speed may not exceed 2A max

- *Ozone* 230VAC .5A max
  - Uses the same relay as Pump 1 Low

- *Spa Light* 10VAC On/Off .25A max
  - 4-Hour timer.
  - Light output is rated for LED lighting only - NOT for use with incandescent lights.

- *Heater* 3kW @ 240VAC

**Wiring Diagram and Settings**

<table>
<thead>
<tr>
<th>ON POSITION</th>
<th>S1 SWITCH #</th>
<th>OFF POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMORY RESET*</td>
<td>5</td>
<td>STORE SETTINGS*</td>
</tr>
<tr>
<td>SPECIAL AMPERAGE RULE ON</td>
<td>5</td>
<td>SPECIAL AMPERAGE RULE OFF</td>
</tr>
<tr>
<td>ADD 2 HS PUMPS WITH HEAT</td>
<td>1</td>
<td>DON'T ADD 2 HS PUMPS W/HTR</td>
</tr>
<tr>
<td>ADD 1 HS PUMP WITH HEAT</td>
<td>2</td>
<td>DON'T ADD 1 HS PUMP W/HTR</td>
</tr>
<tr>
<td>TEST MODE ON</td>
<td>1</td>
<td>TEST MODE OFF</td>
</tr>
</tbody>
</table>

*SWITCH # 5 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.

**Software Configuration Changes based on Default Feature**

Orig. Setup 1       Changes to

J14, TP600 Button 2, LED 2, AX10A2 ... Pump 2 ............... Not Used

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*
Power Requirements:
**Single Service** [3 wires (line, neutral, ground)]
230VAC, 50Hz, 1p, 32A, (Circuit Breaker rating = 40A max.)

System Outputs - 32A Service:
- **Pump 1**
  - 230VAC
  - 2-Speed
  - 12A max
  - 120-minute timer for Low Speed, 15 Minutes for High Speed
  - Must deliver a minimum of 20 GPM through heater

- **Ozone**
  - 230VAC
  - .5A max
  - Uses the same relay as Pump 1 Low

- **Spa Light**
  - 10VAC
  - 4-hour timer.
  - Light output is rated for LED lighting only - NOT for use with incandescent lights.

- **Heater**
  - 3kW @ 240VAC

- **Misc.**
  - J23 & J32
  - 230VAC
  - 4A max
  - Hot output (Stereo). Fused equipment or in-line fuse required.

Wiring Diagram and Settings

Software Configuration Changes based on Default Feature

**Orig. Setup 1**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Changes to</th>
</tr>
</thead>
<tbody>
<tr>
<td>J14, TP600 Button 2, LED 2, AX10A2</td>
<td>Not Used</td>
</tr>
<tr>
<td>DIP Switch Option</td>
<td></td>
</tr>
<tr>
<td>Add 1 High Speed Pump with Heat</td>
<td>DIP Switch 2 OFF</td>
</tr>
<tr>
<td>J23 &amp; J13</td>
<td>Hot Output</td>
</tr>
</tbody>
</table>

Refer to Page 3 to choose a suitable Plumbing Kit.

Blue indicates changes from the original Setup 1 default.

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Power Requirements:

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

System Outputs:

- **Pump 1**
  - 230VAC
  - 1-Speed
  - 12A max
  - 15-minute timer

- **Circ Pump**
  - 230VAC
  - 1-Speed
  - 2A max
  - Programmable Filtration Cycles + Polling
  - This is the heater pump
  - Must deliver a minimum of 20 GPM through heater

- **Ozone**
  - 230VAC
  - .5A max
  - Uses the same relay as the Circ Pump

- **Spa Light**
  - 10VAC
  - On/Off
  - .25A max
  - 4-Hour timer.

  *Light output is rated for LED lighting only - NOT for use with incandescent lights.*

- **Heater**
  - 3kW @ 240VAC

Wiring Diagram and Settings

Refer to Page 3 to choose a suitable Plumbing Kit.

Blue indicates changes from the original Setup 1 default

Software Configuration Changes based on Default

**Feature** | **Orig. Setup 1** | **Changes to**
--- | --- | ---
J8 | 2-Speed Pump 1 | 1-Speed Pump 1
J14, TP600 Button 2, LED 2, AX10A2 | Pump 2 | Not Used
J21 | Not Used (non-circ) | Circ Pump Enabled
**Setup 6-32**

**Power Requirements:**

*Single Service* [3 wires (line, neutral, ground)]

230VAC, 50Hz, 1p, 32A, (Circuit Breaker rating = 40A max.)

**System Outputs:**

- **Pump 1**
  - 230VAC
  - 1-Speed
  - 12A max
  - 15-minute timer

- **Circ Pump**
  - 230VAC
  - 1-Speed
  - 2A max
  - Programmable Filtration Cycles + Polling
  - This is the heater pump
  - Must deliver a minimum of 20 GPM through heater

- **Ozone**
  - 230VAC
  - .5A max
  - Uses the same relay as the Circ Pump

- **Spa Light**
  - 10VAC
  - On/Off
  - .25A max
  - 4-Hour timer.

  *Light output is rated for LED lighting only - NOT for use with incandescent lights.*

- **Heater**
  - 3kW @ 240VAC

- **Misc.**
  - J23 & J32
  - 230VAC
  - 3A max
  - Hot output (Stereo). Fused equipment or in-line fuse required.

**Wiring Diagram and Settings**

**Software Configuration Changes based on Default**

**Feature** | **Orig. Setup 1** | **Changes to**
--- | --- | ---
J8 | 2-Speed Pump 1 | 1-Speed Pump 1
J14, TP600 Button 2, LED 2, AX10A2 | Pump 2 | Not Used
J21 | Not Used (non-circ) | Circ Pump Enabled
J23 & J31 | Hot Output | Useable

**DIP Switch Option**

Add 1 High Speed Pump with Heat | DIP Switch 2 OFF | DIP Switch 2 ON

Refer to Page 3 to choose a suitable Plumbing Kit.

*Blue indicates changes from the original Setup 1 default*

Manufactured under one or more of these patents: U.S. Patents: 5332944, 5361215, 5550753, 5559720, 5,883,459, 6252227, 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. All material copyright of Balboa Water Group.
Setup Changes with DIP Switch 1 ON

Read and understand these instructions before beginning this process.

Know the Setup Number you want before you power up the spa and wait to power up the spa until you’re ready to change the Setup Number.

The system must be in Test Mode, so move Switch 1 to the ON position. The Test Menu will then be available.

Power up the spa, and press any button once to Link the panel. (Note: Switch 1 can be moved to the ON position immediately after power-up, if preferred - Danger! High Voltage will be present!)

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.)

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

Move DIP Switch 1 (on S1 on the Logic circuit board) to ON.
The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

Run Pmps Purg Air

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.

[Diagram showing DIP switches and connections]

Continued on Next Page.
Setup Changes – 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 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.

---

**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

---

*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.)

---

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. All material copyright of Balboa Water Group.
**IT Electrical System (No Neutral)**

The wiring diagram in the system show connections for TN and TT electrical services (Line, Neutral, Ground).

**IT Power Requirements:**

**Single Service** [3 wires (line, line, ground)]
230VAC, 50Hz, 1p, 16A/32A, (Circuit Breaker rating = 20A/40A max.)

Protective Earth Wire (Green/Yellow) must be connected to system ground terminal as marked.
All equipment (pumps, blower, and heater) runs on service line L1 with L2 acting as the return.
Set the DIP switches according to the wiring diagram so that total system current draw never exceeds the rated service input when using a particular setup.

![Wiring Diagram]

**Three Service** [4 wires (line, line, line, ground)]
230VAC, 50Hz, 1p, 16A/32A, (Circuit Breaker rating = 20A/40A max.)

Protective Earth Wire (Green/Yellow) must be connected to system ground terminal as marked.
All equipment (pumps, blower, and heater) runs on service line L1 with L2 acting as the return.
Set the DIP switches according to the wiring diagram so that total system current draw never exceeds the rated service input when using a particular setup.

![Wiring Diagram]

Refer to Page 3 to choose a suitable Plumbing Kit.
*Blue indicates changes from the original Setup 1 default*
# Configuration Options

## General Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump 1 in Filter Cycle (Circ Only)</td>
<td>No</td>
</tr>
<tr>
<td>Pump 1 Low Timer</td>
<td>30 Minutes</td>
</tr>
<tr>
<td>General Pump Timer</td>
<td>15 Minutes</td>
</tr>
<tr>
<td>Blower Timer</td>
<td>15 Minutes</td>
</tr>
<tr>
<td>Mister Timer <em>(N/A)</em></td>
<td>15 Minutes</td>
</tr>
<tr>
<td>Light Timer</td>
<td>240 Minutes</td>
</tr>
<tr>
<td>Circ Pump</td>
<td>Like P1 Low</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feature</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanup Cycle</td>
<td>30 Minutes</td>
</tr>
<tr>
<td>Clean up as Preference setting</td>
<td>Yes</td>
</tr>
<tr>
<td>Ozone</td>
<td>Always</td>
</tr>
<tr>
<td>Ozone Suppression</td>
<td>OFF</td>
</tr>
<tr>
<td>Pump Purge</td>
<td>60 Seconds</td>
</tr>
<tr>
<td>Blower Purge</td>
<td>30 Seconds</td>
</tr>
<tr>
<td>Mister Purge <em>(N/A)</em></td>
<td>5 Seconds</td>
</tr>
</tbody>
</table>
## Configuration Options

### Temperature Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default Options</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Display</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>6</td>
<td>43</td>
</tr>
<tr>
<td>7</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>46</td>
</tr>
<tr>
<td>9</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>11</td>
<td>54</td>
</tr>
<tr>
<td>12</td>
<td>55</td>
</tr>
<tr>
<td>13</td>
<td>57</td>
</tr>
<tr>
<td>14</td>
<td>59</td>
</tr>
<tr>
<td>15</td>
<td>61</td>
</tr>
<tr>
<td>16</td>
<td>63</td>
</tr>
<tr>
<td>17</td>
<td>64</td>
</tr>
<tr>
<td>18</td>
<td>66</td>
</tr>
<tr>
<td>19</td>
<td>68</td>
</tr>
<tr>
<td>20</td>
<td>70</td>
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<tr>
<td>21</td>
<td>72</td>
</tr>
<tr>
<td>22</td>
<td>73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>75</td>
</tr>
<tr>
<td>24</td>
<td>77</td>
</tr>
<tr>
<td>25</td>
<td>79</td>
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<tr>
<td>26</td>
<td>81</td>
</tr>
<tr>
<td>27</td>
<td>82</td>
</tr>
<tr>
<td>28</td>
<td>84</td>
</tr>
<tr>
<td>29</td>
<td>86</td>
</tr>
<tr>
<td>30</td>
<td>88</td>
</tr>
<tr>
<td>31</td>
<td>90</td>
</tr>
<tr>
<td>32</td>
<td>91</td>
</tr>
<tr>
<td>33</td>
<td>93</td>
</tr>
<tr>
<td>34</td>
<td>95</td>
</tr>
<tr>
<td>35</td>
<td>97</td>
</tr>
<tr>
<td>36</td>
<td>99</td>
</tr>
<tr>
<td>37</td>
<td>100</td>
</tr>
<tr>
<td>38</td>
<td>102</td>
</tr>
<tr>
<td>39</td>
<td>104</td>
</tr>
</tbody>
</table>

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

### Time Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default Options</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Format*</td>
<td>24 Hour</td>
<td></td>
</tr>
</tbody>
</table>

| Filter 1 Start Hour*        | 8:00 PM (20:00) |
| Filter 1 Duration*          | 2 Hours         |
| Filter Cycle 2 Default*     | OFF             |
| Filter 2 Start Hour*        | 8:00 AM (08:00) |
| Filter 2 Duration*          | 15 Minutes      |
| Light Cycle                 | Disabled        |
| Light Cycle Default*        | OFF             |
| Light Cycle Start Hour*     | 9:00 PM (21:00) |
| Light Cycle Duration*       | 15 Minutes      |

*May be changed by end-user (if Enabled)
## Configuration Options

### Reminder Features

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

### Special Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Amperage Rule A (DIP SW 5 OFF)</td>
<td>No Limitation</td>
</tr>
<tr>
<td>Special Amperage Rule B (DIP SW 5 ON)</td>
<td>1 High-Speed Pump**</td>
</tr>
<tr>
<td>Drain Mode</td>
<td>Disabled</td>
</tr>
<tr>
<td>Demo Mode</td>
<td>Disabled</td>
</tr>
<tr>
<td>Automatic GFCI Test</td>
<td>Disabled</td>
</tr>
<tr>
<td>Ozone Slaved to Heater Pump</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Editable by end-user

** Special Amperage Rule B is (DIP Switch 5 ON) is only used with Setup 1-16 (Page 4). This setting will not allow both Pump 1 High and Pump 2 to run at the same time.
Configuration Options

Main Control Panel Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Button 1</td>
<td>Jets 1</td>
</tr>
<tr>
<td>Button 2</td>
<td>Jets 2</td>
</tr>
<tr>
<td>Button 3</td>
<td>Flip</td>
</tr>
<tr>
<td>Button 4</td>
<td>Up</td>
</tr>
<tr>
<td>Button 5</td>
<td>Light 1</td>
</tr>
<tr>
<td>Button 6</td>
<td>Down</td>
</tr>
</tbody>
</table>

LED 1            Jets 1
LED 2            Jets 2
LED 3            Light 1
LED 4            Heat ON

TP600CE

50014

with Overlay PN 12101

TP600 (non-CE) should not be used

Download the User Interface and Programming Guide here:
http://service.balboa-instruments.com/zz40940_download.zip

Blue Indicates New Custom Configuration Default (Setup 1)
# Configuration Options

## Auxilliary Panel Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aux Button A1</td>
<td>Jets 1</td>
</tr>
<tr>
<td>Aux Button A2</td>
<td>Jets 2</td>
</tr>
<tr>
<td>Aux Button A3</td>
<td><em>Unused</em></td>
</tr>
<tr>
<td>Aux Button A4</td>
<td>Light</td>
</tr>
</tbody>
</table>

Aux Buttons can be set with the following functions:
- Unused
- Up
- Down
- Temp
- Jets 1
- Jets 2
- Jets 3
- Jets 4
- Jets 5
- Jets 6
- Jets 7
- Jets 8
- Blower 1
- Blower 2
- Mister 1
- Mister 2
- Mister 3
- Light 1
- Light 2
- Light 3
- Light 4
- Fiber Optic
- Option 1
- Option 2
- Option 3
- Option 4
- EitherLight
- Flip
- Chooser

### AX10 Settings
- AX10 A1: No O/L 52803
- AX10 A2: AUX O/L 55919
- AX10 A3: No O/L 52805
- AX10 A4: No O/L 52806

### AX20 Settings
- AX20 A1A2: No O/L 52800
- AX20 A1A3: No O/L 52801
- AX20 A1A4: No O/L 52802

### AX40 Settings
- AX40: No O/L 52799

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