



OWNER'S MANUAL

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Model: NB-1

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WELCOME

Congratulations on the purchase of your new automatic chemistry control. Your purchase will minimize the efforts needed to maintain your pool and maximize your enjoyment. Before installation or operation, please read these instructions carefully. This manual contains easy to follow step-by-step procedures to properly install and operate your system. A little time spent understanding your system and its parts will assure successful, trouble-free installation and usage. When working around your pool, please take care to avoid hazards such as electrical wires and chemicals. CAUTION! Safety comes first!

WARNING SAFETY FIRST

READ AND FOLLOW ALL INSTRUCTIONS

- **Ensure kids and pets do not access the area around the Control Box, Acid Tubes, pH Pump, and acid container. A secured fence is ideal for this purpose.**
- The Control Box must be mounted vertically on a flat surface a minimum of 5 ft (1.5m) horizontal distance (or more, if local codes require) from the pool/spa.
- The unit must be connected only to a ground-fault circuit-interrupter (GFCI) outlet. The GFCI should be tested on a regular basis by pushing the test button. If the GFCI fails to operate correctly, there is ground current flowing indicating the possibility of an electric shock. Do not use this unit. Disconnect unit and have a qualified professional correct the problem before using.
- If the unit is being installed outdoors, the GFCI outlet must be outdoor rated with a rain cover protecting the control's plug-in transformer.
- **Always add acid to water, not water to acid.** Otherwise, splash-out of acid may occur.
- Only operate the system with an approved flow sensor.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Save these instructions.

INSTALLATION INSTRUCTIONS

Specifications & Parts

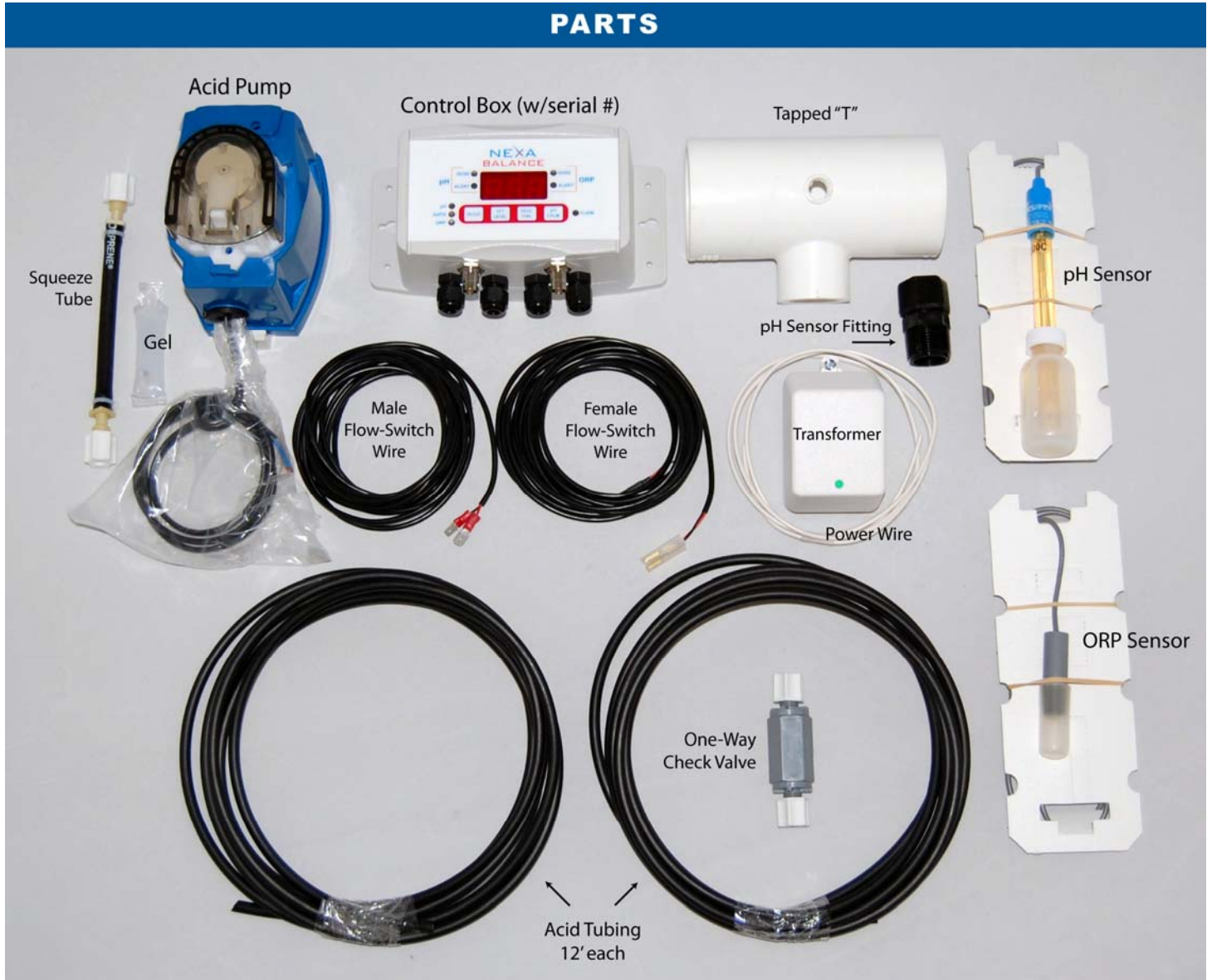
Input Power: 12 VDC, 20VA

Output Power: 12 VDC, 20VA

Overload Protection: The system should only be used with an energy-limiting Class Two transformer. Output pH pump overload protection is a .75 amp fuse.

Display: Sun-bright digital readout for pH and ORP; LED lights for all other functions.

Operating Temperature: 40 – 120° F

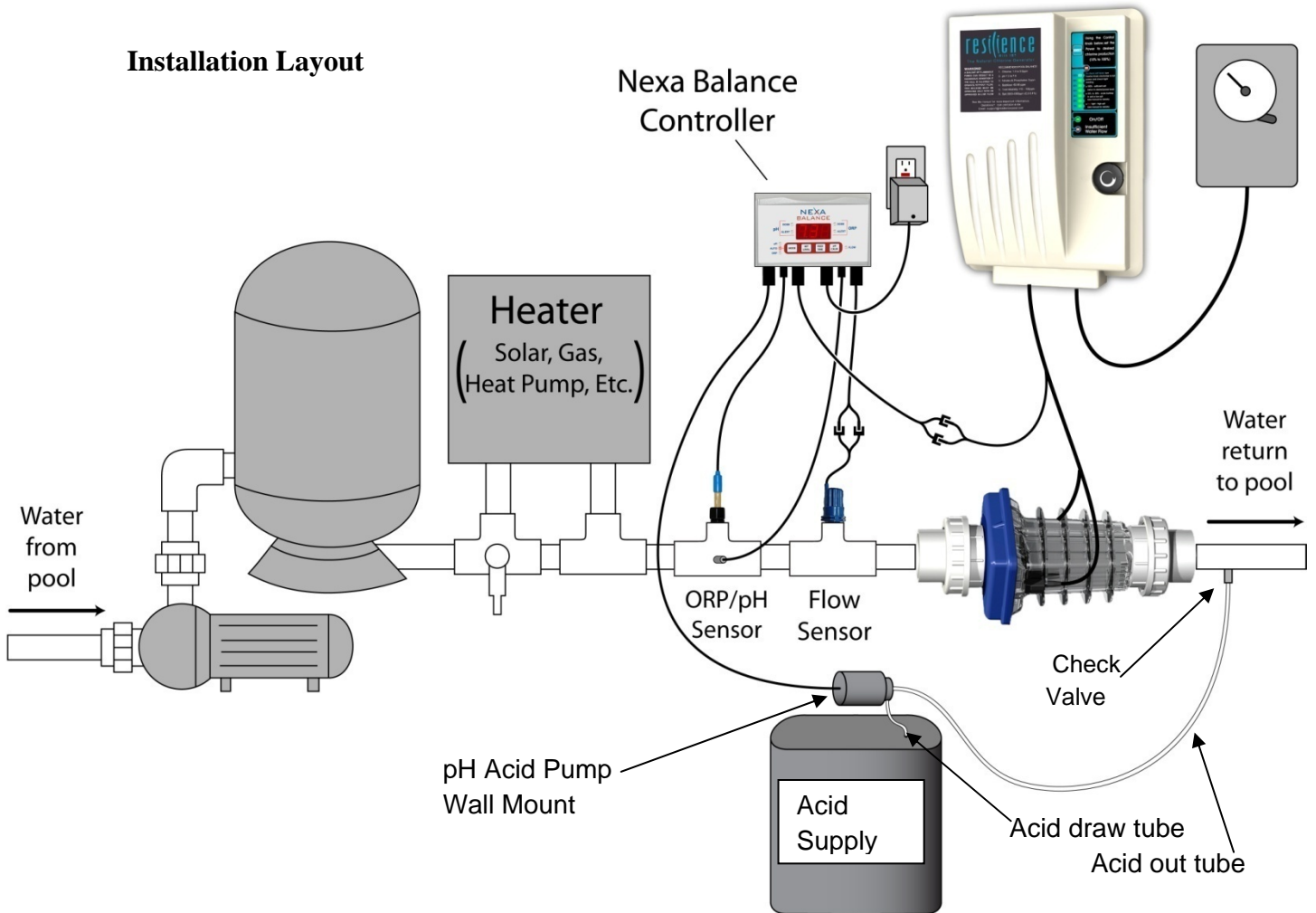


Additional Materials Required

1. PVC glue and Cleaner
2. Hacksaw or pipe cutters
3. Medium size phillips screwdriver
4. Small flathead screw driver
5. Two anchor screws
6. Drill
7. 3/8"bit & NF 20 tap
8. WD-40

Note: If the pool plumbing is not 2", pipe adaptors (i.e. reducer couplings) are also needed

Installation Layout



Install as outlined above:

- 1) Install Tee for Sensors, Tee for Flow Switch and Clear Cell. All of which must be after the pool filter and heater if so equipped.
- 2) Install the Black Compression Sensor Fitting into the Sensor Tee, Install the pH Sensor probe into the compression fitting. Do not over tighten to avoid breaking the glass tube.
- 3) Install the ORP Sensor into the side of the Sensor Tee by threading into the pre-tapped hole.
- 4) Connect the Sensor Cables to the Nexa Balance using the quick connectors at each end of the sensor wires. The pH connects to the left terminal and the ORP to the terminal on the right.

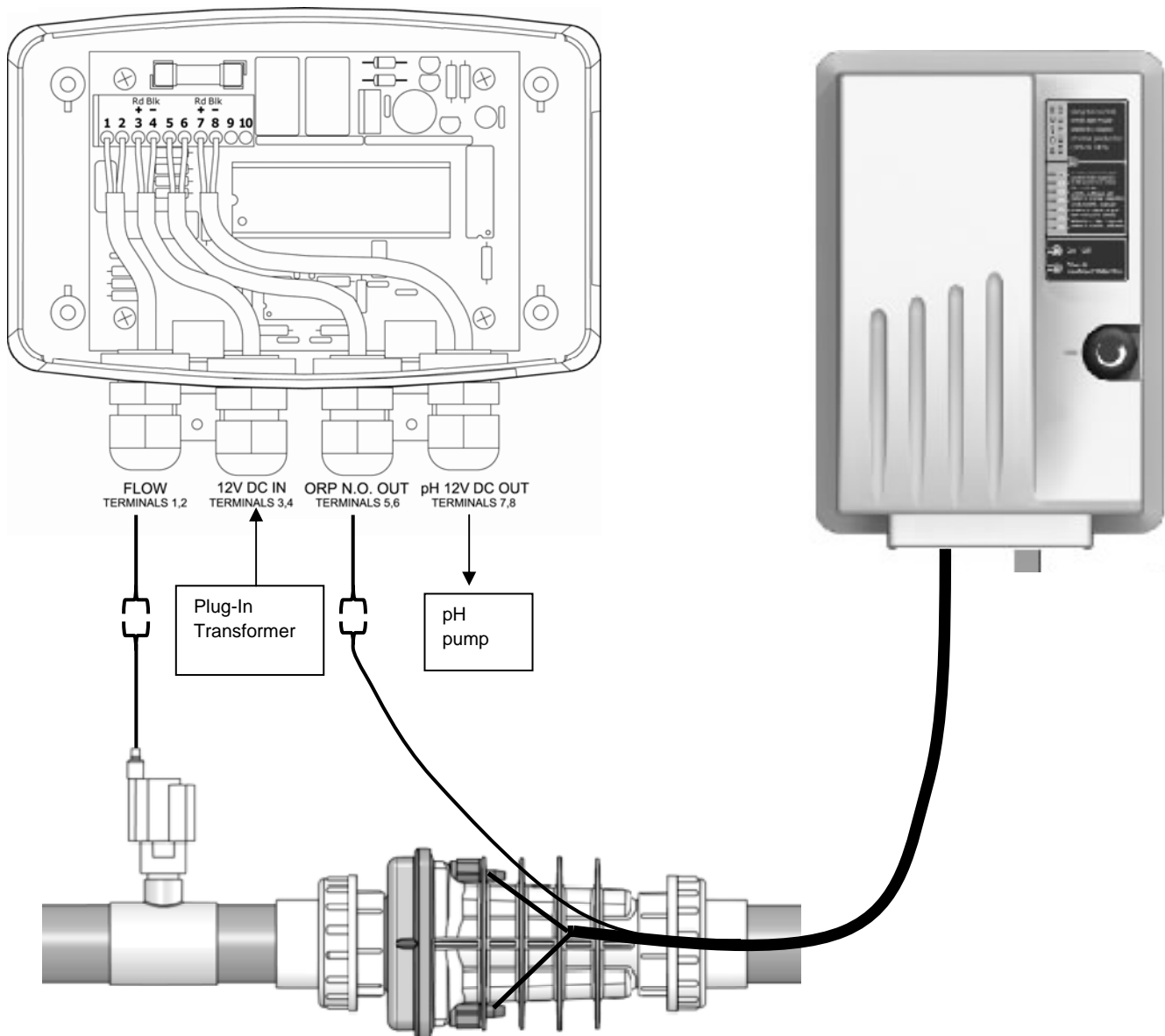
As shown above the Sensor Tee must be installed horizontally as the pH probe has a liquid gel that needs to gravity flow to the bottom of the sensor. The flow switch tee may be installed either horizontally or vertically if space is an issue.

pH pump

- 1) Drill and tap a 3/8" NF 20 Tap into the pvc plumbing downstream of the chlorine cell.
- 2) Install the check valve directly into the tapped hole.
- 3) Connect the acid supply tube from the acid pump to the check valve.
- 4) Connect the acid draw tube to the acid container.

Control Box Wiring View

IMPORTANT: This is a back view of the controller.
When looking at the front of the controller, the connections are reversed.



Note:

Flow Switch is connected to the Nexa Balance Flow Terminals 1 & 2.

The Flow Connector Wires from the Resilience connect to the ORP Terminals 5 & 6. This is how the Nexa Balance cycles the Resilience On/Off based on demand.

The control knob on the Resilience should be set to 100% when Nexa Balance is connected.

INTRODUCTION

The Nexa Balance is a microprocessor-based chemistry automation system that reads pH and sanitizer (ORP) levels in the water continuously then activates a pump and a generator to adjust those levels as needed.

The Nexa Balance controller is designed for ease of use. The pH and ORP levels are continuously displayed on the front panel, and the system comes ready with preset standard defaults that are ideal for most installations.

Allow the sensors to stabilize to the pool water for several hours before running the control. This may take up to 24 hours.



STARTUP

Balance the pool chemistry. Automation maintains chemical levels, but should not be used to balance a pool that is outside of the recommended ranges. Test and balance the pool water manually before starting up the Nexa Balance system

On/Off Mode

Press the “MODE” button to turn on the controller. To turn it back off, hold the “MODE” button down for 2 seconds until the controller displays “OFF”.

CAUTION: Turning the controller “OFF” using the “MODE” button does not turn off the power to the controller. To eliminate power in the controller, it must be unplugged.

Normal Operation

The “MODE” button toggles between three modes:

1. “AUTO” – normal operation (i.e. controller is active)
2. “pH” – for changing pH settings
3. “ORP” – for changing ORP control settings (i.e. chlorine/bromine control settings)

“AUTO” mode is the mode for normal operation. The controller is active in this mode. The controller always uses the last programmed settings even if power was previously lost. To adjust the settings or revert to factory default settings, see below.

Default Settings

pH:

Default Set Point (ideal level) = 7.4

Set Point Range = 7.0 to 8.0

Display Range = 6.8 to 8.4

Default Feed Time = 30 Min. On, 5 Min. Off

ORP (i.e. sanitizer effectiveness):

Default Set Point (ideal level) = 650 mV

Set Point Range = 400 to 900 mV

Display Range = 0 to 995 mV

Default Feed Time = Continuous

To revert the controller to factory default settings:

1. Place the controller in “pH” or “ORP” mode by pressing the “MODE” button.
2. Turn the controller off by holding down the “MODE” button.
3. Simultaneously hold down the “SET LEVEL” and “pH CALIB” buttons then push the “MODE” button without releasing the other two buttons.
4. The display should read “LD”
5. Release all the buttons, then turn the control back off and on again using only the “MODE” button.

pH Settings

To change pH settings, press the “MODE” button until the pH mode light illuminates, then follow the respective instructions below:

SET LEVEL: **Your preferred target pH level;** default is 7.4. Press the set level button once to display the current setting. To adjust the set level upward, hold down the set level button. To adjust it downward, briefly release the button and hold it down again.

FEED TIME: **How long the acid pump is allowed to operate when pH levels climb above the set level;** default is 30 minutes on 5 minutes off. When the controller senses a high pH level, it feeds for 30 minutes, and then rests for 5 minutes before testing again and feeding again as necessary. Press the “FEED TIME” button to scroll through the available feed times. These are displayed in minutes (e.g. 5, 10, or 15 minutes). Spas and very small bodies of water should have a lower

feed time, while large bodies of water should have a higher feed time. For continuous feeding, press the “FEED TIME” button until the “con” option is displayed.

pH CALIB: The sensors may need to be recalibrated periodically to maintain their accuracy.

1. New pH sensors should be allowed to acclimate to the water before being calibrated.
2. Test the water using a reliable test kit. Strips and color based tests are usually less accurate than the sensor itself.
3. Calibrate the control immediately after the test. pH levels fluctuate continuously, especially when the water is being used or where a chlorine generator is operating.
4. To calibrate the control to the tested pH level, hold down the “pH CALIB” button until the tested pH level is displayed (make sure the control is in the “pH” mode when doing this).

Recalibration is needed periodically, but if the control needs to be recalibrated repeatedly every couple of weeks, the sensor may be defective or worn out. **To ensure proper operation and warranty support, pH sensors must be replaced every season.**

DOSE: The “DOSE” light illuminates when the Nexa Balance is reducing the pH level by feeding acid (i.e. by activating the acid pump). If set to constant feed (i.e. “con”), the feed light flashes when feeding. If set to “cycle”, the feed light flashes during the feed times and lights constantly during the 5 minute rest times.

ALERT: This pH “ALERT” light illuminates when the Nexa Balance couldn’t reach the set point after feeding acid 10 times consecutively. The “ALERT” also illuminates if the pH level drops below 7.0 or above 8.0. The system continues to feed in the high pH alert unless it fed 10 times consecutively.

ORP Settings

ORP is not a direct measure of how much sanitizer (e.g. chlorine/bromine) you have in the pool, but of the effectiveness of that sanitizer. An ORP reading of 650 indicates that the sanitizer is properly sanitizing and purifying the pool water. A 650 reading is normally achieved at a chlorine level between 1-3 ppm. But if other chemistry levels are not balanced, higher sanitizer levels will be required to achieve the 650 reading for proper sanitization (see “Understanding the Chemistry”).

When sanitizer levels are sufficient, the Nexa Balance deactivates a connected chlorine generator (a.k.a. salt system) by interrupting its flow switch connection. The chlorine generator will then indicate that it has no flow; this is normal. When more sanitizer is needed, the Nexa Balance completes the flow-switch connection to the chlorine generator and flashes the ORP “DOSING” light. The no-flow indication on the chlorine generator turns off shortly after the Nexa Balance starts “DOSING”.

To change ORP settings, press the “MODE” button until the ORP mode light illuminates, then follow the respective instructions below:

SET LEVEL: **Your target ORP level;** default is 650 mV. Press the set level button once to display the current setting. To adjust the set level upward, hold down the set level button. To adjust it downward, briefly release the button and hold it down again.

FEED TIME: When using a chlorine generator, set the system on “con” for continuous feeding (i.e. factory default). To adjust feed time to another setting, press the “FEED TIME” button to scroll through the available feed times. These are displayed in seconds. When the controller senses a low

ORP level, it feeds for the requested number of seconds, and then rests for 5 minutes before testing again and feeding again as necessary.

DOSE: The “DOSE” light flashes when the Nexa Balance is feeding chlorine (i.e. by activating the connected chlorine generator). Shortly after the “DOSE” light starts flashing, the chlorine generator should show that it has flow and is producing chlorine. When the “DOSING” light is off or solid, the chlorine generator should indicate it has no flow; this is normal.

ALERT: The ORP “ALERT” light illuminates when ORP levels drop below 100 mV or above 900 mV. Either situation shuts down chlorine production. To reset the controller, push the “MODE” button to “ORP” mode then back to “AUTO”. If resetting the controller doesn’t solve the problem, clean or replace the ORP sensor as per the “Maintenance” instructions.

MAINTENANCE

Pump Maintenance:

1. Replace the Squeeze Tube every 6 months to avoid development of cracks or leaks. Place a generous amount of silicone lubricant on the squeeze tube when replacing it. DO NOT use silicone glue or petroleum jelly.
2. Periodically inspect the pump and rollers for visible damage and proper operation.

Sensor Maintenance:

The sensors may need to be cleaned on a regular basis, every few weeks or months depending on the bather load and quality of the water. The ORP sensor should last several years, but needs to be replaced if it responds slowly and gives inconsistent readings. The pH sensor must be replaced annually.

To clean the sensors, disconnect them from the controller and remove them from the sensor “T”. Clean the tip of the sensor and the white ring behind it using a very soft toothbrush and regular tooth paste. You may also use a standard liquid dishwashing detergent. Rinse the sensor off with fresh water, rewrap Teflon tape around the threading, then thread the sensor back into its place.

IMPORTANT: The pH sensor should never be allowed to dry. Drying damages the sensor and voids the sensor warranty. See “Sensor Storage” for more information.

Sensor Storage:

The pH sensor should **never be allowed to dry**. Store the sensor in the provided saline-solution plastic bottle. If the original plastic bottle and saline solution are not available, store the pH sensor in a glass or plastic container with clean water that covers the whole tip of the probe.

In **freezing conditions** and before winterizing the pool, remove the sensor from the line and store it in a warm location as described above.

TROUBLESHOOTING

If below suggestions do not work, try performing a system “Reset”. For more information, see “Default Settings” section under the “OPERATION” section.

Problem	Solution
<p>No lights</p>	<p>System may be in off position. Turn on by holding down “MODE” button for several seconds.</p> <p>Check if circuit breaker or the GFCI receptacle jumped.</p> <p>Check for damaged power cord or transformer.</p> <p>Check controller fuse, and replace if necessary.</p>
<p>No Flow Alarm</p> <p>*Slight flickering at startup is normal while air is removed from the lines</p>	<p>Clean the pool filter and strainers.</p> <p>Check whether pool valves are properly set.</p> <p>Ensure sensor is installed in the right direction (see embossed arrow on top of the sensor).</p> <p>Check the connection to ensure proper wire contact at the flow sensor and inside the Nexa Balance.</p>
<p>ORP Alarm</p> <p>*Manual reset may be necessary. Push the “MODE” button three times.</p>	<p>Adjust pH and Stabilizer (CYA). High pH or Stabilizer levels reduce the effectiveness of chlorine and demand a higher chlorine level in the water to properly sanitize.</p> <p>TDS and sanitizers can affect ORP readings. Consider the effects of any other chemical that was recently added.</p> <p>Ensure the BNC connector is connected to the ORP outlet (i.e. on the right).</p> <p>Ensure the ORP sensor is fully installed inside the “T” and is seeing the water flow.</p> <p>Ensure the gold tip of the ORP sensor is in not broken off.</p> <p>Check chlorine generator for proper operation.</p> <p>Replace ORP sensor if necessary.</p>
<p>ORP Not Activating Chlorine Generator</p>	<p>Check water flow; Nexa Balance flow light should be on. If it’s off, see the problem section titled “Flow Light is Off”.</p> <p>Check ORP setpoint</p> <p>Check ORP feed time; should be on “CON” for continuous feed.</p> <p>Check chlorine generator proper operation.</p> <p>If “ALARM” is lit, see “ORP Alarm” problem section, and reset controller.</p> <p>Replace ORP sensor if necessary.</p>
<p>pH Alarm</p> <p>*Manual reset may be necessary. Push the “MODE” button three times.</p>	<p>Fill acid container if empty; check concentration of acid.</p> <p>Ensure the BNC connector is connected to the pH outlet (i.e. on the left).</p> <p>Change pH Feed Time setting; “con” gives constant feed until requested pH reading is achieved.</p> <p>Check acid pump, its tube and tank for proper operation / leaks.</p> <p>Check acid injection point for proper operation.</p>

Problem	Solution
pH Not Activating pH Pump	<p>Replace pH sensor annually.</p> <p>Check water flow; Nexa Balance flow light should be on. If it's off, see the problem section titled "Flow Light is Off".</p> <p>Check pH setpoint</p> <p>Check pH feed time (system may be in the 5 minute rest period)</p> <p>Check electronic connections</p> <p>If "ALARM" is lit, see "pH Alarm" problem section, and reset controller.</p>
Readings Are Inconsistent or Slow to Respond	<p>Replace pH sensor annually and ORP sensor as necessary (ORP sensor should last several years).</p> <p>New sensors can take up to 24 hours to acclimate to the water.</p> <p>Ensure sensors are properly connected to the correct BNC (ORP on right, pH on left).</p> <p>Clean the sensors as per the "Maintenance" section above.</p> <p>Ensure all electrical equipment in the area is properly bonded.</p> <p>Check your test kit; replace if old or contaminated. Usually, controller is more accurate than test kits.</p> <p>For poor pH readings, calibrate the control as per the "pH CALIB" section (found under "pH Settings" under "OPERATION")</p>
High Chlorine or Bromine	<p>Adjust pH and Stabilizer (CYA). High pH or Stabilizer levels reduce the effectiveness of chlorine and demand a higher chlorine level in the water to properly sanitize.</p> <p>TDS and sanitizers can affect ORP readings. Consider the effects of any other chemical that was recently added.</p> <p>Check the ORP setpoint.</p> <p>See Problem section titled "Readings Are Inconsistent or Slow to Respond"</p>
Flow Light is Off	<p>Wait several minutes for pump to fully prime.</p> <p>Check water flow rate.</p> <p>Clean filters and strainers.</p> <p>Check for closed valves, pump cavitations, faulty pump, etc.</p> <p>Clean chlorine generator cell according to manufacturer instructions.</p> <p>Check wire contacts of the flow sensor.</p> <p>Ensure flow sensor is fully threaded into the "T" and facing the correct way; check embossed arrow on top of flow sensor for verification.</p> <p>Ensure flow sensor paddle moves freely (stray glue at install can stick flow sensor paddle to one side).</p>

Limited Warranty

Nexa Balance Chemistry Control

STANDARD ONE (1) YEAR COVERAGE ON ALL SYSTEMS

This warranty applies to the models referenced above and their factory-supplied components (the "Systems"). American Swimming Pool Systems, LLC ("American SPS") warrant the System to be free from defects in materials and workmanship in the manufacturing process for one (1) year from the original purchase date. Should any trouble develop during this period, call us toll-free at (866) 322-POOL (7665) to obtain a Returned Goods Authorization ("RGA") and the proper shipping address. Then, send us the defective component freight prepaid along with a copy of the original receipt with your name, address, telephone number and the assigned RGA. If inspection shows the trouble is caused by a manufacturing defect, we will repair (or at our option, replace) the component, and ship the repaired component back to you COD within two weeks.

EXCEPTIONS & LIABILITY LIMITATIONS

This warranty is not transferable. Labor coverage is applicable only for systems purchased from an authorized dealer and installed within a 50-mile radius of that dealer. American SPS, MEE, and their suppliers, dealers, and distributors SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES; DAMAGE OF ANY SORT OR NATURE RESULTING FROM ABUSE, MISUSE, NEGLIGENCE, LIGHTNING, ABNORMAL WEATHER CONDITIONS, OR ACT OF GOD; OR DAMAGE CAUSED BY IMPROPER INSTALLATION OR REPAIR. This warranty applies only to components supplied by the factory and only where such components have been installed and maintained in compliance with the respective installation and operation manuals and instructions and applicable ordinances and codes. In no event shall the liability exceed the purchase price of the product. THE CONSUMER SHALL BE LIABLE AT STANDARD RATES FOR ANY SERVICE VISIT WHERE NO MANUFACTURING DEFECT WAS PRESENT AND FOR ALL SERVICE VISITS REQUESTED AFTER THE "PARTS AND LABOR" PORTION OF THE WARRANTY.

The express warranty above constitutes the sole and complete warranty and takes precedence over all other warranties, whether expressed or implied, including a warranty of merchantability and a warrant of fitness for a particular purpose. No sales representative, dealer, distributor, or other person is authorized to give any warranty on behalf of MEE or American SPS. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages or implied warranties, so the respective limitations may not apply to you.

IMPORTANT NOTE:

To activate your warranty, be sure to register your product at www.americansps.com/registration/. You will need the serial numbers of the components being registered and the dealer's name. The consumer is responsible for establishing the original purchase date and the authorized dealer's identity for warranty purposes, so we recommend that a bill of sale, canceled check, or some other appropriate payment record be kept.

For Service

For additional information, please visit our website at www.americansps.com. For warranty service, please contact us directly at (866) 322-POOL (7665). Technicians are available from 9:00 AM to 5:00 PM Eastern Standard Time, Monday through Friday. Please have the following information ready:

1. Serial number located on side of Nexa Balance Control.
2. Proof of Purchase from Authorized Dealer (receipt / bill of sale, cancelled check, etc.)