

## SECTION 9 - TROUBLESHOOTING

| MESSAGE DISPLAYED  | PROBLEM   | TYPICAL SOLUTION  |
|--|---|---|
| Cell inspect due   | This is an advisory message.<br>The unit will generate chlorine normally while this message is displayed. | The cell has been operating for a while. This is a reminder that now would be a good time to remove and inspect the cell and filter screen to see if they need cleaning. No problem has been detected. This is simply a time elapsed maintenance message. Press "Select" to clear this message.   |
| Cell is cleaning   | This is an advisory message.  | The cell is reversing polarity when this message is displayed. Normal production will resume shortly.   |
| Error purifier off<br>Check flow                                     | Chlorine generation has stopped due to insufficient water flow.   | <p>Turn on the circulation pump.</p> <ul style="list-style-type: none"> <li>• Turn the control valves to the correct position to allow water flow through the manifold.</li> <li>• If installed, check suction type vacuum cleaner for blocked or restricted water flow.</li> <li>• Check and clean the skimmer basket.</li> <li>• Check and clean the pump basket.</li> <li>• Check and clean or backwash the main circulation filter.</li> <li>• Clean the manifold screen of trash or debris. For instructions to clean the screen, test the flow switch, clean the bypass valve (on a bypass manifold only), see Maintenance section of manual.</li> <li>• Verify that the Tri-Sensor cable is plugged in. Plug it in, using care to orient it correctly before inserting it. Clean the Cell if plugged with debris or calcium scale (See Maintenance section of manual.)</li> <li>• Check for air in the bypass manifold by loosening the top union on the cell to see if air or water comes out. If air comes out then there may be a vacuum side leak or the pump may be undersized. Check for leak at pump basket O-ring, leaking valve or fitting.</li> <li>• If the pump is a 2-speed pump, is it on low speed? The low speed may not create enough flow for the manifold.</li> </ul> |
| Error purifier off<br>Add Salt xxx lb                                | Chlorine generation has stopped because the salt level is below 1900 ppm (mg/L) (which is too low).       | Add salt as indicated on the Digital Nano/Nano <sup>+</sup> display to bring the salt level up to 3000 ppm (mg/L).  |
| Warning!<br>Add Salt xxx lb  | The salt level is between 2000-2400 ppm (mg/L) (which is too low).  | Add salt as indicated on the Digital Nano/Nano <sup>+</sup> display to bring the salt level up to 3000 ppm (mg/L).  |
| Error purifier off<br>Add Salt xxx lb<br>Warning!<br>Add Salt xxx lb | Added salt as indicated by the Digital Nano/Nano <sup>+</sup> , but salt level still shows low.           | <ul style="list-style-type: none"> <li>• The pool volume has not been set up in the Installer Menu and is higher than the factory default of 15,000 gallons (56,000 liters).</li> <li>• The salt sensor in the Tri-Sensor may be dirty.</li> <li>• The Salt display may need to be calibrated.</li> </ul>   |

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|--|---|--|
| No Error Displays  | Salt level on display does not match pool store or salt test strip.   | <ul style="list-style-type: none"> <li>The test may have been faulty or the salt strips may be old or damaged. Have salt level rechecked at local pool store.</li> <li>If the discrepancy is more than 400 (mg/L), then calibrate salt. See "Calibrating Salt" on page 19 for more information.</li> </ul>   |
| <b>Warning!</b><br><b>Check/clean cell</b><br><br>See additional troubleshooting on this error later in section. | Conductivity of the water is reduced; usually caused by low salt, cold water or a scaled cell or a combination thereof. | <ul style="list-style-type: none"> <li>Check the salt level and adjust to 3000 ppm (mg/L) or verify salt calibration.</li> <li>For water temperatures below 65°F (18.3°C), increase salt to 3500 ppm (mg/L).</li> <li>Remove and inspect the cell for white calcium scale. (See cell inspection and cleaning instructions in the Maintenance section of manual.)</li> </ul>                                      |
|  | The salt level is below 2800 ppm (mg/L) & temperature below 70°F (21°C).  | Increase salt level to 3500 ppm (mg/L) or increase temperature on heater if applicable.  |
|  | The salt display differs from salt test.  | Adjust salt display in the Salt Calibration mode. (See Calibrating Salt, in the Programming section of manual.)  |
|  | The cell is scaled.   | Determine frequency of scaling. <ul style="list-style-type: none"> <li>ONE week or less = Power Supply not reversing polarity – contact factory.</li> <li>TWO weeks or more = Water Chemistry related problem (See Reference section of manual, Water Chemistry and Saturation Index topics).</li> </ul> Adjust water chemistry or adjust "Set Reverse" to a shorter cycle.                                      |
|  | If this is a new installation...  | Verify the incoming voltage matches the voltage of the Digital Nano/Nano <sup>+</sup> . (See Specifications and Installation sections of manual.)  |
| <b>Warning!</b><br><b>Low Amps: Cell?</b><br><br>See additional troubleshooting on this error later in section.  | Cell is completely clogged from calcium scale, has failed, or the cell cord is loose or damaged.                        | <ul style="list-style-type: none"> <li>Check cell for calcium scale buildup. Clean as needed.</li> <li>Check for visual wear on the edges of the terminal blades which may be an indication that cell is depleted.</li> <li>Check the cell cord for tight connections on the cell and on the power supply. Check the plug for burns. Tighten or replace as needed.</li> <li>Replace cell if depleted.</li> </ul> |
|  | The cell cord is disconnected   | Verify cell cables are inserted fully into the Digital Nano/Nano <sup>+</sup> base cell connector.   |
|  | The cell is heavily scaled.   | Remove and acid wash as described in Maintenance section of manual.  |
|  | If this is a new installation...  | Verify that the incoming voltage matches the voltage of the Digital Nano/Nano <sup>+</sup> . (See Specifications and Installation sections of manual.)   |

| MESSAGE DISPLAYED            | PROBLEM                                  | TYPICAL SOLUTION   |
|------------------------------|--|--|
| Warning!<br>Low Amps: Cell?  | Cell is not receiving the expected Amps. | Enter "Test Pool Pilot" mode through the menu. Write down the salt level, water temperature, and cell volts and amps. <ul style="list-style-type: none"> <li>• If the volts are 24-26, then the problem is usually caused by low salt, improperly connected, disconnected or loose cell cord, water less than 65°F (18.3°C), a scaled cell, or cell near end of life. Correct as appropriate.</li> <li>• If the volts are less than 20, then contact Autopilot Systems for assistance.</li> </ul> Installer: If the unit is configured for 230 Vac operation, then verify the input AC voltage is not 115 Vac. Supply correct voltages or reconfigure the unit as appropriate. |
| Warning!<br>Check/clean cell |  |  |
| Warning!<br>Low Cell volts   | Cell is shorted                          | <ul style="list-style-type: none"> <li>• Check cell for calcium scale buildup. Clean as needed.</li> <li>• Check call for wire or other debris that is shorting the electrodes.</li> </ul>   |
|                              | Cell cord is defective                   | <ul style="list-style-type: none"> <li>• The cell cord has a short. Replace.</li> </ul>  |
| Warning!<br>Bad temp sensor? | Temperature is out of range.             | <ul style="list-style-type: none"> <li>• Check the Tri-Sensor cable; make sure it is not disconnected or loose.</li> <li>• Check the water temperature.</li> <li>• If confirmed temperature is OK, contact AquaCal AutoPilot for assistance.</li> </ul>  |

| MESSAGE DISPLAYED | PROBLEM   | TYPICAL SOLUTION  |
|-------------------|---|---|
| Normal display    | <p>There are no warning messages on the display but the chlorine level is too low.<br/>Water quality looks dirty or cloudy.</p> | <ul style="list-style-type: none"> <li>● The chlorine setting has been fine, but a temporary boost of chlorine is needed to adjust for rain or a temporary bather increase. Press the Boost button to temporarily elevate the chlorine production level to 100% for 24 hrs. The chlorine output will revert to the original setting after 24 hrs.</li> <li>● The chlorine setting has been fine, but a temporary (or longer) Super Boost of chlorine is needed to adjust for heavier rain or bather increase. Press and hold the Boost button for 8 seconds to temporarily elevate the chlorine production level to 100% for 72 hrs. The chlorine output will revert to the original setting after 72 hrs.</li> <li>● Check pool chemistry parameters. (See Water Balance &amp; Chemistry Recommendations in the Owner's Quick Start section of manual.) The Cyanuric acid level may be low and the chlorine is being consumed quickly by the UV from the sun.</li> <li>● The chlorine output needs to be increased. <ul style="list-style-type: none"> <li>● Use the UP arrow key to increase the chlorine output setting.</li> <li>● Increase the pump run time so the Digital Nano/Nano<sup>+</sup> is generating chlorine for a longer period of time.</li> </ul> </li> <li>● Test water for high phosphate levels. Use a product such as "Lo-Phos" to reduce phosphates if the phosphate level is higher than 22 ppm (mg/L).</li> <li>● If the water temperature is 55°F (10°C) or colder, the Pool Pilot has automatically turned the Chlorine output down to 1% to avoid over-chlorination. Bacteria and algae activity is greatly reduced at these temperatures; so, this should not be a problem. Hand dose additional chlorine if necessary.</li> <li>● Obtain an independent salt reading to check the Pool Pilot reading. Add salt, if needed, and recalibrate the Pool Pilot salt display.</li> <li>● Check the Max Temp in the setup menu. If higher than the Shutoff temp., unit may be going into a cooling mode. Shade, or relocate unit to an area less affected by direct sunlight or other sources of heat external to the unit.</li> </ul> |
|                   | <p>There are no warning messages on the display.<br/>The chlorine level is too low but the pool water looks fine.</p>           | <ul style="list-style-type: none"> <li>● The test kit reagents or strips may be old or have been exposed to sunlight. Replace the kit or reagents and retest.</li> <li>● There is too much chlorine in the pool. The chlorine is bleaching the test kit reagents. Dilute the water sample with distilled water and retest. Lower the chlorine output setting with the down arrow button if the chlorine level is too high.</li> <li>● Possible power supply fault. <ul style="list-style-type: none"> <li>● Press "Boost". Wait 10 seconds for the unit to start the Boost cycle.</li> <li>● Press "Menu". Select "Test Pool Pilot"</li> <li>● Record the Volts and Amps when displayed. If the volts are less than 4.0 and the Amps are less than 1.5, contact the factory for assistance.</li> </ul> </li> </ul>  |

| MESSAGE DISPLAYED   | PROBLEM                                   | TYPICAL SOLUTION   |
|---|---|--|
| Chlorine display  | Chlorine locked at 1%                     | If the water temperature is 55°F (10°C) or colder the Pool Pilot has automatically turned the Chlorine output down to 1% to avoid over-chlorination. Bacteria and algae growth is greatly reduced at this temperature, so this should not be a problem.  |
|   | Chlorine % fluctuates from adjusted value | The AutoPilot unit has a patented process for automatically increasing and reducing the chlorine output as the temperature of the water fluctuates. It is normal for the % output to increase as the water temperature increases, and to decrease as the water temperature decreases.  |
| Blank display   | The Pool Pilot Display is blank.          | <ul style="list-style-type: none"> <li>• If the display is in bright sunlight, then shade the display to read.</li> <li>• Verify external time clock has not turned off power to Digital Nano/Nano<sup>+</sup>. (Temporarily override the time clock, if desired, to check the Digital Nano/Nano<sup>+</sup>.)</li> <li>• Verify local shut off switch and/or main circuit breaker for Digital Nano/Nano<sup>+</sup> is turned on.</li> <li>• If power is provided to unit by an external control device, verify power is provided to and from the device.</li> <li>• Fuse may be blown. See fuse replacement in maintenance section.</li> </ul> |
| Cooling   | Unit is not generating Chlorine           | <p>Internal temperature of unit has exceeded "Shutoff Temp", viewable on Setup Menu. Will turn off chlorine generation for five (5) minutes or until temperature decreases.</p> <ul style="list-style-type: none"> <li>• Wait until unit cools down.</li> <li>• Move Digital Nano/Nano<sup>+</sup> to a shaded area if too hot.</li> </ul>   |
| <p>(<b>All</b> three of the following messages are being displayed.)</p> <p>Warning!<br/>Low Amps: Cell?</p> <p>Warning!<br/>Low Cell volts</p> <p>Warning!<br/>No Output</p> | Power supply fault                        | <ul style="list-style-type: none"> <li>• NOTE: If all 3 messages are not being displayed then refer to the specific individual fault message above. All 3 messages must be displayed for this to be a power supply fault.</li> <li>• Contact factory for service</li> </ul>  |