EL8000M3 Mach 3 Hot Sheet

Balboa Instruments
System PN 54581

System Model # EL8-EL8000M3-YCAH
Software Version # 28
EPN # 2071

Base PCBA - PN 55214
PCB EL8000 – PN 22041 Rev A

Base Panels
ML900 – PN 54589

Balboa Instruments Incorporated

Template used: 40575-v28_A.pdf 12/04/2006
54581_97_A.pdf 07/05/2007

Basic System Features and Functions

Power Requirements

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

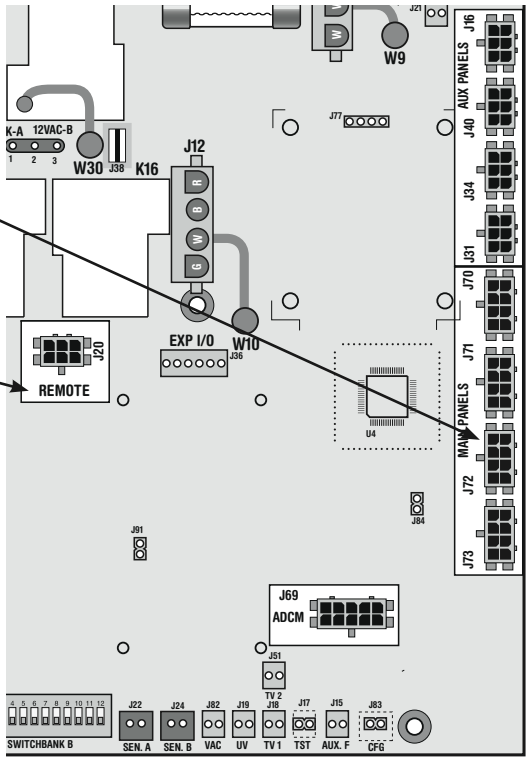
System Outputs

Setup 1 (As Manufactured)

- 240V Pump 1, 2-Speed
- 240V Pump 2, 2-Speed
- 240V Pump 3, 1-Speed
- 240V Pump 4, 1-Speed
- 120V Ozone
- 12V Spa Light
- 120V Fiber Optic Light and Wheel
- 120V AV (Stereo)
- 120V TV Lift
- 240V 5.5kW Heater

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 J8
- FiberEFX Lighting
  Connects to Spa Light terminal J8
- Stereo System
  Connects to A.V. terminal J5



Persistent Memory and Powering Up

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 seperately).

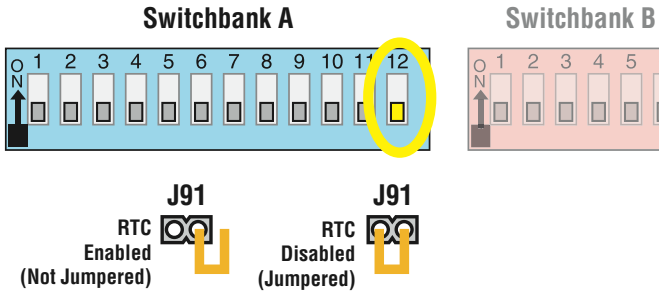
To reset Persistent Memory:

- Power down.
- Set A12 ON (See illustration below).
- Power up.
- Wait until "Pr" 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.



CFE message on power up:

If "CFE" appears before (and instead of) "Pr" 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 "CFE" are ones with which the system has found a configuration problem. For example:

- "CFE 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.
- "CFE J99" would mean that there is a problem with jumper J99
- "CFE P3.1 bL.1" 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.
- "CFE 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:

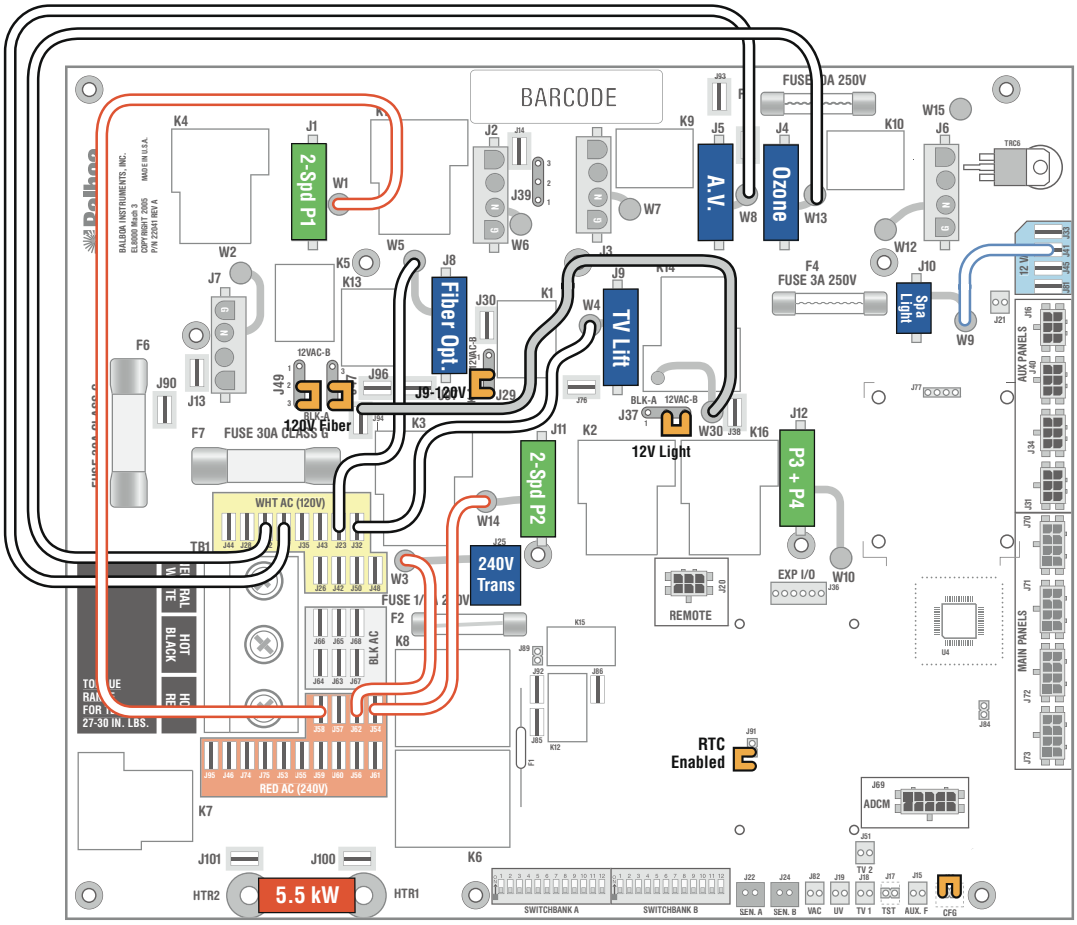
- Three numbers in a row, which are the SSID (the System Software ID). The third display of these numbers is the Software Version, which should match the version of your system. For example, if these three numbers are 100 134 26, that is a Mach 3 EL8000 at version 26.
- If there is a Configuration Error, 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.
- "Pr" or "PRIMING MODE" will appear to signal the start of Priming Mode.

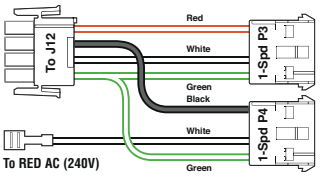
At this point, the power up sequence is complete. Refer to the User Guide for the ML Series panel on your system for information about how the spa operates from this point on.

Wiring Configuration and DIP Settings

Setup 1 (As Manufactured)

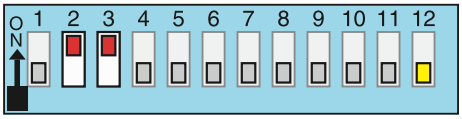
- 240V Pump 1, 2-Speed
- 240V Pump 2, 2-Speed
- 240V Pump 3, 1-Speed
- 240V Pump 4, 1-Speed
- 12V Spa Light
- 120V Fiber Optic
- 120V Ozone
- 120V A\V (Stereo)
- 120V TV Lift
- 240V 5.5kW Heater
- ML900 Main Panel





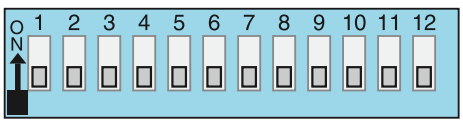
WARNING: Main Power to system should be turned OFF BEFORE adjusting DIP switches.
WARNING: Persistent Memory (A12) must be RESET to allow new DIP switch settings to take effect. (See Persistent Memory page)

Switchbank A



A1, Test Mode OFF
A2, + 1 Pump w/Heat
A3, + 2 Pumps w/Heat
A4,
A5, Not Assigned
A6, Not Assigned
A7, Not Assigned
A8, Not Assigned
A9, Not Assigned
A10, No Edit
A11, Special Amp Rule OFF
A12, Memory ON

Switchbank B



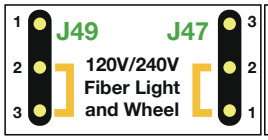
B1, Not Assigned
B2, Not Assigned
B3, Not Assigned
B4, Not Assigned
B5, Not Assigned
B6, Not Assigned
B7, Not Assigned
B8, Not Assigned
B9, Not Assigned
B10, Not Assigned
B11, Not Assigned
B12, Not Assigned

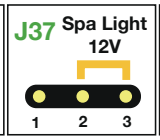
SSID #
100
134
28

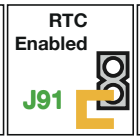
Wiring Color Key
- 120 Volt Connections
- 240 Volt Connections
- Black AC Jumpers
- 12 Volt Connections
- Relay Control Wires

Connector Key
- Typically Line voltage
- Typically Line voltage for 2-speed pumps
- Neutral (Common)
- Ground

Note flat sides in connector







DIP Switches 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

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
A10 ..... When switched ON when spa is on, system will enter the Edit Menu for Configuration Settings
Do not start spa with A10 turned on or CFE* error will occur
A11 ..... In "ON" position, enables Special Amperage Rule, see "SA" in Software Configuration section for functionality with your system
..... In "OFF" position, disables Special Amperage Rule
A12 ..... Persistent memory reset (used when spa is powering up) See "Persistent Memory and Powering Up" page

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

A5 ..... Not Assigned
A6 ..... Not Assigned
A7 ..... Not Assigned
A8 ..... Not Assigned
A9 ..... Not Assigned
B1 ..... Not Assigned
B2 ..... Not Assigned
B3 ..... Not Assigned
B4 ..... Not Assigned
B5 ..... Not Assigned
B6 ..... Not Assigned
B7 ..... Not Assigned
B8 ..... Not Assigned
B9 ..... Not Assigned
B10 ..... Not Assigned
B11 ..... Not Assigned
B12 ..... Not Assigned

Jumper Definitions

WARNING:

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

Jumpers Key

J29 . . . . . Jumper on Pins 1 and 2 will power J9-pin 1 (Mister) at 12 Volts AC.
Jumper on Pins 2 and 3 will power J9-pin 1 (Mister) at 120/240 Volts AC.
Note: W4 controls voltage on return line of J9-pin 3 and must be set for the same voltage.

J37 . . . . . Jumper on Pins 1 and 2 will power one leg of J10-pin 2 (Spa Light) at 120/240 Volts AC.
Jumper on Pins 2 and 3 will power one leg of J10-pin 2 (Spa Light) at 12 Volts AC.
Note: W9 controls voltage on the return line of J10-pin 1 and must be set for the same voltage.

J39 . . . . . Jumper on Pins 1 and 2 will power J2 pin 2 with Pump 1 Low.
Jumper on Pins 2 and 3 will power J2 pin 2 with the Circ Pump.
Note: W6 controls voltage on common line of J2-pin 3

J47 . . . . . Jumper on Pins 1 and 2 will power J8 pin 2 (Fiber Optic Light) and J7 at 120/240 Volts AC.
Jumper on Pins 2 and 3 will power J8 pin 2 (Fiber Optic Light) at 12 Volts AC.
Note: J47 and J49 must be set for the same voltage. W5 controls voltage on return line of J8-pin 3 and must be set to the same voltage.

J49 . . . . . Jumper on Pins 2 and 3 will power J8 pin 1 (Fiber Optic Wheel) at 120/240 Volts AC.
Jumper on Pins 1 and 2 will power J8 pin 1 (Fiber Optic Wheel) at 12 Volts AC.
Note: J47 and J49 must be set for the same voltage. W5 controls voltage on return line of J8-pin 3 and must be set to the same voltage.

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.

Software Configuration Settings

Default
As Set
As Set to Default

Fd	Program Filter Cycles by Duration	(n) Y _ **n** = Start and stop times; for time capable panels. **Y** = Duration; for non-time capable panels **_** = 1 DIP Switch
F1	Pump 1 in Filter (w/Circ Pump)	(n) Y (This feature is used in Circ Mode only.) Allows Pump 1 Low to operate in Filter Cycles to add extra filtration. **n** = Normal; **Y** = Pump 1 with Circ
24	24-Hour Time *	(n) Y _ **n** = 12-hour (am/pm); **Y** = 24-hour (military\European); **_** = 1 DIP Switch * Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.
tc	Celsius *	(n) Y _ **n** = Fahrenheit; **Y** = Celsius; **_** = 1 DIP Switch * Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up
to	Timeouts	1 (F) 2 3 4 5 6 **1-6** = 10, 20, 30, 40, 50, 60 minutes; **F** = 15 minutes
1t	Pump 1 Low Timeout	d 1 (2) 3 4 _ **d** = Use "Timeouts" value above; **1-4** = number of hours; **_** = 3 DIP Switch
Lt	Light Timeout	d 1 2 3 (4) **d** = Use "Timeouts" value above; **1-4** = number of hours
Sc	Scrunch Panel	(n) Y _ **n** = Normal panel layout; **Y** = Alternate panel layout (ML900 scrunching enabled - ML550/700 Jets 3 replaces Blower; **_** = 1 DIP Switch
ct	Circ Type (behavior)	(n) A 3 P _ **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.); **_** = 2 DIP Switch

Pump Speeds

P1	Pump 1 Speeds	1 (2) _ **1** = 1 speed; **2** = 2 speed; **_** = 1 DIP Switch
P2	Pump 2 Speeds	(0) 1 (2) _ **0** = Disabled; **1** = On/Off; **2** = 2 speed; **_** = 2 DIP Switch
P3	Pump 3 Speeds	(0) (1) 2 _ **0** = Disabled; **1** = On/Off; **2** = 2 speed; **_** = 3 DIP Switch
P4	Pump 4 Speeds	(0) (1) E H L _ **0** = Disabled; **1** = On/Off on board; **E** = External X-P or X-P231 Relay; **H** = On/Off on pin 1 of X-P632 board; **L** = 2 speed on X-P632 board; **_** = 3 DIP Switch
P5	Pump 5 Speeds	(0) 1 E L _ **0** = Disabled; **1** = On/Off on board; **E** = External X-P or X-P231 Relay; **L** = On/Off on pin 2 of X-P632 board; **_** = 3 DIP Switch

Software Configuration Settings Continued

Pump Speeds

P6	Pump 6 Speeds	(0) 1 _ **0** = Disabled; **1** = On/Off; **_** = 1 DIP Switch
bL	Blower Speeds	(0) 1 2 3 _ **0** = Disabled; **1** = On/Off; **2** = 2 speeds; **3** = 3 speeds; **_** = 2 DIP Switch

Lighting Control

Lb	Separate Spa Light Buttons (This feature applies when using Fiber Optic light)	(n) (Y) _ See Chart Below **n** = 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.

	Lb.n	**Lb.Y**
Fo.n	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)	
Fo.Y	No separately-controlled fiber light; fiber light enabled on both FiberLight and EitherLight buttons; spa light comes on with fiber light	Spa light and fiber light each separately controlled; fiber light enabled on both FiberLight and EitherLight buttons; spa light enabled on SpaLight buttons only

L1	Spa Light On/Off	(n) (Y) _ **n** = Dimmable (H, M, L) Light; **Y** = On/Off Light; **_** = 1 DIP Switch
Fo	Fiber Optics	(n) (Y) _ **n** = Disabled; **Y** = Light and Wheel Enabled;; **_** = 2 DIP Switch
15	Mister	(n) Y _ **n** = Mister Disabled (Option Enabled); **Y** = Mister Enabled (Option Disabled); **_** = 1 DIP Switch
cc	Cleanup Cycles *	(0) 1 2 3 4 **0** = Disabled; **1-4** = Number of hours * Sets default for user preferences - only applies when persistent memory is reset (A12 On) during power-up.
cU	Cleanup Cycles as User Preference	(n) Y **n** = Only in Configuration Settings; **Y** = Over-rideable by User via User Preferences

Ozone

o3	Ozone Operation	(A) F _ **A=** Operates with Heater Pump (Pump 1 Low or Circ Pump); **F** = Operates in Filter and Cleanup Cycles only; **_** = 1 DIP Switch
o5	Ozone Suppression	(n) Y _ **n** = No Suppress; **Y** = 1-hour suppress on button press; **_** = 1 DIP Switch
oI	Ozone Icon	n Y (U) **n** = Disabled; **Y** = Enabled ; **U** = Controlled by UV input
oq	Option Qualify	(n) Y **n** = Option button Normal; **Y** = Option button qualified by UV input

Software Configuration Settings Continued

Auxiliary Buttons

A1	Aux 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
A2	Aux 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
A3	Aux 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
A4	Aux 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

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

b1	Aux Button 1 (Bank B)	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
b2	Aux Button 2 (Bank B)	1 (2) 3 4 5 6 b g F E o t d P n A U r O H 9 L
b3	Aux Button 3 (Bank B)	1 2 3 4 5 6 (b) g F E o t d P n A U r O H 9 L
b4	Aux Button 4 (Bank B)	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

AU	Aux Button Bank Select	(A) b _ **A** = Bank A; **b** = Bank B; **_** = 1 DIP Switch

Reminders

Sr	Suppress all Reminders	n (Y) _ **n** = Display Reminders; **Y** = Suppress all Reminders; **_** = 1 DIP Switch
rP	Check pH Reminder Period	0 (1) 2 3 4 5 6 7 8 9 t
rS	Check Sanitizer Reminder Period	0 (1) 2 3 4 5 6 7 8 9 t
rF	Clean Filter Reminder Period	0 1 2 (3) 4 5 6 7 8 9 t
r9	Test GFCI Reminder Period	0 1 2 (3) 4 5 6 7 8 9 t
rd	Drain Water Reminder Period	0 1 2 3 4 5 (6) 7 8 9 t
rA	Change Mineral Cartridge	(0) 1 2 3 4 5 6 7 8 9 t
rC	Clean Cover Reminder Period	0 1 2 3 4 5 6 7 (8) 9 t
ro	Treat Wood Reminder Period	0 1 2 3 4 5 6 7 (8) 9 t
rt	Change Filter Reminder Period	0 1 2 3 4 5 6 7 8 (9) t

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

LS	Lowest Set Temperature *	(8) 7 **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.

Software Configuration Settings Continued

5t Default Set Temperature * 5 6 7 8 9 (0) 1 2 3 4 E F n

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.

Fr Freeze Temperature Threshold 3 (4) 9 5

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

tL Set Temperature Lock (t) S

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

Lc Light Cycle Programming (n) Y

n = Disabled; **Y** = Enabled

Filter Cycles

1r Filter 1 Start Hour (Set 1) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

1d Filter 1 Duration (Set 1) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

2r Filter 2 Start Hour (Set 1) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

2d Filter 2 Duration (Set 1) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

- = Standard Defaults; **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)

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.

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

3r Filter 1 Start Hour (Set 2) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

3d Filter 1 Duration (Set 2) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

4r Filter 2 Start Hour (Set 2) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

4d Filter 2 Duration (Set 2) * (-) 0 1 2 3 4 5 6 7 8 9 A b C d E F g H J L n o P r

- = Standard Defaults; **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)

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

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

FS	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.
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

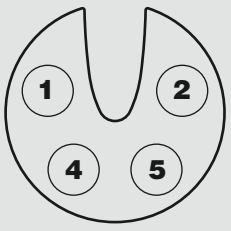
PP	Pump Purge Duration	3 (1) 2 5 t **3** = 30 seconds; **1 - 5** = 1 - 5 minutes; **t** = 10 minutes
bP	Blower Purge Duration	5 1 2 (3) 4 6 t F **5** = 5 seconds; **1** = 10 seconds; **2** = 20 seconds; **3** = 30 seconds; **4** = 45 seconds; **6** = 60 seconds (1 minute); **t** = 2 minutes; **F** = 5 minutes
tP	Mister Purge Duration	(5) 1 2 3 4 6 t F **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
Ar	Air Valve	(n) Y **n** = Disabled; **Y** = Enabled on "alarm" relay
o2	Option 2	(n) Y _ **n** = Disabled; **Y** = Enabled on "alarm" relay; _ = 1 DIP Switch
03	Option 3	(n) Y _ **n** = Disabled; **Y** = Enabled on pin 1 of X-P632 board; _ = 1 DIP Switch
04	Option 4	(n) Y _ **n** = Disabled; **Y** = Enabled on pin 2 of X-P632 board; _ = 1 DIP Switch

Remote Buttons

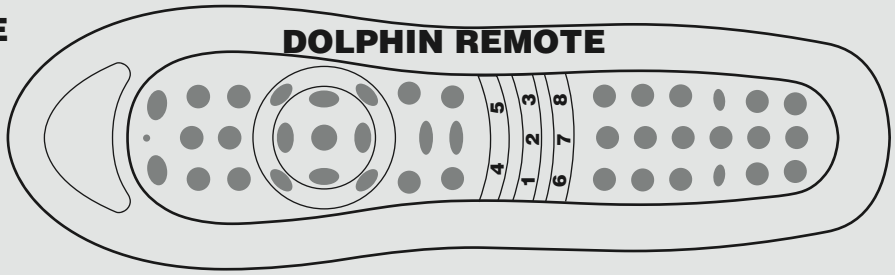
n1	Remote Button 1 (Bank A)	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
n2	Remote Button 2 (Bank A)	1 (2) 3 4 5 6 b g F E o t d P n A U r O H 9 L
n3	Remote Button 3 (Bank A)	1 2 (3) 4 5 6 b g F E o t d P n A U r O H 9 L
n4	Remote Button 4 (Bank A)	1 2 3 4 5 6 (b) g F E o t d P n A U r O H 9 L
n5	Remote 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
n6	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
n7	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
n8	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

ROUND REMOTE



DOLPHIN REMOTE



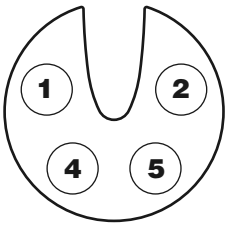
Software Configuration Settings Continued

Remote Buttons

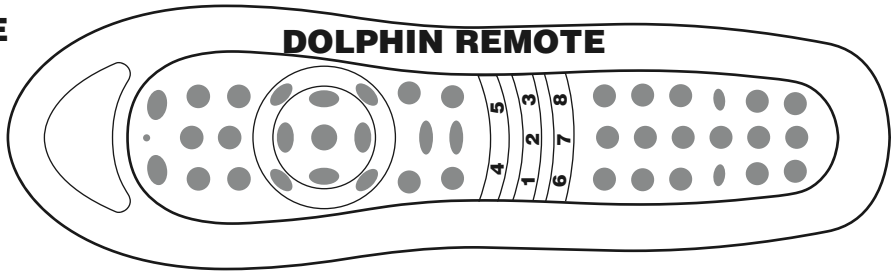
H1	Remote Button 1 (Bank B)	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
H2	Remote Button 2 (Bank B)	1 (2) 3 4 5 6 b g F E o t d P n A U r O H 9 L
H3	Remote Button 3 (Bank B)	1 2 (3) 4 5 6 b g F E o t d P n A U r O H 9 L
H4	Remote Button 4 (Bank B)	1 2 3 4 5 6 (b) g F E o t d P n A U r O H 9 L
H5	Remote Button 5 (Bank B)	1 2 3 4 5 6 b (g) F E o t d P n A U r O H 9 L
H6	Remote Button 6 (Bank B)	1 2 3 4 5 6 b g (F) E o t d P n A U r O H 9 L
H7	Remote Button 7 (Bank B)	1 2 3 4 5 6 b g F E (o) t d P n A U r O H 9 L
H8	Remote Button 8 (Bank B)	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

ROUND REMOTE



DOLPHIN REMOTE

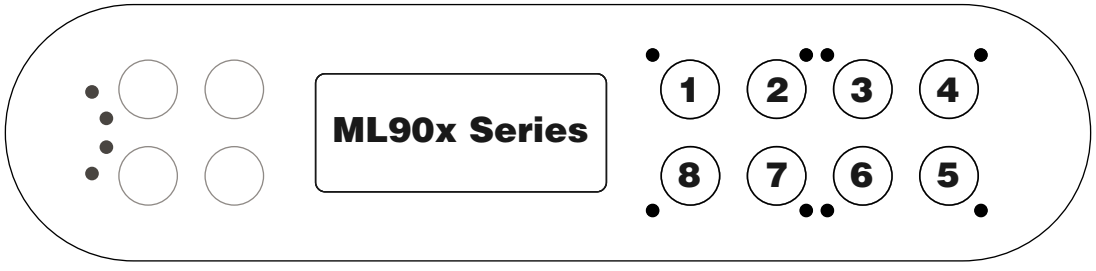


d0	Remote Button Bank Select	(A) b _ **A** = Bank A; **b** = Bank B; **_** = 1 DIP Switch

ML90x Series Buttons

B1	ML90x 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
B2	ML90x 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
B3	ML90x 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
B4	ML90x 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
B5	ML90x 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
B6	ML90x 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
B7	ML90x Custom Button 7	(1) 2 3 4 5 6 b g (F) E o t d P n A U r O H 9 L
B8	ML90x Custom Button 8	(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



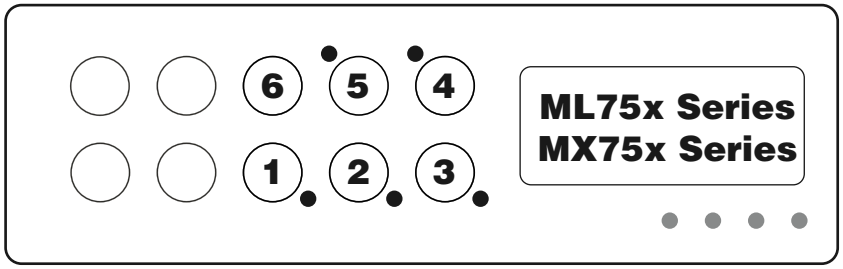
BC	ML90x Custom Buttons Enable	(n) (Y) _ **n** = Disabled; **Y** = Enabled; **_** = 1 DIP Switch

Software Configuration Settings Continued

ML75x/MX75x Series Buttons

61	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
62	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
63	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
64	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
65	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
66	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



6C	ML750/MX750 Custom Buttons Enable	(n) Y _

n = Disabled; **Y** = Enabled; **_** = 1 DIP Switch

ML70x Series Buttons

41	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
42	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
43	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
44	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

4C	ML70x Custom Buttons Enable	(n) (Y) _

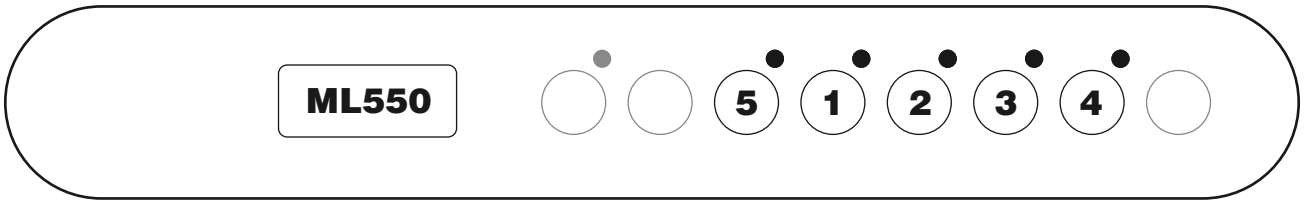
n = Disabled; **Y** = Enabled; **_** = 1 DIP Switch

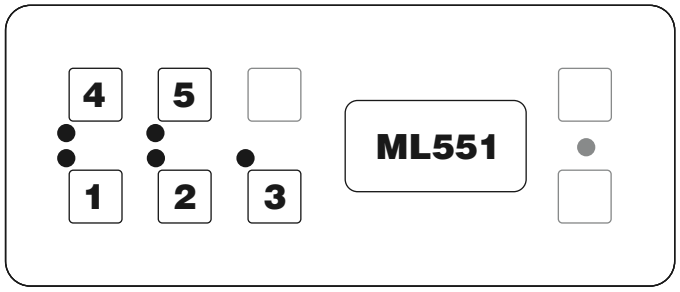
Software Configuration Settings Continued

ML55x Series Buttons

S1	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
S2	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
S3	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
S4	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
S5	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





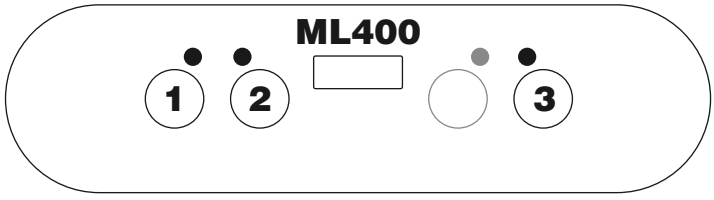
SC	ML55x Custom Buttons Enable	(n) Y _

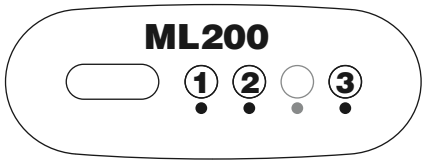
n = Disabled; **Y** = Enabled; **_** = 1 DIP Switch

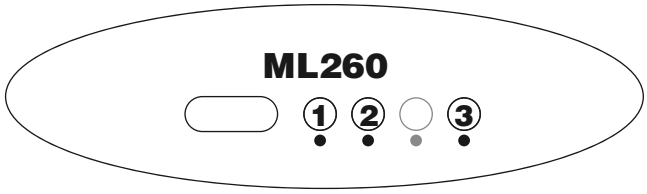
ML40x/ML2xx Series Buttons

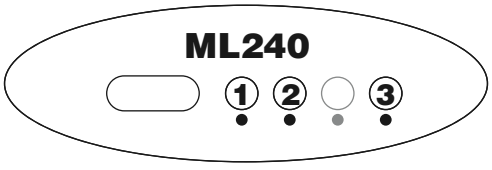
31	ML40x/ML2xx Custom Button 1	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
32	ML40x/ML2xx Custom Button 2	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L
33	ML40x/ML2xx Custom Button 3	(1) 2 3 4 5 6 b g F E o t d P n A U r O H 9 L

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









3C	ML40x/ML2xx Custom Buttons Enable	(n) Y _

n = Disabled; **Y** = Enabled; **_** = 1 DIP Switch

Software Configuration Settings Continued

SA	Special Amperage Rule *	(1) 2 3 **1** = Blower off when 2nd high-speed pump on; **2** = Max 1 high-speed pump **3** = Max 2 high-speed pumps
	* Note: DIP A11 must be ON to use Special Amperage Rule.	
HC	Heat Cool Feature	(n) Y _ **n** = Disabled; **Y** = Enabled; _ = 1 DIP Switch
co	Color Kinetics	(n) Y **n** = Disabled; **Y** = Enabled
cd	ACD	(n) Y **n** = Disabled; **Y** = Enabled
dr	DR Mode	(n) Y **n** = Disabled; **Y** = Enabled
dE	Demo Mode	(n) Y **n** = Disabled; **Y** = Enabled
GF	GFCI Test Enable	(n) 1 2 3 4 5 6 7 **n** = Disabled; **1** = Auto after 1 day; **2** = Auto after 2 days; **3** = Auto after 3 days; **4** = Auto after 4 days; **5** = Auto after 5 days; **6** = Auto after 6 days; **7** = Auto after 7 days

Ozone Connections

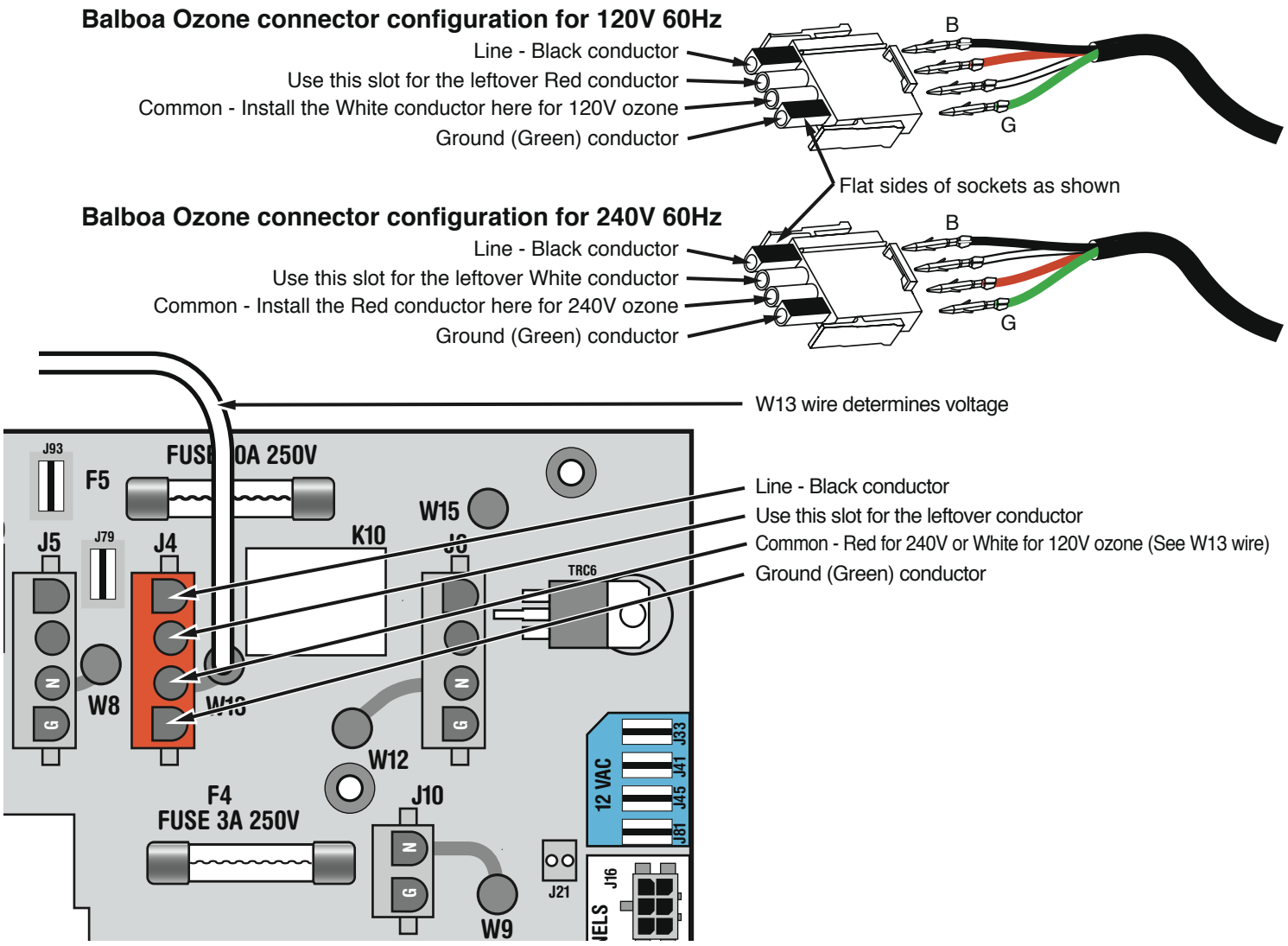
Ozone Connector Voltage: The EL circuit board is factory configured to deliver a preset voltage (120V or 240V) to the on-board ozone connector (J4). See the ratings table on the wiring diagram attached to the cover of the enclosure for the configured voltage. For 240V output W13 connects to Red AC and for 120V output W13 connects to White AC.

The voltage to the ozone connector can be changed in the field if required. W13 just needs to be set for the required voltage.

Balboa Ozone Generator: If the board is set up to operate a 120V ozone generator, the connector on the ozone generator is likely to be configured correctly, but should be compared to the illustration below.

If a 240V ozone generator is required, be sure the red wire in the ozone cord is positioned in the connector next to the green ground wire as described below.

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.



Panel Configurations

TIME CAPABLE

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)