Fourwinds Mfg.
System PN 55494

System Model # GL8-FWGL8KP4-RCA-3.0
Software Version # 28
EPN # 2874

Base PCBA - PN 55495
PCB GL8000 – PN 22960 Rev B or C

Base Panels
ML900 – PN 54589
# System Revision History

<table>
<thead>
<tr>
<th>System PN</th>
<th>EPN</th>
<th>Date</th>
<th>Requested By</th>
<th>Changes Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>55494</td>
<td>2874</td>
<td>07.29.2008</td>
<td>Balboa</td>
<td>New Model update from GL8KM3P4 Mach 3 Hot Sheet</td>
</tr>
</tbody>
</table>
**Basic System Features and Functions**

**Power Requirements**
- 230VAC, 1~, 16A or 32A, 50Hz, or 230VAC (Line to Neutral), 3~, 16A, 50Hz

**System Outputs**

**Setup 1 (As Manufactured)**
- 230V Pump 1, 2-Speed
- 230V Pump 2, 2-Speed
- 230V Pump 3, 1-Speed
- 230V Pump 4, 1-Speed
- 230V Ozone
- 230V Fiber-optic Light
- 10V Spa Light
- 230V Audio\Visual (Stereo)
- 230V TV Lift (Option button)
- 230V 3.0kW Heater

**Additional Outputs (Disabled by Default)**
- 230V Circ Pump

**Additional Options**
- Full Feature Dolphin Remote and Spa-only Dolphin Remote
- Spa Monitor
  - Connects to Main Panel terminal J70, J71, J72, or J73
- IR or RF Dolphin Receiver Modules
  - Connects to Remote terminal J20
- Ozone Generator
  - Connects to terminal J4
- MoodEFX Lighting
  - Connects to Spa Light terminal J10
- FiberEFX Lighting
  - Connects to Spa Light terminal J10
- Stereo System
  - Connects to A.V. terminal J5
Any time you change DIP Switches or Software Configuration Settings that affect parameters the user can change (any filter settings, set temperature default, Celsius vs Fahrenheit, 12-hour vs 24-hour time, reminders suppression, etc), you must reset Persistent Memory for your DIP Switch or Software Configuration Settings changes to take effect. You should also reset Persistent Memory after loading a new file into a board (using the ESM, purchased separately).

**To reset Persistent Memory:**
- Power down.
- Set A12 ON (See illustration below).
- Power up.
- Wait until “\(P_F\)” or “PRIMING MODE” is displayed on your panel. Note: If “\(CFE\)” appears see section below.
- Set A12 OFF. (This can be done safely with power on if you use a non-conductive tool such as a pencil to push the switch back to the OFF position. Otherwise, power down before setting A12 OFF)
- Power up again (if you powered down in the previous step).
- For all other power ups, leave A12 OFF.

**About Persistent Memory and Time of Day Retention:**
This system uses memory that doesn’t require a battery to store a variety of settings. What we refer to as Persistent Memory stores all the User Preferences, as well as all the filter settings, the set temperature, and the heat mode.

Persistent Memory is not used for Time of Day. Time of Day needs to be “kept running” (not just stored) while the power is off, so a separate Real Time Clock feature (on all models except the EL1000) keeps track of Time of Day while the unit is off. Time of Day Retention, and Time of Day Retention alone, is controlled by the J91 jumper. J91 must be set according to main system panel used.

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**CFE message on power up:**
If “\(C FE\)” appears before (and instead of) “\(P_F\)” or “PRIMING MODE”, you have not configured DIP Switches and/or Software Configuration Settings in a valid manner. This must be corrected before you can reset Persistent Memory.

The switch numbers, jumpers, or configuration settings displayed after “\(C FE\)” are ones with which the system has found a configuration problem. For example:
- “\(C FE\) \(A5\) \(b2\)” would mean that the combination of how you’ve set A5 and how you’ve set B2 is not supported on this system.
- “\(C FE\) \(J99\)” would mean that there is a problem with jumper J99
- “\(C FE\) \(P3\) \(bL\) \(f\)” would mean that the combination of how you’ve set pump 3 for 1-speed and blower for 1-speed is not supported on this system.
- “\(C FE\) \(P3\) \(bL\)” would mean that the combination of how you’ve set DIP switches which have been assigned to pump 3 and blower is not supported on this system.

**Power Up Display Sequence**
Upon power up, you should see the following on the display:
- Three numbers in a row, which are the SSID (the System Software ID). The third display of these numbers is the Software Version, which should match the version of your system. For example, if these three numbers are 100 134 26, that is a Mach 3 EL8000 at version 26.
- If there is a Configuration Error, the CFE message (see above) will appear at this point (and none of the messages below will display). Otherwise what comes next is:
- “\(3 - 6\)” (indicating the system is configured for a heater between 3 and 6 kW) or “\(1 - 3\)” (indicating the system is configured for a heater effectively between 1 and 3 kW). “\(3 - 6\)” should appear for all EL models running at 240VAC. “\(1 - 3\)” should appear for all EL models running at 120VAC, as well as all GL models. (*A heater which is rated at 4 kW at 240VAC will function as a 1 kW heater at 120VAC.*)
- If your system is using a special type of heater, a display such as “\(H \ 6\)” may appear next. If your system is using the generic Balboa heater, no heater type display will appear.
- “\(P_F\)” or “PRIMING MODE” will appear to signal the start of Priming Mode.

At this point, the power up sequence is complete. Refer to the User Guide for the ML Series panel on your system for information about how the spa operates from this point on.
Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

- 230V Pump 1, 2-Speed
- 230V Pump 2, 2-Speed
- 230V Pump 3, 1-Speed
- 230V Pump 4, 1-Speed
- 10V Spa Light
- 230V Fiber Optic
- 230V Ozone
- 230V AW (Stereo)
- 230V TV Lift
- 230V 3.0kW Heater
- ML900 Main Panel

WARNING: Main Power to system should be turned OFF BEFORE adjusting DIP switches.

WARNING: Persistent Memory (A12) must be RESET to allow new DIP switch settings to take effect. (See Persistent Memory page)

HiPot Testing Note:
Disconnect slip terminal with green wires from J90 prior to performing HiPot test. Failure to disconnect will cause a false failure of the test.
Reconnect terminal to J90 after successful completion of HiPot test.

Switchbank A

A1, Test Mode OFF
A2, 1 Pump w/Heat
A3, 2 Pumps w/Heat
A4,
A5, 24hr Display OFF
A6/A7, Circ Pump OFF
A8, Spa LT separate btn ON
A9, Spa LT Dimmable
A10, No Edit
A11, Special Amp Rule OFF
A12, Memory ON

Switchbank B

B1, N/A, must be OFF
B2, F/O Light ON
B3, Option ON
B4, Ozone w/P1 low
B5, 1Hr Ozone Disable OFF
B6, Not Assigned
B7, Not Assigned
B8, Not Assigned
B9, Not Assigned
B10, Not Assigned
B11, Not Assigned
B12, Not Assigned

SSID #
100
139
28

Wiring Color Key
- Neutral (Common) AC Connections
- Special AC Connections
- Line AC Connections
- 10 Volt Connections
- Relay Control Wires

Board Connector Key
1. Typically Line voltage
2. Typically Line voltage for 2-speed pumps
3. Neutral (Common)
4. Ground

Note flat sides in connector

Page 5
**DIP Switches and Jumper Definitions**

**WARNING:**
- Setting DIP switches incorrectly may cause abnormal system behavior and/or damage to system components.
- Refer to Switchbank illustration in this hot sheet for correct settings for this system.
- Contact Balboa if you require additional configuration pages added to this hot sheet.

### DIP Switchbank A Key

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Test Mode (normally Off)</td>
</tr>
<tr>
<td>A2</td>
<td>In “ON” position, add one high-speed pump (or blower) with Heater</td>
</tr>
<tr>
<td>A3</td>
<td>In “ON” position, add two high-speed pumps (or 1 HS Pump and Blower) with Heater</td>
</tr>
<tr>
<td>A4</td>
<td>In “ON” position, add four high-speed pumps (or 3 HS Pumps and Blower) with Heater</td>
</tr>
<tr>
<td>A10</td>
<td>When switched ON when spa is on, system will enter the Edit Menu for Configuration Settings</td>
</tr>
<tr>
<td>A11</td>
<td>In “ON” position, enables Special Amperage Rule, see “SA” in Software Configuration section for functionality with your system</td>
</tr>
<tr>
<td>A12</td>
<td>Persistent memory reset (used when spa is powering up) See “Persistent Memory and Powering Up” page</td>
</tr>
</tbody>
</table>

_Do not start spa with A10 turned on or CFE* error will occur_

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.

*CFE errors are illegal configurations such as a pump and a blower set to run on the same output. The configuration must be corrected before the spa will operate.

### Assignable DIP Switch Key

<table>
<thead>
<tr>
<th>Switch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5</td>
<td>In “ON” position, Time displayed in 24-hour style (military/European format)</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Time displayed in 12-hour style</td>
</tr>
<tr>
<td>A6 and A7</td>
<td>See Table 1 for Circ Pump Behavior settings</td>
</tr>
<tr>
<td>A8</td>
<td>See Table 2 for Spa Light Behavior settings</td>
</tr>
<tr>
<td>A9</td>
<td>In “ON” position, Spa Light mode is On/Off</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Spa Light mode is Off/High/Med/Low</td>
</tr>
<tr>
<td>B1</td>
<td>N/A, must be OFF</td>
</tr>
<tr>
<td>B2</td>
<td>See Table 2 for Fiber-Optic Behavior settings</td>
</tr>
<tr>
<td>B3</td>
<td>In “ON” position, Option enabled</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Option disabled</td>
</tr>
<tr>
<td>B4</td>
<td>In “ON” position, Ozone runs in Filter and Cleanup cycles only</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Ozone runs with Heater Pump</td>
</tr>
<tr>
<td>B5</td>
<td>In “ON” position, 1-hour Ozone suppress enabled</td>
</tr>
<tr>
<td></td>
<td>In “OFF” position, Ozone suppress disabled</td>
</tr>
<tr>
<td>B6-B12</td>
<td>Not Assigned</td>
</tr>
</tbody>
</table>

### Table 1

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Circ Pump Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6</td>
<td>A7</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Table 2</th>
<th>A8 OFF</th>
<th>A8 ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2 OFF</td>
<td>No separately-controlled fiber light; spa light enabled on both SpaLight and EitherLight buttons; fiber light (not wheel) comes on with spa light (at any intensity)</td>
<td></td>
</tr>
<tr>
<td>B2 ON</td>
<td>No separately-controlled fiber light; fiber light enabled on both FiberLight and EitherLight buttons; spa light comes on with fiber light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spa light and fiber light each separately controlled; fiber light enabled on both FiberLight and EitherLight buttons; spa light enabled on SpaLight buttons only</td>
<td></td>
</tr>
</tbody>
</table>

### Jumpers Key

- **J91** Jumper on 1 Pin only enables Real Time Clock function, for use with time capable panels.
- Jumper on Pins 1 and 2 will disable RTC function, for use with non-time capable panels.
**Single Service (1 x 16 Amp or 1 x 32 Amp)**

This option is configured and shipped as the default.

For 1 x 32 Amp Service:
- DIP Switch A2, A3, and A4 can be ON

For 1 x 16 Amp Service:
- DIP Switch A2, A3, and A4 must be OFF

For 1 x 16 Amp and 1 x 32 Amp Service:
- DIP Switch A11 must be ON if using Special Amperage Rule
- DIP Switch A11 must be OFF if not using Special Amperage Rule

**Dual Service Option (2 x 16 Amp)**

Completely remove the white wire from J26 and J32.

*Note: J32 and J23 are electrically identical. The white wire may be attached to either terminal before removal.*

DIP Switch A2, A3, and A4 must be ON

DIP Switch A11 must be ON if using Special Amperage Rule

DIP Switch A11 must be OFF if not using Special Amperage Rule

**3-Phase Service Option**

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

Completely remove the white wire from J26 and J32.

*Note: J32 and J23 are electrically identical. The white wire may be attached to either of these terminals before removal.*

Completely remove the blue wire from J28 and J57.

*Note: J57, J58 and J59 are electrically identical. The blue wire may be attached to any of these terminals before removal.*

Move the brown wire from J23 or J32 to J28.

DIP Switch A2, A3, and A4 must be ON

DIP Switch A11 must be OFF
## Software Configuration Settings

### Program Filter Cycles by Duration

**Fd**
- **n** = Start and stop times; for time capable panels.
- **Y** = Duration; for non-time capable panels

- **n** = 1 DIP Switch

### Pump 1 in Filter (w/Circ Pump)

**F1**
- Allows Pump 1 Low to operate in Filter Cycles to add extra filtration.
- **n** = Normal; **Y** = Pump 1 with Circ

- **n** = 1 DIP Switch

### 24 Hour Time *

**24**
- **n** = 12-hour (am/pm); **Y** = 24-hour (military/European)

- **n** = 1 DIP Switch

### Celsius *

**Ec**
- **n** = Fahrenheit; **Y** = Celsius

- **n** = 1 DIP Switch

### Timeouts

**To**
- **1-6** = 10, 20, 30, 40, 50, 60 minutes; **F** = 15 minutes

### Pump 1 Low Timeout

**Lt1**
- **d** = Use “Timeouts” value above; **1-4** = number of hours

- **d** = 3 DIP Switch

### Light Timeout

**Lt2**
- **d** = Use “Timeouts” value above; **1-4** = number of hours

### Scrunch Panel

**Sc**
- **n** = Normal panel layout; **Y** = Alternate panel layout (ML900 scrunching enabled - ML550/700 Jets 3 replaces Blower)

- **n** = 1 DIP Switch

### Circ Type (behavior)

**Cc**
- **n** = Non circ or circ pump not plumbed with heater; **A** = 24-hour; **3** = 24-hour with 3ºF shutoff outside filter; **P** = Acts like Pump 1 Low (filter cycles, polls, etc.)

- **n** = 2 DIP Switch

### Pump 1 Speeds

**P1**
- **1** = 1 speed; **2** = 2 speed

- **1** = 1 DIP Switch

### Pump 2 Speeds

**P2**
- **0** = Disabled; **1** = On/Off; **2** = 2 speed

- **0** = 2 DIP Switch

### Pump 3 Speeds

**P3**
- **0** = Disabled; **1** = On/Off; **2** = 2 speed

- **0** = 3 DIP Switch

### Pump 4 Speeds

**P4**
- **0** = Disabled; **1** = On/Off on board; **E** = External X-P CE or X-P231 CE Relay; **H** = On/Off on pin 1 of X-P632 CE board; **L** = 2 speed on X-P632 CE board

- **0** = 3 DIP Switch

### Pump 5 Speeds

**P5**
- **0** = Disabled; **1** = On/Off on board; **E** = External X-P CE or X-P231 CE Relay; **L** = On/Off on pin 2 of X-P632 CE board

- **0** = 3 DIP Switch
Software Configuration Settings Continued

### Pump Speeds

- **P6** Pump 6 Speeds
  - 0 = Disabled; 1 = On/Off; _ = 1 DIP Switch

### Blower Speeds

- **bL** Blower Speeds
  - 0 = Disabled; 1 = On/Off; _ = 2 DIP Switch

### Separate Spa Light Buttons

- **Lb** Separate Spa Light Buttons
  - (This feature applies when using Fiber Optic light)
  - _ = No Spa light button, Spa Light output is on with Fiber;
  - Y = Separate Spa Light button on ML900 or Aux panel; _ = 1 DIP Switch

**Note:** The Light button on an ML900 panel is a SpaLight button. The Light button on most other panels is an EitherLight button.

<table>
<thead>
<tr>
<th>Lb.n</th>
<th>Lb.Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fo.n</td>
<td>No separately-controlled fiber light; spa light enabled on both SpaLight and EitherLight buttons; fiber light (not wheel) comes on with spa light (at any intensity)</td>
</tr>
<tr>
<td>Fo.Y</td>
<td>No separately-controlled fiber light; fiber light enabled on both FiberLight and EitherLight buttons; spa light comes on with fiber light</td>
</tr>
<tr>
<td>Spa light and fiber light each separately controlled; fiber light enabled on both FiberLight and EitherLight buttons; spa light enabled on SpaLight buttons only</td>
<td></td>
</tr>
</tbody>
</table>

### Spa Light On/Off

- **L1** Spa Light On/Off
  - n = Dimmable (H, M, L) Light; Y = On/Off Light; _ = 1 DIP Switch

### Fiber Optics

- **Fo** Fiber Optics
  - n = Disabled; Y = Light and Wheel Enabled; _ = 2 DIP Switch

### Option

- **oE** Option
  - n = Disabled; Y = Enabled; _ = 1 DIP Switch

### Mister

- **pS** Mister
  - n = Disabled; Y = Enabled; _ = 1 DIP Switch

### Cleanup Cycles *

- **cc** Cleanup Cycles *
  - 0 = Disabled; 1-4 = Number of hours
  - * Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.

### Cleanup Cycles as User Preference

- **cU** Cleanup Cycles as User Preference
  - n = Only in Configuration Settings; Y = Over-rideable by User via User Preferences

### Ozone Operation

- **oz** Ozone Operation
  - A = Operates with Heater Pump (Pump 1 Low or Circ Pump);
  - F = Operates in Filter and Cleanup Cycles only; _ = 1 DIP Switch

### Ozone Suppression

- **oz** Ozone Suppression
  - n = No Suppress; Y = 1-hour suppress on button press; _ = 1 DIP Switch

### Ozone Icon

- **oi** Ozone Icon
  - n = Disabled; Y = Enabled; U = Controlled by UV input

### Option Qualify

- **oq** Option Qualify
  - n = Option button Normal; Y = Option button qualified by UV input
### Software Configuration Settings Continued

#### Auxiliary Buttons

<table>
<thead>
<tr>
<th>Bank</th>
<th>Buttons 1-4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>1. Aux Button 1 (Bank A)</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>2. Aux Button 2 (Bank A)</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>3. Aux Button 3 (Bank A)</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>4. Aux Button 4 (Bank A)</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L</td>
</tr>
</tbody>
</table>

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc);  
**b** = Blower; **g** = Spa Light;  
**F** = Fiber-Optic wheel/light;  
**E** = EitherLight; **o** = Option;  
**t** = Mister; **d** = CK Mode/Cool;  
**P** = CK Option/Heat; **n** = CK Intensity/TurboHt;  
**A** = ACD Aroma;  
**U** = Button Disabled;  
**r** = Air Valve;  
**O** = Option 2;  
**H** = Option 3;  
**9** = Invert;  
**L** = Option 4

---

#### AUX Button Bank Select

<table>
<thead>
<tr>
<th>Bank</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A = Bank A; b = Bank B; = 1 DIP Switch</td>
</tr>
</tbody>
</table>

---

#### Suppress all Reminders

<table>
<thead>
<tr>
<th>Setting</th>
</tr>
</thead>
</table>
| n = Display Reminders;  
**Y** = Suppress all Reminders;  
= 1 DIP Switch |

---

#### REMINDERS

<table>
<thead>
<tr>
<th>Reminder</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check pH Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Check Sanitizer Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Clean Filter Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Test GFCI Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Drain Water Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Change Mineral Cartridge</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Clean Cover Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Treat Wood Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
<tr>
<td>Change Filter Reminder Period</td>
<td>0 1 2 3 4 5 6 7 8 9 t</td>
</tr>
</tbody>
</table>

0 = Off;  
1 = 7 days;  
2 = 14 days;  
3 = 30 days;  
4 = 45 days;  
5 = 60 days;  
6 = 90 days;  
7 = 120 days;  
8 = 180 days;  
9 = 365 days;  
t = 21 days

---

#### Lowest Set Temperature *

<table>
<thead>
<tr>
<th>Setting</th>
</tr>
</thead>
</table>
| **8** = 80°F/26.0°C;  
**7** = 70°F/21.0°C |

* Setting LS at 7 and Fr at 5 will cause a CFE error.
### Filter Cycles

**FILTER CYCLES**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>FILTER CYCLES</code></td>
<td>Including default filter durations and settings, providing flexibility for user customization.</td>
</tr>
</tbody>
</table>

#### Default Set Temperature

- **5** = 95°F/35.0°C; **6** = 96°F/35.5°C; **7** = 97°F/36.0°C; **8** = 98°F/36.5°C; **9** = 99°F/37.0°C; **0** = 100°F/38.0°C; **1** = 101°F/38.5°C; **2** = 102°F/39.0°C; **3** = 103°F/39.5°C; **4** = 104°F/40.0°C; **E** = 80°F/26.5°C; **F** = 85°F/29.5°C

- **n** = 90°F/32.0°C

- *Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.

#### Freeze Temperature Threshold

- **3** = 39°F/3.9°C; **4** = 44°F/6.7°C; **9** = 49°F/9.4°C; **5** = 54°F/12.2°C

#### Set Temperature Lock

- **t** = Temp Lock Only; **S** = Temp + Settings Lock

#### Light Cycle Programming

- **n** = Disabled; **Y** = Enabled

#### Filter 1 Start Hour (Set 1) *

- **0** = 0 (12 am, 24); **1-9** = 1-9; **A = 10; b = 11; C = 12; d = 13 (1 pm); **E = 14 (2 pm); **F = 15 (3 pm); **g = 16 (4 pm); **H = 17 (5 pm); **J = 18 (6 pm); **L = 19 (7 pm); **n = 20 (8 pm); **o = 21 (9 pm); **P = 22 (10 pm); **r = 23 (11 pm)

- *Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.

These settings allow customization of the filter defaults. If any of these four settings is "-", the standard filter defaults are used.

**1d** and **2d** cannot both be set to **0**.

When **Fd.n** is selected, **1d** and **2d** are Filter 1 and Filter 2 Duration specifically.

When **Fd.y** is selected:

- If **1d** is set to **0**, **2d** is the duration; otherwise **1d** is the duration.
- If **1d** is set to **0**, only the Night cycle runs.
- If **2d** is set to **0**, only the Day cycle runs.
- If neither **1d** nor **2d** is set to **0**, both the Day and Night cycles run.

**3d** and **4d** cannot both be set to **0**.

When **Fd.n** is selected, **3d** and **4d** are Filter 1 and Filter 2 Duration specifically.

When **Fd.y** is selected:

- If **3d** is set to **0**, **4d** is the duration; otherwise **3d** is the duration.
- If **3d** is set to **0**, only the Night cycle runs.
- If **4d** is set to **0**, only the Day cycle runs.
- If neither **3d** nor **4d** is set to **0**, both the Day and Night cycles run.

* Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.
## Software Configuration Settings Continued

### Filter Cycles

**F5** Filter Default Start Time Set

1. **2**
   - 1 = Set 1; 2 = Set 2; _ = 1 DIP Switch

* Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.

### Filter Duration

**FP** Filter Default Duration Set

1. **2**
   - 1 = Set 1; 2 = Set 2; _ = 1 DIP Switch

* Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.

### Purge Duration

**PP** Pump Purge Duration

- **3**: 30 seconds; **1 - 5**: 1 - 5 minutes; **t**: 10 minutes

**BP** Blower Purge Duration

- **5**: 5 seconds; **1**: 10 seconds; **2**: 20 seconds; **3**: 30 seconds; **4**: 45 seconds; **6**: 60 seconds (1 minute); **t**: 2 minutes; **F**: 5 minutes

**EP** Mister Purge Duration

- **5**: 5 seconds; **1**: 10 seconds; **2**: 20 seconds; **3**: 30 seconds; **4**: 45 seconds; **6**: 60 seconds (1 minute); **t**: 2 minutes; **F**: 5 minutes

### Air Valve

**Ar** Air Valve

- n = Disabled; **Y** = Enabled on "alarm" relay

### Option 2

**O2** Option 2

- n = Disabled; **Y** = Enabled on "alarm" relay; _ = 1 DIP Switch

### Option 3

**O3** Option 3

- n = Disabled; **Y** = Enabled on pin 1 of X-P632 CE board; _ = 1 DIP Switch

### Option 4

**O4** Option 4

- n = Disabled; **Y** = Enabled on pin 2 of X-P632 CE board; _ = 1 DIP Switch

### Remote Buttons

Remote Button 1 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 2 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 3 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 4 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 5 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 6 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 7 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
Remote Button 8 (Bank A): 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4

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**ROUND REMOTE**

**DOLPHIN REMOTE**
**REMOTE BUTTONS**

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4

**ML90X SERIES BUTTONS**

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4
### ML75x/MX75x Series Buttons

| ML75x/MX75x Custom Button 1 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML75x/MX75x Custom Button 2 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML75x/MX75x Custom Button 3 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML75x/MX75x Custom Button 4 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML75x/MX75x Custom Button 5 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML75x/MX75x Custom Button 6 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4

### ML70x Series Buttons

| ML70x Custom Button 1 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML70x Custom Button 2 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML70x Custom Button 3 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |
| ML70x Custom Button 4 | 1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L |

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4

### ML750/MX750 Custom Buttons Enable

| ML750/MX750 Custom Buttons Enable | Y _ |
| n = Disabled; Y = Enabled; _ = 1 DIP Switch |

### ML70x Custom Buttons Enable

| ML70x Custom Buttons Enable | Y _ |
| n = Disabled; Y = Enabled; _ = 1 DIP Switch |
Software Configuration Settings Continued

ML55X SERIES BUTTONS

ML55x Custom Button 1
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML55x Custom Button 2
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML55x Custom Button 3
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML55x Custom Button 4
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML55x Custom Button 5
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4

ML40X/ML2XX SERIES BUTTONS

ML40x/ML2xx Custom Button 1
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML40x/ML2xx Custom Button 2
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
ML40x/ML2xx Custom Button 3
1 2 3 4 5 6 b g F E o t d P n A U r O H 9 L

1-6 = Assigns Pump Number (Pump 1, Pump 2, etc); b = Blower; g = Spa Light; F = Fiber-Optic wheel/light; E = EitherLight; o = Option; t = Mister; d = CK Mode/Cool; P = CK Option/Heat; n = CK Intensity/TurboHt; A = ACD Aroma; U = Button Disabled; r = Air Valve; O = Option 2; H = Option 3; 9 = Invert; L = Option 4
Software Configuration Settings Continued

<table>
<thead>
<tr>
<th>SR</th>
<th>Special Amperage Rule *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blower off when 2nd high-speed pump on;</td>
</tr>
<tr>
<td>2</td>
<td>Max 1 high-speed pump</td>
</tr>
<tr>
<td>3</td>
<td>Max 2 high-speed pumps</td>
</tr>
</tbody>
</table>

* Note: DIP A11 must be ON to use Special Amperage Rule.

<table>
<thead>
<tr>
<th>HC</th>
<th>Heat Cool Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Y</td>
</tr>
<tr>
<td>n</td>
<td>Disabled; Y = Enabled; _ = 1 DIP Switch</td>
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</table>

<table>
<thead>
<tr>
<th>CO</th>
<th>Color Kinetics</th>
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</thead>
<tbody>
<tr>
<td>n</td>
<td>Y</td>
</tr>
<tr>
<td>n</td>
<td>Disabled; Y = Enabled</td>
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<table>
<thead>
<tr>
<th>DR</th>
<th>DR Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Y</td>
</tr>
<tr>
<td>n</td>
<td>Disabled; Y = Enabled</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>dE</th>
<th>Demo Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Y</td>
</tr>
<tr>
<td>n</td>
<td>Disabled; Y = Enabled</td>
</tr>
</tbody>
</table>
Note: A special tool is required to remove the pins from the connector body once they are snapped in place. Check with your Balboa Account Manager for information on purchasing a pin-removal tool.

**Balboa Ozone connector configuration for 230VAC 50Hz:**

- **Black or Brown Line Conductor**
- **White or Blue Neutral Conductor**
- **Empty**

Flat sides of sockets as shown
Panel Configurations

ML900
PN 54589 with Overlay PN 11806

- Connects to Main Panel terminal J70, J71, J72, or J73
- RTC jumper (J91) on Main PCBA must be OFF (1 pin only)

SUGGESTED PANEL

Jets 3  
Jets 1  
Invert Fiber  
Jets 3  
Warm  
Jets 1  
Jets 2  
Jets 3  
Cool  
Mode/Prog  
Invert Fiber  
Light  
Option  

F2  
TL  
F1  
PL