IntelliChlor®
Electronic Chlorine Generator
(Model IC60, IC40, IC20)

Installation and User’s Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS
WARNING - Salt is an inherently corrosive material. While the levels of salt required for proper operation of the IntelliChlor Electronic Chlorine Generator are relatively low when compared to sea water and other salt solutions, placing any amount of salt in your pool increases the likelihood of corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Metal parts and certain natural and man-made surfaces are particularly susceptible to corrosion and deterioration when used in and around salt water pools. Pentair Water Pool and Spa does not represent or otherwise guarantee that the proper use of the IntelliChlor Electronic Chlorine Generator will prevent corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Consult your experienced pool professional, who should be able to advise you on the proper material selection, installation techniques for those materials, and the proper use, care and maintenance of those materials for your specific pool type and location in order to minimize the corrosion and deterioration that is inherent in and around salt water pools.
Contents

Important Safety Precautions .................................................................................................................. iii - iv
IntelliChlor and Controller System Part Numbers ................................................................................... v
Technical Support ......................................................................................................................................... v
IntelliChlor® Electronic Chlorine Generator Overview ............................................................................... 1
  Features .................................................................................................................................................... 1
IntelliChlor System Components .............................................................................................................. 2
IntelliChlor Electronic Chlorine Generator Control Panel and Cell Description ......................................... 2
IntelliChlor Power Center ......................................................................................................................... 3
System Schematic Diagram ....................................................................................................................... 4
Install Chlorine/Bromine Feeders after the IntelliChlor cell .................................................................... 4
Loop Plumbing Diagram ............................................................................................................................. 5
IntelliChlor Plumbing Diagram .................................................................................................................. 5

Section 1: IntelliChlor Control Panel ......................................................................................................... 7
Salt Level Status LEDs ................................................................................................................................. 7
Status LEDs .................................................................................................................................................. 7
Sanitizer Output LED Indicators .................................................................................................................. 8
More and Less Output Buttons ................................................................................................................... 8
Self-Cleaning .............................................................................................................................................. 8

Section 2: Pool Water and Chemistry, Conditions and Precautions ............................................................ 9
Pool Water Chemistry, Conditions and Precautions .................................................................................. 9
Optimum Pool Water Conditions for Salt Water Pools (using the IntelliChlor Electronic Chlorine Generator) 10
Covered Pools and Vinyl Liner Pool and Lowering Chlorine Output Levels .............................................. 10
Chlorine Testing ......................................................................................................................................... 11
What Type of Salt to Use ............................................................................................................................. 11
How Much Salt to Use? ............................................................................................................................... 11
Calculating the Saturation Index .................................................................................................................. 12
  Saturation Index Factors ........................................................................................................................... 12
How to Add Salt to the Pool ......................................................................................................................... 13
  Table 1. Approximate Pounds (Kg) of salt needed to obtain 3,400 ppm in pool ..................................... 13
  Table 2. Approximate Pounds (Kg) of salt needed to maintain 3,000 ppm in pool ............................... 14
  Table 3. Approximate amount of cyanuric acid to obtain 75 ppm in pool ........................................... 14
Pool Water Preparation ............................................................................................................................... 15
  Determining Pool Size (Gallons of Water in Your Pool) ...................................................................... 15
  Determining Pool Size (liters of water in your pool) ............................................................................. 15

Section 3: Operating IntelliChlor ................................................................................................................. 17
Initial Start up Period .................................................................................................................................. 17
  Operation .................................................................................................................................................. 17
  Use of an external Pool Pump Timer is not required ............................................................................. 17
  If you use a Pool Pump Timer ................................................................................................................ 17
Startup Procedure (Super Chlorination) ..................................................................................................... 18
Sanitizer Output Settings and Adjustments ................................................................................................. 18
Operating in Winter ..................................................................................................................................... 18
  General Recommendations .................................................................................................................... 19
  General Cautions .................................................................................................................................... 19

Section 4: User Maintenance ......................................................................................................................... 21
Daily service .................................................................................................................................................. 21
Weekly service .............................................................................................................................................. 21
Monthly Service .......................................................................................................................................... 21
IECG Usage Hours Meter ............................................................................................................................. 22
Cleaning the IECG Cell Blades .................................................................................................................. 22
Winterizing .................................................................................................................................................. 23
**IMPORTANT SAFETY PRECAUTIONS**

SAVE THESE INSTRUCTIONS

**Important Notice:** Attention Installer: This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

**WARNING:** IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS. READ AND FOLLOW ALL INSTRUCTIONS.

Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions, or obtain a copy of these instructions at: http://www.pentairpool.com/misc/owners_manuals/sanitizers/IntelliChlor_Owners.pdf

**WARNING:** To reduce the risk of injury, do not permit children to use this product.

**WARNING:** CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING: To reduce the risk of personal injury the IntelliChlor® Electronic Chlorine Generator (IECG) Power Center must be installed on and wired to the load side of the time clock, electronically controlled switch, or relay load side, so that it will receive power only when the pool pump is on. Otherwise, dangerous chlorine gas buildup can occur. The IECG should never be energized when the pool pump is OFF and water is not flowing through the unit.

**WARNING:** To reduce the risk of injury, service should only be personnel by a qualified pool service professional.

**WARNING:** Never operate the IntelliChlor Electronic Chlorine Generator (IECG) without proper flow or water circulation. A build-up of flammable gases will result in hazardous conditions.

**CAUTION -** IntelliChlor Electronic Chlorine Generator (IECG) is for use with permanently-installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

**CAUTION -** When using the IntelliChlor Electronic Chlorine Generator (IECG) with an IntelliTouch®, EasyTouch® or SunTouch® system, always wire the IECG Power Center to the pump side of the relay located in the IntelliTouch, EasyTouch or SunTouch load center. This wiring method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit. A green colored terminal (or a wire connector marked “G”, “GR”, “Ground” or “Grounding”) is provided within the terminal compartment in the Power Center transformer enclosure. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal of your electric service or supply panel with a conductor equivalent in size to the circuit conductors supplying this equipment. The power supply must be interconnected with pool pump motor power source. This insures the IECG and pool pump will switch on and off together.
CAUTION - Use of chemicals other than those recommended may be hazardous. Even proper use of the recommended chemicals can be hazardous. Follow the Chemical Manufacturer's Instructions.

CAUTION - To reduce the risk of electric shock, install IntelliChlor Electronic Chlorine Generator (IECG) a minimum of five (5) feet away from the inside wall of the pool.

CAUTION - Install the IECG a minimum of three (3) feet away from the heater outlet.

CAUTION - It is recommended to install a Pentair two (2) inch CHECK VALVE (P/N 263042) between the input side of the IECG and the main heater output pipe.

CAUTION - A solid copper, bonding conductor not smaller than No. 8 AWG (8.4 mm) should be connected from the accessible wire connector on the unit to all metal parts of the swimming pool, spa, or hot tub structure and to all electrical equipment, metal conduit, and metal piping within five (5) feet (1.5 m) of the inside walls of a swimming pool, spa, or hot tub, when the unit is installed within five (5) feet of the inside walls of the swimming pool, spa, or hot tub.

Canada - Industry Canada (IC) - This device complies with RSS210 of Industry Canada. (1999)

FCC Standard - 47 CFR Part 15, Subpart C (Section 15.247). This version is limited to chapter 1 to chapter 11 by specified firmware controlled in the U.S.A.

Federal Communications Commission (FCC) - This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Interference Statement - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate the device.

WARNING: When mixing acid with water, ALWAYS ADD ACID TO WATER. NEVER ADD WATER TO ACID.
IntelliChlor® and Controller System Part Numbers

Refer to the following part numbers when configuring the IntelliChlor Electronic Chlorine Generator and the IntelliChlor Power Center with an IntelliTouch, EasyTouch or SunTouch system.

<table>
<thead>
<tr>
<th>IntelliTouch (P/N 520505 - 520510)</th>
<th>EasyTouch Salt P/N's (*)</th>
<th>EasyTouch Non-Salt P/N's (**)</th>
<th>SunTouch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Center (P/N 520556)</td>
<td>N/A</td>
<td>P/N 520556</td>
<td>P/N 520556</td>
</tr>
<tr>
<td>IntelliChlor IC20 (P/N 520554)</td>
<td>Included in kit</td>
<td>P/N 520554</td>
<td>P/N 520554</td>
</tr>
<tr>
<td>IntelliChlor IC40 (P/N 520555)</td>
<td>Included in kit</td>
<td>P/N 520555</td>
<td>P/N 520555</td>
</tr>
<tr>
<td>IntelliChlor IC60 (P/N 521105)</td>
<td>Included in kit</td>
<td>P/N 521105</td>
<td>P/N 521105</td>
</tr>
</tbody>
</table>

(*) EasyTouch (Salt Systems) - P/N 520592, 520593, 520704, 520705, 520542, 520543, 520544, 520545

(**) EasyTouch (Non-Salt Systems) - P/N 520591, 520703, 520538, 520540

Note: IntelliTouch Personality Kits - P/N 520505 - 520510

Technical Support

Sanford, North Carolina (8 A.M. to 5 P.M. Eastern Time)
Moorpark, California (8 A.M. to 5 P.M. Pacific Time)
Phone: (800) 831-7133
Fax: (800) 284-4151

Web sites

visit www.pentairpool.com and www.staritepool.com

Download the IntelliChlor User’s Guide (PDF)

http://www.pentairpool.com/pdfs/IntelliChlorOM.pdf
**IntelliChlor® Electronic Chlorine Generator Overview**

The IntelliChlor Electronic Chlorine Generator (IECG) salt chlorinator uses a process known as electrolysis to produce chlorine gas which immediately dissolves into a solution to create Hypochlorite (a pool and spa water sanitizer) from a low concentration of salt added to the pool water. Hypochlorite kills bacteria, oxidizes organic material, and kills algae, then reverts back to salt. The IECG then reuses the salt and the process starts over again. The IntelliChlor system is comprised of the IECG and Power Center.

⚠️ **CAUTION** - The IntelliChlor Electronic Chlorine Generator (IECG) is designed only to produce chlorine. The IECG does not monitor or control chlorine levels in the pool or spa water. It is the pool owner’s responsibility for monitoring and maintaining free chlorine levels at the APSP recommended range of 2.0 to 4.0 parts per million (ppm). It is the pool owner’s responsibility to check, on a regular basis, the free chlorine level while the pool pump is running, and adjust the IntelliChlor Electronic Chlorine Generator accordingly.

⚠️ **WARNING** - Salt is an inherently corrosive material. While the levels of salt required for proper operation of the IntelliChlor Electronic Chlorine Generator are relatively low when compared to sea water and other salt solutions, placing any amount of salt in your pool increases the likelihood of corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Metal parts and certain natural and man-made surfaces are particularly susceptible to corrosion and deterioration when used in and around salt water pools. Pentair Water Pool and Spa does not represent or otherwise guarantee that the proper use of the IntelliChlor Electronic Chlorine Generator will prevent corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Consult your experienced pool professional, who should be able to advise you on the proper material selection, installation techniques for those materials, and the proper use, care and maintenance of those materials for your specific pool type and location in order to minimize the corrosion and deterioration that is inherent in and around salt water pools.

⚠️ **CAUTION** - Do not operate the IECG with newly poured pool plaster or newly constructed pool, regardless of pool lining material. Severe salt damage can occur. FOR ALL NEW POOLS wait at least **ONE (1) MONTH** after construction and filling of pool water before operating IECG.

**Features**

- Superior design combines cell and control panel as one assembly.
- Cell blades are made from a titanium metal base and coated with precious metal Ruthenium oxide.
- Cell blades are capable of producing chlorine for at least 10,000 hours, when the IECG is used properly.
- The IECG can be installed horizontally or vertically.
- Separate Power Center mounts to wall at equipment pad, for easy AC wiring.
- Electronics run cool for long, reliable life.
- Cell hour meter reports current usage to determine how many hours remain in the life of the unit.
- IC60 model produces up to 2 lbs of chlorine per day, IC40 model produces up to 1.40 lbs. per day, and the IC20 model produces up to 0.70 lbs per day.
- Salt level LED indicators show four ranges for the amount of salt in pool.
- Red and green LED indicators show system status for power, water flow, and cell status.
- MORE and LESS output buttons control how much chlorine is produced.
- BOOST cycle sets the unit to maximum chlorine output for 24 hours of pump run time.
- Cell lifetime is tracked with at-a-glance green LED indicators.
- UL listed to UL1081 standards for swimming pool chlorinators.
- Approved NSF regulatory standards, and CE certified.
IntelliChlor System Components

An IntelliChlor Electronic Chlorine Generator IntelliChlor system consists of one or more of the following:

- **PC 100 (P/N 520556):** Power Center Kit. Provides power and control communication to and from the IntelliChlor cell.
- **IC 20 Cell (P/N 520554):** Designed for pools up to 20,000 U.S. gallons (75,000 liters). The cell will produce the equivalent of 0.70 lbs. of pure chlorine per 24 hours of continuous pool pump run time. The IC20 cell uses two terminal blades and five bi-polar blades.
- **IC 40 Cell (P/N 520555):** Designed for pools up to 40,000 U.S. gallons (150,000 liters). The cell will produce the equivalent of 1.40 lbs. of pure chlorine per 24 hours of continuous pool pump run time. The IC40 cell uses three terminal blades and ten bi-polar blades, five on each side of the center terminal blade.
- **IC 60 Cell (P/N 521105):** Designed for pools up to 60,000 U.S. gallons (227,124 liters). The cell will produce the equivalent of 2 lbs. of pure chlorine per 24 hours of continuous pool pump run time. The IC60 cell uses a total of 15 blades (three terminal and twelve bi-polar blades).
- **IntelliChlor “dummy” bypass cell (P/N 520588):** For new pool start-up.

*Note: For IntelliChlor and IntelliTouch, EasyTouch and SunTouch controller parts numbers, refer to “IntelliChlor and Controller System Part Numbers” on page v.*

IntelliChlor Electronic Chlorine Generator Control Panel and Cell Description

The IntelliChlor Electronic Chlorine Generator (IECG) includes a control panel with buttons and LED indicators to control the IECG and produce chlorine. The IECG measures the water temperature and salt level to produce chlorine at the defined output. If the salt level in the pool water is too low (red on salt display), the cell is turned off until salt is added to the pool. The controller has a self-cleaning cycle which reverses the cell polarity, reducing calcium buildup. This feature turns the cell on and off at regular intervals to prevent calcium and scale buildup and further maximizes cell life.

The IECG contains the control electronics and bipolar electrodes that electrically produces chlorine when energized with DC current. Chlorine is generated as pool water containing salt passes through the cell. The chlorine production can be varied by either adjusting the sanitizer output level on the control panel and/or by varying the number of hours the IECG is on each day. The IECG automatically reverses the cell electrode blades every few hours to help clean the cell. This process does not interrupt the production of Chlorine. The IECG also contains a mechanical flow sensor to ensure the proper amount of water is passing through the cell to allow chlorination to occur. The IECG automatically measures the water salinity and temperature and displays four (4) salinity ranges on the control panel using LED indicators. The IECG includes a 15 ft. UL approved four conductor 16-gauge cable for connection to the Power Center.

- **Flow Sensor:** A flow sensor assures that there will always be adequate water flow through the IECG. If the IECG is not properly plumbed and/or does not receive adequate water flow, no chlorine will be produced.
- **Temperature Sensor:** To protect the IECG from operation and potential damage when the temperature of the pool water falls below 52° F, ±3° F (11° C, ±1.67° C), the temperature sensor switches the IECG off, and no chlorine is being produced.
- **Salt Sensor:** Two (2) salt sensor probes in the IECG are activated each time the IECG is switched on and again during every 12 hours of continuous running. At each of those times, the salt level LED indicator lights flash in a scrolling sequence for two (2) minutes to indicate that the IECG is in analysis mode. After two (2) minutes, the LED indicators lights will signal one (1) of four (4) salinity ranges. For more information, see “Salt Level Status LEDs” on page 7.
The IntelliChlor Power Center converts AC electrical current to a low-voltage DC electrical current which is required to produce chlorine. The power supply is connected with the pool circulation pump electrical source so that the IECG only operates when the pool pump is on. The Power Center should be mounted vertically on the wall up to fifteen (15) feet away from the IECG. The Power Center contains the transformer, fuse, connector to the cell and the AC electrical current wiring configuration with the DC electrical current output cable to the IECG. A fuse holder is mounted on the bottom of the Power Center for additional protection. There are no other controls or lights on the Power Center. For information about installing and proper use of the Power Center, see the “IntelliChlor Power Center Installation Guide,” (P/N 520590).

⚠️ CAUTION - The IntelliChlor Power Center does NOT control the pump. The IntelliChlor Electronic Chlorine Generator only produces chlorine when the pool pump is on.

⚠️ CAUTION - Before plugging or unplugging the IntelliChlor Electronic Chlorine Generator to the Power Center, first switch off the AC power to the Power Center.
System Schematic Diagram

The following schematic diagram shows a typical IntelliChlor system installation. It is recommended that a two (2) inch check valve be installed between the input side of the IntelliChlor Electronic Chlorine Generator and the main heater output pipe, as shown below. **Note:** This schematic diagram is not drawn to scale. Refer to the relevant portions of this Installation and User’s Guide for information regarding proper placement and spacing of all equipment depicted in this diagram.

Install Chlorine/Bromine Feeders after the IntelliChlor Cell

⚠️ **CAUTION** - To avoid permanent damage to the IntelliChlor cell, automatic in-line chlorine/bromine feeders (such as Rainbow) MUST be installed AFTER the IntelliChlor cell as shown below. When using the IntelliChlor with an in-floor cleaner pressure system, it is recommended that a separate return line be used for the cleaner to reduce the increased water pressure stress on the IntelliChlor cell.
Loop Plumbing Diagram

The IntelliChlor Electronic Chlorine Generator is designed to operate with water flow rates from 20 gallons per minute (gpm) up to 105 gpm. Do not exceed 105 gpm or pipe manufacturers recommended flow rate, whichever is less. For flow rates over 80 gpm, it is recommend that you use a bypass loop (as shown below) for best chlorine production. Installations with flow rates over 80 gallons per minute are those that have in-floor cleaning systems or booster pumps. These systems should use a bypass loop with the IECG with a flow control valve that assures that the flow through the IECG is maintained within its designed operating water flow rates.

IntelliChlor Plumbing Diagram

Plumbing the IntelliChlor Electronic Chlorine Generator (IECG):

- Always install the IntelliChlor Electronic Chlorine Generator AFTER the filter and heater (see “System Diagram” on page 4). The IECG should be no closer than three (3) feet away from the heater outlet.

- If the IECG is installed on a pool/spa combination system, install (see diagram below) the IECG BEFORE the pool/spa return valve to allow proper chlorination of both the pool and spa and also to avoid creating gas traps in the pipes.
## Salt Level Status LEDs

The IECG salt level checks the pool water daily and displays the levels as follows:

- **Green LED:** Good salt. The pool water salt level is between 3000 ppm and 4200, and the IECG is producing chlorine.
- **Flashing green LED:** Salt level is above 4200 ppm. Chlorine is being produced but the salt level is too high which increases the risk of corrosion and deterioration of pool equipment and surfaces in and around the pool. Pool water needs to be drained and refilled one (1) foot at a time until the salt level is lowered to 3000-4200 ppm.
- **Yellow LED:** Check salt. The pool water salt level is between 2500 ppm and 2950 ppm. The salt level should be independently checked and salt added to the pool water if necessary to obtain a salt level of 3000 - 3500 ppm. The cell will continue to produce chlorine but will be at a reduced level. If this **Check Salt** LED is flashing with the **Cell** LED, it indicates both that the pool water salt level needs to be checked, adding salt if necessary, and if necessary the IECG needs to be inspected and cleaned.
- **Red:** Very low salt. The water salt level has fallen below 2500 ppm. The IECG will not produce chlorine until additional salt is added. The IECG is OFF.

### Status LEDs

- **Pwr:** Shows the IntelliChlor Electronic Chlorine Generator power status:
  - **Red:** The IECG is OFF and an error is occurring in the IECG. Service is needed.
  - **Green:** The IECG is operational and ready.

- **Cell:** Shows the status of the IECG.
  - **Red:** If the water temperature is below 52° F, ±3° F (11° C, ±1.67° C), the LED will be blank and the IECG will shut off to extend blade life. Chlorine is not being produced. To check if the system is in “freeze” mode (water below 52° F not producing chlorine), press the MORE button to enter system status mode for 2-1/2 seconds. During this time the LED will turn RED.
  - **Green (flashing):** The IECG needs to be inspected. The blades may have calcium buildup. The IECG is not producing chlorine. If the **Cell** green LED is flashing with the **Check Salt** LED, it indicates the salt level in the pool needs to be checked, adding if necessary, and the IECG needs to be inspected and cleaned if necessary.
  - **Green:** IECG is good and producing chlorine
  - **No Light:** IECG is off and not producing chlorine. It may be in an off-period of the sanitizing cycle and will return on shortly.

### Life

- **Green (flash):** The IECG has over 8,000 hours of use, replace soon.
- **Green:** The IECG is under 8,000 hours of use. The IECG is good.

### Flow

- **Red:** Insufficient water flow through the IECG, no chlorine is being produced.
- **Green:** Sufficient water flow to produce chlorine.

---

**Note:** If the **Cell** green LED is flashing with the **Check Salt** LED, it indicates the salt level in the pool needs to be checked, adding if necessary, and the cell needs to be inspected and cleaned if necessary.
Sanitizer Output LED Indicators

The five (5) LED indicators display as a bar graph to show in 20% increments, the percentage of time the chlorine is produced per hour of pump run time. In BOOST mode, these LEDs (blink from left to right).

Note: If no LEDs are lit, the output is set to 0% and the IntelliChlor Electronic Chlorine Generator is not producing chlorine.

- 0% - No LEDs lit - No chlorine produced - IntelliChlor Electronic Chlorine Generator is off.
- 20% - 1 LED lit - Produces chlorine 20% of each hour of pump run time, 12 minutes on, 48 minutes off.
- 40% - 2 LEDs lit - Produces chlorine 40% of each hour of pump run time, 24 minutes on, 36 minutes off.
- 60% - 3 LEDs lit - Produces chlorine 60% of each hour of pump run time, 36 minutes on, 24 minutes off.
- 80% - 4 LEDs lit - Produces chlorine 80% of each hour of pump run time, 48 minutes on, 12 minutes off.
- 100% - 5 LEDs lit - Produces chlorine almost 100% of each the hour of pump run time, 59 minutes on, 1 minute off.

Note: If connected to an IntelliTouch, EasyTouch or SunTouch system, these lights may slowly flash when the output is set to a value not exactly 20%, 40%, 60% 80% or 100%. Example: 21% output setting from the IntelliTouch, EasyTouch or SunTouch will flash the 20% light.

More and Less Output Buttons

The More and Less buttons control the percentage of time of each hour that the IntelliChlor Electronic Chlorine Generator is producing chlorine while the pump is on (see Sanitizer Output LED indicators above). Slide the panel cover up to access the More, Less and Boost On/Off buttons. To exit BOOST mode, press and hold both the More and Less buttons. Note: When connected to an IntelliTouch, EasyTouch or SunTouch system, the Less and More buttons are disabled and IntelliChlor Sanitizer Output is controlled externally.

More: Increases the time the cell produces chlorine, in 20% increments. Example: The Sanitizer Output display is showing 20%. Pressing the More button will turn off the 20% light and turn on the 40% light. The unit will now produce chlorine 40% of each hour the IECG is on hour.

Less: Decreases the time the cell produces chlorine, in 20% increments. Example: The Sanitizer Output display is showing 40%. Pressing the Less button will turn off the 40% light and turn on the 20% light. The unit will now produce chlorine 20% of the hour.

Boost On/Off: Press and hold both the More and Less buttons together to activate Boost mode on or off. Boost mode sets the sanitizer output to run 100% for the next 24 hours of pool pump run time. If the time clock switches off the pump cycle, then switches power back on the next day, Boost mode will continue until 24 hours has elapsed since Boost mode was turned on or Boost mode is canceled by the user. The Sanitizer Output display will show a pattern LED display to indicate Boost mode.

Self-Cleaning

The IntelliChlor Electronic Chlorine Generator has a self-cleaning feature that reduces scale buildup on the blades of the IECG. The self-cleaning cycle tends to reduce the life of the IECG, therefore, it should be used only to the extent necessary to minimize the scale buildup on the blades. The self-cleaning cycle can be adjusted to run every 2, 3, 4, or 5 hours, whichever is the optimal for your particular pool conditions in order to minimize scale buildup but maximize the life of the IECG. It is factory set to two (2) hours for the first 30 days of operation, then automatically switches to three (3) hours. To change the self-cleaning cycle, press and hold the Less button for three (3) seconds. The sanitizer output display will show the number of hours in a bar graph style. The number of output LEDs lit is the number of reverse hours. Pressing More or Less button will change this setting.

Example: The self-clean cycle is set to run for four (4) hours and the pool owner chooses to change it to three (3) hours to optimize the blade cleaner cycle for your particular pool conditions. Press and hold the LESS button for three (3) seconds. The sanitizer output display will blank, then light up the 20%, 40%, 60% and 80% lights, four (4) total. This is a four (4) hours reverse setting. Pressing the LESS button once within ten (10) seconds will switch off the 80% light, leaving only three (3) lights on, now at a three (3) hours reverse setting. Wait ten (10) seconds and this mode will end automatically, returning to the original sanitizer output display.
Section 2

Pool Water Chemistry, Conditions and Precautions

This section describes the start up procedure and operating instructions for IntelliChlor Electronic Chlorine Generator.

Pool Water Chemistry, Conditions and Precautions

1. **New Pool Water**: A recently filled or newly-refinished pool may contain undesirable matter. This undesirable matter could interfere with IntelliChlor’s ability to chlorinate properly. Make sure the water is tested by a pool professional and properly balanced before switching on the IntelliChlor Electronic Chlorine Generator.

**WARNING** - Salt is an inherently corrosive material. While the levels of salt required for proper operation of the IntelliChlor Electronic Chlorine Generator are relatively low when compared to sea water and other salt solutions, placing any amount of salt in your pool increases the likelihood of corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Metal parts and certain natural and man-made surfaces are particularly susceptible to corrosion and deterioration when used in and around salt water pools. Pentair Water Pool and Spa does not represent or otherwise guarantee that the proper use of the IntelliChlor Electronic Chlorine Generator will prevent corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Consult your experienced pool professional, who should be able to advise you on the proper material selection, installation techniques for those materials, and the proper use, care and maintenance of those materials for your specific pool type and location in order to minimize the corrosion and deterioration that is inherent in and around salt water pools.

2. **pH** produced by IntelliChlor Electronic Chlorine Generator is close to Neutral pH. However, other factors usually cause the pH of the pool water to rise. Therefore, the pH in a pool chlorinated by IntelliChlor tends to stabilize at approximately 7.8. This is within APSP standards. If the pool pH rises above 7.8, have a pool professional test the pool water to see if other factors such as high Calcium Hardness or Total Alkalinity are the cause and then balance accordingly.

3. **Super Chlorination** burns out the swimmer waste that has combined with chlorine. This frees the chlorine for sanitizing. This is accomplished by raising the chlorine level quickly and dramatically. When the chlorine level is raised to ten (10) times the amount of combined chlorine (usually 5 to 10 ppm) the pool water is said to have been super chlorinated. As pool water is continuously passed through the IECG while the unit is powered on, all pool water inside the IECG is being super chlorinated. When the IntelliChlor Electronic Chlorine Generator is used on pools, the pool water sparkles and does not burn the eyes because of the absence of chloramines. **Note**: On initial start-up of a pool, it is best to super chlorinate using an outside source, i.e., use a shock treatment available at your local pool supplier.

4. **Chloramines** should not be present in pool water. Chloramines are formed when ammonia (which is found in urine and sweat) combine with free chlorine. This ties up the free chlorine in your pool and does not allow the chlorine in your pool to disinfect. Chloramines also burn the eyes and are foul smelling. Super Chlorinate to remove chloramines at the initial start-up of the pool and as needed to maintain proper levels of free chlorine.

5. **Cyanuric acid** is needed in outdoor pools to help to stabilize and maintain proper levels of chlorine. 90% of unstabilized chlorine is destroyed by the UV radiation from the sun within two hours. Cyanuric acid stabilizes chlorine in water from UV degradation. When using the IECG, the cyanuric acid level should be maintained between 50-80 ppm. See Table 3, on page 14. **NOTE**: DO NOT USE CYANURIC ACID IN INDOOR POOLS.
6. **Total Dissolved Solids (TDS)**: Adding salt to pool water will raise the TDS level. While this does not adversely affect the pool water chemistry or clarity, the pool water professional testing for TDS must be made aware salt has been added to the IntelliChlor system. The individual performing the TDS test (see page 22) may then subtract the salinity level to arrive at a TDS level that would be compatible to a TDS reading for a non-salt water pool.

7. **Metals** - Some metals, i.e. copper and iron, can cause loss of chlorine. Also, metals can stain your pool. Metals can also damage the IntelliChlor Electronic Chlorine Generator. Have your local pool professional check for metals and recommend methods of removal.

8. **Nitrates and Phosphates** can cause extremely high chlorine demands and will deplete chlorine from your swimming pool. In some cases nitrates may even lower your chlorine levels to zero. Your local pool professional can test for nitrates and phosphates. While a 0 ppm level of nitrates is the ideal, the pool owner should make sure that nitrates **DO NOT** exceed 10 ppm. Phosphates should not exceed 125 parts per billion (ppb).

### Optimum Pool Water Chemistry Conditions for Salt Water Pools
(using the IntelliChlor Electronic Chlorine Generator)

In accordance with the Association of Pool and Spa Professionals (APSP) standards, it is recommended that the following pool water chemistry conditions be maintained on an on-going basis to help protect pool users, pool related equipment and surfaces in and around the pool. These values are important to maintaining the pool equipment in proper operating condition and preventing corrosion, liming or other problems. The IntelliChlor Electronic Chlorine Generator is warranted to operate properly only if these conditions are met. For more information, refer to your local agency having jurisdiction, NSPI (National Spa and Pool Institute), the CDC (Centers for Disease Control), or the WHO (World Health Organization).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Free Chlorine</strong></td>
<td>2.0 - 4.0 ppm. Above 4.0 ppm may cause corrosion of metal components</td>
</tr>
<tr>
<td><strong>Combined Chlorine</strong></td>
<td>None (super chlorinate to remove all chloramines)</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>7.2 - 7.8 (USE MURIATIC ACID to lower pH and Soda Ash to raise pH.)</td>
</tr>
<tr>
<td><strong>Cyanuric Acid</strong></td>
<td>50 - 80 ppm</td>
</tr>
<tr>
<td><strong>Total Alkalinity</strong></td>
<td>80 - 120 ppm</td>
</tr>
<tr>
<td><strong>Calcium Hardness</strong></td>
<td>200 - 400 ppm</td>
</tr>
<tr>
<td><strong>TDS (includes salt)</strong></td>
<td>3000 minimum to 5700 to 6000 maximum ppm</td>
</tr>
<tr>
<td><strong>Salt</strong></td>
<td>3000 - 4200 ppm (ideal 3400 ppm)</td>
</tr>
<tr>
<td><strong>Metals (Copper, Iron, Manganese)</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Nitrates</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Phosphates</strong></td>
<td>Less than 125 ppb</td>
</tr>
</tbody>
</table>

### Covered Pools and Vinyl Liner Pool and Lowering Chlorine Output Levels

When using the IntelliChlor Electronic Chlorine Generator with covered pools and/or vinyl liner pools, less chlorine is needed. It is recommend to lower the chlorine output level while the pool is covered. For more information about chlorine output levels, see “More or Less Output Buttons” page 8.
Chlorine Testing

It is recommended that chlorine test samples be taken from two (2) locations in the pool. Compare the samples. A higher level should be found at the pool return line. The higher level at the pool return line indicates the IECG is producing chlorine. Take chlorine samples for testing at:

- The pool return line.
- 18 inches (457 mm) below the surface and well away from the pool return line.

What Type of Salt to Use

The purer the salt, the better the life and performance of the IntelliChlor Electronic Chlorine Generator. Use salt that is at least 99.8% pure NaCl, sodium chloride. The preferred and recommended salt is an evaporated, granulated, food quality, non-iodized salt with no additives. Consult your salt supplier.

- Avoid using salt with anti-caking agents (sodium ferrocyanide, also known as YPS or yellow prussiate of soda). Filling agents can cause some discoloration of fittings and surface finishes in pool.
- Water conditioning salt pellets are compressed forms of evaporated salt and may be used, but will take longer to dissolve. Such pellets could damage pool plaster and other surfaces in and around the pool.
- Do not use calcium chloride or potassium chloride as a source of salt. (Use sodium chloride only).
- Do not use Rock salt (insoluble impurities mixed with the rock salt can shorten the life of the IECG).

How Much Salt to Use?

Use the Table 1 chart (page 13) to determine how much salt will be needed. Most pools contain some salt, depending on the water source and chemicals used for sanitizing. Therefore, the pool owner must always test salt levels before adding salt. A hand held meter calibrated for NaCl (salt) can be used to determine the salt levels of the pool water. After the IntelliChlor Electronic Chlorine Generator is powered on, the LED salt level lights will blink from bottom to top for two (2) minutes while it analyzes the pool water, then the LED indicators will show one (1) of four (4) salt level ranges. This solid light indicates the salt status of the pool.

- 3000 to 3500 ppm of salt is recommended for optimum water conditions.
- Low salt concentration below 2500 ppm will cause the unit to turn off.
- High salt concentration above 4200 ppm may cause excessive corrosion or deterioration to pool equipment and surrounding surfaces in and around the pool.

Note: Salt measurements will vary between measuring devices (salt test strips, electronic testers, and titration). For more troubleshooting information about high salt levels, see “Troubleshooting,” on page 33.
Calculating the Saturation Index

The saturation index is a formula that relates pH, calcium and alkalinity in the pool water. A well balanced pool water will have a formula result range between -0.3 and 0.3. Outside this range, the pool water is out of balance, potentially damaging pool equipment or scaling the IECG. The equation to calculate Si is:

\[
SI = pH + CHF + AF + TF + TDSF
\]

Cyanuric acid in the form of cyanurate ions contribute to alkalinity. Thus, a correction must be made to total alkalinity. We subtract 1/3 of the cyanuric acid level from the reading obtained in the total alkalinity test.

**Total Alkalinity - 1/3 Cyanuric Acid = Corrected Alkalinity**

This correction can be considerable in established pools with high cyanuric acid levels; for example, at 240 ppm cyanuric acid, the correction amounts to 80 ppm (240 ÷ 3 = 80).

### Saturation Index Factors

<table>
<thead>
<tr>
<th>Table 1 – CHF and AF Hardness and Alkalinity Factors</th>
<th>Table 2 – TF Temperature Factors</th>
<th>Table 3 – C TDS Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Hardness and Alkalinity (ppm)</td>
<td>Factor</td>
<td>Temperature Degrees F</td>
</tr>
<tr>
<td>25</td>
<td>1.4</td>
<td>32</td>
</tr>
<tr>
<td>30</td>
<td>1.5</td>
<td>42</td>
</tr>
<tr>
<td>50</td>
<td>1.6</td>
<td>55</td>
</tr>
<tr>
<td>65</td>
<td>1.7</td>
<td>67</td>
</tr>
<tr>
<td>75</td>
<td>1.8</td>
<td>79</td>
</tr>
<tr>
<td>100</td>
<td>1.9</td>
<td>91</td>
</tr>
<tr>
<td>125</td>
<td>2.0</td>
<td>103</td>
</tr>
<tr>
<td>150</td>
<td>2.1</td>
<td>115</td>
</tr>
<tr>
<td>200</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>2.8</td>
<td></td>
</tr>
</tbody>
</table>
How to Add Salt to the Pool

**CAUTION -** Do not operate the IECG with newly poured pool plaster or a newly constructed pool, regardless of pool lining material. Severe salt damage can occur. FOR ALL NEW POOLS, wait at least ONE (1) MONTH after construction and filling of pool water before operating IECG.

1. Switch on the pump to circulate the pool water.
2. Check salt level in pool water before adding any salt to pool.
3. Determine the amount of salt from the following charts.
4. Slowly pour in the salt around the outer perimeter of the pool for quick and even distribution. *To avoid clogging the filter or damaging pool related equipment and surrounding surfaces, do not add salt through the skimmer or surge tank.*
5. Brush the pool bottom and allow water to circulate for 24 hours to dissolve salt completely.
6. After 24 hours, verify correct salt level reading by checking the LED indicators on the IntelliChlor Electronic Chlorine Generator and by a separate reliable test method.
7. Power on the IntelliChlor Electronic Chlorine Generator and set the Sanitizer Output level to the proper setting to maintain the appropriate free chlorine levels in the pool water (i.e., within the 2.0 - 4.0 ppm, APSP recommended range).

**Table 1.** Approximate Pounds (Kg) of salt needed to obtain 3,400 ppm in pool

<table>
<thead>
<tr>
<th>Pool Gallons</th>
<th>0 ppm</th>
<th>250 ppm</th>
<th>500 ppm</th>
<th>750 ppm</th>
<th>1000 ppm</th>
<th>1250 ppm</th>
<th>1500 ppm</th>
<th>1750 ppm</th>
<th>2000 ppm</th>
<th>2250 ppm</th>
<th>2500 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>290 lb</td>
<td>267 lb</td>
<td>244 lb</td>
<td>221 lb</td>
<td>191 lb</td>
<td>168 lb</td>
<td>145 lb</td>
<td>122 lb</td>
<td>99 lb</td>
<td>70 lb</td>
<td>46 lb</td>
</tr>
<tr>
<td></td>
<td>132 kg</td>
<td>121 kg</td>
<td>111 kg</td>
<td>100 kg</td>
<td>87 kg</td>
<td>76 kg</td>
<td>66 kg</td>
<td>55 kg</td>
<td>45 kg</td>
<td>32 kg</td>
<td>21 kg</td>
</tr>
<tr>
<td>12,000</td>
<td>348 lb</td>
<td>320 lb</td>
<td>292 lb</td>
<td>265 lb</td>
<td>230 lb</td>
<td>202 lb</td>
<td>174 lb</td>
<td>146 lb</td>
<td>118 lb</td>
<td>84 lb</td>
<td>56 lb</td>
</tr>
<tr>
<td></td>
<td>158 kg</td>
<td>145 kg</td>
<td>133 kg</td>
<td>120 kg</td>
<td>104 kg</td>
<td>92 kg</td>
<td>79 kg</td>
<td>66 kg</td>
<td>54 kg</td>
<td>38 kg</td>
<td>25 kg</td>
</tr>
<tr>
<td>14,000</td>
<td>406 lb</td>
<td>374 lb</td>
<td>341 lb</td>
<td>309 lb</td>
<td>268 lb</td>
<td>236 lb</td>
<td>203 lb</td>
<td>171 lb</td>
<td>138 lb</td>
<td>97 lb</td>
<td>65 lb</td>
</tr>
<tr>
<td></td>
<td>184 kg</td>
<td>170 kg</td>
<td>155 kg</td>
<td>140 kg</td>
<td>122 kg</td>
<td>107 kg</td>
<td>92 kg</td>
<td>77 kg</td>
<td>63 kg</td>
<td>44 kg</td>
<td>29 kg</td>
</tr>
<tr>
<td>16,000</td>
<td>464 lb</td>
<td>427 lb</td>
<td>390 lb</td>
<td>353 lb</td>
<td>306 lb</td>
<td>269 lb</td>
<td>232 lb</td>
<td>195 lb</td>
<td>158 lb</td>
<td>111 lb</td>
<td>74 lb</td>
</tr>
<tr>
<td></td>
<td>211 kg</td>
<td>194 kg</td>
<td>177 kg</td>
<td>160 kg</td>
<td>139 kg</td>
<td>122 kg</td>
<td>105 kg</td>
<td>88 kg</td>
<td>72 kg</td>
<td>51 kg</td>
<td>34 kg</td>
</tr>
<tr>
<td>18,000</td>
<td>522 lb</td>
<td>480 lb</td>
<td>439 lb</td>
<td>397 lb</td>
<td>345 lb</td>
<td>303 lb</td>
<td>261 lb</td>
<td>219 lb</td>
<td>178 lb</td>
<td>125 lb</td>
<td>84 lb</td>
</tr>
<tr>
<td></td>
<td>237 kg</td>
<td>218 kg</td>
<td>199 kg</td>
<td>180 kg</td>
<td>156 kg</td>
<td>137 kg</td>
<td>118 kg</td>
<td>99 kg</td>
<td>81 kg</td>
<td>57 kg</td>
<td>38 kg</td>
</tr>
<tr>
<td>20,000</td>
<td>580 lb</td>
<td>534 lb</td>
<td>487 lb</td>
<td>441 lb</td>
<td>383 lb</td>
<td>337 lb</td>
<td>290 lb</td>
<td>244 lb</td>
<td>197 lb</td>
<td>139 lb</td>
<td>93 lb</td>
</tr>
<tr>
<td></td>
<td>263 kg</td>
<td>242 kg</td>
<td>221 kg</td>
<td>200 kg</td>
<td>174 kg</td>
<td>153 kg</td>
<td>132 kg</td>
<td>111 kg</td>
<td>89 kg</td>
<td>63 kg</td>
<td>42 kg</td>
</tr>
<tr>
<td>22,000</td>
<td>638 lb</td>
<td>587 lb</td>
<td>536 lb</td>
<td>485 lb</td>
<td>421 lb</td>
<td>370 lb</td>
<td>319 lb</td>
<td>268 lb</td>
<td>217 lb</td>
<td>153 lb</td>
<td>102 lb</td>
</tr>
<tr>
<td></td>
<td>290 kg</td>
<td>266 kg</td>
<td>243 kg</td>
<td>220 kg</td>
<td>191 kg</td>
<td>168 kg</td>
<td>145 kg</td>
<td>122 kg</td>
<td>98 kg</td>
<td>69 kg</td>
<td>46 kg</td>
</tr>
<tr>
<td>24,000</td>
<td>696 lb</td>
<td>641 lb</td>
<td>585 lb</td>
<td>529 lb</td>
<td>460 lb</td>
<td>404 lb</td>
<td>348 lb</td>
<td>292 lb</td>
<td>237 lb</td>
<td>167 lb</td>
<td>111 lb</td>
</tr>
<tr>
<td></td>
<td>316 kg</td>
<td>291 kg</td>
<td>265 kg</td>
<td>240 kg</td>
<td>208 kg</td>
<td>183 kg</td>
<td>158 kg</td>
<td>133 kg</td>
<td>107 kg</td>
<td>76 kg</td>
<td>51 kg</td>
</tr>
<tr>
<td>26,000</td>
<td>754 lb</td>
<td>694 lb</td>
<td>634 lb</td>
<td>573 lb</td>
<td>498 lb</td>
<td>438 lb</td>
<td>377 lb</td>
<td>317 lb</td>
<td>256 lb</td>
<td>181 lb</td>
<td>121 lb</td>
</tr>
<tr>
<td></td>
<td>342 kg</td>
<td>315 kg</td>
<td>287 kg</td>
<td>260 kg</td>
<td>226 kg</td>
<td>198 kg</td>
<td>171 kg</td>
<td>144 kg</td>
<td>116 kg</td>
<td>82 kg</td>
<td>55 kg</td>
</tr>
<tr>
<td>28,000</td>
<td>812 lb</td>
<td>747 lb</td>
<td>682 lb</td>
<td>617 lb</td>
<td>536 lb</td>
<td>471 lb</td>
<td>406 lb</td>
<td>341 lb</td>
<td>276 lb</td>
<td>195 lb</td>
<td>130 lb</td>
</tr>
<tr>
<td></td>
<td>368 kg</td>
<td>339 kg</td>
<td>310 kg</td>
<td>280 kg</td>
<td>243 kg</td>
<td>214 kg</td>
<td>184 kg</td>
<td>155 kg</td>
<td>125 kg</td>
<td>88 kg</td>
<td>59 kg</td>
</tr>
<tr>
<td>30,000</td>
<td>870 lb</td>
<td>801 lb</td>
<td>731 lb</td>
<td>662 lb</td>
<td>574 lb</td>
<td>505 lb</td>
<td>435 lb</td>
<td>366 lb</td>
<td>296 lb</td>
<td>209 lb</td>
<td>139 lb</td>
</tr>
<tr>
<td></td>
<td>395 kg</td>
<td>363 kg</td>
<td>332 kg</td>
<td>300 kg</td>
<td>261 kg</td>
<td>229 kg</td>
<td>197 kg</td>
<td>166 kg</td>
<td>134 kg</td>
<td>95 kg</td>
<td>63 kg</td>
</tr>
</tbody>
</table>
### Table 2. Approximate Pounds (Kg) of salt needed to maintain 3,000 ppm in pool

<table>
<thead>
<tr>
<th>Salt concentration before addition</th>
<th>Salt addition required per 1000 gallon (3,800 liters) pool capacity</th>
<th>Salt concentration before addition</th>
<th>Salt addition required per 1000 gallon (3,800 liters) pool capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ppm</td>
<td>29 lbs (13 kg)</td>
<td>1500 ppm</td>
<td>15 lbs (15 kg)</td>
</tr>
<tr>
<td>250 ppm</td>
<td>27 lbs (12 kg)</td>
<td>1750 ppm</td>
<td>12 lbs (5 kg)</td>
</tr>
<tr>
<td>500 ppm</td>
<td>24 lbs (11 kg)</td>
<td>2000 ppm</td>
<td>10 lbs (5 kg)</td>
</tr>
<tr>
<td>750 ppm</td>
<td>22 lbs (10 kg)</td>
<td>2250 ppm</td>
<td>7 lbs (3 kg)</td>
</tr>
<tr>
<td>1000 ppm</td>
<td>19 lbs (9 kg)</td>
<td>2500 ppm</td>
<td>5 lbs (2 kg)</td>
</tr>
<tr>
<td>1250 ppm</td>
<td>17 lbs (8 kg)</td>
<td>2800 ppm</td>
<td>3 lbs (1.4 kg)</td>
</tr>
</tbody>
</table>

### Table 3. Approximate amount of cyanuric acid to obtain 75 ppm in pool

<table>
<thead>
<tr>
<th>Pool Size in gallons (liters)</th>
<th>Stabilizer Level Before Addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 (38,000)</td>
<td>0 ppm</td>
</tr>
<tr>
<td></td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td>20 ppm</td>
</tr>
<tr>
<td></td>
<td>30 ppm</td>
</tr>
<tr>
<td></td>
<td>40 ppm</td>
</tr>
<tr>
<td></td>
<td>50 ppm</td>
</tr>
<tr>
<td></td>
<td>60 ppm</td>
</tr>
<tr>
<td></td>
<td>70 ppm</td>
</tr>
<tr>
<td></td>
<td>75 ppm</td>
</tr>
</tbody>
</table>

**NOTE:** The cyanuric acid reading should be maintained at 50 - 80 ppm.
Pool Water Preparation

Determining Pool Size (Gallons of Water in Your Pool)

- **Rectangular Pools**: Length x width x average depth x 7.5
- **Circular Pools**: Diameter x diameter x average depth x 5.9
- **Oval Pools**: Length x width x average depth x 6.7
- **Sloping Sides**: Multiply total gallons by 0.85 = gallon capacity

Determining Pool Size (liters of water in your pool)

- **Rectangular Pools**: Length x width (meters) x average depth x 1000
- **Circular Pools**: Diameter x diameter (meters) x average depth x 785
- **Oval Pools**: Length x width (meters) x average depth x 893
- **Sloping Sides**: Multiply total liters by 0.85 = liter capacity.

⚠️ CAUTION - Never use dry acid (sodium bisulfate) to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of byproducts can damage the IECG.
Section 3
Operating IntelliChlor

This section describes the start up procedure and operating instructions for IntelliChlor Electronic Chlorine Generator (IECG).

Before starting up and operating the IECG, the pool in which the IECG will be used must have been completed and filled with water for at least one (1) month and the pool water salt level must be stable and being maintained at 3,000 to 3,500 ppm.

Initial Start up Period

For the first thirty (30) days of cell operation, the self-cleaning cycle, is factory set to two (2) hours. After thirty (30) days has elapsed, the IECG will automatically set itself to four (4) hour self-cleaning cycle. This feature will clean the IECG blades more often during the initial installation, then go to a more standard self-cleaning cycle for longer blade life.

Operation

Use of an external Pool Pump Timer is not required

The IECG is designed to supply a sufficient amount of chlorine to sanitize pool water on a daily basis. If the pool pump is continuously running and the IECG is operated 24 hours a day at 100%, more chlorine would be generated than would be needed by most pools (2-4 ppm, per APSP recommendations). The IECG has its own internal timer which cycles the electrolytic cell on and off depending on what percent the Sanitizer Output is set. For instance, at 100% the cell works all the time while the pool pump is running. When set at 80%, the cell is allowed to rest 20% of the time while the pool pump is running prolonging cell life. In order to fine tune IECG to your pool size just increase or decrease the Sanitizer Output from 20% to 100% of the time. For more information, see “More and Less Output Buttons,” on page 8.

⚠️ CAUTION - The IECG is designed only to produce chlorine. The IECG does not monitor or control chlorine levels in the pool or spa water. It is the pool owner’s responsibility for monitoring and maintaining free chlorine levels at 2.0 to 4.0 parts per million (ppm) according to APSP recommendations. It is the pool owner’s responsibility to check the free chlorine level while the pool pump is running on a regular basis, and adjust the Sanitizer Output on the IECG accordingly.

⚠️ CAUTION - Before attempting to operate IntelliChlor refer to “General Recommendations and General Cautions,” on page 19, and “Pool Water Preparation,” on page 15. Also, do not adjust Sanitizer Output above 20% until it is certain that salt has been dissolved in pool. Operating without salt will result in the unit turning off and lighting the CHECK SALT light on the salt display. No chlorine will be produced until salt is added to the pool.

If you use a Pool Pump Timer

The Association of Pool and Spa Professionals (APSP) recommends that all water in a residential pool pass through the filtration system at least once every twelve (12) hours (referred to as pool water turnover). However, many factors have an effect on actual pump and filter system run times. Pool size, source of water, direct sun light, indoor/outdoor, screened/unscreened, filtration system, cold or hot weather, swimmer load, rain, organic debris, algae, etc., are all factors which contribute to either more or less pool pump and filter system run times. Because of these differences, it is extremely difficult to set a standard initial run time (starting point) for the pool pump and chlorinating system.
Try initially setting the pool pump timer to twelve (12) hours. It will take a few days to achieve the correct amount of pool pump operating time. When IntelliChlor is wired with a pool pump timer results will vary greatly from one pool installation to the next, so this should be discussed with your pool professional. The key points are:

- Operate the pool pump at least the minimum time needed for good filtration and adequate chlorine production by the IECG, according to your pool professional’s recommendations.
- While pool pump timers can reduce energy consumption, the pool pump must be running for the IntelliChlor Electronic Chlorine Generator to provide chlorine and must remain running long enough to maintain proper chlorine levels (i.e., 2.0 - 4.0 ppm of free available chlorine).

*Note:* Exception - For Cold Weather Operation: The unit turns off in water temperatures of 52° F, ±3° F (11° C, ±1.67° C) and below, and will not produce chlorine. This feature extends the life of the cell.

### Start-up Procedure (Super Chlorination)

Super Chlorination is recommended before pool start-up. Start out with clean, properly chlorinated, pool water from the beginning. The IECG will build up a sufficient level of chlorine for sanitation in several hours. However, if the pool water has a high demand from the start-up the IECG will not be able to produce enough chlorine to reach break-point chlorination. So, it is best to super chlorinate using an outside source at the time of pool start-up. Then, wait until the chlorine level has returned to 2.0 to 4.0 ppm before switching on the IECG.

### Sanitizer Output Settings and Adjustments

- Switch on the pool pump switch or pool pump timer. The IntelliChlor control panel green PWR power LED light should be on. The salt display will blink all three (3) LEDs (bottom to top) for two (2) minutes, indicating that it has not checked the salt level yet. After two (2) minutes, the salt will be checked and one (1) of the four (4) salt level LEDs will be displayed. If the salinity is below 2500 ppm, the salt display will light the red LOW SALT indicator, and the CELL light will go blank, indicating there is not enough salt in the pool for chlorine to be produced.
- Set the Sanitizer Output to 60% by pressing the MORE or LESS button (see page 8).
- After 24 hours, use a reliable test method to test the pool water for free available chlorine. The ideal range to maintain is 2.0-4.0 ppm. If the free chlorine level of the pool water is too low, increase chlorine production by pressing the MORE button. If the free chlorine level of the pool water is too high, decrease chlorine production by pressing the LESS button.
- Due to a varying free chlorine demand of pool water, it may take a few days to determine the number of daily pool operating hours and “Sanitizer Output” percentage setting (see page 8) for your pool. Continue adjusting as necessary, allowing 24 hours between adjustments until the free chlorine level of the pool water is stabilized at 2.0 - 4.0 ppm, per APSP recommendations.

### Operating in Winter

The IntelliChlor Electronic Chlorine Generator switches off and will not produce chlorine in water temperatures of 52° F, ±3° F (11° C, ±1.67° C) and below. This feature extends the life of the IECG. See “Winterizing,” on page 23.
General Recommendations

- After new pool construction has been completed, before installing the IntelliChlor Electronic Chlorine Generator, install the IntelliChlor “dummy cell” (P/N 520588) to remove debris from the pipes for thirty (30) days and to allow sufficient time for the pool plaster (or other similar material) to properly cure and seal.
- Read and keep this Installation and User’s Guide in a safe place.
- Increase Sanitizer Output level as necessary after heavy rain (outdoor pools) and return to normal afterwards.
- Increase Sanitizer Output level when air and water temperature rise.
- Increase Sanitizer Output level when number of pool users increase.
- Use Cyanuric Acid ONLY as necessary to stabilize chlorine in the pool water in outdoor pools. NOTE: DO NOT USE CYANURIC ACID IN INDOOR POOLS.
- Once a month take a pool water sample to a pool professional for a complete analysis.

General Cautions

- Do not get fertilizer in your pool. Fertilizers contain nitrates, which cause a high chlorine demand.
- Never use dry acid to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of byproducts can damage the IECG.
- Do not add any pool water balancing chemicals (including salt) unless the IECG is switched off.
- Do not let the Cyanuric Acid level drop below 50 ppm in outdoor pools. NOTE: DO NOT USE CYANURIC ACID IN INDOOR POOLS.
Section 4
User Maintenance

This section describes how to maintain the IntelliChlor Electronic Chlorine Generator.

**Daily service**

None is needed.

**Weekly service**

1. **pH Level Test:** Test the pH level of your pool water with a reliable test method. If necessary, adjust according to your pool professional’s recommendations. APSP’s recommended ideal range for pH is 7.4 to 7.6, although 7.2 to 7.8 is an acceptable range under APSP’s guidelines.

   \*Note:* Never use dry acid (sodium bisulfate) to adjust pH in arid geographic areas with excessive evaporation and minimal dilution of pool water with fresh water. A buildup of byproducts can damage the IECG.

2. **Total Alkalinity Test:** Test the pool water for total alkalinity with a reliable test method. Adjust according to your pool professional’s recommendations. APSP’s recommended ideal range for total alkalinity is 80 to 120 ppm.

3. **Chlorine Test:** Test the pool water the free chlorine level with a reliable test method. Maintain ideal range by adjusting the IntelliChlor Electronic Chlorine Generator Sanitize Output settings. See “More and Less Output Buttons,” on page 8.
   - Defined Free Chlorine is 2.0-4.0 ppm, per APSP recommendations.

   \*Note:* Above 4.0 ppm of chlorine may cause excessive corrosion of metal components and possibly cause damage to associated pool equipment.

   \*Note:* It is recommended that free chlorine readings be taken from samples of pool water taken from two (2) places, one at the pool return line, the other well away from the pool return line. Compare the test results. A higher free chlorine level should be found at the pool return line. The higher free chlorine level at the pool return line indicates IntelliChlor Electronic Chlorine Generator is producing chlorine.

**Monthly Service**

To ensure that the correct chemical balance is maintained in your pool, it is important to perform the following recommended salt and pool water tests every month using a reliable test method.

1. **Salt Level Test:** Check salt display lights on the unit and check that the green “GOOD” light is on and is not flashing.
   - If the yellow “CHECK SALT” LED light is on (see page 5), test the pool water salinity using a reliable test method. Add salt if necessary to bring the salt level to 3000 - 3500 ppm by following the procedures and charts described on page 13 and 14.
   - If salt level does not rise after 24 hours, see “Troubleshooting,” page 33.
   - If the red LOW LED salt light is on, no chlorine is being produced. Add salt to the pool water (see charts beginning on page 13).

2. **Pool Water Sample:** Take a sample of the pool water to your local pool store for testing.
Monthly Service (Continued)

3. **Cyanuric Acid**: Sample the pool water and test for cyanuric acid level using a reliable test method. When using the IntelliChlor Electronic Chlorine Generator the recommended ideal cyanuric acid level is 50-80 ppm.

4. **Calcium Hardness**: Test pool water for calcium hardness level using a reliable test method. If necessary, adjust according to your pool professional’s recommendations. APSP’s recommended ideal range for calcium is 200 to 400 ppm for pools.

5. **Metals Test**: It is recommended that the pool water be sampled and tested periodically for the presence of metals such as copper, iron, and manganese. These metals can damage the IntelliChlor Electronic Chlorine Generator and other related pool equipment and should not be present in the pool water. If those metals are present, contact your pool professional.

6. **TDS (Total Dissolved Solids)**: Test pool water for TDS level using test kit or by having a water sample tested by a pool professional. If necessary, adjust according to your pool professional’s recommendations. APSP standard of 3000 minimum to 5700 - 6000 maximum ppm (which includes the salt) is recommended for salt pools.

IECG Usage Hours Meter

The IECG provides a built-in cell “usage hours” meter that reports how many hours IntelliChlor has been operating. The IECG is designed to operate for approximately 10,000 hours before replacement is needed or roughly five (5) years of average use.

To access the system status mode:

1. Press and hold the MORE button for three (3) seconds until the lights scroll across the unit.

2. One (1) of the five (5) Sanitizer Output LED indicators (20%, 40%, 60%, 80% and 100%) will be lit, indicating the hours of usage. The Output LEDs are as follows:
   - 2000 hours (20% LED on)
   - 4000 hours (40% LED on)
   - 6000 hours (60% LED on)
   - 8000 hours (80% LED on)
   - 10,000 hours (100% LED on)

Cleaning the IECG Cell Blades

1. **Automatic Cleaning**: The IECG has an automatic cell blade cleaning feature (cell reversing) that removes scale deposits from the IECG blades. **Note**: Automatic cleaning does not interrupt chlorine production. “Scale” is a white crusty deposit that forms in excessively hard water or from pool water that is out of balance and in a scaling condition. If the IECG blades show excessive scaling, you need to perform an acid wash cleaning. Proceed to “Acid Wash Cleaning,” Step 2.

2. **Acid Wash Cleaning**: If the IECG blades show a tendency to scale, it is recommended that every two (2) months the IECG be removed and inspected for scale formation and/or debris on the IECG blades. Some filters allow debris to pass through to the IECG, possibly lodging between the blades in the IECG. A small amount of scale formation is normal. If by looking through the IECG it is observed that there is excessive scale formation between the blades or debris is present, the IECG must be cleaned as follows:
   a. Use a high-pressure jet of water from a garden hose. If the blades cannot be reasonably cleaned in this manner, acid cleaning is necessary.
Cleaning the IECG Blades (Continued)

b. **To acid clean the IECG blades:** Disconnect the AC power from the Power Center. Disconnect the IntelliChlor Electronic Chlorine Generator cell communication cable from the Power Center.

c. Mix one (1) quart of muriatic acid with one (1) gallon of tap water in a plastic bucket.

![WARNING]

Working with muriatic acid can be dangerous. When cleaning the IECG always wear rubber gloves and eye protection. Always add acid to water, do not add water to acid. Always work in a well-ventilated area. Splashing or spilling acid can cause severe personal injury and/or property damage.

Note: The IntelliChlor acid cleaning kit (P/N 520710) provides a cap for the IECG to allow diluted acid solution to be poured into the IECG to immerse the blades for cleaning.

d. Screw the cap with washer and o-ring onto the threaded end of the IntelliChlor cell *(the cap, o-ring and washer are provided with the cleaning kit)*. Place the IECG vertically in a five (5) gallon bucket. Pour the acid solution (as described in step c) into the IECG until the cell blades are just covered. Allow the acid solution to bubble, and to clean the blades. **Note:** The acid should only be contained inside the IECG covering the blades. Try not to spill the acid on the outside of the IECG. If acid does spill on the outside of the IECG, wash it off with water. A foaming action will begin, which is caused by scale (calcium carbonate) being dissolved from the blades. If rigorous foaming action does not begin, the blades do not need to be cleaned (STOP THE CLEANING PROCESS - go on to step “e”). Otherwise, allow the blades to remain immersed in the solution until the foaming has stopped. However, do not leave acid in the IECG for more than thirty (30) minutes. Excessive acid washing will damage the blades.

e. Remove the IECG from the bucket and place in an empty five (5) gallon bucket. Rinse the inside and outside of the IECG thoroughly with clean tap water and inspect. If deposits are still visible, repeat the acid cleaning process.

f. Rinse the IECG again with clean tap water and inspect. Once clean, replace the IECG and resume normal operation.

g. If the acid wash procedure is necessary, it is recommended that a sample of pool water be analyzed by a pool professional for excessive calcium hardness (i.e. ideal range is 200 to 400 ppm) and/or improper water balance.

h. **Inspect the inside of the IECG every two (2) months.** If no scale or debris deposits are observed inside the IECG after four (4) months, it is not necessary to continue inspections every two (2) months. However, due to possible changes in pool water chemistry and filtering effectiveness, it is recommended that the cell be removed for inspection at least twice a year.

i. Reconnect the IECG communication cable plug in the Power Center, then reconnect AC power to the IntelliChlor Power Center.

**Winterizing**

Very little chlorine production is needed in cold water so long as free chlorine levels are maintained at 2.0 - 4.0 ppm. The IntelliChlor Electronic Chlorine Generator will not produce chlorine below 52° F ±3° F (11° C, ±1.67° C). This low-temperature cutoff extends the life of the cell. If preventative measures are not taken, freezing water may cause severe damage to the cell. Prevent freeze damage to the cell by running the pool pump continuously or winterize the pool by draining water from pump, filter, and all intake and return lines. Remove the cell, clean and store it.
Section 5
Installation

This section describes how to install the IntelliChlor Electronic Chlorine Generator into the pool plumbing system. Also, included are connection instructions for IntelliTouch, EasyTouch and SunTouch systems. Before installing, review the IntelliChlor kit contents and required tools.

Note: For Power Center installation instructions, see the “IntelliChlor Power Center Installation Guide” (P/N 520590).

Note: Salt is not provided. For details about the type of salt to use, see “What Type of Salt to Use,” on page 11.

Kit Contents

- One IntelliChlor Electronic Chlorine Generator
- Two (2) cell union with two (2) o-rings
- User’s Guide (this manual)

Required Tools

- Tape measure
- Phillips and flathead screwdriver
- Pliers
- Hacksaw
- An NSF® approved all purpose PVC/CPVC/ABS cleaner primer
- An NSF® approved all purpose PVC/CPVC/ABS cement

⚠️ WARNING!

When using electrical products, basic precautions should always be followed, including the following:

- **DANGER: RISK OF ELECTRIC SHOCK, WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.**
  Before attempting installation of service, ensure that all power to the circuit supplying power to the system is disconnected/turned off at the circuit breaker. It is recommended, but not mandatory that the IntelliChlor Power Center be connected to a circuit protected by a ground fault circuit-interrupter (GFCI).
- Grounding (earth bonding) is required. The unit should be installed by a qualified service person and grounded.
- Install to allow access to cell buttons and power center.
- **Read Safety Precautions and Important Instructions (page ii and iii). Before attempting any electrical wiring, be sure to read and follow Safety Instructions. Wiring should only be performed by a qualified professional.**
- Install the IntelliChlor unit a minimum of three (3) feet away from the heater outlet.
- Pipe couplings: Schedule 80, maximum pressure 150 psi at 70° F (21° C).
- **Note:** Operate unit with minimum flow of 20 gpm. For high flow applications, use a bypass loop (see page 4).
IntelliChlor “Dummy” Cell

After new pool construction has been completed, in order to prevent debris from entering the IntelliChlor Electronic Chlorine Generator, it is recommended that the IntelliChlor Electronic Chlorine Generator “dummy” cell (P/N 520588) be installed before installing the IntelliChlor Electronic Chlorine Generator. After the pool system has flushed the debris from the pipes, remove the “dummy cell” and install the IntelliChlor Electronic Chlorine Generator.

Selecting Model Size

IntelliChlor Model IC20
Chlorine Production: The equivalent of 0.70 pounds (317 gm) of pure chlorine per 24 hour period of pool pump run time.
Residential Pools: One unit per 20,000 gallons (75,000 liters)

IntelliChlor Model IC40
Chlorine Production: The equivalent of 1.40 pounds (635 gm) of pure chlorine per 24 hour period of pool pump run time.
Residential Pools: One unit per 40,000 gallons (150,000 liters)

IntelliChlor Model IC60
Chlorine Production: The equivalent of 2 lbs. (907.184 gm) of pure chlorine per 24 hour period of pool pump run time.
Residential Pools: One unit per 60,000 gallons (227,124 liters)

Installing the IntelliChlor Cell Assembly

Install the IntelliChlor cell assembly no closer than three (3) feet away from the heater outlet, if used. For more information see plumbing diagrams on page 4 and 5.

Note: After new pool construction has been completed, in order to prevent debris from entering the IntelliChlor cell assembly, it is recommended that the IntelliChlor pass-through cell (P/N 520588) be installed before installing the IntelliChlor cell. After the pool system has flushed the debris from the pipes, remove the pass-through cell and install the IntelliChlor cell.

Note: Pipe couplings: Schedule 80, maximum pressure 75 psi at 70° F (21° C)
To install the cell:

1. Using PVC glue, mount the PVC couplings to the plumbing pipe. Allow the glue to dry.
2. Mount the cell to allow access to the control panel. Install the cell onto the couplings. Ensure the O-rings are seated properly.
3. Switch on the pump and visually inspect for leaks around the couplings.

**Connecting the Cell Power Cable to the Power Center**

After the cell installation is completed, connect the power cable to the Power Center:

- Align the four (4) pins of the cell power cord connector with the socket on the bottom of the Power Center and insert the connector. Turn the round socket nut until it locks the connector in place.
Connecting the Power Center to an IntelliTouch, EasyTouch or SunTouch System

To operate IntelliChlor with the IntelliTouch, EasyTouch or SunTouch system, connect a four wire cable from the IntelliChlor Power Center to the IntelliTouch, EasyTouch or SunTouch load center. An alternate connection can be made by splicing anywhere along the four wire connection that connects the IntelliTouch or EasyTouch indoor control panel to the load center.

**Note:** See the following manuals for IntelliChlor operating instructions:
- IntelliTouch User’s Guide (P/N 520102)
- EasyTouch User’s Guide” (P/N 520584)
- SunTouch User’s Guide” (P/N 520785)

**CAUTION - Wire the Power Center AC to the filter pump relay on the LOAD SIDE for maximum safety.**

To connect IntelliChlor Power Center four wire cable to the IntelliTouch, EasyTouch or SunTouch load center:

1. Remove the cover screw securing the Power Center cover. Remove the cover.
2. Run a UL approved four conductor cable (22 AWG) from the IntelliChlor Power Center to the Load Center. The preferred wire color scheme is red, yellow, green, and black.
3. Remove the cover screw securing the Power Center cover. Remove the cover.
4. Remove one (1) of the knockouts from the underside of the Power Center.
5. Route the four conductor cable up through the lower hole.
6. Strip back the cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
7. Plug the screw terminal onto the four (4) pins located on the Power Center board.
8. Reinstall the cover and secure with the cover screw.
Connecting IntelliChlor to an IntelliTouch System

To connect the four wire cable communication from the IntelliChlor Power Center (see page 28) to the Personality board located in the IntelliTouch load center:

**WARNING** - Switch OFF main system power to the Load Center before making any connections.

1. Unlatch the load center enclosure door spring latches, and open the door.
2. Loosen the two (2) retaining screws from the Outdoor Control Panel.
3. Lower down the Outdoor Control Panel on its hinges to access the Personality board located behind the Outdoor Control Panel.
4. Route the four conductor cable up through the low voltage raceway in the Load Center to the Personality board.
5. Strip back the cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
6. Insert the cable plug onto either of the **COM PORTS (J7 or J8)** connectors located on the left side of the Personality board.
7. When the connection has been completed, close the control panel into its original position and secure it with the two (2) retaining screws.
8. Close the load center front door. Fasten the two (2) spring latches.
9. Restore AC power to the system.
Connecting IntelliChlor to an EasyTouch System

To connect the four wire cable from the IntelliChlor Power Center (see page 28) to the motherboard located in the EasyTouch load center:

**WARNING** - Switch OFF main system power to the load center before making any connections.

1. Unlatch the load center enclosure door spring latches, and open the door.
2. Loosen the two (2) retaining screws from the control panel.
3. Lower down the control panel on its hinges to access the motherboard located behind the control panel.
4. Route the four conductor cable up through the low voltage raceway in the load center to the motherboard.
5. Strip back the cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
6. Insert the connector on the COM-PORT (J20) screw terminal on the motherboard.
7. When the connection is completed, close the control panel and secure it with the two (2) retaining screws.
8. Close the load center front door. Fasten the two (2) spring latches.
Connecting IntelliChlor to an SunTouch System

To connect the four wire cable from the IntelliChlor Power Center (see page 28) to the motherboard located in the SunTouch Power Center:

**WARNING** - Switch OFF main system power to the SunTouch Power Center before making any connections.

To access the SunTouch Power Center electronics compartment:

1. Unlatch the front door of the SunTouch Power Center, and open the door.
2. Loosen the retaining screw on front panel. Open the hinged front panel to access the electronics compartment.
3. Route the four conductor cable up through the Power Center grommet opening located on the left side, and up through the low voltage raceway to the motherboard.
4. Strip back the cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
5. Insert the connector on the **COM-PORT (J11)** screw terminal on the motherboard.
6. When the connection is completed, close the control panel and secure it with the retaining screw.
7. Close the front door. Fasten the spring latch.
Use the following troubleshooting information to resolve possible problems with the IntelliChlor Electronic Chlorine Generator.

**Note:** Switch power off to unit before to attempting service or repair. Always remove AC power to Power Center when plugging or unplugging the IntelliChlor cell into the Power Center.

### Table 1: Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low or no chlorine.</td>
<td>Low stabilizer (cyanuric acid) level in pool water (outdoor pools only).</td>
<td>Add cyanuric acid in outdoor pools only to maintain 50 - 80 PPM per pool professional's recommendations. See Stabilizer Chart, Table 3, page 14.</td>
</tr>
<tr>
<td>Insufficient operating hours of the IECG.</td>
<td></td>
<td>Increase the IECG operating time per day. See page 17.</td>
</tr>
<tr>
<td>SANITIZER OUTPUT percentage set too low or off at 0%.</td>
<td></td>
<td>Increase SANITIZER OUTPUT by pressing the MORE button. See page 8.</td>
</tr>
<tr>
<td>Recent increases in weather temperature without increasing the IECG Sanitizer Output.</td>
<td></td>
<td>Increase SANITIZER OUTPUT by pressing the MORE button. See page 8.</td>
</tr>
<tr>
<td>Temporary loss of chlorine due to heavy organic load, rain, leaves, fertilizer or heavy bather load, recent party, or pets using pool.</td>
<td></td>
<td>Set &quot;Boost&quot; mode and allow to run for 24 hours. Recheck, If still too low, super-chlorinate by using an outside source. (Take pool water sample to pool professional).</td>
</tr>
<tr>
<td>Low (less than 2500 ppm) salt level in pool water.</td>
<td></td>
<td>Observe Salt Display lights. See &quot;Salt Level Status LEDs,&quot; page 7.</td>
</tr>
<tr>
<td>High nitrate and phosphate level.</td>
<td></td>
<td>Contact Pool Professional.</td>
</tr>
<tr>
<td>Metals present in pool water.</td>
<td></td>
<td>Contact Pool Professional.</td>
</tr>
<tr>
<td>New pool water, or not shocked properly upon startup.</td>
<td></td>
<td>Super Chlorinate Pool. See &quot;Start-up Procedure (Super Chlorination)&quot;, page 18.</td>
</tr>
<tr>
<td>Clogged or dirty cell.</td>
<td></td>
<td>Remove cell for inspection. Clean if necessary. (see page 22).</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Red ADD salt light is on.</td>
<td>Pool water needs salt. No chlorine is being produced.</td>
<td>Add salt as described on page 13 and 14.</td>
</tr>
<tr>
<td>Yellow CHECK SALT light flashing and CELL LED flashing</td>
<td>Salt level in pool water is low and may need inspecting.</td>
<td>Check salt level, add if necessary to GOOD level. Allow 24 hours for salt to mix in water. If YELLOW CELL light is still flashing after 24 hours, remove and inspect cell and clean if necessary.</td>
</tr>
<tr>
<td>Yellow CHECK SALT light is on</td>
<td>Not enough salt in pool. Heavy Rainfall. Leak in pool.</td>
<td>Add salt to pool to achieve 3200 ppm to 4200 ppm. See page 13 and 14.</td>
</tr>
<tr>
<td>Green GOOD salt light is flashing</td>
<td>Too much salt in pool. May cause excessive corrosion to pool equipment and surfaces in and around pool.</td>
<td>Dilute pool water by draining some water one foot at a time, then refilling with fresh water.</td>
</tr>
<tr>
<td>PWR light is red</td>
<td>Call for service.</td>
<td>IECG requires attention.</td>
</tr>
<tr>
<td>Cell light is red</td>
<td>Water is below 52°F (11°C). This LED is only red when the MORE button is pressed for 2-1/2 seconds.</td>
<td>The pool water temperature must be above 52°F (11°C) to produce chlorine.</td>
</tr>
<tr>
<td>Cell light does not come on.</td>
<td>Chlorine Production set to 00%.</td>
<td>Adjust CHLORINE PRODUCTION to desired percentage.</td>
</tr>
<tr>
<td>Insufficient water flow. Cell is plugged with debris.</td>
<td>Remove obstruction and/or clean cell. Refer to “Cleaning the IECG Blades” for acid wash/cleaning. See *page 22.</td>
<td></td>
</tr>
<tr>
<td>Water is below 52°F (11°C).</td>
<td>Press the MORE button to enter status mode for 2-1/2 seconds. During this time the LED will turn red if the system is in “freeze” mode (water below 52°F not producing chlorine).</td>
<td></td>
</tr>
<tr>
<td>Pump has lost prime.</td>
<td>Prime pump if necessary. Refer to pump owners manual for priming instructions.</td>
<td></td>
</tr>
<tr>
<td>Salt level below 2500 ppm.</td>
<td>Add salt as described on page 13 and 14.</td>
<td></td>
</tr>
<tr>
<td>IECG blades have calcium build-up and require cleaning.</td>
<td>Refer to “Cleaning the IECG Blades” for acid wash/cleaning. See *page 22.</td>
<td></td>
</tr>
<tr>
<td>IECG life has achieved 8,000 hour of use. Remaining life is limited.</td>
<td>Prolong IECG life by keeping salt at solid GREEN level, and minimize BOOST modes.</td>
<td></td>
</tr>
<tr>
<td>Flow light is red</td>
<td>Pump fails to provide sufficient water flow.</td>
<td>Check for correct operation of the pump, i.e., loss of pump prime or clogged strainer baskets.</td>
</tr>
<tr>
<td>Closed valves.</td>
<td>Check and correct all valve alignments.</td>
<td></td>
</tr>
<tr>
<td>Dirty filter.</td>
<td>Follow filter cleaning procedures.</td>
<td></td>
</tr>
<tr>
<td>Obstruction in the IECG.</td>
<td>Remove IECG for inspection. Follow cleaning procedures. See “IECG Blade Cleaning,” on page 22.</td>
<td></td>
</tr>
<tr>
<td>IECG does not have green power light.</td>
<td>Fuse in Power Center is open.</td>
<td>Replace AC fuse, located at bottom of Power Center.</td>
</tr>
<tr>
<td>No AC power to Power Center.</td>
<td>Verify time clock is providing AC electrical current to Power Center when active.</td>
<td></td>
</tr>
<tr>
<td>Transformer leads not wired correctly in Power Center.</td>
<td>Verify transformer leads wired to AC source by referring to wiring diagram decal on inside of Power Center cover.</td>
<td></td>
</tr>
</tbody>
</table>
System Specifications - 110 VAC and 220 VAC Wiring

**Circuit Protection:** Two-pole 20 AMP device at the electrical panel.

**IntelliChlor Model IC20, IC40 and IC60**

Input: 95-130 VAC, 50/60 Hz, 220 Watts (2 AMP) or 220-240 VAC, 50/60 Hz, 220 Watts (1 AMP).

Output: 22-39 VDC @ 7.5 AMPS maximum from the Power Center.

Water flow: 25 gallons per minute minimum. 105 gallons per minute maximum. Maximum pressure: 75 psi

**IMPORTANT:** When using IntelliChlor with an IntelliTouch system, it is recommended to wire the Power Center to the pump side of the relay located in the IntelliTouch Load Center. This method does not require a ground fault circuit-interrupter (GFCI) to protect the circuit.
220 VAC Basic System Wiring
LIMITED WARRANTY

Pentair Water Pool and Spa, Inc. ("Pentair Water") warrants the IntelliChlor® Electronic Chlorine Generator (IECG) as follows:

**IECG Cell Limited Warranty:** Pentair Water warrants the IECG to be free from defects in material and/or workmanship for a period of three (3) years or 8,000 hours (parts only) from the original date of installation.

**IECG Power Center Limited Warranty:** Pentair Water warrants the IECG Power Center to be free from defects in material and/or workmanship for a period of one (1) year (parts only) from the original date of installation.

*Exceptions that shall result in Pentair’s denial of a warranty claim:*

1. Damage caused by careless handling, improper repackaging, or shipping.
2. Damage due to misapplication, misuse, abuse or failure to operate equipment as specified in the IECG Installation and User’s Guide.
3. Damage caused by failure to install products as specified in the IECG Installation and User’s Guide.
4. Damage due to unauthorized product modifications or alterations, or failure to use Pentair Water original replacement parts.
5. Damage caused by negligence, or failure to properly maintain products as specified in the IECG Installation and User’s Guide.
6. Damage caused by failure to maintain water chemistry in conformity with the standards set forth in the IECG Installation and User’s Guide.
7. Damage caused by water scaling, freezing or any conditions causing inadequate water circulation.
8. Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair Water.

- This warranty extends to the original retail owner (Customer) only, beginning on the date of installation and is not enforceable by any other party. Proof of purchase and/or date of installation will be required for all warranty claims. Customer agrees to pay all shipping charges to Pentair Water.
- Warranties by others: Some products incorporate components manufactured by other manufacturers. Some of these provide warranties in addition to the warranty provided herein. In all such cases a copy of that warranty will be provided with the product. To the extent protection provided under any such third party warranty exceeds the Limited Warranty provided herein, the Customer must look only to that other manufacturer for the additional warranty protection.

**Warranty Obligations of Pentair Water:** Should a defect in workmanship and/or material in any item covered by this warranty become evident during the term of the warranty, then upon the Customer following the procedures set forth below, Pentair Water will, at its option, repair or replace such item or part at its own cost and expense. Pentair Water’s maximum obligation under this warranty is limited to the repair and replacement of the IECG. Pentair Water disclaims all other expressed or implied warranty obligations.

Pentair Water is not, however, responsible under this warranty for any cost of shipping or transportation of the equipment or parts thereof to or from Pentair Water’s Technical Service Department. Also, Pentair Water is not liable for any loss of time, inconvenience, incidental expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the equipment, or any other incidental or consequential damages, including but not limited to damage to pool equipment or any surface in or around the pool in which the IECG is installed.

PLEASE NOTE: Some states do not allow the exclusion or limitation of incidental, or consequential damages, so the above limitation or exclusion may not apply to you.

No Other Warranties: TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, PENTAIR WATER DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Continued on next page.
**LIMITED WARRANTY (Continued)**

**Procedure for Obtaining Performance:** In order to obtain the benefits of this warranty, the Customer who made the original retail purchase must contact the Pentair Water Technical Service Department upon discovery of the defect, but in no event later than the expiration date of the warranty period provided in this warranty. Upon receipt of this communication, Pentair Water will promptly notify the Customer of the address to which the defective item may be shipped. The Customer shall then ship the item, freight prepaid, to the address indicated, together with a "RETURN GOODS AUTHORIZATION" form obtained from Pentair Water’s Technical Service and a brief description of the problems encountered. Unauthorized returns will not be accepted. Freight must be prepaid by customer.

**Warranties or Representations by Others:** No dealer or other third party entity has any authority to make any warranties or representations concerning Pentair Water or its products. Accordingly, Pentair Water is not responsible for any such warranties or representations.

**Other Rights:** This warranty gives you specific legal rights and you may also have other rights, which vary from state to state. This warranty supersedes all previous publications.

PENTAIR WATER POOL AND SPA, INC.
1620 Hawkins Ave. Sanford, NC 27330 - 10951 W. Los Angeles Ave. Moorpark, CA 93021 - Phone 800-831-7133 - Fax 800-284-4151

⚠️ **WARNING:** Salt is an inherently corrosive material. While the levels of salt required for proper operation of the IntelliChlor Electronic Chlorine Generator are relatively low when compared to sea water and other salt solutions, placing any amount of salt in your pool increases the likelihood of corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Metal parts and certain natural and man-made surfaces are particularly susceptible to corrosion and deterioration when used in and around salt water pools. Pentair Water Pool and Spa does not represent or otherwise guarantee that the proper use of the IntelliChlor Electronic Chlorine Generator will prevent corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Consult your experienced pool professional, who should be able to advise you on the proper material selection, installation techniques for those materials, and the proper use, care and maintenance of those materials for your specific pool type and location in order to minimize the corrosion and deterioration that is inherent in and around salt water pools.
WARNING - Salt is an inherently corrosive material. While the levels of salt required for proper operation of the IntelliChlor Electronic Chlorine Generator are relatively low when compared to sea water and other salt solutions, placing any amount of salt in your pool increases the likelihood of corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Metal parts and certain natural and man-made surfaces are particularly susceptible to corrosion and deterioration when used in and around salt water pools. Pentair Water Pool and Spa does not represent or otherwise guarantee that the proper use of the IntelliChlor Electronic Chlorine Generator will prevent corrosion or other deterioration of pool equipment and any surfaces used in and around your pool. Consult your experienced pool professional, who should be able to advise you on the proper material selection, installation techniques for those materials, and the proper use, care and maintenance of those materials for your specific pool type and location in order to minimize the corrosion and deterioration that is inherent in and around salt water pools.