Aquamatic, Aquamatic XL & AquaWhisper DX Control System

Quick Start & Trouble Shooting Guide

PN: 90012015-Q REV | Release: 10/17/2017

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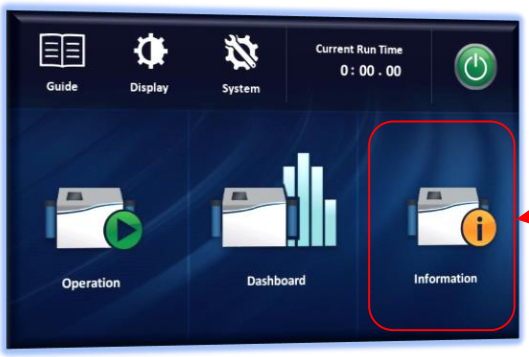
1.0 System Commissioning

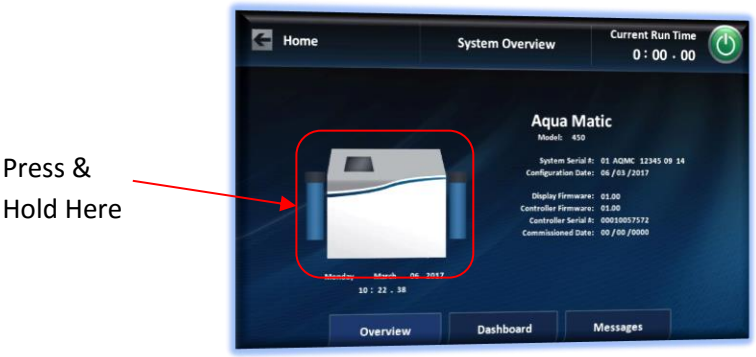
The Aquamatic, Aquamatic XL and AquaWhisper desalination system controller comes loaded with a special utility tool designed to aid the dealer in the commissioning of the system. This utility can be used to set a limited number of options within the controller, and is accessed in the following manner.

NOTE: Your system should not be running when attempting to enter dealer commissioning mode.

CAUTION: All electrical covers should be on before providing powering to the system. Electrical shock may accrue if electrical boxes are exposed.

1. **Press Anywhere on the Main Splash screen to begin.**
2. **Press the indicated area to gain access to the system information area.**
3. **On System Overview Screen press and hold the indicated area for at least 2 seconds to gain access to the 'System Additional Functions' menu area.**





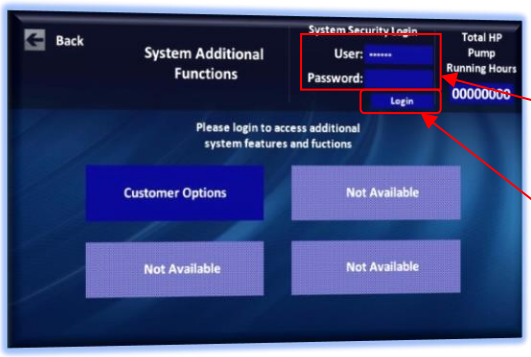
4. Log in using your dealer user name and password in the area shown below

NOTE: Password is case sensitive

5. Press System Configuration shown below

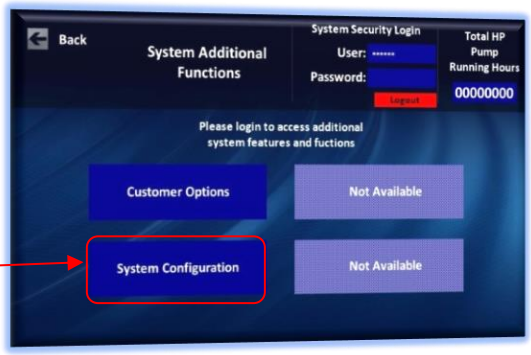
6. Select or Enter in SYSTEM TYPE, SYSTEM FREQUENCY, SYSTEM SIZE, and CURRENT TIME.

	Aqua Matic	Aqua Whisper DX	Aqua Matic XL
SYSTEM SIZE RANGE	450-1800	450-1800	2200-3400
SYSTEM FREQUENCY	50 or 60 Hz	50 or 60 Hz	50 or 60 Hz
CURRRENT TIME	24 Hour	24 Hour	24 Hour



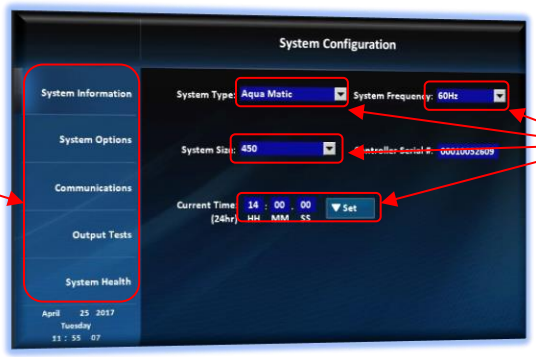
Enter user credential information here

Press here when finished



Press Here

Press here to navigate through system functions



Press here to set system options

7. Press 'System Option' tab.

8. Select option applicable to your system.

System Tank Level Control	ON	OFF
System UV Sterilizer	ON	OFF
System Fresh Water Flush	ON	OFF
System Emergency Stop	ON	OFF

9. Press 'Communications' tab

10. Select options applicable to your system

Communications Status	ON	OFF
Communications Protocol	STD NMEA 2000	SRC
Communications Port	NMEA2000	Remote

11. Press system 'Output Tests' tab

CAUTION: This page is meant to test individual function test of components power and motor rotation prior to running the system. **SINCE SYSTEM IS NOT PRIMED WITH WATER DO NOT TRY TO RUN SYSTEM COMPONENT FOR LONG PERIODS OR DAMAGE WILL ACCURE**.

12. Press each tab to test Power and/or motor rotation

- Auxiliary Pump (On, Off)
- Booster Pump (On, Off)
- High Pressure Pump (On, Off)
- Product Valve (On, Off)
- Fresh Water Flush Valve (On, Off)
- UV Sterilizer (On, Off)
- Jog BPR Clockwise (Only available on Aquamatic Models)
- Jog BPR Counter Clockwise (Only available on Aquamatic Models)

13. Press System Health Tab

Note: This tab will show a complete overview of the current system health along with any external sensors connected. A 'Fault!!' indicator will appear if a problem is detected. High speed flow meters cannot be tested automatically, but the output values of these sensors can be viewed here and should display a value when pumps are operated.

The 'System Health' screen displayed by the controller is shown below:

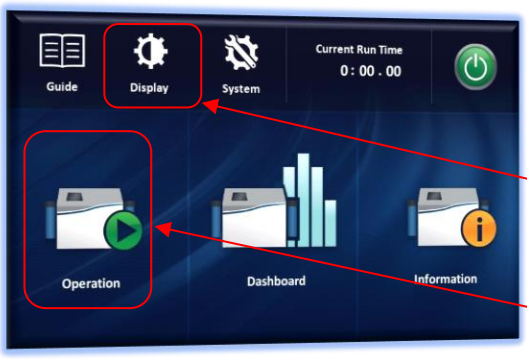
14. Press Save & Exit

Your system is now configured.

2.0 Display Settings

The Aquamatic, Aquamatic XL and AquaWhisper desalination system controller also allows you to configure your desired display settings. These setting include language, unit display and screen brightness. To update any of these settings, please follow the procedures outlined below:

1. **Press Anywhere on the Main Splash screen to begin.**
2. **Press the display setting icon shown below.**
3. **Press language to set desired language.**



Press here

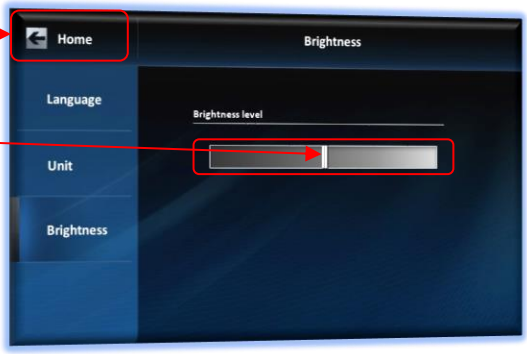
Press here

4. Press Units to set desired Units.

5. Press Brightness to set desired brightness level.

Press here

Press here and slide left or right



To return to the 'Main Menu' screen simply press on the 'Home' button, as shown above.

3.0 Manual Operation

The Aquamatic, Aquamatic XL and AquaWhisper DX desalination system controller provides two possible methods of operation; these are manual mode and automatic mode. In manual mode, the controller requires that the operator activate the relative pumps by pressing on the required pump operation icons. If the user attempts to operate a pump when it is determined by the control system as unsafe to do so, the controller will not allow such an action and will in some cases raise a warning message.

NOTE: Before attempting manual start up, it is important to check that all system feed and brine valves are in the open position.

1. **Press anywhere on the main splash screen to begin.**
2. **Press Operations icon shown below.**
3. **Press Manual Mode icon shown below.**

NOTE: The Manual control screen displayed may vary from the examples shown below, depending on the product model in use. To provide complete details, this manual will review the procedures needed for operation of an Aquamatic, or Aquamatic XL system. Hence, this description will contain automatic pressure regulation operation information that is not needed when operating an AquaWhisper DX system.

4. Press Booster Pump icon.

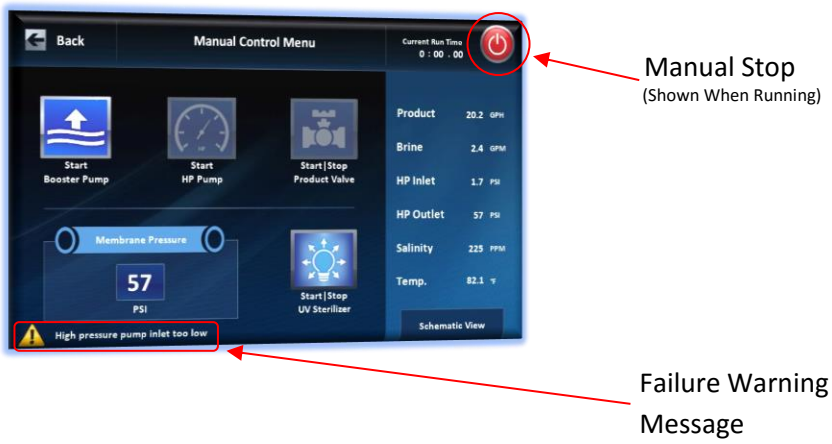
NOTE: If starting system for the first time, allow time for the system to be primed before starting HP Pump.

NOTE: To stop the system at any time use the Manual Stop at the top right corner.

Booster Pump Off

Booster Pump On

NOTE: A warning message may pop up in the lower left hand corner of the screen giving details of the failure. The operator must correct this situation before being allowed to continue.



NOTE: If the booster pump has been activated, and no conditions prohibiting operation of the high-pressure pump exist, the controller will make the 'Start HP Pump' button available, as shown below:

5. **Press HP Pump icon.**

6. Adjust pressure to 800 PSI (55 BAR) by pressing and holding the increase arrow icon.

NOTE: If you have an Aqua Whisper DX use the regulator knob for this step.

NOTE: Automatic Pressure Control: (only on Aquamatic & Aquamatic XL systems)

System Pressure Control
(Only 'increase' available)

NOTE: Once system pressures have exceeded the minimum allowable, the 'Decrease' button will also be made available.

System Pressure Control
(Both buttons available)

NOTE: Once the maximum pressure available, the 'Increase' button will no longer be made available.

System Pressure Control
(Only 'Decrease' available)

NOTE: If the UV Sterilizer is not installed skip next step.

7. Press UV Sterilizer icon.

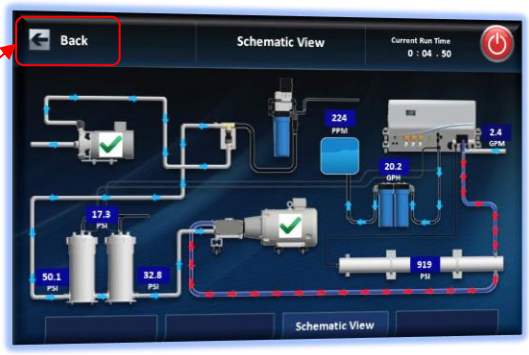
NOTE: It may take several minutes for UV Sterilizer to become active. The system must sense good potable water for the icon to activate.

8. Press the Product Valve Icon to activate the Diversion valve.

NOTE: Once the UV system has completed its warm up cycle or once the controller has detected potable water, the control system will make the 'Start|Stop Product Valve' button available.

NOTE: You may view the operation data on the right of the screen below or schematic view.

Press to return to manual operation screen



4.0 Automatic Operation

Automatic startup operation allows for virtually hands free startup of the Aquamatic, Aquamatic XL or AquaWhisper DX system, and all associated equipment. This automatic startup operation can also be carried out remotely via the system remote control display (if installed).

NOTE: Before attempting automatic start up, it is important to check that all system feed and reject valves are in the correct position.

1. **Press anywhere on the main splash screen to begin.**
2. **Press Operations icon shown below.**
3. **Press the Start or Auto Start/Stop icon.**

Press Here

Auto Start/Stop shortcut (available on any screen)

Press Here

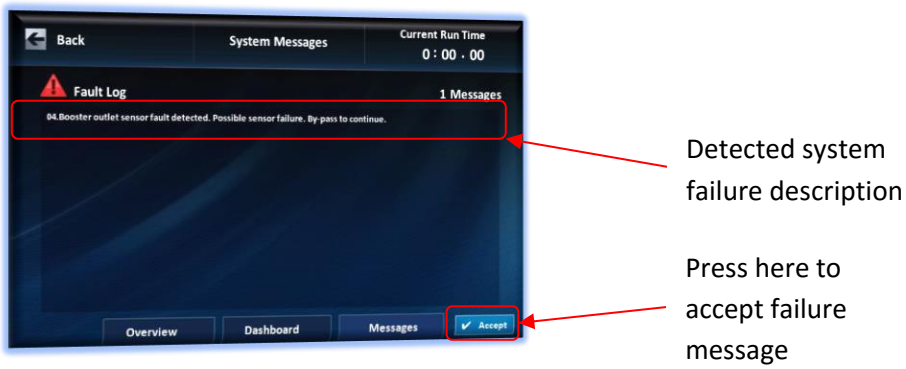
NOTE: If the control system is unable to successfully calibrate the pressure control regulator, an error message will be displayed, and automatic startup will be aborted. An example of this error message is shown below:

NOTE: There will be a system priming delay of approximately 25 second once boost pump has turned on to when the HP Pump turns on.

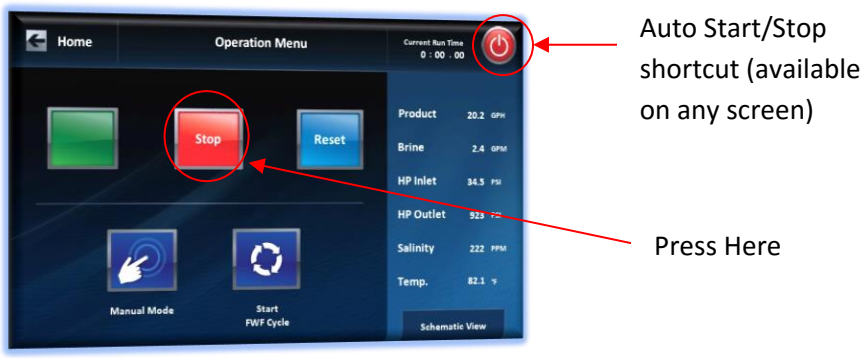
4. For Aqua Whisper DX system increase pressure to 950 PSI (65 BAR) by turning the regulator valve.

NOTE: For Aquamatic & Aquamatic XL systems, after a further 60 seconds the system will activate the automatic pressure regulator and start increasing system pressure until the desired product water production rate has been achieved or until max pressure allowable (925 PSI - 65 BAR). If Max pressure is achieved, you will get a warning message. This will most likely happen when you are in low temperature, high salinity feed water, or when your membranes need cleaning or changing. The Aquamatic and Aquamatic XL system will continue to operate in this high-pressure state and will divert all potable water produced into the ships potable water storage tank.

NOTE: If the control system detects a dangerous condition, or a failure of a critical sensor during automatic operation. The system will bring the Aquamatic, Aquamatic XL and AquaWhipser DX system to a rapid stop, and display the detected failure in an alarm screen, as shown below:



5. To Stop the system from running press the Stop icon or the Auto Start/Stop icon.



The system will start shutting down in the sequence below

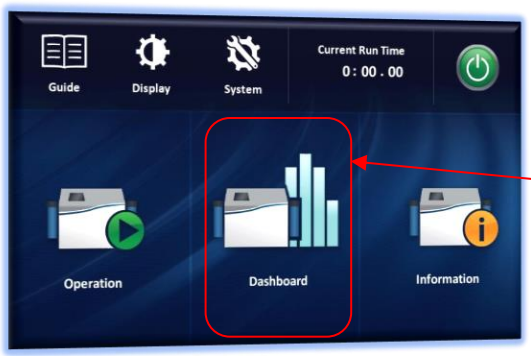
- The product diversion valve will be de-activated
- The UV system will be set into shutdown mode (if installed)
- The High-Pressure pump will be stopped
- The Back-Pressure control regulator assembly will be re-initialized to prepare for correct fresh water flush operation (Aquamatic & Aquamatic XL systems only)
- For Aquamatic & Aquamatic XL systems, after successful re-initialization of the Back-pressure control regulator the system will begin a 10 second countdown, once this countdown has elapsed the booster pump will be de-activated.

- For Aqua Whisper DX system, after successful deactivation of the high pressure pump, the system will begin a 10 second countdown, once this countdown has elapsed the booster pump will be de-activated.

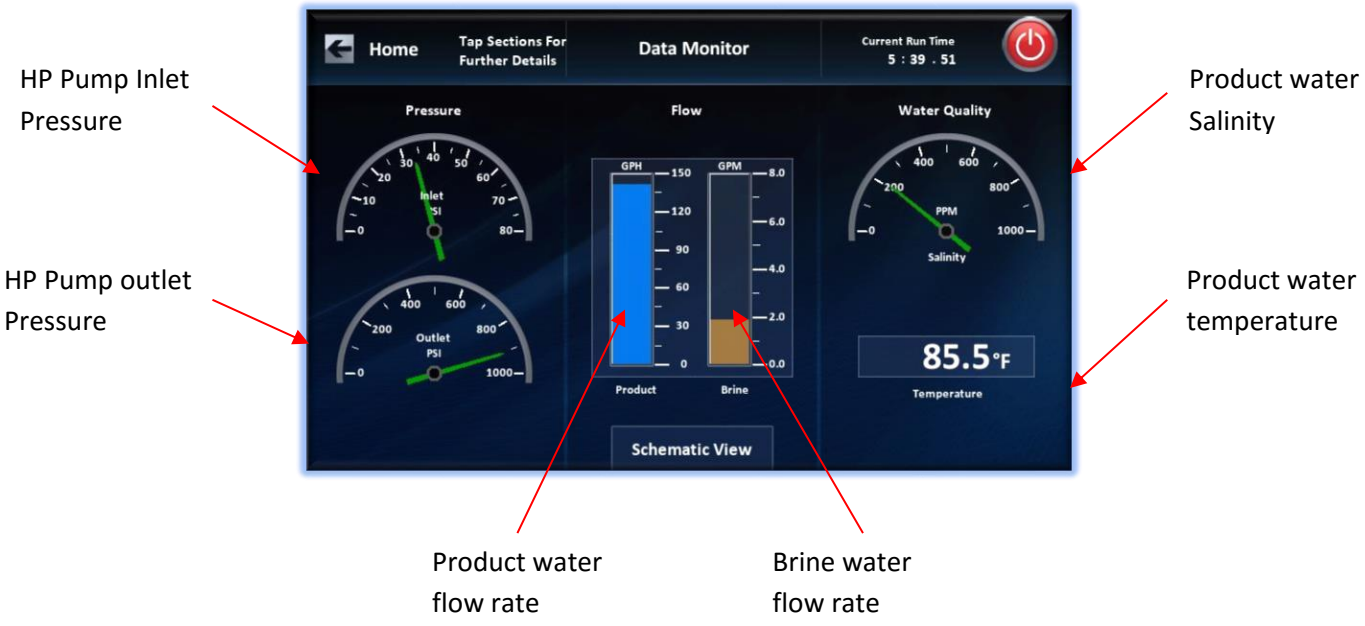
Now automatic shutdown operations have completed. If the system is not re-started within 30 seconds, the system will begin a fresh water flushing cycle.

5.0 Accessing Your Various Display Screens

1. Press Dashboard icon.



All available system data is shown in the users chosen display unit.



2. Press Tap Selection Tab for Further Details.

3. **To get to any of the 3 screens (Pressure, Flow, or Water Quality) press the area in the boxes below.**

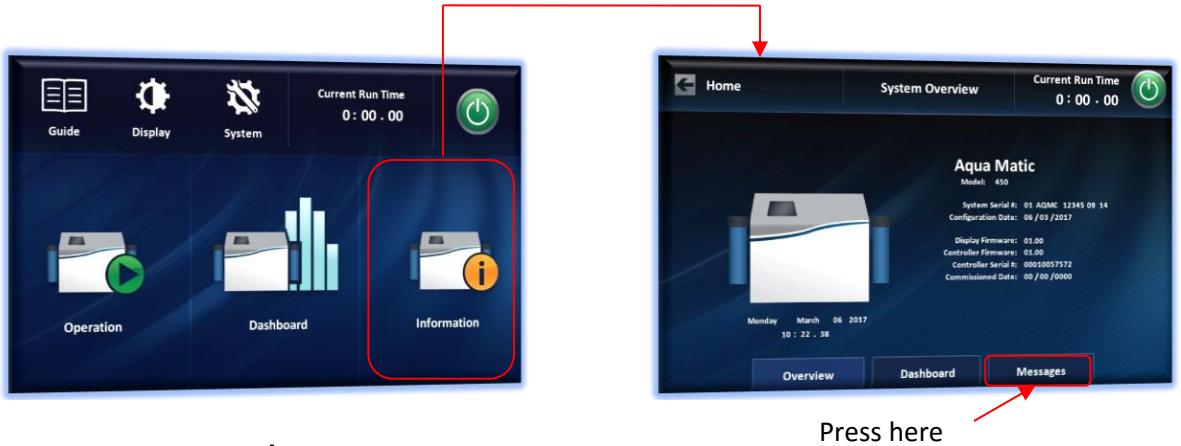
4. **Pressing the arrow button in the top left hand corner of the water quality screen two times will return you to the main menu screen as shown below:**


Back
Water Quality Monitor
Salinity
216
PPM
Temperature
85.5
°F
Schematic View
Home
Data Monitor
Pressure
Flow
Water Quality
85.5°F
Schematic View


Guide
Display
System
Current Run Time
0 : 00 . 00
Operation
Dashboard
Information

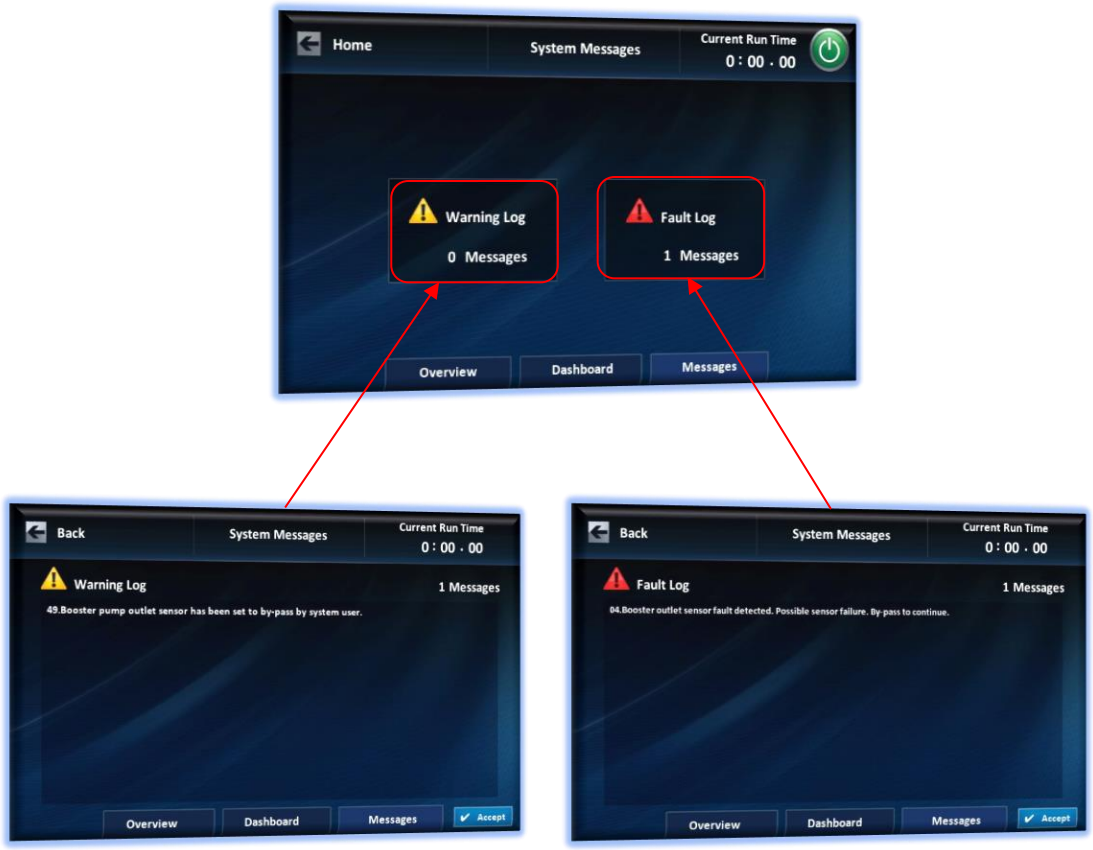
6.0 Accessing System Fault & Warning Log

1. **Press Information Icon**

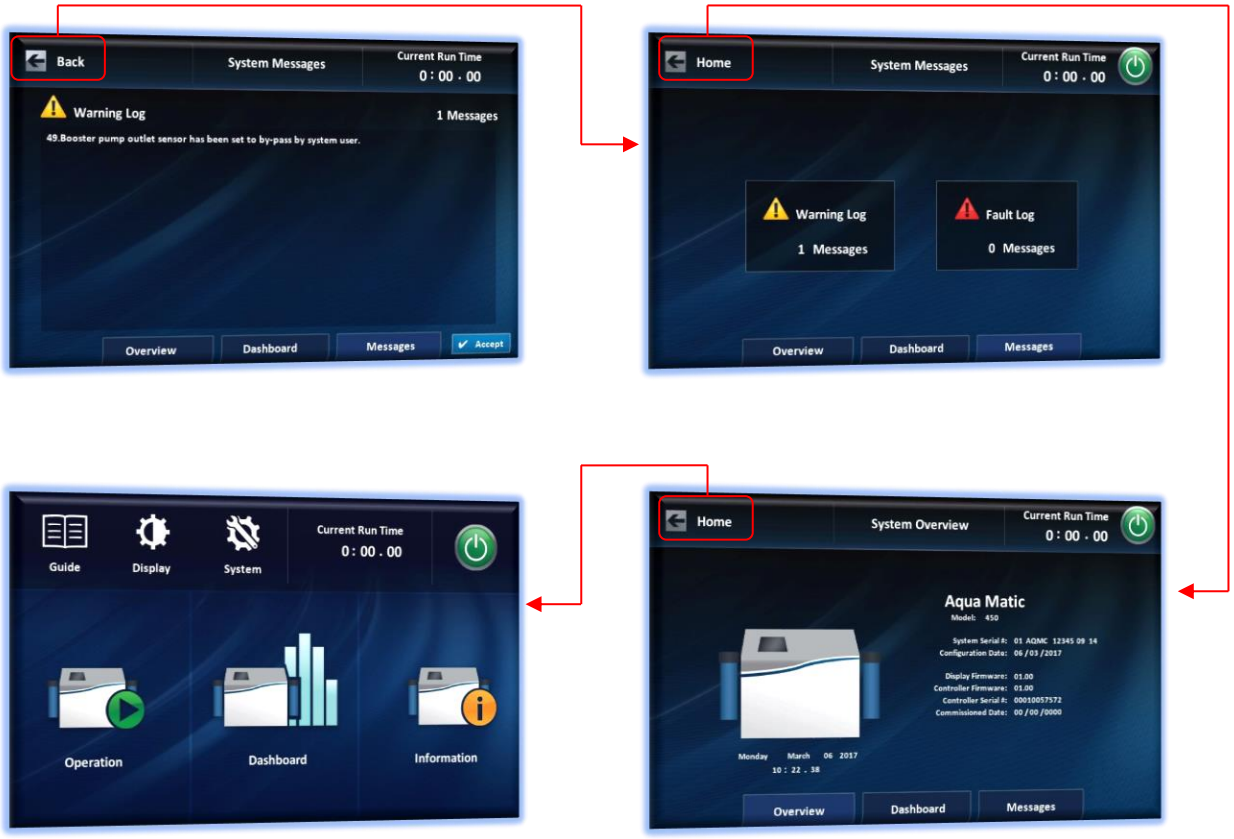


2. **Press Message tab.**

3. **Press the 'Fault Log' or 'Warning Log' area, as shown on the below.**



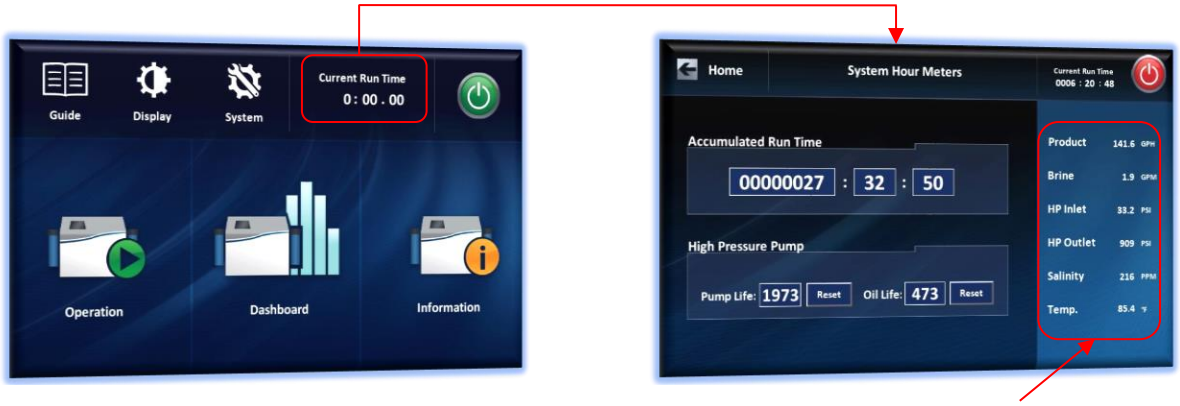
4. **Pressing the arrow button in the top left hand corner on the screen to exit.**



7.0 Accessing High Pressure Pump Hour Meter

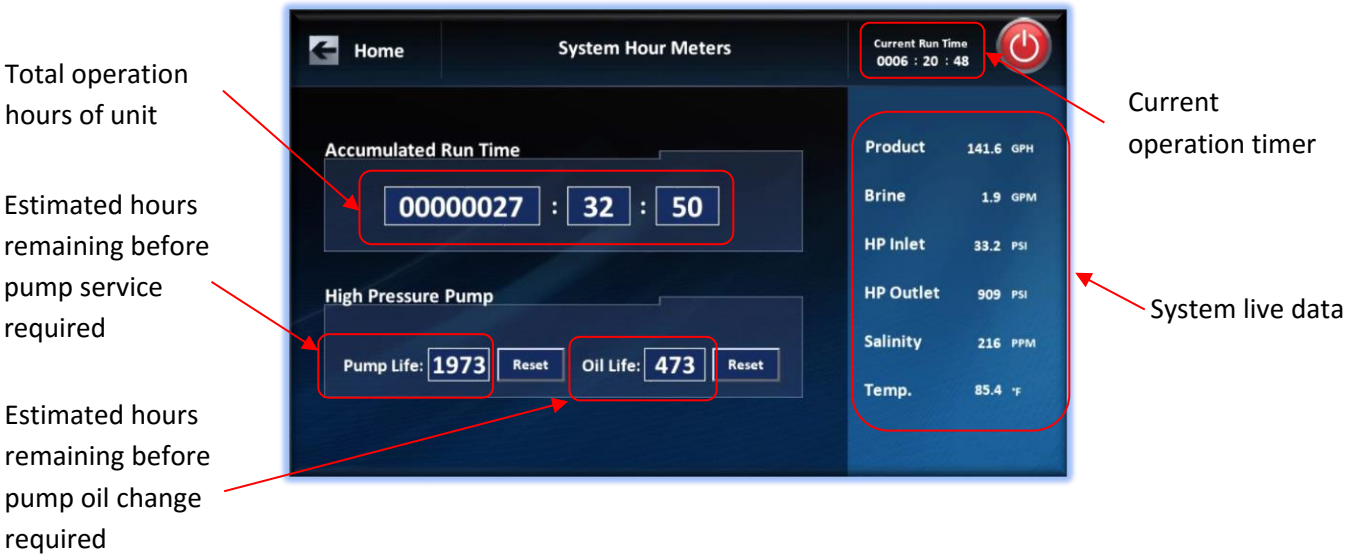
The Aquamatic, Aquamatic XL, and AquaWhisper DX desalination system controller constantly records your high pressure pumps operational hours.

1. **To access the high-pressure pump hours display press on the 'Current Run Time' area, available on most screens.**



System live data

2. The high-pressure pump hours display screen also contains additional information



The high-pressure pump hour display provides two maintenance life timers, these being pump life, and oil life. These timers monitor high pressure pump operation. The Pre-programmed meter has reached zero '0', a warning message will be displayed each time the high-pressure pump is activated. The life timer display will simply show '***', indicating that the life meters have expired. Once the maintenance has been performed, the user may reset these life meters by pressing the appropriate 'Reset' button.

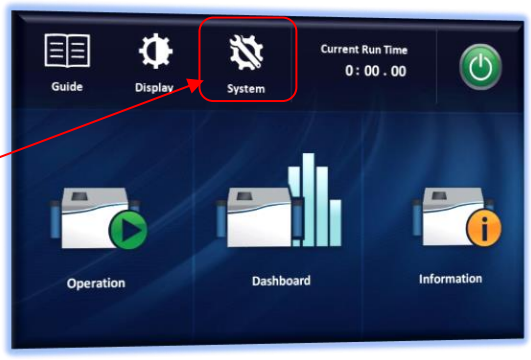
NOTE: It is not possible to reset a life meter until its measured life value has reached zero.

3. Pressing the arrow button in the top left hand corner to exit back to main page.

8.0 Setting System Clock

1. Press system settings icon.
2. Press Clock.

Press here



Press here

3. Choose your time format.
4. Press on Set Time enter in the correct time.
5. Press Set for 2 seconds to set time.

Current time is displayed here

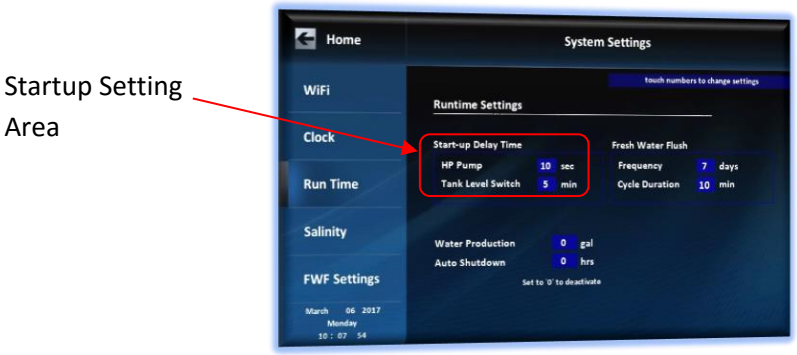
Press here to select 12 or 24hr format

Enter the correct time here in 24hr format. Press 'Set' when finished

6. Press home to return.

9.0 Setting System Run Timers

1. Press system settings icon.
2. Press Run Time.



3. Press HP Pump Delay to change default setting for the HP pump time delay.

HP Pump Delay Time

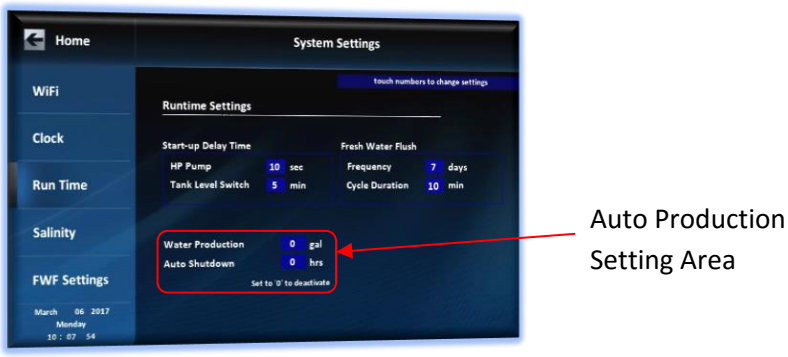
This delay timer controls the startup delay applied to the high-pressure pump during system activation. The default delay time is 10 seconds, but if your application has the booster pump located some distance away from the main unit, a longer delay may be required to allow the feed water to reach the high-pressure pump. The time value delay range is from 5 seconds to 99 seconds.

4. Press Tank Level Switch to change default setting tank level switch

Tank Level Switch Delay Time

This delay timer controls the delay period applied to the state change of the production tank level switches. As the tank begins to fill with fresh water and with movement of the vessel, the water level within the tank will oscillate. This oscillation will cause constant activation and de-activation of the product tank level switches when the tank level is near their detection point, this programmable delay period is designed to accommodate for these oscillations, so false triggering of these level switches is avoided. The time value delay range is from 5 minutes to 99 minutes.

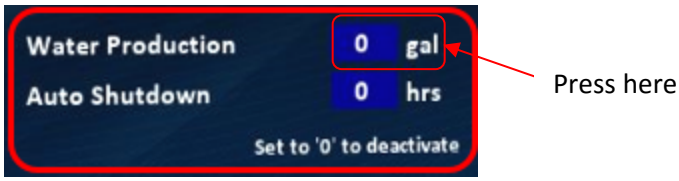
5. Press Water Production to change default setting to the desired amount before system shutdown. A value of zero ‘0’ will de-activate this feature.



Water Production

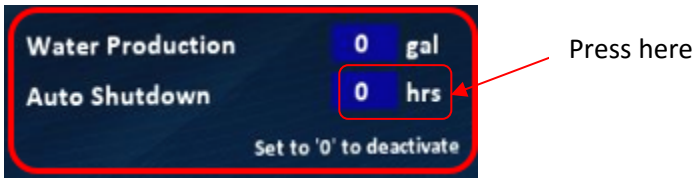
This controls the amount of water produced by the water maker. Once the produced water equals the amount programmed, the water maker will shut down. When the user re-starts the water maker, it will run until the produced amount of water equals the value stated. Production range is from 1 gallon to 4000 gallons.

6. Press Auto Shutdown to change default setting to the desired time. A value of zero ‘0’ will de-activate this feature.



Auto Shutdown Operation

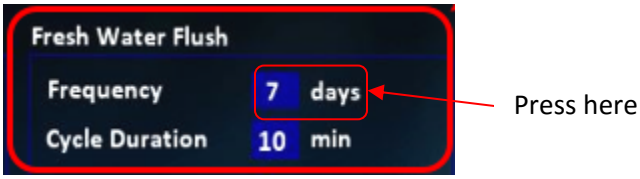
This controls the amount of time the water maker will operate. Once the operational time reaches the desired time, the water maker will shut down. When the user re-starts the water maker, it will run until the operational time stated. The time value range is from 1 hour to 48 hours.



Fresh Water Flush

This controls the sleep time between system fresh water flush cycles and the duration of the fresh water flush.

7. Press Fresh Water Flush Frequency to change the default number of days between fresh water flushing.



8. Press Fresh Water Flush Cycle Duration to change the default time for fresh water flushing.

9. Press home to return.

10.0 Setting System Salinity

The Aquamatic, Aquamatic XL and AquaWhisper desalination system controller allows you to configure your desired production water quality using two methods. The primary method used is by the simple movement left or right of the salinity bar or entering a value.

1. Press system settings icon.
2. Press Salinity tab.

3. Move slider bar left or right to adjust salinity or enter desired value in required Product Quality.

The Salinity value range is 150PPM to 999PPM. Once the value is entered, the slider position, and the current setting value will update appropriately.

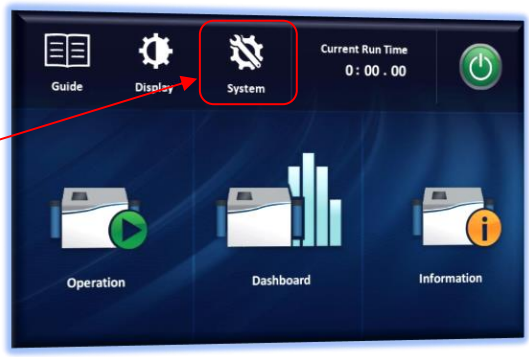
4. Press home to return.

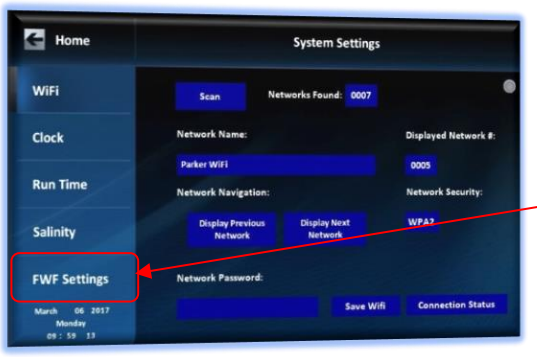
11.0 Setting Fresh Water Flush

The Aquamatic, Aquamatic XL and AquaWhisper desalination system controller allows you to configure your desired fresh water flush program settings in two areas. The first area is in 'Runtime Settings', as discussed previously. However, the same setting can also be adjusted in the dedicated 'FWF Settings' tab, this tab also gives information about the current FWF system status, including the number of days until the next flushing cycle will take place.

5. Press system settings icon.
6. Press FWF Settings.

Press here





Press here

Fresh Water Flush Frequency

This controls the sleep time between system fresh water flush cycles. Immediately after a system shutdown, the fresh water flush program activates for a set duration. This flushing is done to remove sea water from system components, and replace it with fresh water. However, it is vital this fresh water be replaced every so often to ensure no biological growth can occur. The default cycle time is 7 days, meaning each 7 days the fresh water flush program will repeat. Programmable cycle times range from a minimum of 1 day to 15 days.

7. Press Fresh Water Flush Frequency to change the default number of days between fresh water

Press on the default value to change it.

Enter your desired value and press 'Enter'.

Fresh Water Flush Cycle Duration

This sets the fresh water flushing time. In most applications, a fresh water flushing time of 10 minutes is adequate to displace all sea water from the system. However, this cycle duration can be changed if desired. The Fresh Water Flush duration range is from 3 minutes to 30 minutes.

8. Press Fresh Water Flush Cycle Duration to change the default time for fresh water flushing.

Press on the default value to change it.

Enter your desired value and press 'Enter'.

Current Fresh Water Flush Status

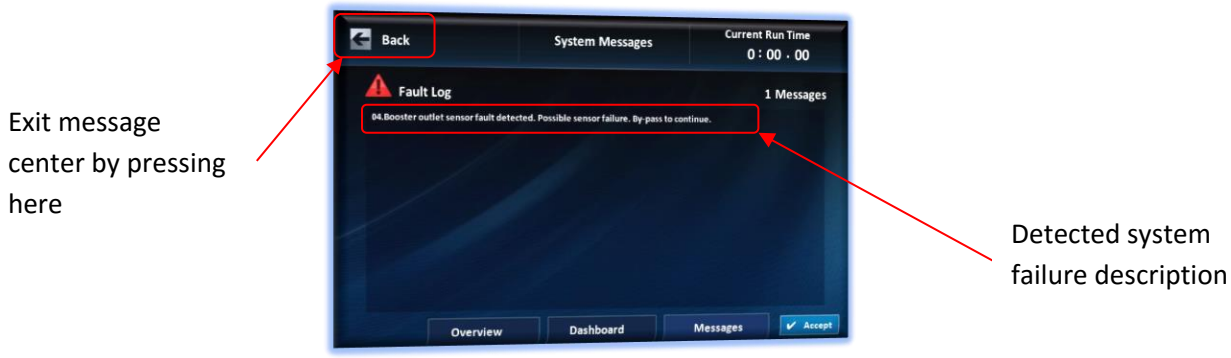
NOTE: This display variable indicates the number of days remaining until the next fresh water flush cycle begins. If '**' is displayed, no fresh water flush cycles are scheduled

9. Press home to return.

12.0 System Fault Error Messages

The Aquamatic, Aquamatic XL and AquaWhisper DX control system contains fault log message center. During operation, if a dangerous condition exists, or a critical monitoring component fails which would result in the control systems inability to accurately detect a dangerous condition. The detected condition or failure is deemed as a 'Critical Error'. These types or faults result in a rapid shutdown of the water maker and all associated equipment. The fault log message center is the information window used by the operator to examine system faults or failures.

When these operational faults or equipment failure happens, the controller will automatically switch the display screen to the following information window:



1. To stop the alarm press, Accept.

System Alarm codes and likely causes

Number	Alarm Displayed	Likely Causes
01	Automatic start requested with system locked in E-Stop. Please clear E-Stop.	The E-Stop button was pressed in when an automatic start was requested. Release the E-stop button before continuing.
02	System emergency stop requested in automatic mode. All moving machinery stopped.	The E-Stop button was pressed while the system was running. Release the E-stop button before attempting to run the unit again.
03	Automatic start requested with booster pump running in manual mode.	The booster pump was running in manually mode, and the operator requested starting the system in automatic mode. Stop the booster pump in manual control screen before re-attempt to start the system in automatic mode.

04	Booster outlet sensor fault detected. Possible sensor failure. By-pass to continue.	The booster pump outlet pressure transducer sensor is not reporting values as expected. The transducer could be unplugged, a wiring fault may exist, or the sensor itself may have failed. The fault must be fixed and cleared before running the system again. If an emergency exists the system can still be run by activating the sensor by-pass function. Please contact your dealer for help.
05	HP pump inlet sensor fault detected. Possible sensor failure. By-pass to continue.	The high-pressure pump inlet pressure sensor is not reporting values as expected. The transducer could be unplugged, a wiring fault may exist, or the sensor itself may have failed. The fault must be fixed and cleared before running the system again. If an emergency exists the system can still be run for a limited time by activating the sensor by-pass function. Please contact your dealer for help.
06	HP pump outlet sensor fault detected. Possible sensor failure. By-pass to continue.	The high-pressure pump inlet pressure sensor is not reporting values as expected. The transducer could be unplugged, a wiring fault may exist, or the sensor itself may have failed. The fault must be fixed and cleared before running the system again. If an emergency exists the system can still be run for a limited time by activating the sensor by-pass function. Please contact your dealer for help.
09	Salinity sensor fault detected. Possible sensor failure. Only manual mode permitted.	The salinity sensor temperature function is no longer readable by the control system, this is usually an indication of water penetration into the sensor itself causing failure. The system will default to manual mode only if salinity readings are still available. The user can divert potable water into the ships storage tank, but if salinity readings are not available, the user must bypass this sensor to gain access to potable water diversion functions. Please contact your dealer for help.
10	Product flow sensor fault detected. Possible sensor failure. By-pass to continue.	The product water flow meter is no longer sending reading to the controller. The sensor could be unplugged, a wiring fault may exist, or the sensor itself may have failed. Automatic operation is not available. The sensor must be fixed or replaced before Automatic mode is available. If an emergency exists, the system can still be run in automatic mode by activating the sensor by-pass function. Please contact your dealer for help.

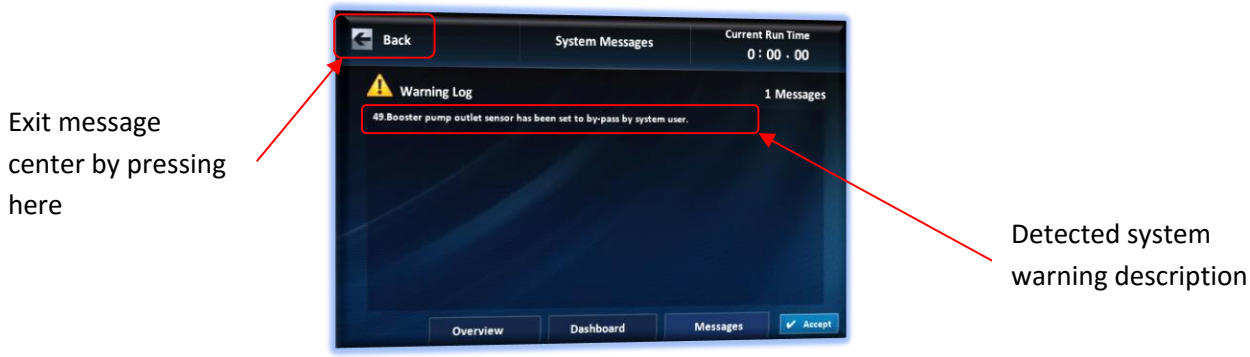
11	Brine flow sensor fault detected. Possible sensor failure. By-pass to continue.	The brine water flow meter is no longer sending signals into the controller. The sensor could be unplugged, a wiring fault may exist, or the sensor itself may have failed. Automatic operation is not available. The sensor must be fixed or replaced before Automatic mode is available. If an emergency exists, the system can still be run in automatic mode by activating the sensor by-pass function. Please contact your dealer for help.
12	High pressure pump inlet pressure low. Please check filtration for high fouling.	Inlet pressure to the high-pressure pump fell below minimum allowable set-points. This is usually attributed to booster pump cavitation (air in the feed line), a filter is clogged, or a large system leak. Check your system for leaks, and check feed lines for possible air vacuum leak. If none of these conditions exist, change your filtration elements and attempt to re-start the system again.
13	High pressure pump inlet pressure high. Pump damage can occur if started.	Inlet pressure to the high-pressure pump is above maximum allowable set-points. This is usually attributed to feed line over pressurization, check your incoming feed water line for malfunction of any boosting devices installed, and finally check rotation direction of the high pressure pump itself. If incorrect rotation is present this can cause over pressurization of the feed line. Lastly check that any high-pressure check valves installed are functioning correctly.
14	HP pump inlet sensor in by-pass & HP pump outlet pressure low. Possible cavitation	The system was operating with the high-pressure pump inlet sensor in bypass mode. During operation, the high-pressure pump achieved minimum allowable outlet pressure, but then outlet pressure dropped below the low set point. This is a good indication to the controller that pump cavitation was occurring. The system was stopped to protect the pump from damage. Follow the items listed in fault description 12 above, to locate the possible reason for this pump inlet cavitation.
15	HP pump inlet sensor & HP pump outlet sensor in by-pass. Operation not possible.	The user has requested that both the inlet pressure transducer and outlet pressure transducer of the high-pressure pump be set into bypass. Requests for this state are usually not permitted by the bypass screen manager. However, if for some reason these settings have been allowed, the unit will fail an automatic startup attempt as with both sensors bypassed, it is impossible to apply any protective measures to ensure high pressure pump failsafe operation. Deactivate one of these sensor bypasses to continue. If both sensors are malfunctioning, the unit cannot be run until at least one sensor is fixed or replaced.

16	HP pump outlet exceeded maximum permissible pressure. System stopped.	During normal operation, in manual and automatic mode, the system exceeding maximum pressure allowed. A fault has occurred and the system will activate an emergency shutdown to protect the water maker and ship equipment. Re-start the system, if back pressure regulator initialization completes correctly and the system re-starts; its highly possible a rapid change in system pressure occurred for some unknown external reason and the change was so rapid that the automatic pressure regulator was not able to adjust quickly enough to compensate. If this happen during system commissioning check BPR wiring.
17	HP pump outlet sensor in by-pass & brine flow low. Possible cavitation.	The system was operating with the high-pressure pump outlet sensor in bypass mode. During operation, the control system detected that brine flow dropped below calculated levels. This is a good indication that pump cavitation was occurring. The system was stopped to protect the pump from damage. Follow the items listed in fault description 12 on previous page, to locate the possible reason for this pump inlet cavitation.
18	BPR initialization fault. BPR is jammed. Please attempt recovery in 'Customer Options'.	The control system attempted to initialize the automatic back pressure regulator assembly, during this initialization a motor over current was detected. This indicates the pressure regulator is jammed, follow the instructions listed in section 15 to attempt to free up the regulator. If these steps do not release the regulator removal of the system top cover and manual intervention with a wrench may be required.
19	System emergency stop requested in manual. All moving machinery stopped!	Once the system was running in manual mode the E-Stop button was pressed. Release the E-stop button before attempting to run the unit again.
20	Brine flow low during manual operation. Possible pump cavitation.	The system was operating with the high-pressure pump outlet sensor in bypass mode. During operation, the control system detected that brine flow dropped below calculated levels. This is a good indication that pump cavitation was occurring. The system was stopped to protect the pump from damage. Follow the items listed in fault description 12 on previous page, to locate the reason for this pump inlet cavitation.
21	Brine flow low during fresh water flush. Possible loss of feed supply.	The system was fresh water flushing the unit, but detected that brine water flow rates are much lower than expected. This usually indicates a loss of fresh water supply to the unit. Please check this water supply to ensure it is not isolated elsewhere in the ship. If fresh water is present, check correct operation of the fresh water flush valve.

22	Operation requested in feed water warmer than system temperature specifications.	The user requested system operation, but the feed water is hotter than permitted for accurate system operation. The system salinity sensor is calibrated to read salinity accurately in water up to 40C. Water above this temperature will yield unknown results and as such, the control system will not allow operation in these waters.
23	Operation requested in feed water colder than system temperature specifications.	The user requested system operation, but the feed water is colder than permitted for accurate system operation. The system salinity sensor is calibrated to read salinity accurately in water down to 5C. Water below this temperature will yield unknown results and could freeze once purified by the system RO membranes and as such, the control system will not allow operation in these waters.
24	Maximum emergency operation time expired. Please contact Parker for assistance.	The system has been operating with a critical sensor in bypass mode for the maximum allowable time. The unit will no longer operate until this fault is repaired. In emergencies, it is possible to reset the by-pass operation timer. Please contact Parker further help
25	Operator did not increase system pressure within allowed time.	The system was started in either manual mode or the system is an AquaWhisper DX. Once the HP pump is activated, the user has a finite time in which to adjust system pressure to above minimum (>250PSI), if this step is not taken, the system automatically shuts down and generates this message.
26	BPR drive current exceeded. BPR is jammed	During operation of the system BPR, the current required to turn the unit exceeded the allowable maximum. This indicates to the controller that the BPR is jammed, or the motor has failed and has an internal short circuit. If the BPR is not jammed and moves freely, Contact Parker for further assistance
27	BPR jam occurred while opening valve. Auto release will be attempted once alarm is accepted.	While operating the BPR valve in a clockwise direction, the valve current rose exponentially, indicating the valve has reached a fully closed position, when this message is accepted by the user, the control system will use all available motor power to release the valve from this jammed position.
28	BPR jam occurred while closing valve. Auto release will be attempted once alarm is accepted.	While operating the BPR valve in a counterclockwise direction, the valve current rose exponentially, indicating the valve has reached a fully open position, when this message is accepted by the user, the control system will use all available motor power to release the valve from this jammed position.

13.0 System Warning Messages

The Aquamatic, Aquamatic XL and AquaWhisper DX control system contains a system warning message center. These types of faults are meant to bring attention to the user that the system is not running normally. These faults are ok for a short term, but may lead to a larger problem if not corrected. When a system performance related issue is detected the system alarm output will sound and a warning will be logged in the warning massage center.



1. To stop the alarm press, Accept.

System warning notifications and likely causes

Number	Message Displayed	Possible Causes
49	Booster pump outlet sensor has been set to by-pass by system user.	The operator has entered the emergency override screen and activated the emergency by-pass of the booster pump outlet pressure sensor. The system can only operate in this state for a limited time. Consult Parker for additional information
50	HP pump inlet sensor has been set to by-pass by system user.	The operator has entered the emergency override screen and activated the emergency by-pass of the high-pressure pump inlet pressure sensor. The system can only operate in this state for a limited time. Consult Parker for additional information
51	HP pump outlet sensor has been set to by-pass by system user. Manual operation only.	The operator has entered the emergency override screen and activated the emergency by-pass of the high-pressure pump outlet pressure sensor. The system can only operate in this state for a limited time. Consult Parker for additional information.

53	Product water salinity sensor has been set to by-pass by user. Manual operation only.	The operator has entered the emergency override screen and activated the emergency by-pass of the system salinity sensor. Manual operation of the unit is still possible. However, operation of the product diversion valve will need to be carried out manually.
54	Product flow sensor has been set to by-pass by user. Manual operation only.	The operator has entered the emergency override screen and activated the emergency by-pass of the system product flow sensor. The system can still function in this mode but only for a limited time. Consult Parker for additional information.
55	Brine flow sensor has been set to by-pass by user.	The operator has entered the emergency override screen and activated the emergency by-pass of the system brine flow sensor. The system can still function in this mode but only for a limited time. Consult Parker for additional information.
56	HP pump inlet pressure sensor in by-pass. Emergency operation mode active.	The operator has activated the emergency by-pass of the HP Pump inlet pressure sensor, and is now operating the system. Operation can continue until the maximum preset time has elapsed (50hrs). Contact Parker for additional information
57	HP pump outlet pressure sensor in by-pass. Emergency operation mode active	The operator has activated the emergency by-pass of the HP Pump outlet pressure sensor, and is now operating the system. Operation can continue until the maximum preset time has elapsed (50hrs). Contact Parker for additional information
58	Salinity probe 'In Air'. System automatic controls changed to manual mode only.	The salinity probe is reporting values only seen when the probe element is not submerged in water, this can happen when the system has been dormant for extended periods of time. In these eventualities, running the system in manual mode is possible. Once the probe senses water this mode will automatically be turned off. On the next automatic start up, automatic mode will be used.
59	System at maximum operating pressure but product flow rates are lower than expected.	The system has reached maximum operating pressure; however, the expected production flow has not been achieved. This could be the result of bad quality feed water, very cold feed water, or a clogging of the system membranes. The system will continue to operate in this way until turned off, or until the condition is fixed (warmer feed water, better quality feed water, etc).
60	Extended delay in production of potable water. Check settings & feed water quality.	The system is running in automatic mode, but has not been able to produce potable water within the normal time frames. Check system pressure settings, if needed, verify system feed water is within normal specifications.

61	Product water quality lost. Possible feed water quality issue. Attempting to rectify.	The system is running in automatic mode and was producing potable water, but for some unknown reason the water quality of the product water deteriorated and is no longer acceptable. Check system pressure settings
62	High pressure pump hours high. Mechanical inspection of pump recommended.	The high-pressure pump has run for more than the recommended maximum number of hours between services, and now requires inspection. This detailed service is highly recommended to extend the life of your unit
63	High pressure pump oil hours high. Pump oil replacement recommended.	The high-pressure pump has run for more than the recommended number of hours between oil inspections, and now requires this inspection or possible oil change. This quick service is highly recommended to extend the life of your unit.
64	Brine flow sensor in by-pass mode. Emergency operation mode active.	The operator has activated the emergency by-pass of the system brine flow sensor, and is now operating the system. Operation can continue until the maximum preset time has elapsed (50hrs). Contact Parker for additional information
65	Tank level control detected product tank full. System will restart when tank is low.	The vessel potable water storage tank reports being full, and the system has been stopped to avoid overflowing of this tank. Once the tank reports low levels the system will re-start automatically, providing the user has not operated the system and power to the system has not been disconnected.
66	System HP pump output below minimum. Please increase system pressure using BPR	The system was started in either manual mode or the system is an AquaWhisper DX. Once the HP pump is activated, the user has a finite time in which to adjust system pressure to above minimum (>250PSI), if this step is not taken within 60 seconds of pump activation, the system automatically generates this message. If the pressure is not increased above minimum with a 10-minute period, the control system will shut the water maker down