

# *MegaChlor*

Pool & Spa saltwater chlorine generator



# *OPERATING INSTRUCTIONS*

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# ***IMPORTANT SAFETY INSTRUCTIONS***

## **READ & FOLLOW ALL INSTRUCTIONS**

**When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:**

**WARNING:** Cutting the cord from the power supply to the MegaChlor cell voids the warranty. Damage will occur if the connection is reversed.

**WARNING:** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

**WARNING:** Use MegaChlor only according to these instructions. Any modification or misuse of this product will void the warranty.

**WARNING:** Install MegaChlor in accordance with all national and local electrical, plumbing, safety, and other applicable codes.

**WARNING:** Connect MegaChlor to a GFCI (ground fault circuit interrupt) or GFI (ground fault interrupt) protected VAC power source only.

**WARNING:** Protect the power supply and outlet from exposure to the elements including direct sun, rain, snow, condensation, etc.

**WARNING:** DO NOT use with extension cord. Injury may result.

**WARNING:** DO NOT operate MegaChlor if damaged in any way.

**WARNING:** DO NOT pull on the cord to disconnect the Power Supply from power source. Do not allow the cord be walked on, or to rest on sharp edges or corners. Do not drop, throw, or otherwise rough handle MegaChlor.

**WARNING:** DO NOT operate or leave the power supply in temperatures below 32°F or 0°C. The power supply may not survive in extremely cold temperatures.

**WARNING:** Disconnect, remove and store MegaChlor indoors when pool has been winterized or drained.

**CAUTION:** Leave spa/pool cover open at least 1 minute to allow trapped gases to escape prior to use.

**CAUTION:** Measure water quality parameters and adjust if necessary prior to each spa use.

**CAUTION:** MegaChlor doesn't measure the chlorine level and must be adjusted properly in order to not over-chlorinate the water. Over-chlorination can lead to equipment damage and un-healthy water conditions.

**WARNING:** Remove the MegaChlor cell from the SPA when using the SPA.

**WARNING:** DO NOT handle the MegaChlor cell during chlorine production (visible bubbling). Slight discomfort may be felt in cuts, sores, or sensitive skin areas due to chlorine concentration and the electrolysis process.

**WARNING:** DO NOT insert objects into, or tamper with the MegaChlor cell in any way. Inserting metal objects into the cell body may cause damage and void the warranty.

**WARNING:** DO NOT plug MegaChlor control box directly into the VAC supply, this will damage the MegaChlor. Always use the low voltage power supply.

## **SAVE THESE INSTRUCTIONS**

# INTRODUCTION

MegaChlor is a semi-automated, salt water chlorine generation system specifically designed for swim spas & pools up to 17,000 Gallons. MegaChlor generates chlorine from a small amount of ordinary salt (Sodium Chloride, NaCl) dissolved in the water. The amount of salt added is very small in relation to the volume of the water in the pool. It's about 90% less concentrated than ocean water and below the typical taste level of most humans. The small addition of salt also benefits users by providing a softening effect on the water, leaving hair and skin feeling smoother and healthier than with traditional sanitizing products. A minimum of only 2.5 cups of salt per 100 gallons of water is all it takes for MegaChlor to produce fresh, pure chlorine leaving your water clean and clear day after day!

## WATER PREPARATION & MAINTENANCE

To ensure proper operation it is recommended to balance the water prior to installing the MegaChlor. Use the levels in the following table as a guide to balancing the water. Use the test strips to measure water chemistry and verify that the water has been balanced properly. Cleaning the filter is recommended but not required unless the previous sanitizer was a hydrogen peroxide system. The combination of hydrogen peroxide and chlorine may cause gum-like build up, water discoloration, and skin irritation. It is important to properly maintain your water for the health and safety of its users. MegaChlor may significantly reduce the amount of maintenance required, but chemical check-ups including chlorine levels and PH are recommended before each use. Proper water maintenance will prolong the life of MegaChlor and the pool or spa. The following table describes generally accepted optimum water chemistry for portable pools and spas.

Parameter	Recommended Level Spa	Recommended Level Pool
Free Chlorine	1.5-3 PPM	1.5-3 PPM
pH	7.4-7.6	7.4-7.6
Total Alkalinity	100-140 PPM	100-140 PPM
Calcium Hardness	200-400 PPM	200-400 PPM
Cyanuric Acid	0	30-50 PPM

It is recommended that chlorine and PH levels are checked before each use, or at least once per week when not in use. Alkalinity, Calcium Hardness, and Salt Concentration should be checked at least once per month. It is recommended that the water is manually shocked after high usage (example: after a party with multiple users), or biweekly if used frequently. Always remember to leave the water circulating for several hours before retesting. Phosphates in the water will increase the demand for chlorine and will reduce the life expectancy of the generator. Remove Phosphates upon start up and each month thereafter. Phosphate Remover can be purchased at any local Pool & Spa supply store. **WARNING: Consistent chlorine levels above 5.0 PPM or calcium hardness below 200 may lead to corrosion of metal components in the pool or spa.**

# SALT REQUIREMENT

Use only sodium chloride (NaCl) salt that is at least 99.8% pure. Do to the popularity of salt pools there are now many stores that carry pool salt. It is also acceptable to use water conditioning salt but it may take this type of salt longer to dissolve. Do not use iodized or yellow prussiate of soda colored salt. Salt is added to the pool or spa water and the electrolytic cell will use this salt to make chlorine.

The salt range for the MegaChlor is 3000 to 4000 PPM. The salt is constantly recycled, salt is lost only when pool water is removed from splashing or people getting out of the water. Salt is not lost due to evaporation.

## Adding Salt

1. Turn on the circulation system for the pool or spa
2. Make sure the MegaChlor is off until the salt is completely dissolved
3. Determine the amount of salt to add. Keep in mind that there may already be some salt in the water, especially if the water was supplied through a water softener
4. Evenly spread the salt around the inside perimeter of the pool
5. Salt can be added in the skimmer. Make sure the salt doesn't overflow the skimmer or the pump may lose prime.
6. Brush the pool bottom to speed up the dissolving process.
7. Once dissolved, turn the MegaChlor on.



Gallons	Liters	Salt lbs	Salt Kgs
2,000	7,500	50	20
4,000	15,000	100	45
6,000	22,500	150	65
8,000	30,000	200	90
10,000	37,500	250	110

## Calculating Required Salt

1. Calculate the volume of water. If you don't have the information there are many pool water volume calculators on the Internet.
2. Multiply gallons by 0.025 for pounds or liters by 0.003 for Kgs

# MegaChlor Installation

MegaChlor is equipped with a 110/220 VAC Auto-Sensing Power Supply allowing MegaChlor to be installed on almost any pool or spa. Please follow the installation instructions below. The power supply is not an outdoor supply and needs to have protection from the environment.

Input Requirements: 100 to 240 VAC, 1.8A, 50-60 HZ. Output 12 VDC 5.0A, 60 Watts Maximum

## Control Box

Locate a suitable location for the control box meeting the following conditions:

1. Close enough to the water for the 15 foot cell cable to reach the water
2. Close enough to a GFCI protected outlet
3. Not in direct sunlight. If in direct sunlight that may shorten the life of the controller
4. When the cables are routed, they should not be in a path where people walk or can be damaged by equipment such as a lawn mower.
5. A hard vertical surface for mounting the control box.
6. Mount the control box with the supplied screws using the mounting holes on the flange. There is no need to open the control box. The only time the control box needs to be opened is if the electrode needs to be replaced.



## Power Supply Location

The MegaChlor power supply is a high output indoor power supply and the power supply location must meet the following requirements.

1. 110 or 220 VAC
2. Water protective cover if not indoors or in a protected area. The 12 Vdc supply may require a larger protective cover. The power supply may require cutting part of the bottom of the protective box, if this is required make sure to not cut the latch on the protective cover so it will properly close.
3. **NOT IN DIRECT SUNLIGHT.** The power supply will heat up during operation and if in sunlight it may overheat.
4. The power cable should have a routing path to the control box where the cable is protected from people tripping on it and lawn mowers.
5. The pins on the power supply are polarity sensitive and reversing the connection will damage the MegaChlor. Make sure the connector key and groove are lined up when making the connection. Do not make the connection if it is dark and you can't see the key.

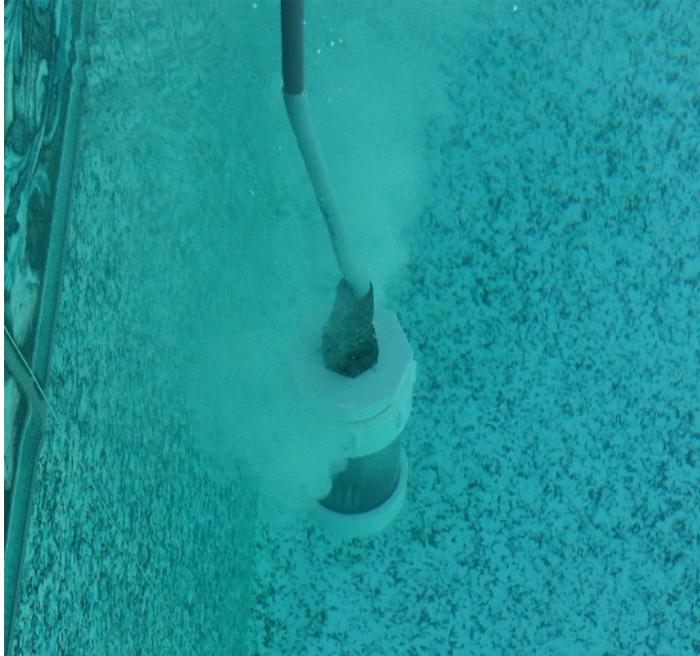


# ***MegaChlor Cell Installation***

The MegaChlor cell will hang over the edge of the pool or spa and hang down into the water. Find a location where the cell will be at least 1" from the side of the pool or spa and for best results as deep as possible. The deeper the cell is the more time the chlorine has to dissolve into the water before reaching the surface. Placing by a jet is also desirable as that will help to mix the chlorine.

If the cable is routed on the pool deck put a protective mat over it to reduce tripping hazards.

Pool Cleaners: Make sure the cell is in a location where the pool cleaner will not get tangled in the cable.





## OPERATION

The MegaChlor has 3 buttons and 4 lights built into the overlay on the control box. With the buttons you can check the power level, change the power level and put it into boost mode. The lights will indicate the salt level, the current mode (making chlorine or standby), reading the power level and changing the power level.

### Power Up

When the MegaChlor turns on it will flash the lights as follows:

1. **WHITE & RED** Blinks the software version (1)
2. **WHITE, RED, BLUE, GREEN** - will flash in that order
3. Chlorine production may start within a few minutes depending on the chlorine level.

### Making Chlorine (Salt Level Indication)

When making chlorine, MegaChlor will indicate if the salt level is high, low or normal. If it is low that is OK, you could add more salt if you want, but not required. The salt indicator isn't a measurement of the actual salt concentration, it is more of a measurement of the power going to the titanium plates.

If the lights are on solid, MegaChlor is producing chlorine and the light color is an indication of the salt level:

- Solid **GREEN** - Salt level over 4000 PPM, don't add salt
- Solid **BLUE** - Salt level 3000 to 4000 PPM, can add salt if not making enough chlorine
- Solid **RED** - Salt level less than 3000 PPM, should add salt, especially if not making enough chlorine
- Solid **RED / GREEN** at the same time - Salt Level has exceeded the maximum and the MegaChlor has shut down to protect the power supply and the cell. Drain out some water and refill to dilute the salt level

### Not Making Chlorine (Standby Mode)

The MegaChlor will produce chlorine for a period of time and then go into an off cycle (standby mode) for 3 hours and then repeat. The length of time for the on part of the cycle is determined from the power level setting and is 30 minutes for power level 1, 1 hour for power level 2 and an additional hour per power level. On level 3 it will be on for 2 hours. There will be visible bubbles coming out of the cell and you can tell the salt concentration from the light color. When the time is up it will turn off and wait 3 hours and then repeat. When it is in the off mode (standby) the lights will flash **GREEN** every 10 seconds.

# POWER LEVELS

MegaChlor includes 10 power level settings that are set based on water volume, usage and testing. The MegaChlor factory setting is 3 (2 hours). The output power to the cell is always the same, the power level changes the amount of time the cell is energized when it turns on.

## VIEW THE CURRENT POWER LEVEL SETTING

Simply press the UP or DOWN arrow button once and count the **WHITE** flashes. Each flash represents a power level. For example: 3 **WHITE** flashes = power level 3, 7 **WHITE** flashes = power level 7. After the power level is displayed MegaChlor will display either the chlorine value, current to the electrode or the zero point, see the section on OPTION: MegaChlor CD at the end of this manual, the chlorine value and the zero point are only used with the chlorine detecting electrode..

## CHANGE POWER LEVELS

1. Press both the UP arrow and the DOWN arrow at the same time. The **WHITE** Light will turn on solid indicating that it is in power change mode.
2. Press the UP arrow to increase power - the **GREEN** light will flash each time the UP arrow is pressed. If set at the maximum power level of 10, the **GREEN** light will be on solid.
3. Press the DOWN arrow to decrease power - the **RED** light will flash each time the DOWN arrow is pressed. If at the minimum power level of 1, the **RED** light will be on solid.
4. When finished do not press any buttons for 3 seconds. The **WHITE** light will flash (count the flashes)

## SELECTING THE RIGHT POWER LEVEL

Selecting the right power level requires some testing and adjustment. There are many factors that affect the sanitizing needs of a pool such as: use, number of people, if there is an Ozone Generator, temperature, last drain and refill, does it have a cover, cyanuric acid or stabilizer, etc. However, after the testing and adjustment period, MegaChlor will take care of your sanitation needs day after day with minimal adjustments. As a starting point, please program MegaChlor and set the power level to the general recommendations shown in the table.

Test the Chlorine Level with test strips after 1 to 2 days. When testing, always try to measure at the same time of the day. If the chlorine level is LOW, increase the power level by one level. If the chlorine level is HIGH decrease the power level by one level. Wait a day or so after this initial adjustment, re-test and repeat as necessary until a consistent chlorine residual has been achieved. If the chlorine level is VERY high or VERY low, adjust by 2 levels, as needed.

**IMPORTANT NOTE:** If the chlorine level is zero 24 hours after installation, the initial chlorine demand may be above what MegaChlor can produce to break away from zero. In this case, manually add chlorine or shock (according to the company product label) to assist in the initial set-up.

If conditions change on the pool usage make sure to adjust the power level. If usage significantly increases, (return from vacation, etc) it is important to adjust the power level up accordingly. Always retest and adjust the power level as needed.

Power Level	Water Volume (gals)
1 to 3	Less than 1000
4	1000 to 3000
5	3000 to 6000
6	6000 to 10000
7 to 10	10000 and above

# Boost Mode & Power Level Times

Activating Boost Mode will start a chlorine production cycle. To activate Boost Mode simply press the Boost Mode Button, the **GREEN** and **BLUE** led's will flash letting you know a production cycle will start.

**IMPORTANT: The MegaChlor can't make chlorine faster. The Boost Mode simply turns it on for a single cycle. If the pool chlorine has dropped to 0 PPM from heavy usage, chlorine may need to be added.** If currently in a production cycle pressing the Boost button will terminate the production cycle and

place the MegaChlor in standby mode for 3 hours. The boost button is an easy way to start or stop a chlorine production cycle.

Power Level	ON Time	Power Level	On Time
1	00:30:00	6	05:00:00
2	01:00:00	7	06:00:00
3	02:00:00	8	07:00:00
4	03:00:00	9	08:00:00
5	04:00:00	10	09:00:00

## Replacement Parts

The titanium plates of any saltwater chlorine generator will eventually wear out and need replacing. Visit [www.controlomatic.com](http://www.controlomatic.com) and select Shop which will take you to our store.

Item	Part Number	Type	Description
1	MEGACHLOR-PS	Power Supply	Replacement power supply for MegaChlor, 12VDC
2	MC-ELECTRODE	Electrode	MegaChlor electrode replacement
3	MCCD-ELECTRODE	Electrode	MegaChlor electrode replacement with chlorine detection
4	Insta-Test-4	Test Kit	Insta-Test 4 Spa Test Strips, Chlorine, pH, Hardness & Alkalinity
5	Insta-Test-Salt	Test Kit	Insta-Test Salt Pool and Spa Test Strips Sodium Chloride
6	MC-CELL	Cell Body	Replacement cell body, electrode is a separate item.

NOTE: Installing the MegaChlor inline may void the spas warranty and UL safety certification as you will be adding to the existing equipment of the spa. We can provide the conversion kit MCIL-KIT or you can find the required parts at your local hardware store. If you install it inline we recommend spas with a 24 hour continuously running pump that has 3/4" tubing.

# OPTION: MegaChlor CD “Chlorine Control”

When using the MCCD-Electrode the MegaChlor will control the start of a production cycle based on the chlorine level reaching a low enough level and a 3 hour off time. The MegaChlor control box works with either electrode: MC-Electrode = standard electrode without the chlorine sensor, MCCD-Electrode = electrode with the chlorine sensor. Both electrodes have the same chlorine production rate.

Reading the flashing color values: Count the GREEN/BLUE/RED flashes to get the value. The calculation is: GREEN\*100 + BLUE\*10 + RED = the value. No GREEN, three BLUE and 4 RED flashes would be 34.

## DOWN Arrow Display

### Sensor Voltage - If in Standby Mode

The built in sensor measures for the absence of sanitizer as a small voltage. To view the current voltage reading - press the Down Arrow while in standby mode - The WHITE light will flash the power level and then the current sensor value is displayed. When this value is low enough (Zero Point), MegaChlor determines the chlorine is gone and will start a cycle. With the MC-Electrode there is no sensor and this reading is always 1 RED flash indicating a low chlorine level.

### Electrode Current (Salt Level) - If in a Chlorine Production Cycle

When in a chlorine production cycle the MegaChlor is measuring the power going to the electrode and the actual reading can be displayed by pressing the down arrow. Press the down arrow in standby mode to display the sensor value, and when in a production cycle display the electrode power. If the value is over 300 the salt is too high and exceeds the limit, MegaChlor will suspend chlorine production. If MegaChlor isn't making enough chlorine and this value is lower than 200 salt can be added or increase the power level.

## UP Arrow Display

### Chlorine Production Zero - Standby mode or Chlorine Production Cycle

MegaChlor measures for the absence of sanitizer as a voltage with a built in sensor. When the sensor value drops below the Zero Point and it has been off at least 3 hours, MegaChlor will start a chlorine generation cycle. The Zero Point should be set to a value that represents no chlorine when measured with a test kit. The default value from the factory is 15, and will most likely never need to be changed.

To view the zero point - press the Up Arrow - The WHITE light will flash the power level and then the zero point is displayed.

### Changing the Zero Point

If you need to adjust the Zero Point press and hold the Up Arrow until after the current zero point has displayed and the WHITE led is on solid. While the WHITE led is solid pressing the up arrow will increase the zero point by 1 and pressing the down arrow will decrease it by one. The range is 10 to 30 and when at 10 the RED led will be on solid and when at 30 the GREEN led will be on solid. Increasing the value will tend to increase the chlorine level (turn on quicker when the chlorine is gone), decreasing the value will increase the length of time in standby mode which will lower the chlorine level.

## Sensor Maintenance

The chlorine sensor is part of the electrode and includes a gold and copper wire. The wires are visible through the holes in the electrode cell and should be inspected from time to time to make sure they are clean. In the picture the gold wire is clean and the copper wire has some buildup on it. To clean the sensor wires:

- Soak in a mild acid, and then use a brush
- Carefully scrape with a flat screwdriver
- If needed, remove the electrode from the cell to gain access to the sensor.



# TROUBLE SHOOTING

It is always a good idea to revisit the user manual to make sure installation or maintenance steps were not overlooked before referring to the trouble shooting section.

## **Plates Need Cleaning - Cleaning the Electrode (Cell) - White Calcium Deposits**

- If there is a white calcium buildup between the titanium plates, this will interfere with the chlorine production. Disconnect the power before cleaning. Soak the cell in a mild acid (white vinegar or pH down) for 10 to 30 minutes and rinse in clean water. Repeat until the white deposits are gone

## **RED Lights While Making Chlorine**

- Salt level below 3000 PPM: Add salt if not making enough chlorine. Before adding salt it is a good idea to measure the salt level first
- Check the cell for white calcium buildup and if present clean the plates
- Plates damaged: Unit needs to be replaced. The plates will last 7000 to 10000 hours of chlorine production and the MegaChlor may be at the end of its life. Note: The lower the power level you can operate on, the longer the MegaChlor will last

## **Consistently Low Chlorine**

- Power level too low: Increase the power level
- Low salt level: Adjust the salt level as necessary. The MegaChlor will make less chlorine with a lower salt level
- **Make sure you are measuring the chlorine at the end of a chlorine production cycle**
- Plates need cleaning: See above
- High bather load: Additional chlorine or shock may be needed
- Very high salt level: The **RED** and **GREEN** lights may be on indicating a very high salt level. When this happens the MegaChlor shuts down and will stop making chlorine to protect the power supply. Drain out some of the water and refill with fresh water to lower the salt level.
- Just doesn't keep up:
  - Remove organic material such as leaves and clean the filter
  - Make sure the MegaChlor cell is at the deepest point in the pool and in a **VERTICAL ORIENTATION!**
  - Remove the phosphates: Phosphates are food for algae and consume chlorine. The MegaChlor makes chlorine slowly and removing the phosphates will help lower the pools chlorine consumption demand
  - Shock the water: You can use either a chlorine based shock or chlorine free

## **Consistently High Chlorine**

- Power level too high: Lower the power level

## **The MegaChlor is off, No Lights**

- Check if in the standby part of the cycle, watch and see if the **GREEN** lights flash every 10 seconds
- The GFCI circuit breaker has tripped. Verify that there is input VAC.
- The power supply has been damaged. The rain cover didn't prevent moisture from the power supply, was subjected to freezing weather or the cord has been cut.

# **LIMITED WARRANTY**

Models: This warranty applies to MegaChlor model referenced as "System".

ControlOMatic, Inc. Warrants the system to be free of all defects in material and workmanship for one (1) year from the owners original purchase date. The system includes the power supply unit, cable, electronics, and electrolytic generator for residential use only. The product must be installed properly and used in accordance with this manual and all applicable local codes and regulations. This warranty is not transferable (proof of purchase may be necessary). Damage to the system from improper water maintenance is not covered in this warranty.

In no event shall ControlOMatic, Inc. be liable for consequential damages for breach of this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. The warranty does not cover any loss or damage to the product due to improper installation, product abuse, misuse, negligence, or improper maintenance of the system, pool or spa. The warranty does not cover any loss or damage to the pool or spa, pool or spa components, users, or anything outside the system due to system failure. Since ControlOMatic has no control of the use of this system the purchaser assumes all responsibility for using the system.

This warranty does not apply to any costs, repairs, services, damages, claims or losses for all of the following: Service calls to install, re-install or correct the installation of the product, or to explain the usage of the system to the buyer, repairs necessitated by use other than normal home use, damage resulting from misuse, unintended use, unforeseen use, non pool or spa use, abuse, accidents, alterations, improper installation, or corrective work necessitated by repairs made by anyone other than an authorized service technician.

THE FOREGOING WARRANTIES ARE CONTINGENT ON THE PROPER USE OF THE SYSTEM IN ACCORDANCE WITH THESE INSTRUCTIONS AND SPECIFICATIONS AND SHALL NOT APPLY TO ANY SYSTEM THAT HAS BEEN REPAIRED OR MODIFIED BY PERSONS OTHER THAN THE MANUFACTURER.

THE EXPRESS WARRANTIES SET FORTH IN THIS AGREEMENT ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. MANUFACTURER HEREBY SPECIFICALLY DISCLAIMS ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL MANUFACTURER'S LIABILITY FOR ANY CLAIM, WHETHER IN CONTRACT, TORT OR UNDER ANY OTHER THEORY OF LIABILITY, EXCEED THE AMOUNT NECESSARY TO REPAIR OR REPLACE THE COVERED SYSTEM.

Should any problem develop during the warranty period contact ControlOMatic, [www.controlomatic.com](http://www.controlomatic.com).

## **PRODUCT REGISTRATION**

Either register your MegaChlor online at [www.controlomatic.com](http://www.controlomatic.com) or fill out the registration form and mail it to: ControlOMatic, 12659 Arbor Ln. Grass Valley, CA 95949.