EL/GL Series - Mach 3

ML900 User Guide



Note regarding EL and GL systems: Mach 3 EL and GL systems function identically, but conform to different International requirements. This user guide will refer to EL systems for the sake of simplicity, but the information given applies to both EL and GL products.

ISO 9001 Certified

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Balboa Instruments Incorporated

EL/GL SERIES (Mach 3) CONTROL WITH ML900 PANEL

The ML900 panel can be used with the EL8000, EL5000, EL2000 and EL1000 systems. This user guide lists all features that are available. Your spa may not respond as described in this document as specific operation varies by system and equipment used. If your spa is not fully equipped, the panel buttons on your spa control may not be laid out as shown.

The pump responsible for heating and filtration (pump 1 low on non-circ systems, or the circ pump on circ systems) will be referred to simply as the pump.

Timeouts refer to a preset length of time that a function is programmed to operate before shutting off automatically. Certain conditions (filters or freeze) can cause a function to operate longer, while faults can cause a function to operate for a shorter length of time. The system keeps track of timeouts regardless of other conditions occurring.

In multi-button sequences, if buttons are pressed too quickly in sequence, they may not register.

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Initial Start-up

When your spa is first actuated, it will go into Priming mode (after displaying some configuration information). **Please see the M-7 Installation Instruction Manual for complete instructions on Power-up and Pump Priming.**

The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode. You can exit Priming mode early by pressing “Warm” or “Cool.”

Icon Legend


Heat Icon - Indicates different stages of heating.


Jets Icon - Spins fast on high speed; spins slow on low speed.


Blower Icon - Biggest in highest speed; smallest in lowest speed.


Fiber-Optic Light Icon - Spins when the wheel is on; stands still when wheel is off.


Light Icon - On dim, the LCD will show the center circle plus one quarter of the light beams. Half of the light beams will show on medium brightness, and all of the light beams will show on bright.

Time

When time hasn't been programmed, the "***TIME***" icon flashes. To set the time, press "Time" then "Mode/Prog." Use the "Warm" and "Cool" buttons to adjust time. See previous page for more detailed instructions. *(Time settings on EL1000 and some EL2000 systems are not preserved in the event of power loss; time will have to be reprogrammed upon each power up.)*

If your spa has an optional pH/ORP sensor (not available on EL1000 and some EL2000 systems), pressing "Time" twice will display the current pH level; pressing it three times will display the current ORP.

Setting the Time

Once the spa has been properly connected the first time (every power up on the EL1000 and some EL2000 systems), notice the "***TIME***" icon appearing on the screen.

Press Time **Then** Mode/Prog

Select the hour by pressing Warm **Or** Cool *(Each press changes the time by 1 minute)*

Press Mode/Prog to enter.

Select minutes by pressing Warm **Or** Cool *(Each press changes the time by 1 minute)*

Press Mode/Prog to exit the time setting procedure and enter the optional filter cycle programming. (Exits programming on EL1000 and some EL2000 systems.)

Press Time to exit programming.

Temp Set (80°F - 104°F / 26.0°C - 40.0°C)

The last measured temperature is constantly displayed on the LCD.

Note that the last measured spa temperature displayed is current only when the pump has been running for at least 1 minute.

Warm/Cool

Press the "Warm" or "Cool" button once to display the set temperature. Each time either button is pressed again, the set temperature will increase or decrease depending on which button is pressed. After three seconds, the LCD will automatically display the last measured spa temperature.

Mode/Prog

This button is used to switch between Standard, Economy, and Sleep modes. Press "Mode/Prog" to enter mode programming, press "Cool" to cycle through to desired mode (LCD flashes until confirmed), then press "Mode/Prog" to confirm selection.

Standard mode maintains the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 1 minute. The "***STANDARD***" icon will display until the mode is changed.

Economy mode heats the spa to set temperature only during filter cycles. The "***ECONOMY***" icon will display until mode is changed.

Pressing "Jets 1" while in Economy mode puts the spa in **Standard-In-Economy mode,** which operates the same as Standard Mode, then reverts to Economy Mode automatically after 1 hour. Both the "***STANDARD***" and "***ECONOMY***" icons display in this mode. During this time, a press of the "Mode/Prog" button will revert to Economy Mode immediately.

Sleep mode heats the spa to within 20°F (11°C) of the set temperature only during filter cycles. The "***SLEEP***" icon will display until mode is changed.

Standby Mode

Pressing "Warm" or "Cool" then "Jets 2" will turn off all spa functions temporarily. This is helpful when changing a filter. Pressing any button resets the spa. On some systems the "Jets 1" button will control the pump in Standby Mode ("Drain Mode"). In this case, press any other button to exit. System will revert to previous mode after 1 hour.

Jets 1

Press the "Jets 1" button once to turn pump 1 on or off, and to shift between low and high speeds if equipped. If left running, the pump will turn off after a timeout period. The pump 1 low speed timeout on some systems may be as long as 4 hours.

On non-circ systems, the low speed of pump 1 runs when the blower or any other pump is on. It may also activate for at least 1 minute every 30 minutes to detect the spa temperature (polling) and then to heat to the set temperature if needed, depending upon mode. When the low speed turns on automatically, it cannot be deactivated from the panel; however, the high speed may be started.

Jets 2 (optional on some systems)

Press the "Jets 2" button once to turn pump 2 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the pump will turn off after a timeout period.

Jets 3 (optional on some systems)

Press the "Jets 3" button once to turn pump 3 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the pump will turn off after a timeout period.

Blower

1-speed operation: on/off;
2-speed operation: med/hi/off; or
3-speed operation: lo/med/hi/off.
If left on, the blower will automatically turn off after a timeout period.

Invert

Press the "Invert" button to change the numbers in the display to read upside down. Press again to return the display to its normal right-side-up display.

Preset Filter Cycles

On all systems, the pump and the ozone generator will run during filtration. At the start of each filter cycle, the blower will run briefly on its highest speed to purge the air channels. The lowest speed of any other pumps and the mister will also run briefly. On some circ systems, pump 1 may also run for the duration of the filter.

(The following is specific to all systems that are programmed according time)

There are two filter cycles per day. The start/end times of each cycle are programmable. To program, set time as instructed above, then press "Mode/Prog" to advance to the next setting (or to exit after the last setting). Default filter cycles can vary from system to system. A common default is 8:00 AM to 10:00 AM and 8:00 PM to 10:00 PM. Press "Time" then "Mode/Prog" to step through the filter settings to see how they are currently set.

Each filter cycle automatically operates the pump for the duration of the filter cycle. The filter 1 "F1" icon will light when filter 1 is running. The filter 2 "F2" icon will light when filter 2 is running.

(The following is specific to EL2000 and EL1000 systems that are programmed according to duration rather than time)

The first filter cycle ("day") begins 6 minutes after the spa is powered up. The second filter cycle ("night") begins 12 hours later. Filter duration is programmable for 1-12 hours ("F 1"-"F 12"). The default filter duration can vary from system to system. To program, press "Warm" or "Cool," then "Jets 1." Press "Warm" or "Cool" to select the filter duration. Press "Jets 1" to select the number of filter cycles. The display will show "dn" (both "day" and "night" cycles); "d" (day cycle only); or "n" ("night" cycle only). Press "Warm" or "Cool" to adjust, then press "Jets 1" to exit the programming mode. For continuous filtration, use "F 12" and "dn".

Note: EL1000 and some EL2000 systems are capable of being programmed by time rather than by duration (see Preset Filter Cycles section). On EL2000 and EL1000 systems with duration programming only, the spa powers up at 12:54, thus the first filter cycles begins 6 minutes later at 1:00. If you would like your spa to begin filtering at another time, you may change the clock to align with your preferred filter time, rather than the actual time of day.

Optional Filter Cycle Programming

You are not required to set filter cycles; however, it is an option available to you. To change the filter cycle settings:

Press "Time" "Mode/Prog" "Mode/Prog" "Mode/Prog" within 3 seconds. You will see the "SET FILTER 1" and a flashing "***START TIME***" icon appear on the display.

Press "Up" or "Down" to choose the filter start time hour. Enter the hour by pressing "Mode/Prog". Press "Up" or "Down" to choose the filter start time minutes. Each press changes the start time by 5 minutes.

Enter the minutes by pressing "Mode/Prog."

Press "Mode/Prog" to see "SET FILTER 1" and a flashing "***END TIME***" icon. Adjust the time as done above.

Press "Mode/Prog" to see the "SET FILTER 2" (PM cycle) and a flashing "***START TIME***" icon. Proceed as above.

Press "Mode/Prog" to see "SET FILTER 2" and a flashing "***END TIME***" icon. Adjust the time as done above.

Pressing "Mode/Prog" will enter the new filter cycle times into the system and display the current water temperature.

Pressing "Time" at any time during this programming sequence will save the values entered up to that point and exit programming.

If you would like to select continuous filtration, set the filter 1 start and end times to be the exact same time. In this case, the filter 2 start time only controls when the second purge happens. Filter 2 end time will be unavailable.

Light

Some systems are equipped with both a spa light and a fiber optic light; however, only one can be accessed by this panel. (Larger panels may be purchased so that both the spa light and fiber optic light can be utilized.) Depending upon how your spa is equipped and configured, the "Light" button will operate in one of three ways:

1) Press the "Light" button to turn the spa light on and off, and to shift between dim and bright settings if your light is dimmable. On dim, the LCD will show center circle plus one quarter of the light beams. Half of the light beams will show on medium brightness, and all of the light beams will show on bright.

2) If a fiber-optic light with wheel is installed, press the "Light" button once to start the light and wheel, press it again to stop the wheel, and then again to turn the light off. The fiber icon stands still when the fiber optic light is on by itself, and rotates when the color wheel is also on.

3) If a fiber-optic light without a separate wheel stop is installed, press the "Light" button to turn it on and off.

Again, both a spa light and a fiber optic light may be used simultaneously on the EL8000 and EL5000 systems with a different panel.

If any light is left on, it will automatically turn off after a factory programmed time period.

Fiber (optional on some systems)

If a fiber-optic light with wheel is installed, press the "Fiber" button once to start the light and wheel, press it again to stop the wheel, and then again to turn the light off. The fiber icon stands still when the fiber-optic light is on by itself, and rotates when the color wheel is also on.

Both spa light and fiber-optic light can be used simultaneously on systems that have both. If either light is left on, it will automatically turn off after a timeout period (on some systems this timeout can be as long as 4 hours.)

Use the "Light" button if your fiber-optic system is on/off only (no separate wheel stop).

Option (optional)

Press the "Option" button to turn optional equipment (such as TV or Stereo) on and off (with no timeout).

Note: If your spa has additional functions not listed here, please refer to the section *Optional Auxiliary Panels* as listed in the Table of Contents.

Freeze Protection

If the temperature sensors within the heater detect a low enough temperature, then the pump(s) and the blower automatically activate to provide freeze protection. The pump(s) and blower will run either continuously or periodically depending on conditions.

In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Auxiliary freeze sensor protection acts similarly except with the temperature thresholds determined by the switch. See your dealer for details.

Locking the Panel

Press "Time" "Jets 1" then "Warm" within 3 seconds. When locked, the PL "PL" light will light. All buttons are frozen except the "Time" button. To unlock the panel, press "Time" "Jets 1" then "Cool."

Locking the Set Temperature

Press "Warm" or "Cool" then "Time," "Jets 1," and "Warm" within 3 seconds to activate the lock. The TL "TL" light will light when the set temperature is locked.

On some systems, locking the set temperature also locks out Mode changes.

To unlock the set temperature, press "Warm" or "Cool" then "Time," "Jets 1" and "Cool."

Clean-up Cycle (optional)

When a pump or blower is turned on by a button press, a clean-up cycle begins 30 minutes after the pump or blower is turned off or times out. The pump and the ozone generator will run for one to four hours, depending on the system (on some systems, you can change this setting; see User Preferences section.)

Circ Pump (optional)

If your system is equipped with a circ pump, it may be configured to work in one of three different ways:

1) The circ pump operates continuously (24 hours) with the exception of turning off for 30 minutes at a time when the water temperature reaches 3°F (1.5°C) above the set temperature (most likely to happen in very hot climates).

2) The circ pump stays on continuously, regardless of water temperature.

3) The circ pump will come on when the system is checking temperature (polling), during filter cycles, during freeze conditions, or when another pump is on.

Ozone (optional)

On most systems, the ozone generator (if installed) runs during filter cycles (except when pump 1 is operating at high speed on a non-circ system) and during clean-up cycles. On some systems, the ozone generator operates whenever the pump runs.

If your system is configured with the optional ozone suppress feature, the ozone generator will turn off for 1 hour any time a function button (Jets 1, Jets 2, Blower, etc.) is pressed.

Displaying Information About Your Spa

There are several pieces of information about your spa that can be called up from the panel, but are only needed in special cases.

To access this information, press "Warm" or "Cool" then "Jets 1", then "Light". (Each press must be within 3 seconds of the previous press.) Then press "Temp" until you see "S Id" on the display. Press "Jets 1" to see the SSID (a series of 3 numbers, such as 100 133 10, which indicates the precise revision of the software in your spa), followed by the Mach software version number (such as 2.1), followed by "CSn" and then your spa's network ID number (consisting of both letters and digits displayed in 5 steps).

If you need to see this series of numbers again, and "S Id" is once again on the display, just press "Jets 1" again.

When done, press the "Light" button (more than once if necessary) until you see the normal temperature display.

User Preferences

There are several aspects of spa operation that you can customize using the User Preferences submenu.

Press "Warm" or "Cool" then "Jets 1", then "Light". (Each press must be within 3 seconds of the previous press.) At this point, if "USr" is not showing on the display, press "Temp" until you see "USr" on the display. Then press "Jets 1" to enter the User Preferences submenu.

Once in the User Preferences submenu, press "Warm" or "Cool" to cycle between these settings:

Sr – Suppress Reminders
When set to "Sr.Y", reminders are never displayed on the panel. When set to "Sr.n", reminders are displayed on the panel periodically.

tc – Temperature in Celsius
When set to "tc.Y", temperatures are displayed on the panel in degrees Celsius. When set to "tc.n", temperatures are displayed in Fahrenheit.

24 – 24-hour Time Display
When set to "24.Y", time is displayed in 24-hour (military) format (00:00 is midnight, 23:00 is one hour before midnight). When set to "24.n", time is displayed in 12-hour (am/pm) format (12:00 is midnight, 11:00 pm is one hour before midnight).

cc – Clean-up Cycle Duration (some systems only)
When set to "cc.0", Clean-up Cycles are disabled. When set to "cc. 1" through "cc.4", the number indicates how many hours each Clean-up Cycle will run.

Ad – Dolphin II Address
When set to "Ad.0", no addressing is used. Use this setting for a Dolphin I, or for a Dolphin II which is set for no address (which is the Dolphin II factory default). When set to "Ad. 1" through "Ad.7", the number is the address (see your Dolphin II manual for details).

Editing User Preferences

View the setting.

The left two characters (before the decimal point) tell you what setting you're viewing or editing, the right most character (after the decimal point) tells you the value of that setting (for example, ".Y" for Yes or ".n" for No).

If the value is flashing, you're editing it. If the value is not flashing, you're just viewing it.

Press "Jets 1" to switch editing of the value on (flashing) or off (not flashing).

Once you're editing the value (it's flashing), use the "Warm" or "Cool" buttons to change the value to the one you want.

After you change the value, you must press "Jets 1" again to stop the flashing before the change will register, and before you can view or edit another setting.

If you don't interact with the menu for more than 30 seconds, it may time out.

If you press "Light" to back out of the menu, or pause long enough for it to time out, while a value was flashing, the changes you were making to that setting are not remembered. But changes you previously made to other settings will be in effect.

Any User Preferences that you change will stay in effect "forever" or until you change them again (unless the spa's "persistent memory" is reset by a service technician), and will override the factory defaults for those settings.

Diagnostic Messages

Message	Meaning	Action Required
No message on display. Power has been cut off to the spa.		The control panel will be disabled until power returns. Time of day will be preserved for 30 days with a battery back-up on EL8000 and EL5000 systems. EL1000 and some EL2000 systems reset the time of day on each power-up. Spa settings are preserved on all systems.
HTR TEMP LMT	"Overheat" - The spa has shut down.[1] On some systems, an alarm may sound. One of the sensors has detected 118°F (approximately 47.8°C) at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
SPA TEMP LMT	"Overheat" - The spa has shut down.[1] One of the sensors has detected that the spa water is 110°F (approximately 43.3°C).	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F (approximately 41.7°C), the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
FREEZE COND	"Ice" - Potential freeze condition detected.	No action required. The pumps and the blower will automatically activate regardless of spa status.
SENSOR A SERVICE REQD	Spa is shut down.[1] The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
SENSOR B SERVICE REQD	Spa is shut down.[1] The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
SENSOR SYNC	Sensors are out of balance. It may just be a temporary condition.	If the problem persists, contact your dealer or service organization.
SENSOR SYNC SERVICE REQD	Sensors are out of balance. The spa is shut down.[1]	Reset by pushing any button. If the problem persists, contact your dealer or service organization.
HTR FLOW LOW	A substantial difference between the temperature sensors was detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset.
LOW FLOW	Persistent low flow problems. (Displays on the fifth occurrence of the "HTR FLOW LOW" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HTR FLOW LOW" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.
HEATER MAY BE DRY-- WILL RETEST SHORTLY	Inadequate water detected in heater.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset.
HEATER DRY SERVICE REQD	Inadequate water detected in heater. (Displays on third occurrence of the above message.) Spa is shut down.[1]	Follow action required for the above message. Spa will not automatically reset; you may press any button to reset.

Diagnostic Messages (continued)

Message	Meaning	Action Required
PRIMING MODE TAKES 4 MIN	When your spa is first actuated, it will go into Priming mode.	See the M-7 Installation Instruction Manual for complete instructions on Power-up and Pump Priming. The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
--F or --C	Temperature unknown.	After the pump has been running for 1 minute, the temperature will be displayed.
----	Temperature not current in Economy or Sleep mode.	In Economy or Sleep mode, the pump may be off for hours outside a filter. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets 1 on for at least 1 minute.
STANDBY MODE	Standby Mode has been activated by pressing a button combination on the user panel.	Press any button to leave Standby Mode and return to normal operation.
PH IS LOW RAISE PH	pH is low.	Add pH increaser according to manufacturer's instructions.
PH IS HIGH LOWER PH	pH is high.	Add pH reducer according to manufacturer's instructions.
SANITIZER LOW	Sanitizer is low.	Add sanitizer according to manufacturer's instructions.
SANITIZER HIGH	Sanitizer is high.	Remove spa cover and allow sanitizer to dissipate.
DRAINING	The pump is on during Standby Mode to assist in draining the spa.	Press "Jets 1" to turn off the pump when water has drained (or power off the spa.)
RTC FAILURE	Hardware failure.	Contact your dealer or service organization.
PERSIST FAIL	Hardware failure.	Contact your dealer or service organization if message appears on more than one power up.
CHKSUM FAIL	Firmware install problem.	Contact your dealer or service organization if message appears on more than one power up.
CONFIG ERROR	Configuration error. Spa cannot start up.	Contact your dealer or service organization.
GFCI FAILURE	Spa could not trip GFCI.	Contact your dealer or service organization. Continued operation may be unsafe.
STUCK ON	A pump appears to be stuck on, causing the water temperature to creep up, possibly to hazardous levels.	POWER DOWN SPA IMMEDIATELY. DO NOT ENTER THE WATER. Contact your dealer or service organization.
HOT-CALL SVC	A pump appears to have been stuck on the last time spa was powered.	POWER DOWN SPA IMMEDIATELY. DO NOT ENTER THE WATER. Contact your dealer or service organization.

[1] On some systems even when spa is shut down, some equipment may occasionally turn on to continue monitoring temperature or if freeze protection is needed.

Periodic Reminder Messages (Press the "Mode" button to reset a displayed reminder.*)

Message **	Frequency ***	Action Required
CHECK PH	Every 7 days	Test and adjust pH chemical levels per manufacturer's instructions.
CK SANITIZER	Every 7 days	Test and adjust sanitizer chemical levels per manufacturer's instructions.
CLEAN FILTER	Every 30 days	Remove, clean, and reinstall filter per manufacturer's instructions.
TEST GFCI	Every 30 days	Test & reset GFCI per manufacturer's instructions.
DRAIN WATER	Every 90 days	Drain and refill spa per manufacturer's instructions.
CLEAN COVER	Every 180 days	Clean and condition cover per manufacturer's instructions.
TREAT WOOD	Every 180 days	Clean and condition wood per manufacturer's instructions.
NEW FILTER	Every 365 days	Install new filter.
CHANGE MINERAL CARTRIDGE	As needed	Install new Mineral cartridge.

* User can suppress all reminders in User Preferences.

** All of these Periodic Messages can be disabled individually by the spa manufacturer.

*** Any of these frequencies may be changed by the spa manufacturer.

Note: The GFCI section does not apply on EL systems used outside the United States. This GFCI section does not apply to GL Systems.

GFCI Protection

Your spa may be equipped with a GFCI Protection feature. If your spa does have this feature enabled, the GFCI Trip Test must occur to allow proper spa function.

Within 1 to 7 days after startup, the spa will trip the GFCI to test it. (The number of days is factory programmed.) The GFCI must be reset once it has been tripped. After passing the GFCI Trip Test, subsequent GFCI trips will indicate a ground fault or other unsafe condition requiring the power to the spa to be shut off.

Warning: The Owner should test and reset the GFCI on a regular basis to verify its function.

GFCI Trip Test Procedure

The installer can cause the GFCI Trip Test to occur sooner by initiating it with the following button sequence.

Press "Warm", then "Jets 1", then "Light." (Each press must be within 3 seconds of the previous press.) Press the "Warm" button repeatedly until "GFC" is displayed. Press "Jets 1" to select it. Press the "Warm" button until "GtSn" is displayed. Press "Jets 1" to initiate the GFCI Trip Test.

The GFCI should trip within several seconds and the spa should shut down. If it does not, shut down the power and manually verify that a GFCI breaker is installed and that the circuit and spa are wired correctly. Verify the function of the GFCI with its own test button. Restore power to the spa and repeat the GFCI Trip Test.

Once the GFCI is tripped by the test, reset the GFCI and the spa will operate normally from that point. You can verify a successful test by navigating to the "GFC" item as described above, pressing "Jets 1" and then pressing the "Warm" button until you see "GSP". The code signifies GFCI Status - Passed.

The system will exit this menu in 30 seconds if no buttons are pressed.

Optional Auxiliary Panels

Note: Below is a partial list of optional auxiliary panels and their basic functions.
Please contact your local dealer for a complete list of options that will work with your spa.



Jets 4 (optional on some systems)

Press the "Jets 4" button once to turn pump 4 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the pump will turn off after a timeout period.

Jets 5, Jets 6 (optional on some systems)

Press the "Jets 5" button once to turn pump 5 on or off. If left running, the pump will turn off after a timeout period. "Jets 6" operates the same way as "Jets 5".

Mister (optional)

Press the "Mister" button to turn the Mister on and off. If left on, the mister will automatically turn off after 15 minutes.

TV Lift (optional)

Press the "TV Lift" button to raise and lower the TV Lift device. There is no timeout for this feature.

Stir (optional on some systems)

Press the "Stir" button after adding new chemicals into the spa. This will turn all pumps on at high-speed for 5 minutes to thoroughly mix in the chemicals.

Warning! Qualified technician required for service and installation.

Basic Installation and Configuration Guidelines for Mach 3 EL-Series Spa Controllers.

Use minimum 6AWG copper conductors only.

Torque field connections between 21 and 23 in-lbs.

Readily accessible disconnecting means to be provided at time of installation.

Permanently connected.

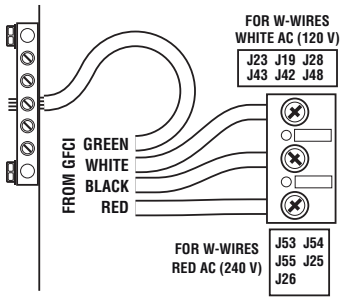
Connect only to a circuit protected by a Class A Ground Fault Circuit Interrupter (GFCI) mounted at least 5' (1.52M) from the inside walls of the spa/hot tub and in line of sight from the equipment compartment.

CSA enclosure: Type 2

Typical field connections for main power.

Refer to Wiring Diagram inside the cover of the control enclosure.

Refer to Installation and Safety Instructions provided by the spa manufacturer.



Warning: People with infectious diseases should not use a spa or hot tub.

Warning: To avoid injury, exercise care when entering or exiting the spa or hot tub.

Warning: Do not use a spa or hot tub immediately following strenuous exercise

Warning: Prolonged immersion in a spa or hot tub may be injurious to your health

Caution: Maintain water chemistry in accordance with the Manufacturers instructions.

Caution: The equipment and controls shall be located not less than 1.5 meters horizontally from the spa or hot tub.

Warning! GFCI Protection.
The Owner should test and reset the GFCI on a regular basis to verify its function.

CSA Compliance/Conformité

Caution:

- Test the ground fault circuit interrupter before each use of the spa.
- Read the instruction manual.
- Adequate drainage must be provided if the equipment is to be installed in a pit.
- For use only within an enclosure rated CSA Enclosure 3.
- Connect only to a circuit protected by a Class A ground fault circuit interrupter.
- To ensure continued protection against shock hazard, use only identical replacement parts when servicing.
- Install a suitably rated suction guard to match the maximum flow rate marked.

Warning:

- Water temperature in excess of 38°C may be injurious to your health.
- Disconnect the electrical power before servicing.

Attention:

- Toujours verifier l'efficacite du disjoncteur differentiel avant d'utiliser differentiel avant d'utiliser le bain.
- Lire la notice technique.
- Lorsque l'appareillage est installe dans une fosse, on doit assurer un drainage adequat.
- Employer uniquement a l'interieur d'une cloture CSA Enclosure 3.
- Connecter uniquement a un circuit protege par un disjoncteur differentiel de Class A.
- Afin d'assurer une protection permanente contre le danger de shock electrique, lors de l'entretien employer seulement des pieces de rechange identiques.
- Les prises d'aspiration doivent etre equipees de grilles convenant au debit maximal indique.

Avertissement:

- Des temperatures de l'eau superieures a 38°C peuvent presenter un danger pour la sante.
- Deconnecter du circuit d'alimentation electrique avante l'entretien.

Warning/Advertissement:

- Disconnect the electric power before servicing. Keep access door closed.
- Deconnecter du circuit d'alimentation electrique avant l'entretien. Garder la porte fermer.

Warning! Shock Hazard! No User Serviceable Parts.
Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

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Balboa Instruments Incorporated