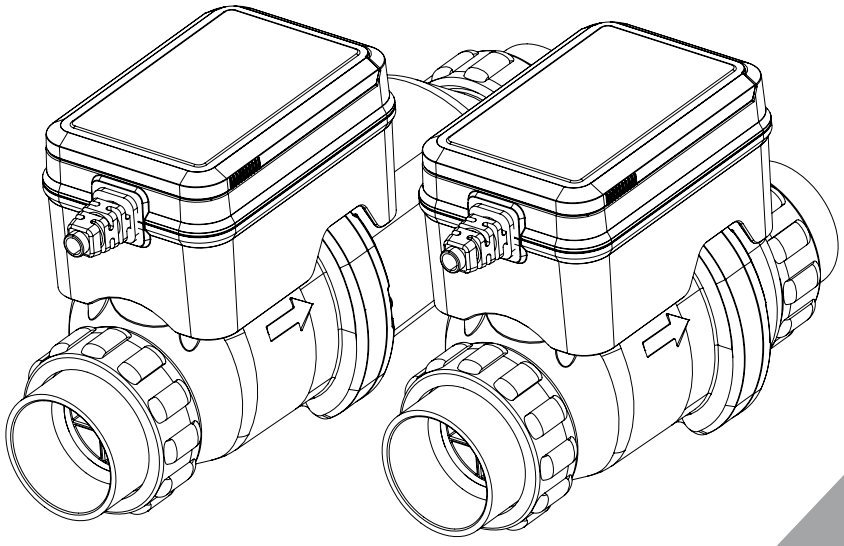
PENTAIR POOL

ENGLISH

FRANÇAIS

INTELLICHLOR® PLUS
INTELLICHLOR® LT
SALT CHLORINE GENERATOR

INSTALLATION AND MAINTENANCE GUIDE



IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

To access additional information, as well as digital copies of all IntelliChlor manuals, scan or click the provided QR code.

Pour accéder à des informations supplémentaires, ainsi qu'à des copies numériques de tous les manuels IntelliChlor, scannez ou cliquez sur le code QR fourni.

Para acceder a información adicional, así como copias digitales de todos los manuales de IntelliChlor, escanee o haga clic en el código QR proporcionado.

IMPORTANT SAFETY INSTRUCTIONS



This manual contains important information about the installation, operation and safe use of this product. Before installing this product, read and follow all provided safety information and instructions. Failure to follow safety warnings and instructions can result in death, severe injury, or property damage. This information should be given to the owner and/or operator of this equipment.

Call (800) 831-7133 for additional free copies of these instructions, or obtain a copy of these instructions at www.pentair.com.

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

⚠WARNING This equipment should only be installed and serviced by a qualified professional.

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) POWER CENTER/PACK MUST BE WIRED TO THE LOAD SIDE OF A PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

⚠WARNING When installing the Salt Chlorine Generator vertically, ENSURE FLOW IS ALWAYS DIRECTED UPWARDS AND THROUGH THE CELL. Improper installation will void the product warranty and could result in gas accumulation, water intrusion, and risk of serious injury.

⚠WARNING **Working with muriatic acid can be dangerous. ALWAYS wear rubber gloves and eye protection, and work in a well ventilated area, when cleaning the SCG cell.**



ALWAYS add acid to water. DO NOT add water to acid. Splashing or spilling acid can cause severe personal injury and/or property damage.

⚠WARNING Do not use trichloroisocyanuric acid ("trichlor") or dichloroisocyanuric acid ("dichlor") in conjunction with a salt chlorine generator. Using trichlor or dichlor may result in death or personal injury.

⚠WARNING Do not use this device in conjunction with bromide products.

⚠WARNING This appliance is not intended for use by persons (including children) with different or reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless such persons have been given supervision or training concerning use of the appliance by a person responsible for their safety.

⚠WARNING If the power cord is damaged, it must be replaced by the manufacturer, an authorized service agent, or qualified professional.

⚠CAUTION The salt chlorine generator (SCG) is intended for use with permanently-installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable or steel 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 A green terminal or wire connector marked “G”, “GR”, “Ground” or “Grounding” is provided within the SCG power center wiring compartment. To reduce risk of electric shock, connect this terminal or connector to the grounding terminal at your supply panel with a conductor equal in size to the conductors supplying power to this equipment.

⚠CAUTION A solid copper bonding conductor, no smaller than 8 AWG, should be connected from the equipment to all metal parts of the pool/spa structure and to all electrical equipment, metal conduit, and metal piping within 5 ft. [1.5 m] of the inside walls of the pool/spa.

IMPORTANT SAFETY INSTRUCTIONS

⚠CAUTION This device is designed to produce chlorine. It is NOT intended to monitor or maintain proper free chlorine levels. It is the pool owner's responsibility to monitor and maintain water chemistry.

⚠CAUTION Salt is an inherently corrosive material. Metal components and certain pool surfaces are particularly susceptible to corrosion and deterioration. Consult a pool professional for material selection, installation techniques, and proper use, care and maintenance of your specific installation to minimize corrosion and deterioration.

⚠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 SCG a minimum of 5 ft. [1.5 m] away from the inside wall of the pool.

⚠CAUTION Install the salt chlorine generator (SCG) a minimum of 3 ft. [0.9 m] away from the heater outlet.

⚠CAUTION Disconnect main power to the power center/pack before disconnecting or connecting the SCG cell.

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

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.

CUSTOMER SERVICE / TECHNICAL SUPPORT

Hours: 8:00AM to 7:30PM EST (5:00AM - 4:30PM PST)

Call: (800) 831-7133

Visit: www.pentair.com

Fax: (800) 284-4151

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Your feedback could play an important role in Pentair's goal to continuously improve our instructional material, and better support those who install, maintain, and use our products everyday.

Scan or click the QR code to take a quick survey and help us provide the most easy-to-use and accurate product manuals possible!

SCG OVERVIEW

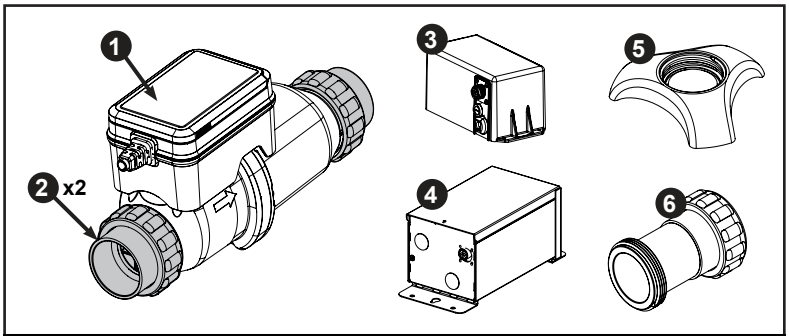
IntelliChlor® Plus and IntelliChlor® LT Salt Chlorine Generators (SCG) use a process known as electrolysis to create Hypochlorite and Hypochlorous acid from salt added to the pool. Hypochlorite and hypochlorous acid kills bacteria and algae, oxidizes organic material, and then reverts back to dissolved salt.

⚠CAUTION Salt is an inherently corrosive material. Metal components and certain pool surfaces are particularly susceptible to corrosion and deterioration. Consult a pool professional for material selection, installation techniques, and proper use, care and maintenance of your specific installation to minimize the corrosion and deterioration.

⚠CAUTION This device is designed to produce chlorine. It is NOT intended to monitor or maintain proper free chlorine levels. It is the pool owner's responsibility to monitor and maintain water chemistry.

1. **IntelliChlor SCG Cell:** Produces chlorine from salt (NaCl). If water salinity is too low, the cell will deactivate until salt is added to the pool.
   Chlorine production can be modified by either increasing or decreasing the SCG output percentage or adjusting the number of hours the cell is operating each day.
2. **Cell Unions (x2):** Secures SCG cell inlet and outlet into filtration system plumbing.
3. **Power Pack (LT15 model only):** Converts incoming AC current to low-voltage DC current required by the SCG cell. For more details refer to *LT15 Power Pack Overview, page 5*.

   ***Note:* ONLY connect the IntelliChlor LT15 to an approved LT15 Power Pack (P/N 523753) or PC100 Power Center. Operating the LT15 with older IntelliChlor or iChlor power packs will permanently damage the cell electronics.**
4. **Power Center:** Converts incoming AC current to low-voltage DC current required by the SCG. LT15 models may be powered by either a Power Pack or Power Center. For more details refer to *PC100 Power Center Overview, page 5*.
5. **Acid Cleaning Stand:** Used during acid cleaning of the cell and cell blades. Refer to *Acid Cleaning the Cell Blades, page 24* for cleaning instructions.
6. **Retrofit Adapter (LT15, LT25 and PLUS30 models only):** Intended for drop-in replacement of older IntelliChlor cells. The Spacer Adapter is only provided with LT15, LT25 and PLUS30 cells.
7. **Flow Sensor (not shown):** Ensures there is sufficient water flow through the SCG cell. Sufficient water flow is indicated by a Green FLOW LED.
   The cell will not produce chlorine unless the flow sensor detects a minimum of 25 GPM [94.6 LPM].
8. **Water Temperature Sensor (not shown):** Protects the SCG cell from potential damage if water temperature falls below 52°F ±3°F [11°C ±1.67°C]. If the sensor senses low water temperature, the cell will switch off and will not produce chlorine.
9. **Salt Sensor (not shown):** Monitors the salinity of water passing through the cell. The sensor checks salinity at power up and then every 2 hours of operation after. Readings shown on the LCD Display are always determined by the most recent salt sensor reading.



SCG COMPONENTS

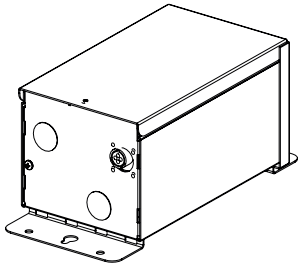
PC100 POWER CENTER OVERVIEW

The PC100 Power Center converts AC current to low-voltage DC current required by the cell. The power center must be connected to a pump timer, electronically controlled switch, relay, or automation system so that the SCG cell only operates when the pump is running. The power center should be mounted to a vertical surface up to 15 ft. [4.6 m] from the cell.

The power center contains a fuse mounted onto the circuit board for additional protection. For information about installation and proper use of the Power Center, refer to the *PC100 Power Center Installation Guide (P/N 520590)*.

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) MUST BE WIRED TO THE LOAD SIDE OF A PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

⚠CAUTION Disconnect main power to the power center before disconnecting or connecting the SCG cell.



PC100 Power Center

LT15 POWER PACK OVERVIEW

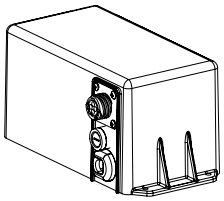
ONLY CONNECT THE INTELLICHLOR LT15 TO AN APPROVED LT15 POWER PACK (P/N 523753) OR PC100 POWER CENTER. OPERATING THE LT15 WITH OLDER INTELLICHLOR OR iCHLOR POWER PACKS WILL DAMAGE THE CELL.

The LT15 Power Pack converts AC current to low-voltage DC current required by the cell. The power pack must be connected to a pump timer, electronically controlled switch, relay, or automation system so that the SCG cell only operates when the pump is running. A 15 ft. [4.6 m] cord, connected to the cell, plugs directly into a 110 VAC, GFCI protected outlet.

The power pack can be mounted to a vertical surface up to 15 ft. [4.6 m] from the cell. The power pack features a fuse below the cell connection for additional protection.

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) MUST BE WIRED TO THE LOAD SIDE OF A PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

⚠CAUTION Disconnect main power to the power pack before disconnecting or connecting the SCG cell.



LT15 Power Pack

AVAILABLE MODELS

MODEL	PART NUMBER		POOL VOLUME US Gallons [Liters]	CHLORINE PRODUCTION* lbs. [kg]	POWER USAGE
	Cell Only	Cell and Power Supply			
LT15	523741	523744	15,000 [56,800]	0.65 [0.29]	63 W
LT25	523747	523750	30,000 [113,600]	0.9 [0.41]	109 W
PLUS30	523730	523733	30,000 [113,600]	1.1 [0.5]	129 W
PLUS40	523735		40,000 [151,500]	1.4 [0.64]	186 W
PLUS60	523738		60,000 [227,200]	2.0 [0.91]	206 W

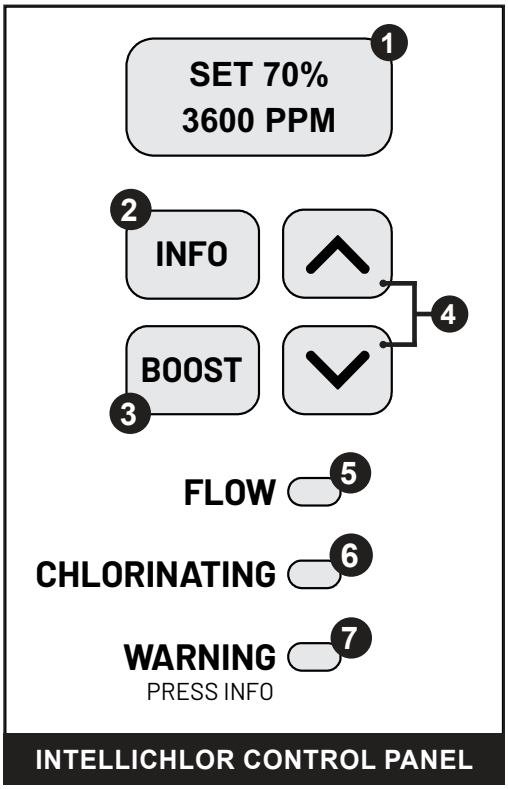
Note (*): Based on 100% output level over 24 hours of operation.

USING THE CONTROL PANEL

❶ LCD Display

During normal operation, the LCD Display shows current output percentage and the most recently measured salinity.

If a cell warning or fault occurs, the appropriate alert will display.



INTELLICHLOR CONTROL PANEL

❷ INFO Button

Press to access sensor readings and other information maintained or collected by the SCG cell.

Use OUTPUT buttons to scroll through the following screens:

- Cell Run Time
- Salinity Level
- Water Temperature
- Cell Voltage
- Cell Current
- Cell Run Time in HI SALT / LOW SALT / NO FLOW
- Sensor Firmware Version
- Automation Address
- Model
- Controller Firmware Version

❸ BOOST Button

Press to place the SCG cell into Boost Mode. Boost Mode will increase cell output to 100% for the next 24 hours.

Press and hold to cancel Boost Mode at any time.

❹ OUTPUT Buttons

Press Increase or Decrease button to adjust the percentage of time the SCG cell will produce chlorine while the filter pump is running. Press and hold either OUTPUT button to adjust chlorine output percentage in 10% increments.

When the SCG cell is connected to an automation system, the OUTPUT buttons are disabled and the output percentage is controlled by the automation system.

❺ FLOW LED

Indicates water flow through the SCG cell.

- **GREEN:** Sufficient water flow through the cell to produce chlorine. Minimum flow rate is 25 GPM [94.6 LPM].
- **OFF:** Insufficient water flow to produce chlorine.

❻ CHLORINATING LED

Indicates chlorine production.

- **GREEN:** SCG cell is actively producing chlorine.
- **OFF:** SCG cell is NOT producing chlorine.
  This does not indicate a problem. Based on Output Percentage, the cell will enter normal off-cycles and will not produce chlorine during these periods. A progress/loading bar will display during off-cycles, unless output setting is below 10%.

❼ WARNING LED

Indicates low salinity (less than 3000 ppm) or active warning/fault condition.

- **RED:** Low salinity or warning/fault detected. Refer to Troubleshooting, page 26 for warning and fault definitions.
- **OFF:** SCG cell is operating normally.

WATER CHEMISTRY, CONDITIONS AND PRECAUTIONS

⚠WARNING DO NOT use trichloroisocyanuric acid ("Trichlor") or dichloroisocyanuric acid ("dichlor") in conjunction with a salt chlorine generator. Using trichlor or dichlor may result in death or personal injury.

⚠CAUTION Salt is an inherently corrosive material. Metal components and certain pool surfaces are particularly susceptible to corrosion and deterioration. Consult a pool professional for material selection, installation techniques, and proper use, care and maintenance of your specific installation to minimize the corrosion and deterioration.

⚠CAUTION NEVER use dry acid (sodium bisulfate) to adjust pH. A buildup of by-products can damage the SCG.

1. **New Pool Water:** A recently filled or newly-refinished pool may contain matter that could affect the ability of the SCG to produce chlorine properly. Follow the pool builder installation and startup guidelines.

   After new pool construction has been completed, it is recommended that a spacer cell be installed until all debris has been flushed from the plumbing and the water has been completely balanced. The spacer cell can then be removed and the SCG cell can be installed and operated.

2. **Super Chlorination:** Removes contaminants that have combined with chlorine. This is accomplished by raising the chlorine level quickly and dramatically. When the free chlorine level reaches ten times the amount of combined chlorine the water can be considered super chlorinated. Refer to *Start-up Procedure (Super Chlorination), page 20* for instructions.

   After super-chlorination, wait until the free chlorine level falls between 2-4 ppm before operating the SCG.

   Note: On initial start-up of a pool, it is best to super chlorinate using a shock treatment purchased at your local pool supplier.

3. **Chloramines:** Should not be present in pool water. Chloramines are formed when ammonia combines with free chlorine and prevents it from disinfecting. Chloramines also burn the eyes and produce unpleasant smells. Super Chlorinate to remove chloramines when initially starting up the pool, then as needed, to maintain proper levels of free chlorine.

4. **Cyanuric Acid**: Used in outdoor pools to help stabilize and maintain proper levels of chlorine. Cyanuric acid helps protect chlorine from UV degradation. Refer to *Cyanuric Acid Chart, page 10*. **DO NOT USE CYANURIC ACID IN INDOOR POOLS.**

5. **Total Dissolved Solids (TDS):** Adding salt to water raises its TDS level. When testing TDS, the individual performing the test must be aware that salt has been added to the pool. The salinity level can then be subtracted from the TDS test results and compared to a TDS level of a non-salt water pool.

6. **Metals:** Some metals can cause loss of chlorine, stain the pool or damage the SCG. Have a qualified pool professional check for metals and provide removal methods.

7. **Nitrates and Phosphates:** Can indirectly produce abnormally high chlorine needs and will deplete chlorine from the pool. In some cases nitrates may even lower your chlorine levels to zero.

RECOMMENDED WATER CHEMISTRY

The Pool and Hot Tub Association (PHTA) recommends the following water chemistry conditions be continuously maintained to protect pool users, equipment and surfaces.

FACTOR	IDEAL RANGE/VALUE	RECOMMENDED MIN. / MAX.
Free Chlorine	2.0 - 4.0 ppm	1.0 - 4.0 ppm
Combined Chlorine/ Chloramines	0	0
pH	7.4 - 7.6	7.2 - 7.8
Cyanuric Acid/ Stabilizer	0 - 50 ppm	-
Total Alkalinity	80 - 120 ppm	-
Total Dissolved Solids (TDS) (including salt)	3000 - 6000 ppm	-
Calcium Hardness	200 - 400 ppm	-
Salinity	3600 ppm	2600 - 4500 ppm
Phosphates	0-125 ppb	-
Langelier Saturation Index (LSI)*	0	-0.3 to +0.3
Metals	0	0
Nitrates	0	0

* Refer to *Langelier Saturation Index Factors, page 9*.

POOL WATER PREPARATION

Determining Pool Size (Gallons of Water)

- **Rectangular Pools:** Length x Width x Average Depth x 7.5
- **Circular Pools:** 3.14 x Radius 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

Determining Pool Size (Liters of Water)

- **Rectangular Pools:** Length x Width x Average Depth x 1000
- **Circular Pools:** 3.14 x Radius x Average Depth x 785
- **Oval Pools:** Length x Width x Average Depth x 893
- **Sloping Sides:** Multiply total liters by 0.85

CHLORINE TESTING

When testing chlorine levels, test samples should be taken from two locations.

- Return line
- 18 inches (45.7 cm) below the water surface and well away from the return line

When compared, the return line sample should show the higher level. This indicates the SCG cell is actively producing chlorine.

After any adjustment to the SCG cell output percentage, allow 24 hours before testing free chlorine levels. This will allow time for levels to stabilize and will ensure more reliable test results.

CALCULATING LANGELIER SATURATION INDEX (LSI)

Saturation Index measures the ability of water to dissolve or deposit calcium carbonate and is used to determine possible corrosiveness. A well balanced pool will have a Saturation Index between -0.3 and +0.3. Water outside this range is considered out of balance and can damage equipment or cause excessive scaling on the SCG cell blades.

The Saturation index can be determined using the equation below, or by using the Langelier Saturation Index Calculator at www.pentair.com.

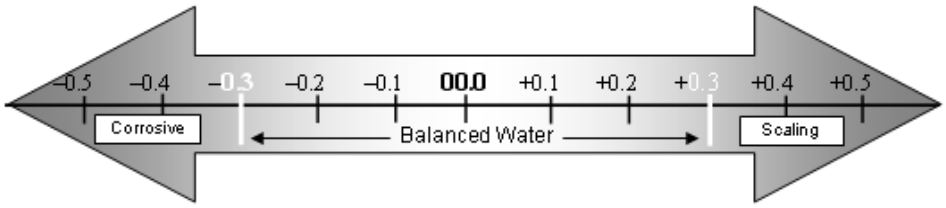
SI = pH + CHF + AF + TF - TDSF

SI	pH	CHF	AF	TF	TDSF
Saturation Index	pH as tested	Calcium Hardness Factor	Alkalinity Factor	Temperature Factor	TDS Factor

Cyanuric acids contribute to alkalinity. A correction must be made to total alkalinity when determining saturation index. 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 100 ppm cyanuric acid, the correction amounts to 33 ppm (100 ÷ 3 = 33.3).



TDS Factor

Factors shown to the right are based on the actual measured value for the particular parameter.

TDS	Factor
<1000	12.10
1000	12.19
2000	12.29
3000	12.35
4000	12.41
5000	12.44

Langelier Saturation Index Factors

TEMPERATURE		CALCIUM HARDNESS		TOTAL CARBONATE ALKALINITY	
°F [°C]	TF	ppm	CHF	ppm	AF
32 [0]	0	25	1	25	1.4
37 [2.8]	0.1	50	1.3	50	1.7
46 [7.8]	0.2	75	1.5	75	1.9
53 [11.7]	0.3	100	1.6	100	2.0
60 [15.6]	0.4	125	1.7	125	2.1
66 [18.9]	0.5	150	1.8	150	2.2
76 [24.4]	0.6	200	1.9	200	2.3
84 [28.9]	0.7	250	2.0	250	2.4
94 [34.4]	0.8	300	2.1	300	2.5
105 [40.6]	0.9	400	2.2	400	2.6
-	-	800	2.5	800	2.9

Note: Total alkalinity in this context refers to the total carbonate and bicarbonate alkalinity. If cyanuric acid is used, a correction factor must be used. Refer to ***Cyanuric Acid Chart, page 10***.

CYANURIC ACID CHART

Current Cyanuric Acid Level (ppm)	10,000 g (38,000 L)	12,000 g (45,425 L)	14,000 g (53,000 L)	16,000 g (60,600 L)	18,000 g (68,137 L)	20,000 g (76,000 L)	22,000 g (83,300 L)	24,000 g (90,850 L)	26,000 g (98,421 L)	28,000 g (106,000 L)	30,000 g (134,000 L)
0	3.25 lb (1.47 kg)	3.90 lb (1.77 kg)	4.55 lb (2.06 kg)	5.20 lb (2.36 kg)	5.85 lb (2.65 kg)	6.50 lb (2.95 kg)	7.15 lb (3.24 kg)	7.80 lb (3.54 kg)	8.45 lb (3.83 kg)	9.10 lb (4.13 kg)	9.75 lb (4.42 kg)
10	2.43 lb (1.10 kg)	2.92 lb (1.33 kg)	3.40 lb (1.54 kg)	3.89 lb (1.77 kg)	4.37 lb (1.98 kg)	4.86 lb (2.20 kg)	5.35 lb (2.43 kg)	5.83 lb (2.64 kg)	6.32 lb (2.87 kg)	6.80 lb (3.08 kg)	7.29 lb (3.31 kg)
20	1.62 lb (0.74 kg)	1.94 lb (0.88 kg)	2.27 lb (1.03 kg)	2.59 lb (1.18 kg)	2.92 lb (1.33 kg)	3.24 lb (1.47 kg)	3.56 lb (1.62 kg)	3.89 lb (1.77 kg)	4.21 lb (1.91 kg)	4.54 lb (2.06 kg)	4.86 lb (2.20 kg)

Note: Cyanuric acid level should be maintained between 0 - 50 ppm.

WHAT TYPE OF SALT TO USE?

Use at least 99.8% pure sodium chloride (NaCl). Pentair recommends an evaporated, granulated, food quality, non-iodized salt containing no additives. Consult your salt supplier for more detailed recommendations.

- Avoid using salt containing anti-caking agents. Filling agents can cause discoloration of fittings and pool finishes.
- Water conditioning salt pellets may be used, but will take longer to dissolve. However, pellets could damage pool plaster and other surfaces in and around the pool.
- **DO NOT use calcium chloride, sodium bromide, or potassium chloride.** Use of these compounds can cause excessive blade scaling and result in premature cell failure.
- **DO NOT use rock salt**. Impurities in the rock salt can reduce lifespan of the SCG cell.

ADDING SALT TO THE POOL

Most pools contain some salt, depending on the water source and chemicals used for sanitizing. Therefore, the pool owner must always test water salinity before adding salt. A meter calibrated for sodium chloride salt can be used to determine salinity.

Salt measurements will vary between test methods (salt test strips, electronic testers, etc.).

⚠CAUTION **FOR ALL NEWLY SURFACED PLASTER POOLS:** Do not operate the SCG with newly surfaced pool plaster. Salt is a corrosive element and severe salt damage can occur. Wait at least ONE MONTH after construction to allow plaster to cure before adding salt and operating the SCG. Follow the pool surface manufacturer's guidelines for your specific pool.
FOR NEW VINYL LINER POOLS: Contact the manufacturer for recommended guidelines before adding salt and operating the SCG.

⚠CAUTION Salt levels in excess of 6000 ppm can lead to accelerated corrosion of equipment in or around the pool, as well as discoloration of pool surfaces.

1. Check pool salinity.
2. Refer to **TABLE 1, page 11** to determine the amount of salt needed.
3. Slowly pour the salt around the perimeter of the pool. **Do NOT add salt through the skimmer or surge tank. It may clog the filter or damage pool equipment and surrounding surfaces.**
4. Brush the pool floor and allow water to circulate for 24 hours to ensure salt dissolves completely.
5. Verify correct salinity readings at the SCG cell display and a separate reliable test method.
6. Adjust the Output level until free chlorine level is between 2-4 ppm.

CURRENT SALINITY LEVEL (ppm)		POOL SIZE (gallons)										
		10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	55,000	60,000
0	lbs	300	451	601	751	901	1052	1202	1352	1502	1652	1803
	Kg	136	204	273	341	409	477	545	613	681	750	818
250	lbs	280	419	559	699	839	979	1118	1258	1398	1538	1677
	Kg	127	190	254	317	380	444	507	571	634	698	761
500	lbs	259	388	517	647	776	906	1035	1164	1294	1423	1552
	Kg	117	176	234	293	352	411	469	528	587	645	704
750	lbs	238	357	476	595	714	833	951	1070	1189	1308	1427
	Kg	108	162	216	270	324	378	432	486	539	593	647
1,000	lbs	217	326	434	543	651	759	868	976	1085	1193	1302
	Kg	98	148	197	246	295	345	394	443	492	541	591
1,250	lbs	196	294	392	490	588	686	785	883	981	1079	1177
	Kg	89	133	178	222	267	311	356	400	445	489	534
1,500	lbs	175	263	351	438	526	613	701	789	876	964	1052
	Kg	80	119	159	199	239	278	318	358	398	437	477
1,750	lbs	154	232	309	386	463	540	618	695	772	849	926
	Kg	70	105	140	175	210	245	280	315	350	385	420
2,000	lbs	134	200	267	334	401	467	534	601	668	734	801
	Kg	61	91	121	151	182	212	242	273	303	333	363
2,250	lbs	113	169	225	282	338	394	451	507	563	620	676
	Kg	51	77	102	128	153	179	204	230	256	281	307
2,500	lbs	92	138	184	230	275	321	367	413	459	505	551
	Kg	42	63	83	104	125	146	167	187	208	229	250
2,750	lbs	71	106	142	177	213	248	284	319	355	390	426
	Kg	32	48	64	80	97	113	129	145	161	177	193
3,000	lbs	50	75	100	125	150	175	200	225	250	275	300
	Kg	23	34	45	57	68	80	91	102	114	125	136
3,250	lbs	29	44	58	73	88	102	117	131	146	161	175
	Kg	13	20	27	33	40	46	53	60	66	73	80
3,500	lbs	8	13	17	21	25	29	33	38	42	46	50
	Kg	4	6	8	10	11	13	15	17	19	21	23

TABLE 1

Salt required to reach water salinity of 3600 ppm

INSTALLATION

This section describes how to install the Salt Chlorine Generator (SCG) and connect to Pentair Automation Systems. For Power Center installation instructions, refer to the *PC100 Power Center Installation Guide (P/N 520590)*.

Before operating the SCG, the pool must be filled with water for at least one month and the water salinity must be stable and maintained at 3600 ppm. Follow the pool builder's startup guidelines.

⚠WARNING **RISK OF ELECTRIC SHOCK, WHICH CAN RESULT IN SERIOUS INJURY OR DEATH.** Before attempting installation or 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 SCG Power Center be connected to a circuit protected by a ground fault circuit-interrupter (GFCI).

PACKAGED COMPONENTS

- Salt Chlorine Generator (SCG) Cell
- Cell Unions and O-rings (qty. 2)
- Acid Wash Stand and O-ring
- Retrofit Adapter (LT15, LT25 and PLUS30 Models Only)
- Flexible Hose Connectors and Clamps (LT15 Model Only)

REQUIRED TOOLS

- Tape Measure
- Phillips and Flathead Screwdrivers
- Pliers
- Hacksaw
- All-purpose PVC/CPVC/ABS cleaner/primer and cement

INSTALLATION GUIDELINES

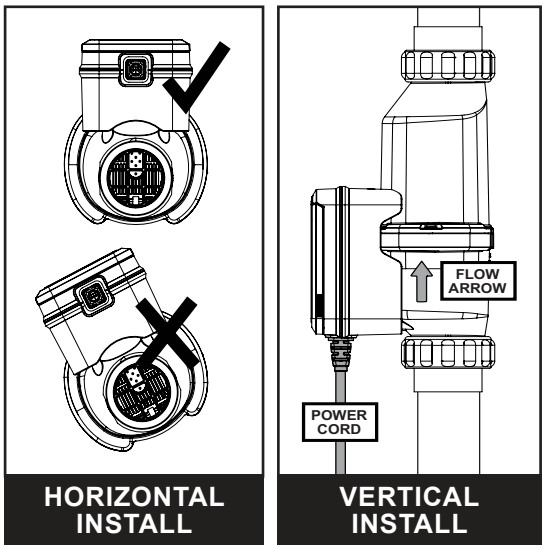
⚠WARNING This equipment should only be installed and/or serviced by a qualified professional.

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) MUST BE WIRED TO THE LOAD SIDE OF A PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the cell.

- **AFTER NEW CONSTRUCTION:** A spacer cell should be installed until all debris has been flushed from the plumbing and water has been fully balanced. The spacer cell can then be removed and the SCG cell can be installed and operated. Refer to *REPLACEMENT PARTS, page 30* to determine the correct spacer cell.
- **FOR INDOOR POOLS:** Ensure there is sufficient ventilation to allow excess hydrogen gas to dissipate.
- Allow easy access to SCG cell and power center/pack.
- Install the SCG cell a minimum of 3 ft. [0.9 m] from the heater outlet.
- SCG cell unions are rated for a maximum pressure of 50 psi [344.7 kPa] at 70°F [21°C].
- Operating temperature range between 52-102°F [11.1-38.9°C].
- Ensure a minimum flow rate of 25 GPM [94.6 LPM] through the SCG cell.
- If a flow rate above 80 GPM [302.8 LPM] is required, a bypass loop should be used to ensure best flow sensing. Refer to *Bypass Loop Plumbing Diagram, page 15*.
- To allow for best flow sensing, provide at least 12 - 18 inches [30.5 - 45.7 cm] of straight pipe to the SCG cell inlet.
- **WHEN INSTALLED HORIZONTALLY:** Control panel must be facing upwards to allow for proper flow sensing and prevent water damage. Refer to HORIZONTAL INSTALL to the right.

  WHEN INSTALLED VERTICALLY: Power cord must be pointing downwards and the flow arrow should point up, to allow for proper flow sensing and operation. Refer to *VERTICAL INSTALL* to the right.

⚠WARNING **When installing the Salt Chlorine Generator vertically, ENSURE FLOW IS ALWAYS DIRECTED UPWARDS AND THROUGH THE CELL.** Improper installation will void the product warranty and could result in gas accumulation, water intrusion, and risk of serious injury.



INSTALLATION REQUIREMENTS AND RECOMMENDATIONS

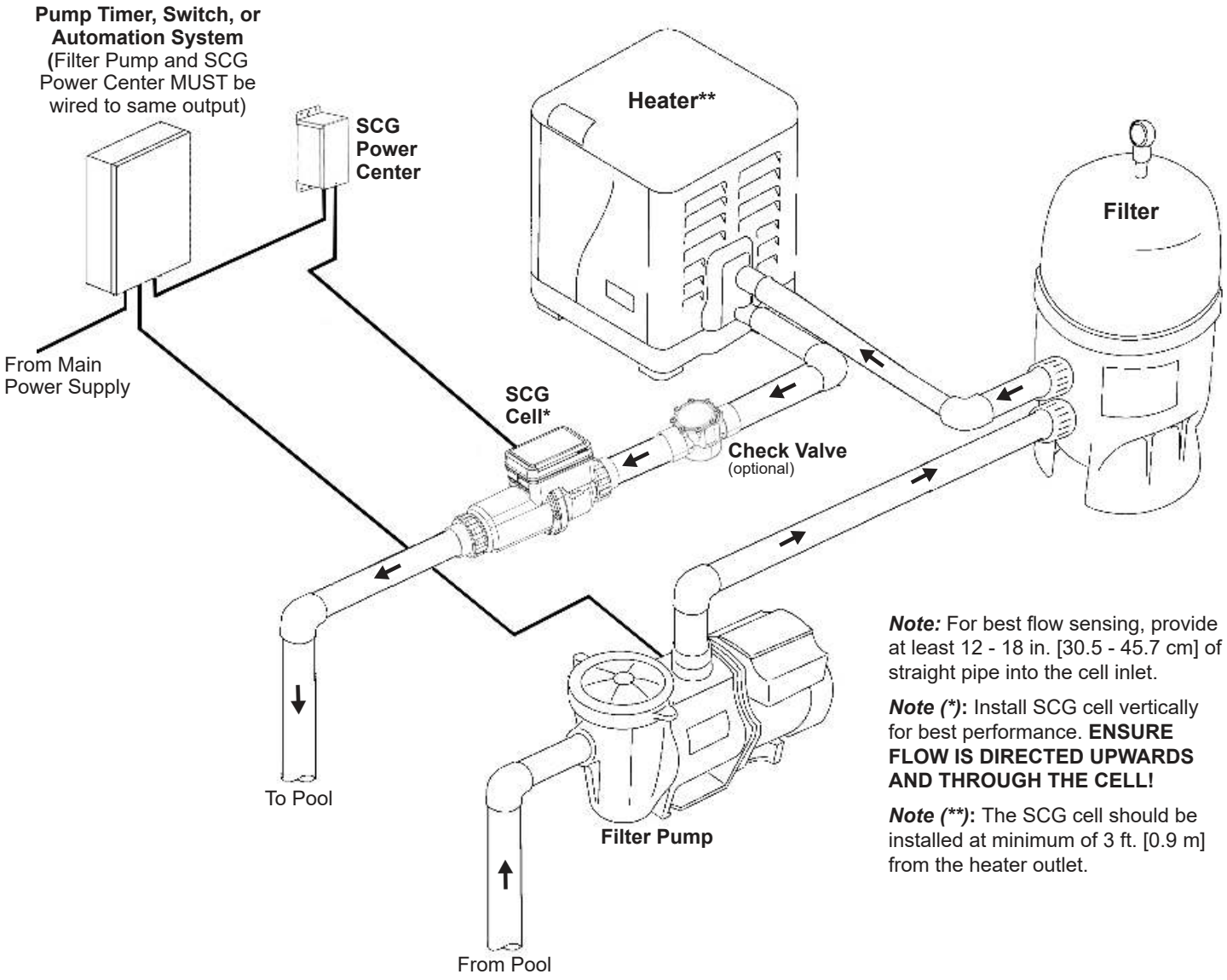
The filtration system diagram below shows a typical installation. The diagram is not drawn to scale.

Refer to the relevant portions of this Installation and User's Guide for information regarding proper placement and spacing of all equipment depicted in the diagram.

Installations requiring flow rates higher than 80 GPM [302.8 LPM] must use a bypass loop to allow for best flow sensing. Refer to *Bypass Loop Plumbing Diagram, page 15* for specific instructions.

Typical Plumbing Diagram

⚠CAUTION To avoid permanent damage to the SCG cell, in-line chlorine/bromine feeders MUST be installed AFTER the SCG cell as shown below. When using the SCG with an in-floor cleaning system, it is recommended that a separate return line be used for the cleaner to reduce the increased water pressure stress on the SCG cell.



Note: For best flow sensing, provide at least 12 - 18 in. [30.5 - 45.7 cm] of straight pipe into the cell inlet.

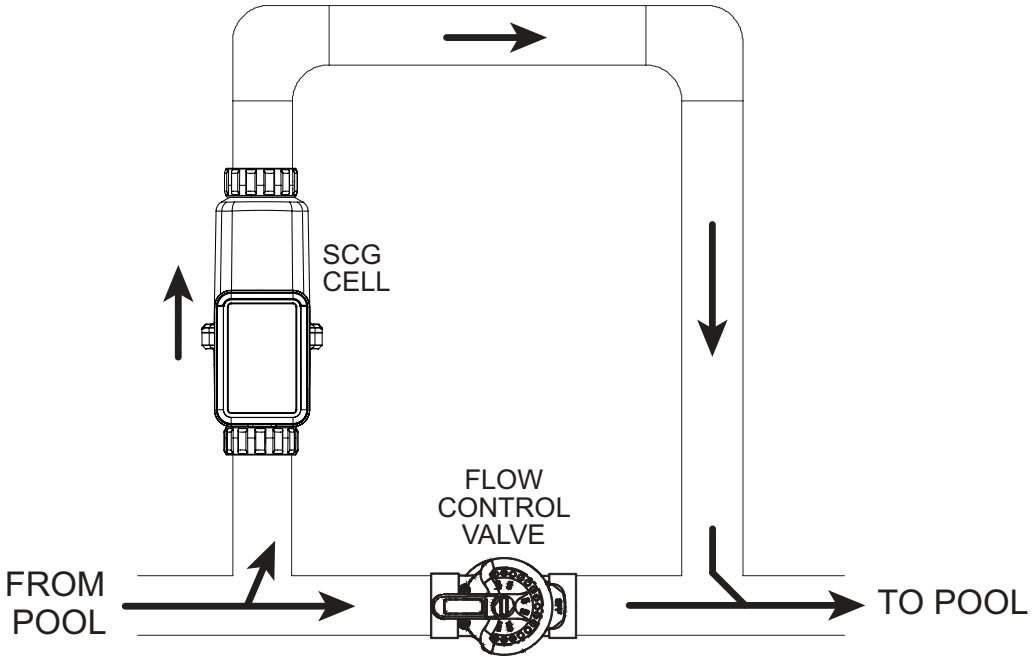
***Note (*)*:** Install SCG cell vertically for best performance. **ENSURE FLOW IS DIRECTED UPWARDS AND THROUGH THE CELL!**

***Note (**)*:** The SCG cell should be installed at minimum of 3 ft. [0.9 m] from the heater outlet.

Bypass Loop Plumbing Diagram

The SCG is requires a flow rate between 25 - 105 GPM [94.6 - 397.5 LPM]. Refer to the plumbing manufacturer's specifications for recommended maximum flow rate.

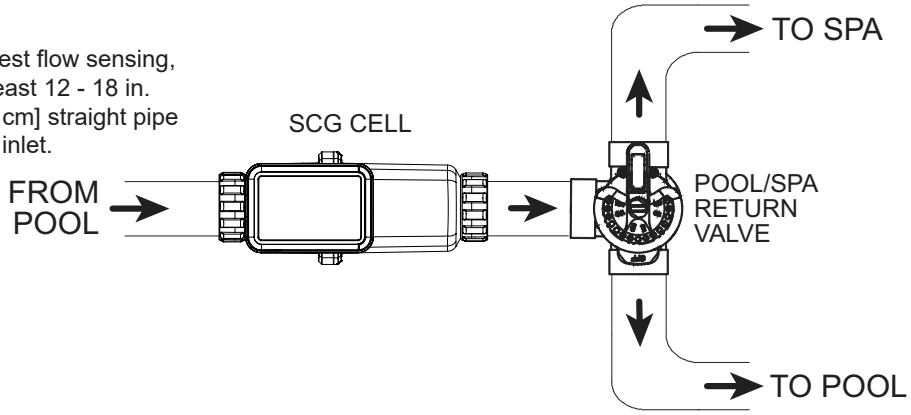
Installations requiring flow rates higher than 80 GPM [302.8 LPM] must use a bypass loop to allow for best flow sensing. The bypass loop must contain a flow control valve to ensure proper flow rate through the SCG cell.



Pool/Spa Combination Plumbing Diagram

- Always install the SCG cell **AFTER** the filter and heater. Refer to the *Typical Plumbing Diagram, page 14*.
- The SCG cell should be installed at minimum of 3 ft. [0.9 m] from the heater outlet.
- If producing chlorine for both a pool and spa, install the SCG cell **BEFORE** the pool/spa return valve. This allows for proper chlorination of both the pool and spa and prevents gas from becoming trapped in the pool plumbing.

Note: For best flow sensing, provide at least 12 - 18 in. [30.5 - 45.7 cm] straight pipe into the cell inlet.



INSTALLING THE SCG CELL

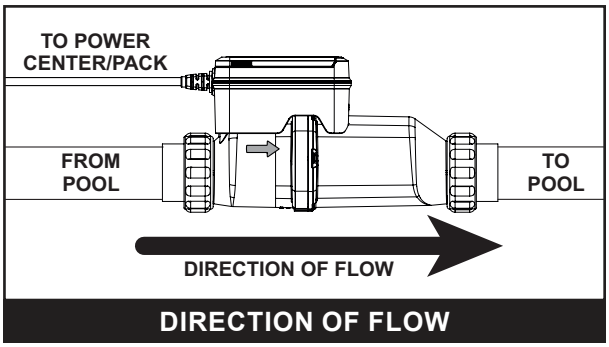
⚠WARNING Switch OFF main power to the SCG, filter pump and automation controls before cutting plumbing.

1. **Disconnect all power to pump, SCG and automation controls at the circuit breaker.**
2. **Open filter air relief valve and stand clear of the filter until all pressure has been relieved. Refer to the filter manual for specific instructions.**
3. Use the tear-out template provided with the SCG to measure the length of pipe that will need to be cut out of the plumbing.

   Note: Mount the cell vertically if possible.

   Note: Ensure the cell is mounted to allow easy access to the control panel.
4. Cut the plumbing as needed.

   Note: If replacing an older IntelliChlor with an LT15, LT25 or PLUS30 model, the provided Retrofit Adapter can be used to bridge the gap between the previously cut plumbing and new SCG cell.



DIRECTION OF FLOW

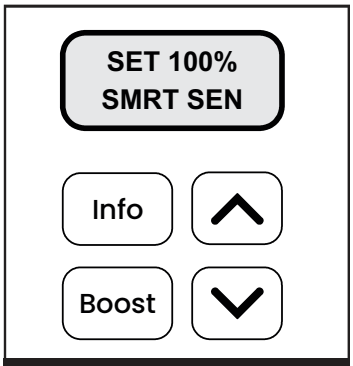
5. Ensure the crosshair is installed inside the cell inlet.
6. Using PVC glue, secure the cell unions to the system piping and allow the glue to dry according to the manufacturer's instructions.
7. Take note of the Flow Direction marked on the SCG cell and ensure it is oriented correctly.
8. Ensure O-rings are seated properly and secure the SCG cell onto the cell unions. Do NOT overtighten.
9. Connect the Cell Power Cable to the provided Power Center/Pack.
10. Start the pump and inspect piping connections for leaks.

SMARTSENSE FLOW DETECTION: CONNECTING SCG TO AN INTELLIFLO PUMP

SmartSense Flow Detection is a safety feature that continually monitors the status of an IntelliFlo pump before generating chlorine.

The SCG Power Center must be connected directly to a variable speed pump, via an RS-485 cable. Refer to *Wiring an Automation System to the SCG, page 17* for wiring instructions.

SmartSense Flow Detection is only available if the SCG is connected to a PC100 Power Center and is NOT connected to an automation system.



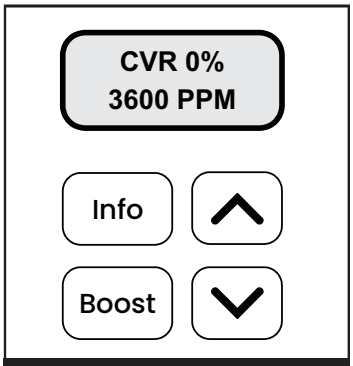
SMARTSENSE FLOW DETECTION

SMARTSENSE POOL COVER DETECTION

SmartSense Pool Cover Detection allows the SCG cell to receive a signal that a pool cover has closed and automatically reduces chlorine output as desired.

- Detects when pool cover is closed and defaults to 0%.
- Output Percentage can still be modified using the OUTPUT buttons.
- Maximum output is limited to 50%.
- *Cover Closed* signal is a dry contact input to the SCG Power Center.

A Cover Detection Board (P/N 523216) must be installed in the power center before SmartSense Pool Cover Detection can be used.



SMARTSENSE COVER DETECTION

WIRING AN AUTOMATION SYSTEM TO THE SCG

The IntelliChlor SCG can be controlled with a Pentair automation system via a RS-485 communication cable between the IntelliChlor power center and the automation system. Follow the instructions below to ensure the proper connections are made at the SCG power center.

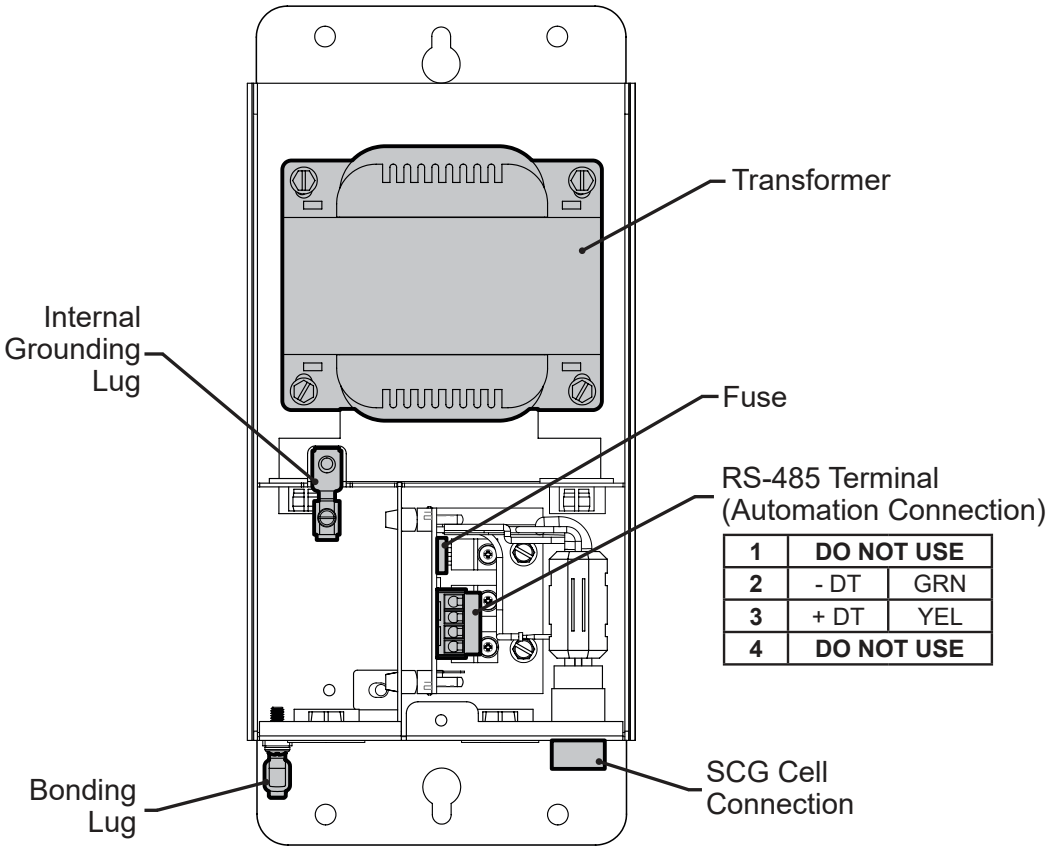
Refer to the *PC100 Power Center Installation Guide (P/N 520590)* for main power connections.

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) POWER CENTER/PACK MUST BE WIRED TO THE LOAD SIDE OF A FILTER PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

To connect an automation system to the SCG power center:

⚠WARNING Switch OFF main power to the automation system and SCG before making any connections.

1. Remove the cover screw securing the SCG power center cover and remove the cover.
2. Run a RS-485 cable from the IntelliChlor Power Center to the Automation Load Center.
3. Route the RS-485 cable through the right-side knockout in the bottom of the power center.
4. Strip the cable 1-1/4 inches [31.7 mm].
5. Strip the GREEN and YELLOW conductors 3/8-inch [9.5 mm].
   Note: Cut and cap the BLACK and RED conductors. These will not be needed.
6. Insert and secure the GREEN and YELLOW conductors into the RS-485 Terminal according to the wiring scheme below.
7. Install the RS-485 Terminal onto the four pins located on the power center board.
8. Reinstall the power center cover.
9. Proceed to *Wiring the SCG to an Automation System, page 18.*



WIRING THE SCG TO AN AUTOMATION SYSTEM

⚠WARNING Switch OFF main power to the automation system, filter pump, and SCG before making any connections.

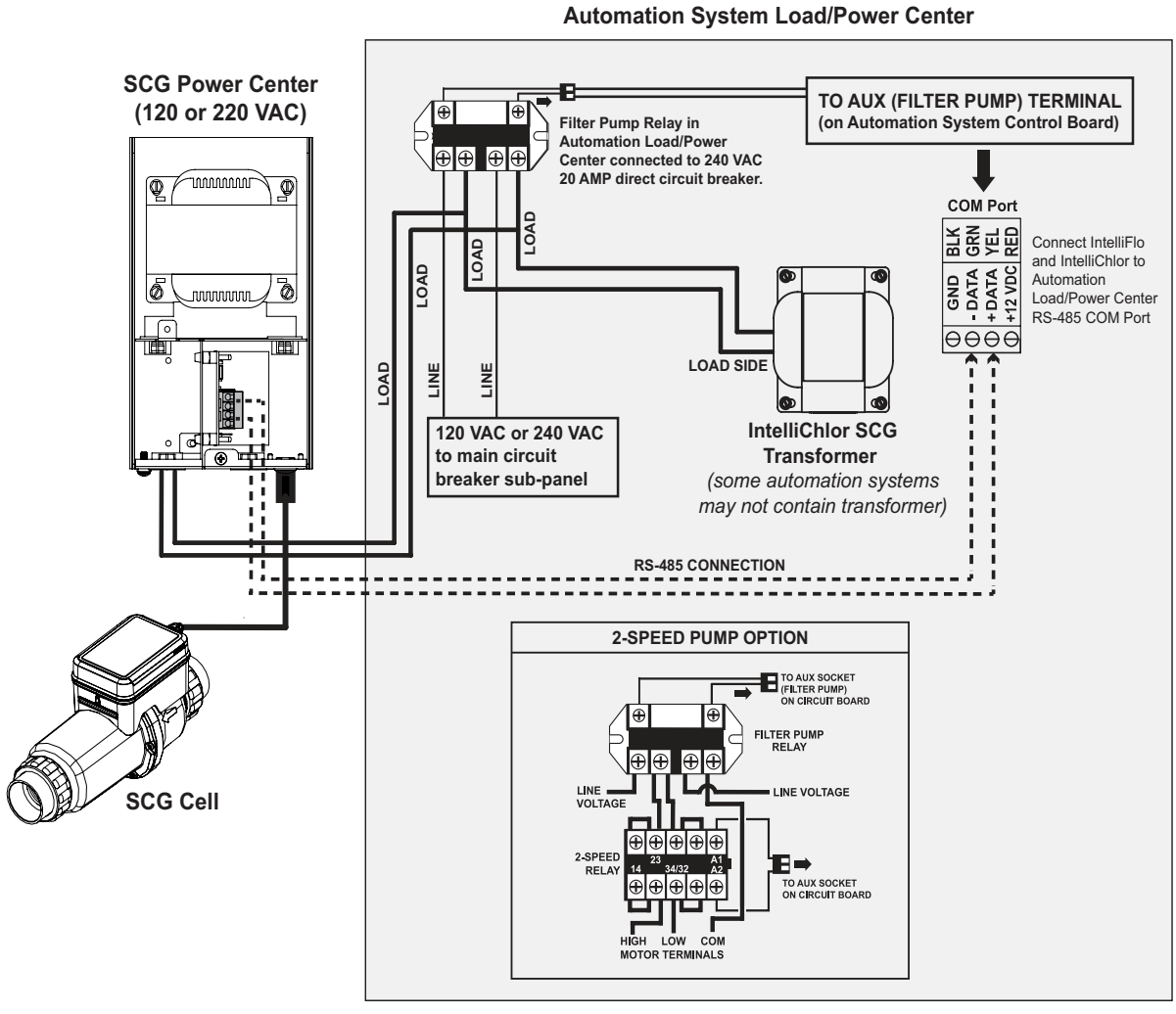
⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) POWER CENTER/PACK MUST BE WIRED TO THE LOAD SIDE OF A FILTER PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

The IntelliChlor SCG can be controlled with a Pentair automation system via a RS-485 communication cable between the IntelliChlor power center to the automation system. When connected to an automation system, chlorine output **CAN NOT** be adjusted at the IntelliChlor keypad. Any output adjustments must be made using automation system controls.

1. The diagram below provides general guidelines for wiring the SCG to an automation system.
   For specific automation system wiring and operation instructions, refer to the necessary automation system manual. The following Pentair manuals can be found at www.pentair.com or by scanning the provided QR code.
   - IntelliCenter Installation Guide (P/N 522989)
   - EasyTouch/IntelliTouch Load Center Installation Guide (P/N 521139)
   - SunTouch Installation and User's Guide (P/N 520785)
   - IntellipH Installation and User's Guide (P/N 521396)

Scan QR code to access and download Pentair automation system manuals.

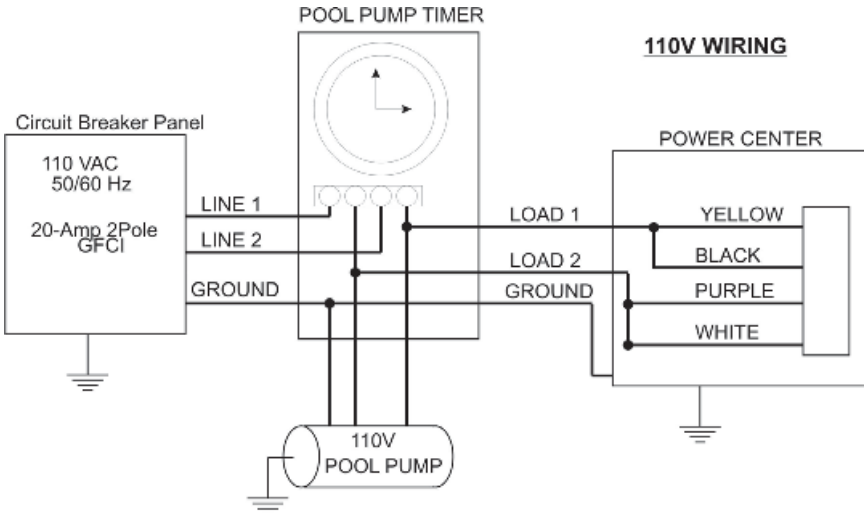
2. For installations featuring a pump timer, refer to *Wiring the SCG to a Pump Timer, page 19* for wiring instructions.



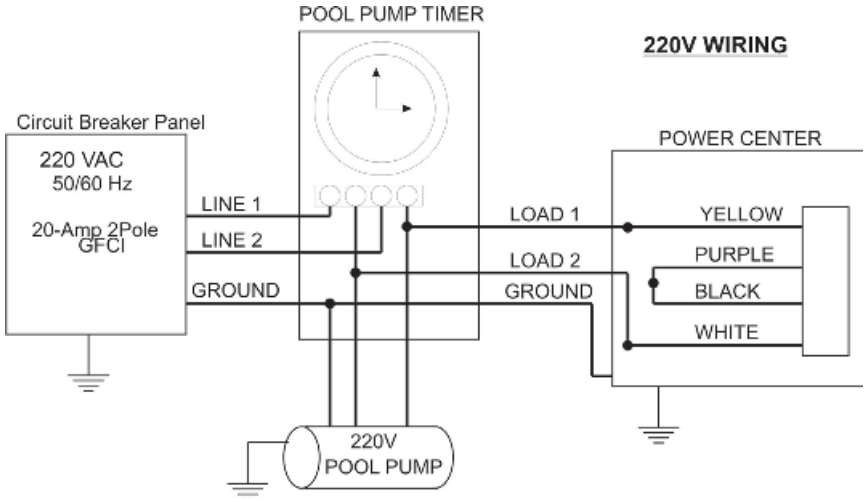
WIRING THE SCG TO A PUMP TIMER

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) POWER CENTER/PACK MUST BE WIRED TO THE LOAD SIDE OF A FILTER PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

110 VAC System Wiring



220 VAC System Wiring



Before operating the salt chlorine generator (SCG), the pool must be filled with water for at least one month and the water salinity must be stable and maintained at 3600 ppm. Follow the pool builder's startup guidelines.

GENERAL OPERATION

The SCG cell is designed to supply a sufficient amount of chlorine to maintain an ideal free chlorine level.

If the filter pump is continuously running and the SCG is operated 24 hours a day at 100%, more chlorine would be generated than is needed by most pools. The SCG has a built-in internal timer which cycles the SCG cell on and off depending on its Output setting.

An output setting of 100% means chlorine is continuously produced while the filter pump is running. When set at 80%, the SCG is allowed to rest 20% of the time while the pump is running. Output can be increased or decreased to ensure the proper amount of chlorine is produced for a pool.

⚠CAUTION The SCG is only designed to produce chlorine. It is NOT intended to monitor or control chlorine levels. It is the pool owner's responsibility to monitor and maintain proper free chlorine levels.

IF USING A PUMP TIMER

Pentair recommends that all water in a residential pool pass through the filtration system at least once every 12 hours or twice a day.

Many factors affect actual filtration system run times and it can be difficult to initially determine proper run time for the filter pump and chlorinator. A qualified pool professional should determine the proper run time required for a specific pool.

The key points are:

- Operate the filter pump at least the minimum time needed for good filtration and adequate chlorine production, according to pool professional recommendations.
- The filter pump must be running for the SCG to produce chlorine and must remain running long enough to maintain proper chlorine levels.

Note: For Cold Weather Operation the SCG cell deactivates and will not produce chlorine when water temperature drops below 52°F, ±3°F [11°C, ±1.7°C].

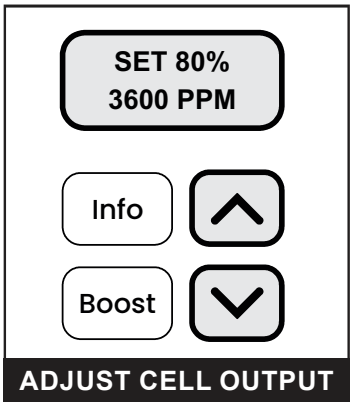
START-UP PROCEDURE (SUPER CHLORINATION)

When properly sized and operating at sufficient water temperature and salinity, the SCG is capable of raising the free chlorine to the recommended 2-4 ppm several hours after filtration system start-up.

However, if there a high demand for chlorine at start-up, the SCG may be unable to produce enough chlorine to reach the recommended free chlorine level. It is recommended the pool be super-chlorinated using a shock treatment purchased from your local pool supplier.

After super-chlorination, wait until the free chlorine level falls between 2-4 ppm before operating the SCG.

ADJUSTING CHLORINE OUTPUT



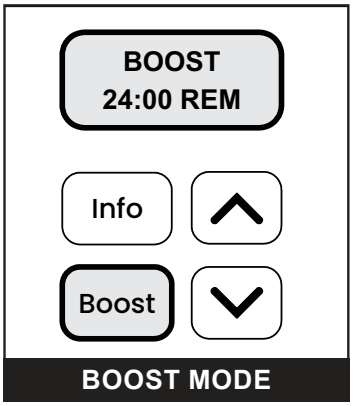
During normal operation the control panel will display the current Cell Output Percentage, as well as the most recent salinity reading in parts per million (ppm). Cell Output Percentage is the percentage of time the SCG cell will produce chlorine while the pump is running.

- **IF FREE CHLORINE LEVEL IS BELOW 2 PPM**: INCREASE Output Percentage.
  Common situations when increasing the Output Percentage may be required are, after heavy rain, when air or water temperatures have risen substantially, or when number of pool users increase.
- **IF FREE CHLORINE LEVEL IS ABOVE 4 PPM:** DECREASE Output Percentage.
- **IF THE SCG CELL IS CONNECTED TO AN AUTOMATION SYSTEM:** INCREASE/DECREASE buttons will not function. Output Percentage must be adjusted at the automation system control panel.

Every pool has unique chlorine requirements and it may take a few days to determine the best operating hours and output setting to meet your pool's specific needs. Continue adjusting as necessary until the free chlorine level is stable between 2.0 - 4.0 ppm.

Note: After making adjustments to the output percentage, allow 24 hours before testing free chlorine levels. This will allow time for levels to stabilize and will ensure more reliable test results.

BOOST MODE



Pressing the BOOST button will immediately place the SCG cell into Boost Mode. During a Boost Mode cycle, chlorine output is increased to 100% for the next 24 hours of cell operation.

A Boost Mode cycle can be cancelled at any point by pressing and holding the BOOST button.

Note: The Boost Mode timer will only countdown while the SCG cell is actively producing chlorine. If flow is not detected, or a warning or alert condition occurs, the countdown will stop until the cell begins to produce chlorine again.

During the Boost Mode Cycle, the LCD display will alternate between time remaining in the current Boost Mode cycle and the last recorded salinity reading.

WEEKLY SERVICE

1. **pH Test:** Verify the pH of your pool water with a reliable test method. Adjust pH as needed until it is within the ideal range of 7.4 - 7.6.

   ⚠CAUTION NEVER use dry acid (sodium bisulfate) to adjust pH. A buildup of by-products can damage the SCG.

2. **Total Alkalinity Test:** Verify pool water total alkalinity with a reliable test method. Adjust total alkalinity as needed until it is within the ideal range of 80-120 ppm.
3. **Chlorine Test:** Verify pool water free chlorine level with a reliable test method. Maintain free chlorine within the ideal range of 2-4 ppm by adjusting the Output settings.

   Temporarily place the SCG into BOOST mode and ensure the chlorine test is done during a chlorinating cycle (CHLORINATING LED will be green) and not during a rest period.

   Free chlorine should be sampled from two separate places in the pool; one sample from around the pool return line and the other well away from the return line. When comparing the two samples, free chlorine should be higher at the return line. The higher free chlorine level at the return line indicates the SCG cell is producing chlorine.

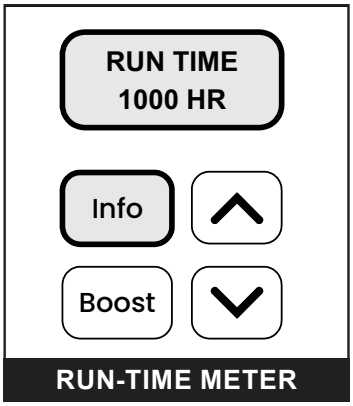
MONTHLY SERVICE

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. **Salinity Test:** Verify salinity at the control panel.
   - If salinity is below 3600 ppm, add salt to the pool water. Refer to *Adding Salt to the Pool, page 10*.
   - If salinity does not rise after 24 hours, refer to *Troubleshooting, page 26*.
2. **Pool Water Sample:** Take a sample of the pool water to your local pool store for testing.
3. **Cyanuric Acid:** Sample the pool water and test for cyanuric acid level using a reliable test method. When permitted by local regulations, cyanuric acid level should be maintained between 0-50 ppm. **DO NOT USE CYANURIC ACID IN INDOOR POOLS.**
4. **Calcium Hardness Test:** Verify pool water calcium hardness level using a reliable test method. Adjust calcium hardness as needed until it is within the ideal range of 200-400 ppm.
5. **Metals Test:** Pool water should be sampled and tested periodically for the presence of metals such as copper, iron, and manganese. These metals can damage the SCG cell and other related pool equipment. If these metals are present, contact your pool professional.
6. **TDS (Total Dissolved Solids) Test:** Verify pool water TDS level using a reliable test kit or by having a water sample tested by a pool professional. Adjust TDS as needed to maintain proper LSI balance.
7. **Langelier Saturation Index (LSI):** Verify proper LSI balance according to the instructions in *Calculating Langelier Saturation Index (LSI), page 9*. A well balanced pool should have a saturation index between -0.3 and +0.3.

RUN-TIME METER

A built-in meter records how many hours the SCG cell has been actively producing chlorine. To display run-time in hours, press the INFO button.



AUTOMATIC CLEANING CYCLE

The SCG cell features an automatic cleaning cycle that can help reduce scale buildup on the cell blades. This feature turns the cell on and off at regular intervals to minimize buildup and prolong the life of the cell. This cleaning cycle does not interrupt chlorine production.

MANUALLY CLEANING THE CELL BLADES

Pentair recommends removing the SCG cell and checking for scale buildup and/or debris on the cell blades at least every two months.

1. **Disconnect all power to the filter pump, automation controls and SCG at the main breaker.**
2. Disconnect the SCG cell from the power center/pack.
3. Close the suction and discharge lines.
4. **Open filter air relief valve and stand clear until all pressure has been relieved. Refer to the filter manual for specific instructions.**
5. Remove the SCG cell from the system plumbing.
6. Using a garden hose on the jet setting, directly spray into both ends of the SCG cell and remove any debris.
   Note: Do NOT use a pressure washer or mechanical tool (screwdriver, brush, etc.) when cleaning the blades. These can damage the blade coating.
7. Inspect the cell blades for scale buildup. A small amount of scale buildup is normal, but if the cell blades show excessive scaling, the blades will need to be acid cleaned. Refer to *Acid Cleaning the Cell Blades, page 24* for instructions.

⚠CAUTION Do NOT separate the two halves of the cell assembly. Opening the main cell assembly to access blades or for any other reason will void the product warranty.

ACID CLEANING THE CELL BLADES

⚠WARNING **Working with muriatic acid can be dangerous. Always wear rubber gloves and eye protection, and work in a well ventilated area, when cleaning the SCG cell.**

ALWAYS add acid to water. NEVER add water to acid. Splashing or spilling acid can cause severe personal injury and/or property damage.

An Acid Cleaning Kit is provided with the IntelliChlor SCG. The kit contains an acid wash stand that allows an acid solution to be poured directly into the cell and cover the cell blades. Follow the instructions below to acid clean the blades using this kit:

1. Remove the Controller Assembly from the SCG cell. Refer to *Cell Disassembly, page 25* for instructions.
2. In a plastic bucket, create a 4:1 water-to-acid solution. Refer to the table to the right for recommended volumes.

MODEL	WATER	ACID
LT15 / LT25 / PLUS30	0.8 qt. [0.8 L]	27 oz. [200 mL]
PLUS 40 / PLUS 60	1.5 qt. [1.4 L]	47 oz. [350 mL]

⚠CAUTION Never use undiluted acid! Failure to dilute acid will permanently damage the cell.

3. Ensure the *Stand O-ring (1)* is properly seated in the *Acid Wash Stand (2)*.
4. Thread the *Acid Wash Stand (2)* onto the *Cell Inlet (3)*.
5. Place the Acid Wash Stand onto a level and stable surface.
6. Carefully pour the acid solution into the SCG cell until the cell blades are fully submerged.

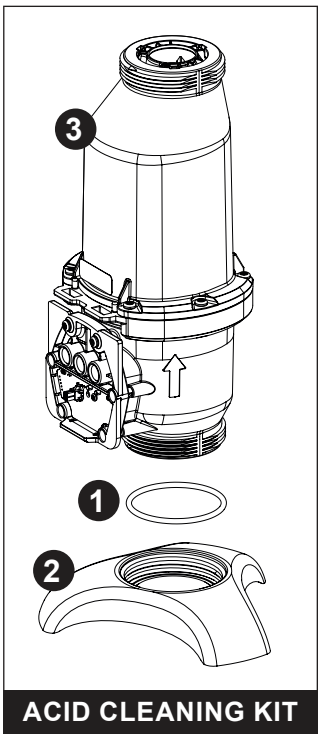
   Note: If the acid solution is spilled or comes in contact with the outside of the SCG cell or cleaning stand, thoroughly rinse acid off the surfaces.

⚠CAUTION Never submerge the SCG cell in acid solution. Submerging the cell will permanently damage the SCG cell and void warranty.

7. The solution will begin to rigorously bubble/foam as it begins dissolving scale buildup.

   Note: If rigorous foaming does not occur, the blades may not require cleaning.

8. Allow the blades to soak in the solution until bubbling/foaming has stopped. **Do NOT leave acid in the SCG cell for more than 30 minutes. Excessive acid washing will damage the blades.**
9. Pour the acid solution back into the plastic bucket and rinse the inside of the SCG cell thoroughly with clean water.
10. Inspect the cell blades for remaining scale buildup.
    - **If scale is still visible:** Repeat the process. Additional acid may need to be added to the solution.
    - **If blades are clean:** Continue to next step.
11. Thoroughly rinse the outside of the SCG cell, acid wash stand, and stand O-ring.
12. Reinstall the Controller Assembly onto the SCG cell. Refer to *Cell Reassembly, page 25* for instructions.
13. Reinstall the SCG cell into the plumbing.
14. Open the suction and discharge lines.



ACID CLEANING KIT

CELL DISASSEMBLY

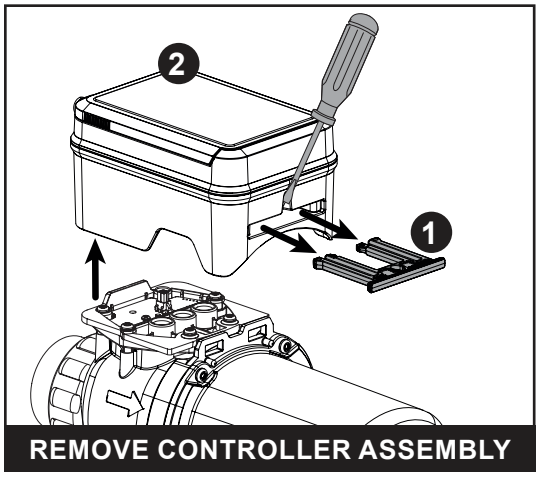
1. **Disconnect all power to the filter pump, automation controls and SCG at the main breaker.**

   > **⚠WARNING** **STORED CHARGE**! Wait a minimum of sixty (60) seconds before servicing.

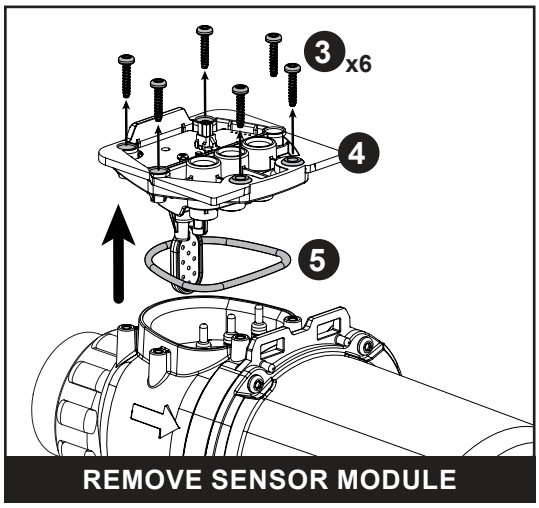
2. Close the suction and discharge lines.
3. **Open filter air relief valve and stand clear until all pressure has been relieved. Refer to the filter manual for specific instructions.**
4. Using a flat blade screwdriver, gently pry the *Retaining Clip (1)* from the *Controller Assembly (2)*.
5. Gently lift the *Controller Assembly (2)* from the cell and place it aside.

   > **⚠CAUTION** Shifting or shimmying the Controller Assembly side to side during removal may damage connection terminals. Only lift upwards.

6. Using a T20 torx-head screwdriver, remove the six *Sensor Module Screws (3)*.
7. Remove the *Sensor Module (4)* and *Module O-ring (5)* from the cell.



REMOVE CONTROLLER ASSEMBLY



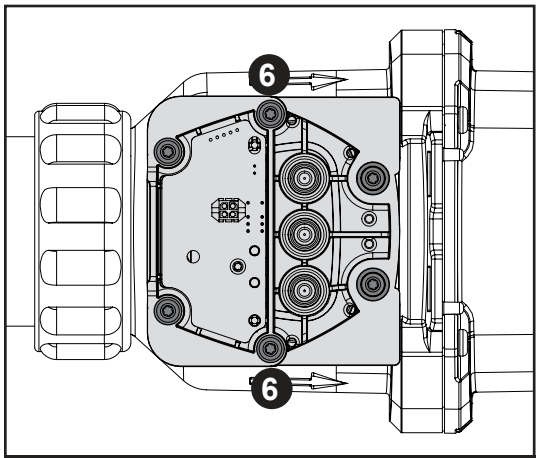
REMOVE SENSOR MODULE

CELL REASSEMBLY

1. Inspect the *Sensor Module O-ring (5)* for damage and replace if necessary.
2. Ensure the *Sensor Module O-ring (5)* is clean, then reinstall into the cell.
3. Place the *Sensor Module (4)* onto the cell and reinstall all six *Sensor Module Screws (3)* to 15 in-lbs [1.7 Nm].

   Note: To ensure O-ring is properly seated, fully tighten the two side S*ensor Module Screws (6)* first and then proceed in a zig-zag pattern.

4. Position the *Controller Assembly (2)* onto the cell and gently push down to ensure connections are tight.
5. Reinstall the *Retaining Clip (1)*.
6. Open the suction and discharge lines.
7. Reestablish power to the filter pump, automation controls and SCG at the main breaker.



TIGHTENING SEQUENCE

WINTERIZING

Less chlorine production is required in cold water, as long as free chlorine levels are maintained between 2-4 ppm. The SCG cell will not produce chlorine below 52°F ±3°F [11°C ±1.7°C]. This temperature cutoff is intended to extend the life of the SCG cell.

If preventative measures are not taken, freezing water may cause severe damage to the cell. Prevent freeze damage in one of two ways:

- Run the filter pump continuously during freezing conditions.
- Drain water from plumbing, remove the SCG cell, and install a Spacer Cell in its place.

523102	Spacer Cell, LT15/30 and PLUS30
520588	Spacer Cell, PLUS40/60

⚠CAUTION Disconnect main power to the power center/pack before disconnecting or connecting the SCG cell.

⚠WARNING Switch OFF main power to the SCG, filter pump and automation controls before servicing.

CONTROL PANEL MESSAGES

If the SCG cell detects a mechanical issue or water condition that affects chlorine production, the control panel will display an error message and the WARNING LED will illuminate. Refer to the table below for definitions of possible warning and error messages.

Refer to *Troubleshooting Chart, page 27* for more detailed troubleshooting instructions.

STAND ALONE CELL (NOT CONNECTED TO AUTOMATION)		
1ST MESSAGE	**2ND MESSAGE**	**DESCRIPTION**
SYS OFF SENS ERR	**CHK MANL SENS ERR**	Sensor module error detected.
SYS OFF LOW SALT	**CHK MANL ---- PPM**	Salinity below 2600 ppm.
SET --% ---- PPM	**CHK MANL ADD SALT**	Salinity below 3000 ppm.
SET --% ---- PPM	**CHK MANL HI SALT**	Salinity above 4500 ppm.
SYS OFF LOW TEMP	**CHK MANL --F --C**	Measured water temperature below 52°F [11.1°C].
SET --% CHK CELL	**CHK MANL INSPECT**	Cell continues to chlorinates (chlorinating LED ON), but blades may require cleaning.
SYS OFF CHK CELL	**CHK MANL INSPECT**	Cell has stopped chlorinating (chlorinating LED OFF), and blades may require cleaning.
SYS OFF OVERLOAD	**CHK MANL OVERLOAD**	Electrical overload detected. Blades may require cleaning.
WAITING FOR FLOW	**SET --% ---- PPM**	Flow rate is less than 25 GPM [94.6 LPM] required to produce chlorine. Cell will begin generating chlorine once sufficient flow is detected.
SYS OFF LOW SALT	**WAITING FOR FLOW**	Flow rate is less than 25 GPM [94.6 LPM] required to produce chlorine **and** salinity is below 100 ppm. Cell will not generate chlorine until both conditions have been resolved.
CELL CONNECTED TO AUTOMATION		
SYS OFF RS485	**CHK MANL SENS ERR**	Sensor module error detected.
SYS OFF RS485	**LOW SALT ---- PPM**	Salinity below 2600 ppm.
SET --% RS485	**SET --% ADD SALT**	Salinity below 3000 ppm.
SET --% ---- PPM	**CHK MANL HI SALT**	Salinity above 4500 ppm.
RS485 LOW TEMP	**CHK MANL LOW TEMP**	Measured water temperature below 52°F [11.1°C].
SET --% RS485	**CHK MANL INSPECT**	Cell continues to chlorinates (chlorinating LED ON), but blades may require cleaning.
SET --% RS485	**CHK MANL INSPECT**	Cell has stopped chlorinating (chlorinating LED OFF), and blades may require cleaning.
SYS OFF RS485	**CHK MANL OVERLOAD**	Electrical overload detected. Blades may require cleaning.
WAITING FOR FLOW	**SYS OFF RS485**	Flow rate is less than 25 GPM [94.6 LPM] required to produce chlorine. Cell will begin generating chlorine once sufficient flow is detected.
SYS OFF LOW SALT	**WAITING FOR FLOW**	Flow rate is less than 25 GPM [94.6 LPM] required to produce chlorine **and** salinity is below 100 ppm. Cell will not generate chlorine until both conditions have been resolved.

TROUBLESHOOTING CHART

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Low or no free chlorine. Less than 2 ppm.	SCG output setting too low.	Increase SCG output setting.
	Insufficient SCG run time.	Increase pump run time.
	Temporary loss of chlorine due to heavy organic load, rain, leaves, fertilizer or heavy bather load, recent party, or pets using pool.	Run the SCG in “Boost” mode for 24 hours, then retest chlorine levels. If chlorine is still low, super-chlorinate.
	Salinity below 3000 ppm (ADD SALT Alert) or 2600 ppm (SYS OFF LOW SALT Warning).	Add salt until salinity is at 3600 ppm. Refer to *Adding Salt to the Pool, page 10*.
	High nitrate, phosphate or metal levels in pool	Contact pool service professional.
	New pool water was not shocked properly before startup.	Super chlorinate the pool. Refer to *Start-up Procedure (Super Chlorination), page 20.*
	Dirty or scaled cell blades.	Clean the cell blades according to *Manually Cleaning the Cell Blades, page 23.* If necessary, acid clean the cell blades according to *Acid Cleaning the Cell Blades, page 24.*
	Low cyanuric acid level in outdoor pool.	Add the necessary amount of cyanuric acid. Refer to *Cyanuric Acid Chart, page 10*. **DO NOT USE CYANURIC ACID IN INDOOR POOLS.**
No Power to SCG Cell	SCG power center fuse has blown.	Replace the power center fuse shown in *Wiring an Automation System to the SCG, page 17.*
	Power is not reaching SCG power center.	Ensure pump timer is providing 110 or 220 VAC to the power center when active.
	SCG power center transformer leads incorrectly wired.	Refer to the wiring diagram on the inside of the power center cover.
SYS OFF - LOW SALT Warning	**Very low salinity level.** Salinity below 2600 ppm. Chlorine is not being produced.	Add salt until salinity is at 3600 ppm. Refer to *Adding Salt to the Pool, page 10*. If warning persists after adding salt, replace the sensor module.
CHK MANL - ADD SALT Alert	**Low salinity level**. Salinity between 3000 and 2600 ppm. Chlorine is being produced at a reduced rate.	Add salt until salinity is at 3600 ppm. Refer to *Adding Salt to the Pool, page 10*.
CHK MANL - HI SALT Alert	**High Salinity Level.** Salinity above 4500 ppm. Chlorine is being produced, but high salinity may damage other pool components and surfaces in and around pool.	Drain some water from the pool, then refill with fresh water until salinity reaches 3600 ppm.

- Continues on Next Page -

TROUBLESHOOTING CHART (Continued)

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
WAITING FOR FLOW Alert	Filter pump cannot deliver minimum flow rate required by SCG cell.	Backwash or clean the system filter. Clean the pump strainer and skimmer baskets.
		If the cell is installed in a bypass loop, adjust the flow control valve to increase flow rate.
		Increase filter pump speed or flow setting.
	Filter pump is off or failing to prime.	Wait for pump to restart or re-prime system if necessary.
	Debris in SCG cell is restricting flow or preventing proper flow switch operation.	Clean the cell according to *Manually Cleaning the Cell Blades, page 23.*
	Flow switch paddle has dislodged from sensor module.	Disassemble the SCG according to *Cell Disassembly, page 27* and ensure the flow switch paddle is properly secured to the sensor module.
	Flow switch has been damaged.	Disassemble the SCG according to *Cell Disassembly, page 27* and replace the sensor module.
	Air in plumbing.	Inspect the system plumbing for leaks and repair accordingly.
		Ensure there is at least 12 - 18 inches [30.5 - 45.7 cm] of straight pipe ahead of the SCG cell inlet.
	Multiple pumps are connected to the same automation RS-485 network and not all of them are ON.	Turn all pumps ON and see if the error message goes away. Ensure only one pump is on the same circuit between the IntelliCenter and SCG.
SYS OFF - LOW TEMP Warning	Water temperature is below 52°F [11.1°C]. Chlorine is not being produced.	Water temperature must rise to 52°F [11.1°C] before chlorine production can continue.
		Use an alternative chlorination method until water temperature rises above 52°F [11.1°C].
CHK MANL - INSPECT Warning	Dirty or scaled cell blades.	Clean the cell blades according to *Manually Cleaning the Cell Blades, page 23.*
SYS OFF - OVERLOAD Warning	Debris may be contacting the cell blades.	Clean the cell blades according to *Manually Cleaning the Cell Blades, page 23.* If necessary, acid clean the cell blades according to *Acid Cleaning the Cell Blades, page 24.*
SYS OFF - SENS ERR Warning	Bad connection between sensor module and controller assembly.	Remove the controller assembly from the SCG cell. Remove any debris inside or around the connector and ensure the connector is not damaged.
	SCG sensor module failure.	Disassemble the SCG according to *Cell Disassembly, page 25* and replace the sensor module.

TECHNICAL DATA

ELECTRICAL SPECIFICATIONS

PC100 Power Center

Circuit Protection: 110V, 15A (Single-pole)
220V, 20A (Two-Pole)

Input: 110-120 VAC, 50/60 Hz, 242 Watts, 2.2 A
220-240 VAC, 50/60 Hz, 242 Watts, 1.1 A

Output: 22-39 VDC, 7.3 Amp maximum from Power Center

LT15 Power Pack

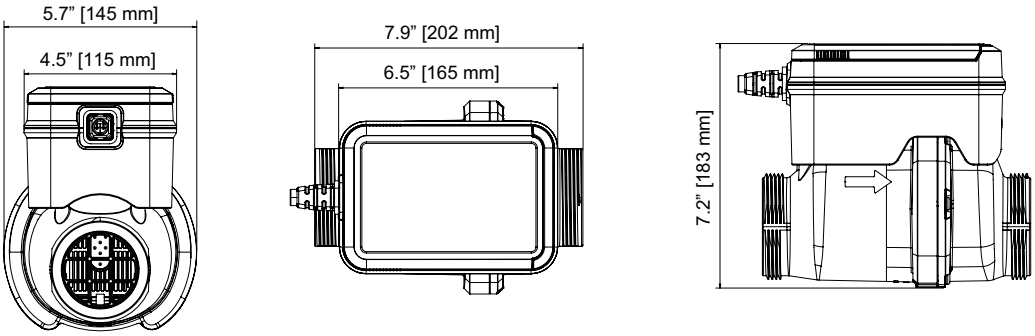
Circuit Protection: Two-pole 20 AMP device at the electrical panel

Input: 110-120 VAC, 50/60 Hz, 96 Watts (0.9 Amp)

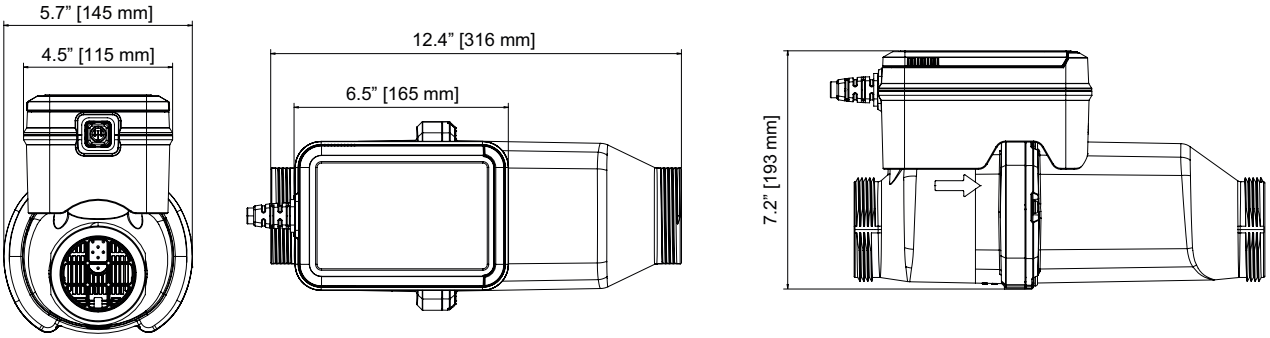
Output: 28 VDC, 3.6 Amp maximum from Power Pack

⚠WARNING **CHLORINE GAS BUILDUP CAN OCCUR WITH IMPROPER WIRING:** THE SALT CHLORINE GENERATOR (SCG) MUST BE WIRED TO THE LOAD SIDE OF A PUMP TIMER, ELECTRONICALLY CONTROLLED SWITCH, RELAY, OR AUTOMATION SYSTEM. This ensures the SCG only receives power when the filter pump is running. The SCG should never be operated when water is not flowing through the SCG cell.

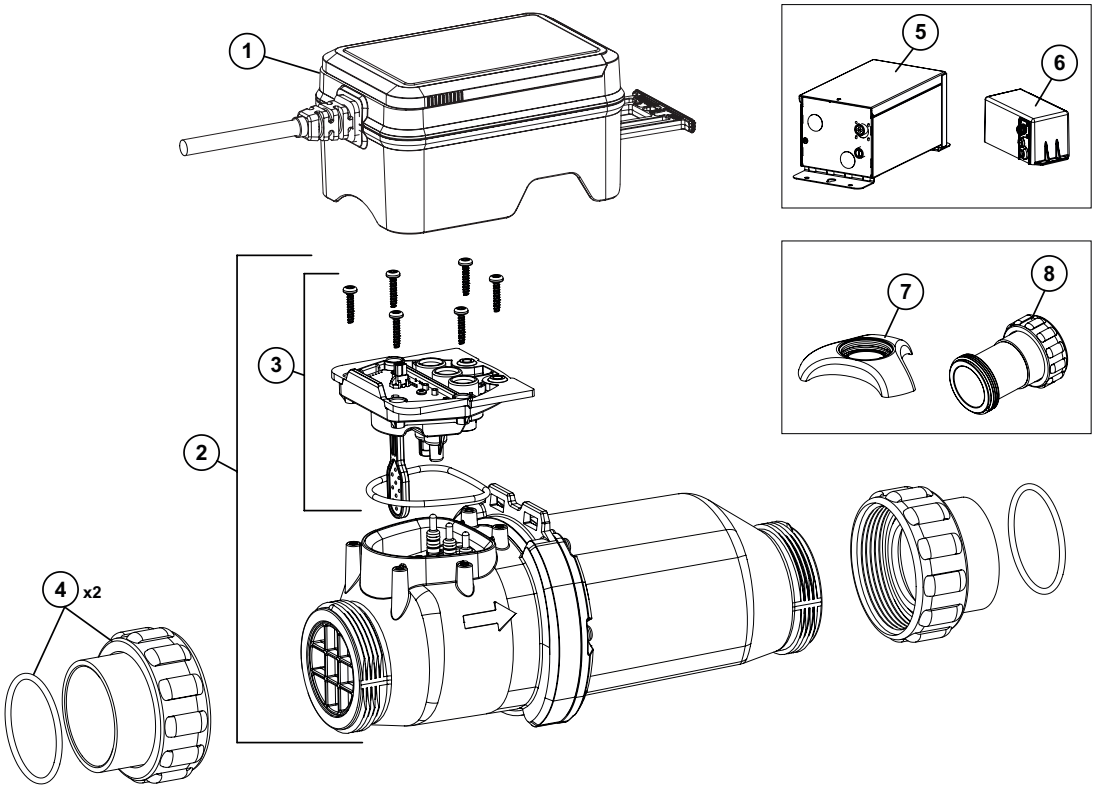
CELL DIMENSIONS (LT15 / LT25 / PLUS30)



CELL DIMENSIONS (PLUS40 / PLUS60)



REPLACEMENT PARTS



ITEM	P/N	DESCRIPTION
1	523775	Controller Assembly, LT
	523770	Controller Assembly, PLUS
2	523767	Cell Assembly, LT15
	523768	Cell Assembly, LT25
	523764	Cell Assembly, PLUS30
	523765	Cell Assembly, PLUS40
	523827	Cell Assembly, PLUS60
3	523769	Sensor Module Kit
4	520595	Union Kit (Qty. 2)
5	520556	PC100 Power Center
6	523753	Power Pack, LT15
7	523103	Acid Cleaning Kit
8	523101	Retrofit Adapter
-	523102	Spacer Cell, LT15 / LT25 / PLUS30
-	520588	Spacer Cell, PLUS40 / PLUS60
-	523216	PC100 Cover Detection Board
-	523759	Accessory Kit *Includes: Controller Cover, Controller Retaining Clip, Sensor Module Screws, and Sensor Module O-ring*

NOTES