ePOOL™

Now Your Pool Can Talk™

IMPORTANT
SAFETY RULES

Read all instructions BEFORE assembling and using this product.
KEEP THIS MANUAL.

OWNER'S MANUAL

MODEL 4817 & 4819

IMPORTANT
DO NOT RETURN PRODUCT TO STORE

For technical assistance and missing parts, call Customer Service toll-free

1.888.339.2546

(press 135 at any time)
Monday through Friday, 8 am to 5:00 pm MST

GAME™

ePOOL™
Now Your Pool Can Talk™

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Read all instructions BEFORE setting up and using this product.
KEEP THIS MANUAL.

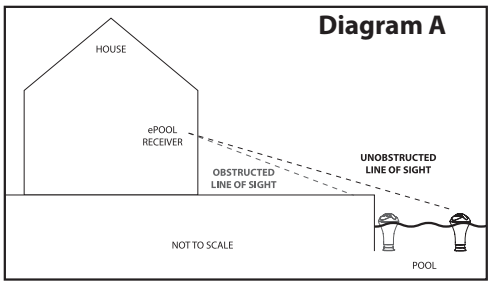
Table of Contents

Please visit our website, www.game-group.com, for updates to these instructions.

1. FOR BEST RESULTS

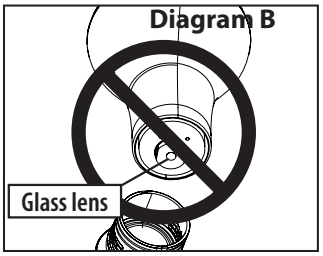
1. **Doing it right the first time.** Before using this product, read the manual and follow the step-by-step Quick Setup instructions.
2. **A fresh start.** Have your pool water professionally tested and properly balanced before using ePOOL. ePOOL is not guaranteed to work on pools or spas with grossly unbalanced chemical levels and/or severe bacterial growth.
3. **First things first.** Insert battery in floating unit and place in pool before you plug in the indoor receiver. You may receive data within the first 15 minutes. Please allow 4-6 hours for ePOOL to acclimate to your pool chemistry before making any chemical adjustments.
4. **Know your pool.** ePOOL bases its treatment recommendations on the information you provide it. During set up, it is important that you give it accurate information about your pool's size and type.
5. **Establish good communication.** The ePOOL floating unit and the indoor receiver communicate best when they are in line of sight of each other and no more than 100 feet apart (see Diagram A). We recommend you place the receiver next to a window that has a direct view of your pool.

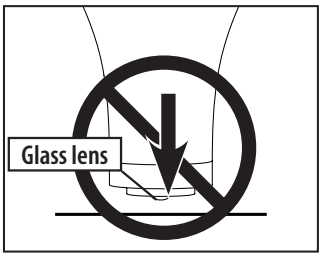
Diagram A



6. **Prevent loss of communication.** Do not place anything over the floating unit or obstruct the communication of the indoor receiver by placing something large in front of it. If you use a pool cover, create a space for ePOOL to float freely.
7. **Handle with care.** If you remove the cap on the floating unit, avoid touching the glass lens on the bottom. Never set the floating unit down without the cap in place or you will damage the glass lens (see Diagram B).
8. **Prevent damage.** ePOOL is intended for 24/7 use. However, you should remove the floating unit during periods of high pool use or severe weather conditions.
9. **Protect and maintain.** The glass lens must be kept moist. Always lock the bottom cap on the floating unit with the wet sponge inside when the unit is out of water for any length of time.
10. **Receiver care.** The receiver is not intended for outdoor use. Always keep the receiver indoors in a cool and dry place and in a direct line of sight of the floating unit.

Diagram B





2. ABOUT ePOOL™

Congratulations, you've just purchased the most exciting innovation in the pool and spa industry. ePOOL is a revolutionary accessory for your pool or spa which eliminates the complicated calculations and the guesswork of confusing test strip kits. ePOOL measures your pool chemistry and advises you how to OPTIMALLY maintain your pool or spa for maximum safety and comfort. ePOOL is personalized to your pool or spa through the setup process.

ePOOL takes the guesswork out of pool maintenance because it tells you exactly what you need to do to keep your pool balanced, safe and healthy.

Simple to Use

ePOOL functions as a two piece system, a floating sensor and an indoor receiver. The sensor floats in the pool and analyzes the chemical levels in the water. This information is transmitted to the receiver. When your pool's chemical balance is good, the receiver will display a green light. When your chemicals are out of balance, the receiver will alert you with a blinking red light as well as telling you what needs to be done ("Time for Chlorination" for instance). With the push of a button, the receiver will then display exactly what treatment is needed and how much product to add to rebalance your water. It really is that simple.

Accurate

ePOOL contains advanced chemical sensing technology and is programmed with patented chemical analyzing algorithms that enable it to accurately identify, analyze and advise on chemical treatment. During setup, you will supply ePOOL all the information it needs to give you precise instructions on how to achieve and maintain a perfect pool.

Versatile

While we refer to the pool throughout this manual, it is important to point out that ePOOL works with all types of pools and spas. Whether you have a chlorine pool, mineral ion pool, salt water pool or a spa, ePOOL will make maintenance easier.

RELAX, let ePOOL do the chemical testing and calculating for you!™

3. SAFETY WARNINGS

Read all WARNING and NOTE messages prior to setup and use.

FOR MAXIMUM SAFETY AND PERFORMANCE, THE CUSTOMER MUST COMPLY WITH ALL WARNING NOTICES BELOW.

- The ePOOL water monitoring system is not a toy.
- The ePOOL floating sensor should be removed from the water during use of the pool or spa to avoid damaging it or injuring yourself.
- Misuse or abuse of the ePOOL floating sensor can result in damage to the sensor cell and/or the plastic body housing the sensor. Do NOT jump on, strike, hit, kick, throw, or submerge the floating sensor. Do NOT use the sensor to strike or hit other objects of any kind.
- The ePOOL system ONLY monitors pH, ORP (oxidation reduction potential), and temperature. It does NOT monitor other critical constituents of your pool water and is not intended to entirely eliminate pool water testing. Failure to maintain water chemistry within established limits can result in unsafe swimming conditions and damage to pool surfaces and equipment.
- The ePOOL floating sensor is NOT a safety device and is not intended to be used as a flotation device.
- ePOOL does NOT monitor human or pet activity in the pool. Children should NEVER be left unsupervised in a pool or spa.
- The LCD display receiver unit is intended for INDOOR use only.
- To avoid electrical shock, do NOT handle the receiver display unit or power adapter if your hands are wet, or if you are standing in water.
- Leaving the ePOOL floating sensor out of the water for extended periods of time can result in damage to the sensor system and/or reduced sensor life. The floating sensor may be stored in a cool, dry place (see section on Storage, Maintenance & Care).
- Avoid touching the sensor surfaces. The sensor array within the housing is a sophisticated analytical instrument and should be handled with care.

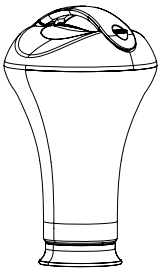
Failure to comply with ALL Safety Warnings could void warranty.

4. GETTING STARTED

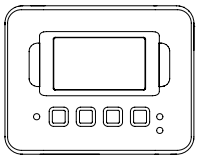
Contents

Ensure that the following components are included in the packaging.

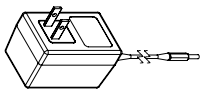
Pool Sensor



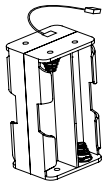
Remote Receiver



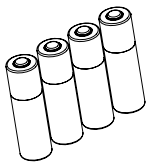
Receiver AC/DC Adapter



Battery Carriage



Batteries (4)



Owner's Manual

NOTE: *Parts not shown to scale*

Know Your Pool or Spa

ePOOL formulates its chemical analysis and treatment recommendations based on your pool's specific characteristics. Therefore, before you can properly use the ePOOL system, you will need to know a couple of facts about your pool (or spa). During the ePOOL setup, you will be asked to answer the following questions:

- Are you monitoring a pool or spa?
- Is your pool or spa regular chlorine, salt water or copper/mineral ion?
- How many gallons or liters (volume) is your pool or spa?

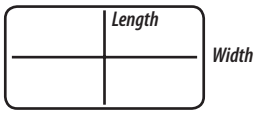
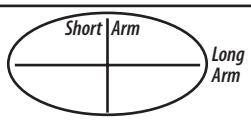
If you do not know your pool's volume, i.e. how many gallons (liters), of water your pool holds, contact the builder or refer to the worksheet included in the manual to help you calculate your pool's volume.

In case your volume is between a number, always select the higher number. For example, if your volume is 7,500 gallons, choose 10,000 gallons during setup. Entering a grossly incorrect volume will result in inaccurate analysis and treatment recommendations.

5. CALCULATING POOL/SPA VOLUME

If you do not know the volume of your pool, have an odd shaped pool (such as kidney shaped) or you are unable to obtain this information from your builder/supplier, the internet offers resources for determining volume for various shaped pools. Your local pool and spa retailer may be able to assist you also.

The worksheet or chart below may help to determine the volume.

Pool Shape	*Calculations*
	Length x Width x Average Depth x 7.5 = Pool Volume in Gallons _____ x _____ x _____ x 7.5 = _____
	Diameter x Diameter x Average. Depth x 5.9 = Pool Volume in Gallons _____ x _____ x _____ x 5.9 = _____
	Long Arm x Short Arm x Average. Depth x 5.9 = Pool Volume in Gallons _____ x _____ x _____ x 5.9 = _____

If performing pool volume calculations based on the table above, note the following:

- ***Dimensions use FEET for unit of measure***
- ***Pool volume is in U.S. Gallons***

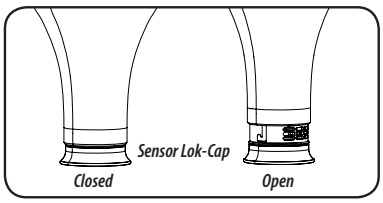
Common Pool Sizes and Gallon (US) Capacity

Round Pools 48" Deep	*Above-Ground Ovals 48" Deep*	*Common In-Ground Sizes*
15 foot = 5,310 Gallons	12 x 24 = 4,502 Gallons	16 x 32 = 19,200 Gallons
18 foot = 7,646 Gallons	15 x 24 = 9,648 Gallons	16 x 34 = 20,400 Gallons
21 foot = 10,407 Gallons	15 x 30 = 12,060 Gallons	16 x 36 = 21,600 Gallons
24 foot = 13,593 Gallons	16 x 24 = 10,291 Gallons	18 x 36 = 24,000 Gallons
27 foot = 17,204 Gallons	16 x 32 = 13,721 Gallons	20 x 40 = 30,000 Gallons
28 foot = 18,502 Gallons	18 x 36 = 17,366 Gallons	24 x 44 = 39,600 Gallons

6. SENSOR SETUP

Your pool or spa should be adjusted to the proper chemical balance before using the ePOOL system. For BEST results, we recommend taking a sample of your pool or spa water into your local pool supply retailer for a free water chemical analysis and bring your pool into balance before placing the floating sensor in your pool. ePOOL is not guaranteed to work on pools or spas with grossly unbalanced chemical levels.

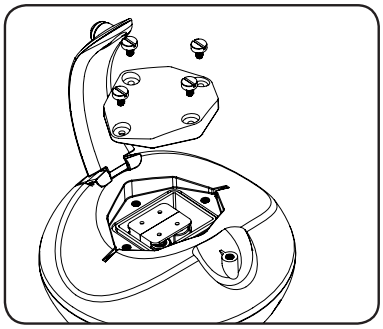
1) Remove the protective plastic wrap from the ePOOL sensor. Twist the ePOOL sensor LOK-CAP into the OPEN position by turning it counter-clockwise and pulling downward. Then turn the cap clockwise until it clicks into the open, locked position. If the cap comes completely off, slide it back on and turn clockwise at the top notch.



FOR BEST RESULTS: We recommend you remove the sponge from the Lok-Cap before placing the unit in the water. Keep the sponge for winterizing and/or storage.

The ePOOL sensors require a moist environment during transit. Upon opening the sensor LOK-CAP, some liquid may spill out. This water-based solution is non-toxic. A moist sponge is mounted inside the cap to provide a moist environment for the sensors during periods of extended storage.

2) Turn the thumbscrew counterclockwise to unlock the handle. Open the handle. Remove the screws from the cover and take off the cover.
3) Remove the battery carriage and insert batteries. Plug in the battery carriage and insert into the product.
4) Replace the cover and reassemble. Make sure the screws are fastened securely to ensure a water-tight seal.



5) Close and lock the handle.
6) Place the sensor into the pool or spa.
7) Place the receiver in the desired location in your home (for best results, location is a window with line of sight to the pool).
8) Plug the adapter into a wall outlet and the other end into the receiver unit.
9) Follow the on-screen setup instructions in the next section.

7. RECEIVER PROGRAMMING

This section guides you through your personalized setup process. Please have your pool or spa information, such as type and volume, available before beginning. Begin ONLY after you have completed all steps in the previous section.

Receiver Setup

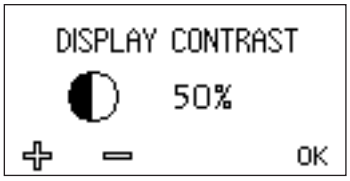
The screen shots below will guide you through the initial receiver setup using a regular chlorine pool as an example. If you are setting up the system to monitor another type of pool or spa, the procedure remains the same.

You will use the arrow buttons to move through menu selections.

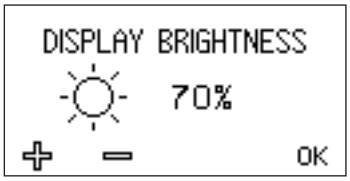
1) Select the month. Then press the OK button to save. Repeat to set day and year. Press OK when finished.

2) Select the hour. Then press the OK button to save. Repeat to set minutes and AM/PM. Press OK when finished.

3) Adjust the display contrast or leave at the factory setting. Press OK when finished.

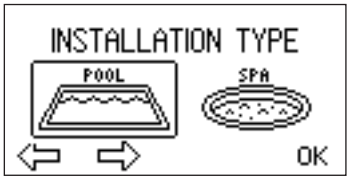


4) Adjust the display backlight or leave at the factory setting. Press OK when finished.



5) Choose POOL (or SPA) for type of installation. Press OK when finished.

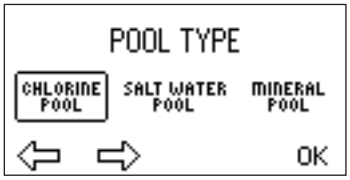
   NOTE: This example will use a pool.



6) Select your pool type.
   - Regular Pool: Chlorine Sanitizer
   - Salt Water: Salt Water Chlorination
   - Mineral Ion: Ionization Chlorination

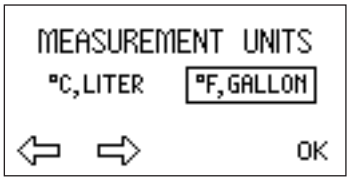
   Use the arrow buttons to scroll through the options.

   Press OK when finished.



7) Select your unit of measurement.
   - US: °F (temp), Gallons (volume)
   - Metric: °C (temp), Liters (volume)

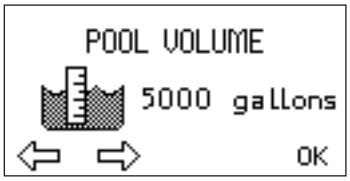
   Press OK when finished.



8) Enter your POOL VOLUME to the nearest increment (example shows US measure).

   Pool volume changes in 5,000 gallons (20,000 liters) increments; spa volume in 200 gallons (800 liters)

   Press OK when finished.



9) Select your preferred type of chlorinator.
   - Liquid, Sodium Hypo
   - Dry, Cal-Hypo
   - 1" Tablets TriChlor
   - 2" Sticks TriChlor
   - 3" Tablets TriChlor

   Press OK when finished.

10) Please register your product online at www.game-group.com. This will ensure you receive software updates and product notifications.

11) This screen appears while ePOOL analyzes your pool chemistry. It may take up to one hour to complete its analysis.

12) Please verify that the serial number shown on the screen matches the number on the back of your receiver (the last 6 numbers before the dash; see example below). Press OK to continue.

Serial Number:

1109A0000485-01

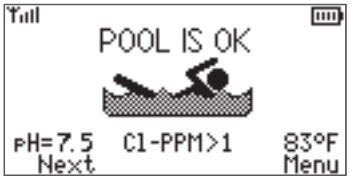
If serial number does not match, press CANCEL. The unit will reset and display a new number. You may have to repeat this several times. If, after the third try, the number does not match, contact GAME Customer Service at 1.888.339.2546.

Record your serial number here for your records

You have now finished the setup process. ePOOL will now monitor your pool chemicals and will tell you when, what and how much to add when your water chemistry is out of balance. One of the 4 following screens will appear after ePOOL initializes.

13) If your POOL is within the IDEAL chemical range, the light will be green and the "Pool is OK" message will appear on the screen.

Select MENU to enter the main menu screen.



14) If the pool chemicals are not within an IDEAL range, the light will be blinking red and one of the following 3 screens will appear:

- Time for Chlorination
- Time for Acid
- Time for Soda Ash

Press NEXT to find out dosage required.

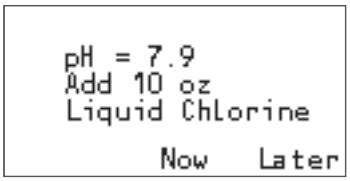
Always run the pump for at least 2 hours when adding chemicals to you pool or spa to circulate them throughout the water.

Below is an example of "Time for Chlorination"

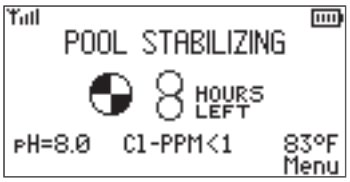
1) You will see this message along with a blinking red light.

2) Press the next button. In this case, ePOOL tells you to add 10 ounces of Liquid Chlorine.

   Select NOW if you plan to add the dose immediately.



3) This starts the 8 hour stabilization period.

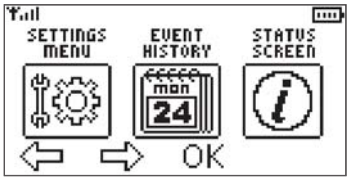


After you follow the treatment recommendation, allow ePOOL 8 hours for the treatment to stabilize. After 8 hours, ePOOL will advise you if your chemical levels are balanced by displaying the "POOL IS OK" message. If further treatment is needed, ePOOL will give you further instructions.

Main Menu

From the main menu screen you have 3 choices:

- Settings Menu: Will return you to the beginning of the POOL SETUP process where you can make changes to your programming.
- Event History: Will show you the last 10 pool events.
- Status Screen: Will show the current pool values for pH, chlorine, temperature and the sensor battery level.



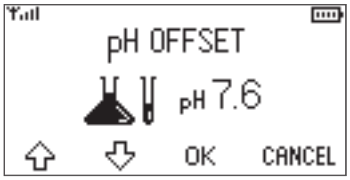
pH Offset

To adjust pH, go to MAIN MENU, SETTINGS MENU.

This screen allows you to alter the IDEAL pH range of 7.3 – 7.6 pre-programmed in the software. To adjust the pH range:

Use the up or down button to increase or decrease.

Press OK when finished.



ePOOL is preset at the factory for the recommended ideal pH range of 7.3 – 7.6 for residential swimming pools. However, you may adjust this range by adjusting the pH offset depending on your preference. We recommend leaving this in the DEFAULT setting.

8. STORAGE, MAINTENANCE & CARE

Winter or Extended Storage (more than 72 hours)

Within the floating sensor there is a sensing node that must be moist at all times. When you remove the sensor from the water, it is important to close and lock the end cap (see below). This is especially important if the sensor will be out of water for longer than 72 hours (3 days). Store it indoors, in a COOL, DRY environment.

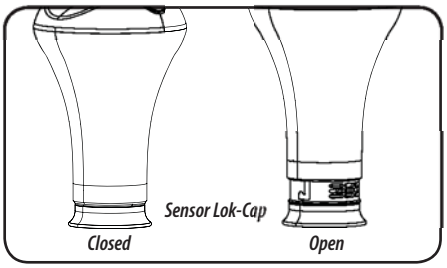
NOTE: Extreme temperatures can harm the sensor during storage. Do not store in freezing temperature (a garage for instance).

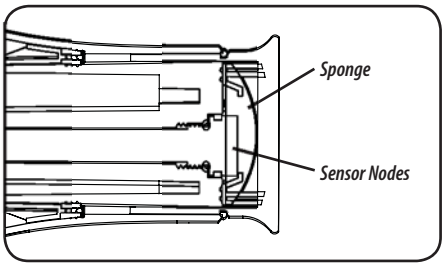
ePOOL is programmed to show this message October 15th each year. If you are going to remove it from your pool, follow these instructions. If not, simply press NEXT.

1) UNPLUG the receiver power cord from the wall outlet.
2) Remove the ePOOL sensor from the pool or spa.

   Remove the batteries and disconnect the power connector. Carriage may be left inside the unit.
3) Reassemble and close handle.

   The sensor CLOSURE CAP must be secured in the CLOSED-LOCK position during extended storage. Please ensure you the sponge is moist and inside the bottom of the cap.
4) Twist the CAP counter-clockwise and at the same time push with an upward motion. Then twist the CAP clockwise into the CLOSED-LOCK position. This position allows an internal sponge to keep the sensor nodes moist.





Battery and pH Sensor Replacement

Chemical analysis and treatment recommendations may be inaccurate if the pH sensor and/or batteries are in need of replacement. We recommend changing the pH sensor annually. See your pool supply store for a replacement part kit.

When the batteries need replacement, this message will be displayed.

To Replace the Batteries

1) Open the ePOOL handle and remove the battery compartment cover.

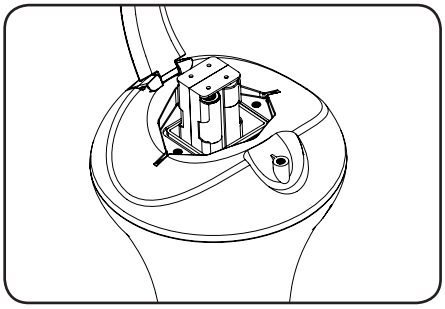
   Remove and disconnect the old battery pack. Dispose of batteries properly.

2) Insert new batteries into the carriage.

   Connect the carriage to the unit and insert into the product.

3) Reassemble cover and handle. Return the unit to the pool.

4) Follow the receiver's on-screen instructions.



NOTE: After replacing sensor, batteries or unplugging the receiver, you will have to reprogram your receiver. Your initial setup is kept in memory.

NOTE!

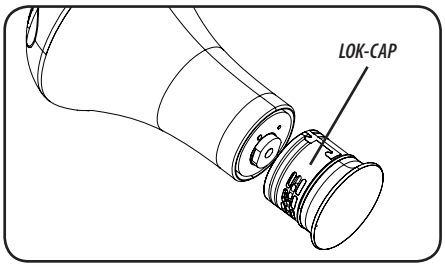
- Do not mix old and new batteries.
- Do not mix alkaline, standard or rechargeable batteries.
- The supply terminal is not to be short circuited.
- Remove batteries if product is to be left unused for a long time.
- Replace batteries ensuring the correct battery type, and as a simultaneous act.
- Clean the battery contacts and also those of the devices prior to battery installation.
- Do not dispose of batteries into fire. Batteries may explode or leak.
- Non-rechargeable batteries are not to be recharged.
- Remove exhausted batteries promptly and dispose of properly.
- Batteries are to be inserted with the correct polarity.

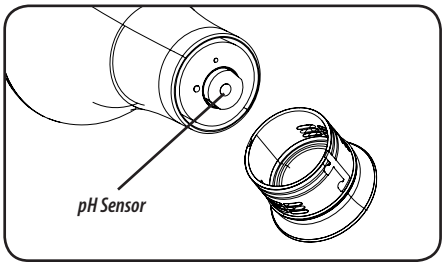
To Replace the Sensor

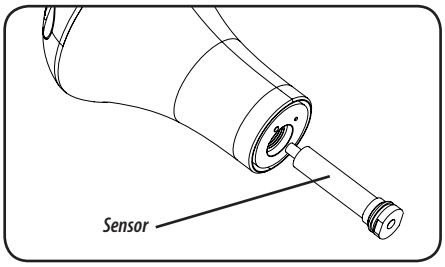
The pH sensor cell is a sophisticated analytical instrument. It should be handled with care. AVOID touching the glass sensing bulb surface. Remove the sensor from its package and check that it is undamaged. If damaged contact GAME for a replacement. Care should be taken when unpacking and handling the sensors.

1) Unplug the receiver from the wall.
   Remove ePOOL from water and dry.

2) Remove the LOK-CAP
   Please ensure there is no water in or around the sensor housing as it can seriously impact system performance, accuracy and reliability.
   To remove sensor cell, turn sensor counter-clockwise with an adjustable wrench.



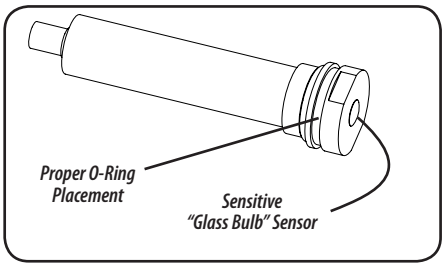




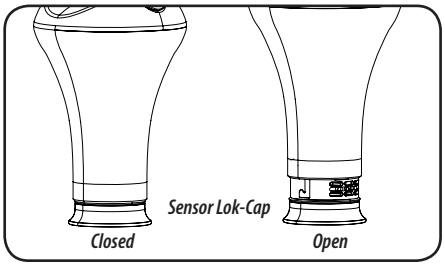
3) Unwrap the new sensor and remove the protective cap. AVOID touching the glass sensing bulb surface.

   Ensure that the o-ring is seated properly on the pH sensor. This provides a watertight seal during submersion in water.

   Insert the sensor and turn clockwise. Tighten carefully with a wrench. The sensor must be screwed in tightly to ensure a watertight seal.



4) Replace the LOK-CAP. Leave in its open position. Return the unit to the pool.



Any water inside the sensor housing will seriously impact the system performance, accuracy and reliability.

5) Plug the receiver back in.

   Follow the receiver's on-screen instructions.

For technical assistance and missing parts, call Customer Service toll-free

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9. GOOD THINGS TO KNOW ABOUT POOLS & WATER

Water Balance

In order to maximize your pool enjoyment and at the same time protect costly pool equipment, ideal values for the various pool parameters have been established by the American National Standards Institute (ANSI) and the National Pool & Spa Institute (NPSI).

Suggested NSPI Standards – Pools and Spas

	MIN	*IDEAL*	*MAX*
pH	7.2	7.4 – 7.6	7.8
Free Chlorine, ppm	1.0	1.0 – 3.0	3.0
TDS, ppm	300	1000 – 2000	3000
Total Alkalinity, ppm	60	80 – 100	180
Calcium Hardness, ppm	150	200 – 400	500-1K
Cyanuric Acid, ppm	10	30 – 50	150*

Except where limited by the Health department requirements, often to 100 ppm. (ppm = parts per million)

Water & pH

pH is the single most important element in swimming pool water chemistry. It affects every other chemical balance in pool water. pH is a measure of hydrogen ion (H+) concentration in water. It indicates the relative acidity or basicity of pool water. pH is measured on a scale of 0 (strong acid) to 14 (strong base) with 7 being the neutral pH.

In pools, a slight alkaline pH of 7.4 to 7.6 is ideal because it is the most comfortable to the human eye and provides for optimum use of free chlorine while maintaining water that is noncorrosive or scale forming.

What happens when the pool is too acidic? (pH is low)

- If your pool surface is plaster, the water will begin to dissolve the surface, creating a roughness which is ideal for algae growth. A similar result occurs in the grout of tiled pools.
- Metals corrode - this includes pool equipment, pipe/pump connections, etc.
- As the pool walls and metal parts corrode, sulfates form. These sulfates are released from the water onto the walls and floor of the pool causing brown and black stains.
- Chlorine, which is used as a disinfectant in the pool water, is activated and lost to the atmosphere very quickly.
- When we swim, our eyes and nose burn; swimwear fades and perishes.

What happens when the pool is too alkaline? (pH is high)

- The calcium in the water combines with carbonates and forms scale. This calcification is seen most at the waterline, where it traps dust and dirt, turning black.
- The water starts to become cloudy or murky and loses its sparkle.

- The calcium carbonate has a tendency to plate out on the sand in the pool filter, effectively turning it into cement. So your sand filter becomes a cement filter and loses its ability to trap dirt from the pool water.
- As the pH rises, the power of the chlorine to act on foreign particles is lost. At a pH of 8.0 the pool can only use 20% of the chlorine you put in. So 80% of it goes to waste and you would need 5 times the amount of chlorine to provide the disinfection you need.
- Eyes and nose burn and skin becomes dry and itchy.

By neglecting to test and correct the pH of swimming pool water, we not only cause it to become unsightly, but we also cause ourselves physical discomfort.

Chlorination and Sanitation

Chlorine needs to be present in the pool at all times. It reacts instantly with waste products to sanitize and protect your pool water. The amount of chlorine used by your pool is referred to as "Chlorine Demand".

All chlorine types disassociate in water into hypochlorous acid [HOCl] and hydrochloric acid [HCl]. Hypochlorous acid is the active sanitizer. It is also referred to as “Free Chlorine”. Bromine chemistry is similar except hypobromous acid [HOBr] is the active sanitizer.

For pool or spa owners utilizing chlorine as their sanitizing agent take note of the following quote from the American Chemistry Council: “*Chlorine is regularly fed into the pool water and should be tested daily, at a minimum, for proper disinfection. Routine chlorination kills harmful microorganisms that can cause health-related problems, such as gastroenteritis, Legionnaires disease, ear infections and athlete's foot. Learning how to properly test your water will allow you to identify the chlorine residual and demand in pool water. More frequent testing is needed if there is heavy bather use.*” ePOOL provides you with CONTINUOUS monitoring of your chlorine levels which results in a safe swimming environment.

CHLORINE - Basic Rules of Thumb (Courtesy of the American Chemistry Council)

- Always read and follow the manufacturer’s instructions.
- Store chemicals in a cool, dry and shaded place.
- Never mix different types of chlorine - add each to the pool separately.
- Never mix chemicals together - add each to the pool separately.
- Avoid breathing fumes or vapors.
- Don't buy more pool chemicals than you’ll use in a season - they lose effectiveness over time.
- Make sure pool chemicals are inaccessible to children.

Other properties such as Total Alkalinity (TA), Total Dissolved Solids (TDS), Calcium Hardness (CH), and Cyanuric Acid (CA), are important, but need to be checked on a much less frequent basis - typically only twice per year. We recommend taking a sample of your pool or spa water to your local pool supply store two times a year for a complete chemical analysis.

10. FREQUENTLY ASKED QUESTIONS

1. How does ePOOL help me maintain my pool?

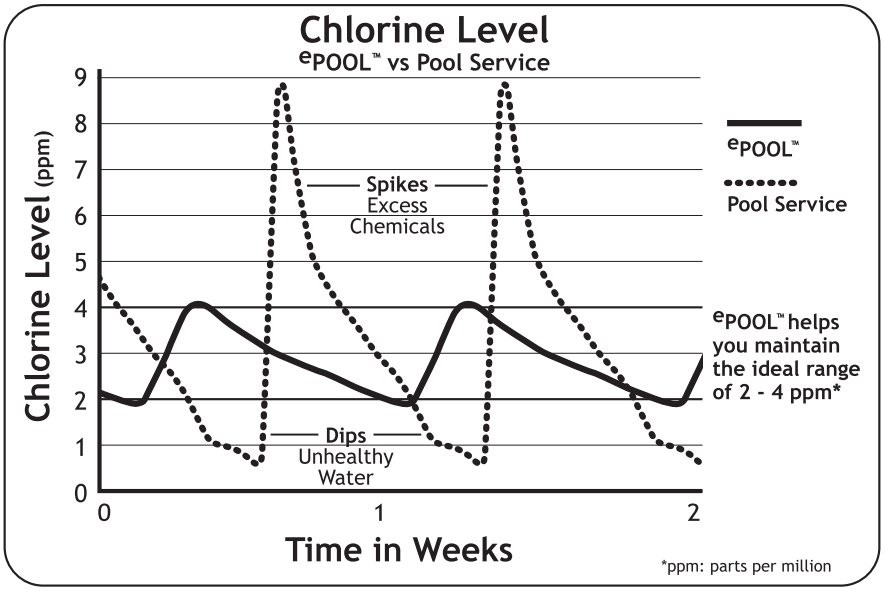
ePOOL continuously analyzes your pool pH, chlorine and temperature. This information is transmitted to the receiver. The integrated intelligence in ePOOL determines when action is required to optimize your pool chemistry. It calculates the specific chemistry addition using your pool's volume and other data entered into its memory.

2. How does ePOOL extend the life of my pool surface and equipment?

Maintaining your pool within optimal ranges extends the life of your pool surfaces and equipment. Information is provided to the pool owner to keep the water chemically balanced. Acidity and chlorine are maintained at safe levels.

3. I believe my pool maintenance company is doing a good job of maintaining my pool. Why do I need ePOOL?

These companies normally maintain your pool weekly. When they service your pool, they measure your pool's chemistry at that moment in time. They overdose your pool with chemicals to last until their next visit. This causes your levels to spike and dip into unhealthy levels (see following graph).



4. Why am I am adding more chemicals since I started using ePOOL.

ePOOL helps you to maintain your chemistry within ideal limits. You will find you add chemicals more often but you will use less of them. This does 2 things: 1) it keeps your water within a healthy, ideal chemical range and 2) it saves you money since you are using a smaller amount of chemicals and not overdosing your pool.

5. Should the sensor just float around in my pool?

Yes, it is safe for the sensor float freely around your pool. The sensor may also be tethered to the side of your pool in a location where you expect good pool water circulation and minimal swimmer/diver traffic. As a safety precaution, it is recommended to remove it from the water when the pool/spa is in use.

6. Does the ePOOL system require any maintenance?

The ePOOL sensor is powered by a battery pack and uses a pH sensor cartridge to measure your pool's chemistry. These two items must be replaced periodically to maintain reliable performance. The ePOOL receiver will notify you when your sensor and batteries require replacement.

7. Do I need special chemistry or technical skills to use the ePOOL?

ePOOL requires no special skills or expertise. It measures your pool's chemistry and tells you exactly when and how to keep your pool chemically balanced. All you have to do is follow the instructions from the receiver and measure out the proper amount of chemicals to add to your pool/spa.

11. TROUBLE SHOOTING GUIDE

IMPORTANT: Prior to troubleshooting a receiver message, recycle the power FIRST.

To recycle the power, unplug the receiver, wait 10 seconds and then plug the receiver back in. If you still have the same message, check for other causes listed below.

RECEIVER MESSAGE	POSSIBLE CAUSES	SOLUTIONS
Communication Error	Receiver is NOT within a 100 foot direct line of sight of the floating unit.	Unplug the receiver. Move unit to within a 100 foot direct line of sight with the receiver. See "For Best Results" Section. Plug the receiver back in.
	Floating unit is under a pool cover.	Unplug the receiver. Uncover the floating unit. Plug the receiver back in.
	Floating unit is next to the pool edge/coping.	Unplug the receiver. Move the unit to a more centralized location in your pool. Plug the receiver back in.
	If you are still receiving this message.	Contact GAME.
pH Sensor Fault: pH is above or below measurement range	pH reading is 0.0.	Sensor glass is broken and will need replacing.
	Sensor glass may be broken and will need replacing.	Remove bottom cap as instructed on page 16 of your Owner's Manual. Check to see if the glass sensor is broken. If it is, contact GAME.
	Your pool water is out of balance.	Take a test sample of pool water to confirm reading. If necessary, add the appropriate chemicals to bring your pool back into this range. Then unplug the receiver, wait 10 seconds and plug the receiver back in.
	If you are still receiving this message.	Contact GAME.

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Chlorine Sensor Fault: Sanitizer/chlorine is above or below measurement range	Floating unit is in an unbalanced location.	Make sure that the floating unit is not near your floating chlorinator which would cause higher than normal readings. Move floating unit to a different part of pool. Unplug the receiver, wait 10 seconds and plug the receiver back in.
	Floating unit may have an air bubble covering the sensor.	Unplug the receiver. Pull the floating unit out of the water, tip on its side and place it in a different location in your pool away from your return jets. Plug the receiver back in.
	Your pool water is out of balance.	Take a test sample of pool water to confirm reading. If necessary, add the appropriate chemicals to bring your pool back into this range. Then unplug the receiver, wait 10 seconds and plug the receiver back in.
	If you are still receiving this message.	Contact GAME.
Alkalinity Sensor Fault: Alkalinity is high (only for Salt Water Pools)	Your pool may be low on chlorine or your alkalinity may be too high.	Take a test sample of pool water to your local pool store. Ask for the chlorine and alkalinity readings. The chlorine concentration in your pool should be >2 ppm. If it is below this, check your salt generator and adjust to increase the chlorine concentration. If your alkalinity is too high please follow your local pool store's recommendations for correcting this. Unplug the receiver, wait 10 seconds and then plug the receiver back in.
	If you are still receiving this message.	Contact GAME.

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12. GLOSSARY OF TERMS

The following is a glossary of terms pertaining to pool water chemistry.

Acid	Liquid (muriatic acid) or dry granular (sodium bisulfate) substance used to lower the pool's pH (toward a more acidic condition) or to lower total alkalinity levels.
Algae	Algae may form on your pool surfaces or it may bloom in suspension. Algae are typically known to be green but may also be yellow (mustard algae), black, blue-green, or any shade in between. It may form separate spots or seem to grow in sheets.
Alkalinity	Alkaline refers to the condition where the water's pH is above 7.0 (neutral) on the pH scale. It is the opposite of acidic. Alkalinity is the amount of carbonates and bicarbonates in the water, measured in "parts per million" (ppm) of Total Alkalinity.
Bromine	A member of the halogen family commonly used as a sanitizer in spas because of its resistance to hot water with rapid pH fluctuations.
Calcium hardness	The amount of calcium and magnesium in pool and spa water.
Calcium hypochlorite	A common type of chlorine used in pools and spas. A granular or tablet substance typically dissolved in water prior to adding it to the pool and spa water.
Chlorine	A chemical that works as a sanitizer or disinfectant in pool and spa water to kill bacteria and algae and oxidizes ammonia and nitrogen compounds such as swimmer waste. The ideal range is from 1.0 to 3.0 parts per million (ppm) in pools and 1.5 - 3.0 ppm in spas.
Copper/Silver Ion Generator	Low voltage DC current is conducted into the water chamber and electrolysis takes place. Positively charged ions of copper and silver are released. Copper is a natural toxin to algae and bacteria, and silver to bacteria and virus.
Cyanuric acid	A stabilizer that works to keep a reserve of "free available" chlorine in pool and spa water, protecting it from direct sunlight. It is present in some sanitizers such as Trichlor and Dichlor.
Free available chlorine	The killing, active form of chlorine.
Hypochlorite	A family of chlorine compounds such as Calcium Hypochlorite and Lithium Hypochlorite, both granular, and the liquid Sodium Hypochlorite. When these compounds contact water they release Hypochlorous Acid, the active sanitizing agent.

Muriatic acid	A liquid acid that is most commonly used to reduce pH and total alkalinity levels. It tends to be very strong and is not recommended for use in spas.
ORP	ORP stands for Oxidation-Reduction Potential. In practical terms, it is a measurement to oxidize contaminants. ORP is the only practical method to electronically monitor pool sanitizer effectiveness.
pH	The scale of relative acidity or alkalinity, expressed in logarithmic numbers from 0 - 14, with 7.0 being neutral. What's really being measured is the hydrogen ion concentration.
Pool “Shocking”	Adding a large dose of chlorine or other chemicals to quickly increase the amount of free available sanitizers compared with the less effective, "combined" form of the sanitizer.
Sanitizer	A chemical agent used to remove unwanted contaminants.
Soda Ash	A base, used to counteract an acidic condition by raising pH.
Sodium Bicarbonate	Another base, however its properties will increase alkalinity more than pH. Used to raise Total Alkalinity levels.
Sodium Bisulfate	A granular form of acid, used to counteract a scaling condition by lowering pH and/or alkalinity.
Sodium Dichlor	A granular form of chlorine that is stabilized with cyanuric acid. Used for shocking and super-chlorination.
Test strips	Chemically treated strips that have the appropriate amounts of reagents on them which you must dip into water and then interpret the reactions.
Total alkalinity	Works in a buffering capacity, protecting the water from dramatic pH changes.
Total dissolved solids	The total amount of dissolved materials in pool or spa water. The ideal range is from 1,000 to 2,000 ppm in pools and 1,500 ppm above the start-up TDS in spas.
Water balance	Balanced water is the result of all your chemical parameters being where they should be and thus balance each other. The key components of water balance are pH, Total Alkalinity, Calcium Hardness and Temperature.

13. LIMITED WARRANTY STATEMENT

The manufacturer warranties safe operation and reliability only under the following conditions:

- The product is installed and operated according to the assembly and operating instructions.
- Only original replacement parts are used.
- Consumable parts (battery and pH sensor) do NOT fall under the warranty

General Terms

This Limited Warranty applies to the enclosed product (the "Product") distributed by Great American Duck Races, Inc., an Arizona corporation (doing business as Great American Marketing and Events) ("GAME").

GAME warrants that the Product will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase. (Your dated sales or delivery receipt, showing the date of your Product purchase, is your proof of the purchase date.) During the warranty period, GAME will repair or replace any defective parts at no charge.

All defective parts that are replaced by GAME will be replaced, at GAME's discretion, with either new parts or used parts that meet or exceed performance specifications for new parts. All parts removed from the Product under this warranty will become the property of GAME. Repair or replacement of any parts will not serve to extend the one (1) year warranty period.

This Limited Warranty does not apply to expendable parts. This Limited Warranty does not extend to any product (a) from which the serial number has been removed or (b) that has been damaged or rendered defective (i) as a result of accident, misuse, abuse or other external causes; (ii) by operation outside the usage parameters stated in the manual that shipped with the Product; (iii) by the use of parts not manufactured or sold by GAME; or (iv) by modification or service by anyone other than GAME or an authorized GAME distributor.

If a defect is identified within the warranty period, please contact GAME.

EXCEPT FOR THE LIMITED WARRANTY SET FORTH ABOVE, GAME EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, ORAL OR STATUTORY (INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE). ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THE ABOVE LIMITED WARRANTY.

Limitation of Liability

EXCEPT FOR THE LIMITED WARRANTY DESCRIBED ABOVE, IN NO EVENT WILL GAME HAVE ANY LIABILITY OF ANY KIND WHATSOEVER (WHETHER UNDER CONTRACT, TORT, OR ANY OTHER THEORY OF LEGAL LIABILITY) TO ANY PERSON WITH RESPECT TO THE PRODUCT (INCLUDING, WITHOUT LIMITATION, (A) ANY USE OR MISUSE OF THE PRODUCT, (B) ANY FAILURE OR MALFUNCTION OF THE PRODUCT, (C) ANY BODILY INJURY, DEATH, LOSS OF OR DAMAGE TO ANY PROPERTY, OR ANY OTHER DAMAGES RELATED TO OR RESULTING FROM THE PRODUCT OR ITS USE (INCLUDING, WITHOUT LIMITATION, ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, LOST PROFITS, LOSS OF USE), EVEN IF GAME OR GAME'S AUTHORIZED REPRESENTATIVES HAVE BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH DAMAGES.

Severability

Any provision of this Limited Warranty which is prohibited or unenforceable in any jurisdiction will, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining portions hereof or affecting the validity or enforceability of such provision in any other jurisdiction.

Venue and Choice of Law

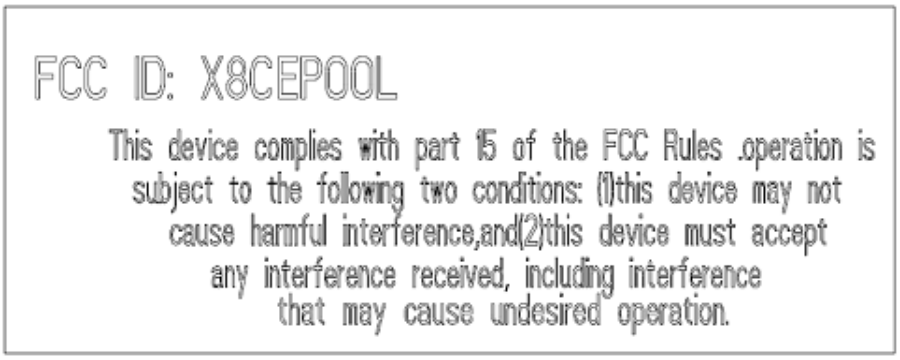
This Limited Warranty is applicable in all countries. This Limited Warranty will be governed by the laws of the State of Arizona (regardless of any conflict of laws rules), and any disputes arising from this Limited Warranty will be resolved in Phoenix, Arizona.

Entire Agreement

This Limited Warranty is understood to be the complete and exclusive agreement between GAME and the purchaser of the Product, superseding all prior agreements, oral or written, and all other communications between such parties relating to the Product. No employee or representative of GAME or any other party is authorized to make any warranty in addition to the limited warranty set forth above.

14. FCC STATEMENT

1. This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



NOTE: 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.

IMPORTANT
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