Farallon 1800/2800c

With Spectra Connect
Installation and Operating Manual

Spectra Watermakers
Katadyn Desalination LLC.
2220 S. McDowell Blvd. Petaluma, CA 94954
Phone: 415-526-2780
www.spectrawatermakers.com
Updated June 2024

Thank you for your purchase of a new Spectra Farallon system. When properly installed and maintained it will provide years of trouble free service. Please pay attention to the installation instructions and the system layout. Like any piece of mechanical equipment the system will require inspection and service from time to time. Do not place the components in inaccessible areas that will prevent proper maintenance. If you are having a dealer install the system for you, review the location of the components to make sure that the installation will meet your approval upon completion.

Farallon Installation Quick Start

Important Details for Installer

1. The system must have a dedicated sea water inlet to guarantee a solid flow of water to the system. The inlet should be as low in the boat as possible and with a forward facing scoop type thru-hull fitting installed.
2. The Spectra-Pearson Pump module must be installed in a well ventilated compartment where **temperatures will not exceed 120F (48C).** Many engine compartments exceed this temperature when underway. Warranty will be void if the installation does not meet this requirement.
3. Follow the wire gauge charts in the instructions! Using larger wire than specified is acceptable.
4. If you are separating the high pressure pump and membrane assembly please review the high pressure hose assembly instructions. Improper assembly will cause failure! The Control Box can also be remotely mounted, see instructions later in this manual.
5. **Run, test, then "sea trial" the complete system** before assuming the system is operational. If the boat is in fresh or dirty water, see "Dry testing the system." **After running make sure that the flush cycle operates properly**. The water going overboard at the end of the flush should not taste salty (<1000ppm)
6. The system must have power continuously to achieve the full benefits of the fresh water flush system. The domestic fresh water pressure must be on and the fresh water tank level maintained. Calculate 15 gallons (76L) per flush..
7. The system must be de-powered after the system is put in storage "pickled" where a storage chemical or antifreeze is run through the system.
8. Spectra distributors and dealers are responsible for educating the vessel owners on the operation and maintenance of the system.
9. Please fill out the warranty card. The warranty is void if it is not registered.
10. Do not install the watermaker over electrical equipment that may be damaged by leaks.

Spectra Watermakers - User Manual Online Access

- Scan QR Code to Visit Spectra Manuals Page.
- Select System, then download the User Manual.
- Reference Commissioning Checklist for important installation requirements.
- Review Installation Basics section of Owner's Manual to ensure warranty compliance.

http://katadyngroup.ladesk.com/206595-Spectra-Manuals

Table of Contents

Installation

Page Number

Getting Started 6
Spectra Connect Quick Start Guide 7
Installation Basics 8
Component Placement 9
Pearson Pump Module 11
Plumbing 13
John Guest Fittings 17
Wiring 18
Tank Switch Wiring or Level Sensor Installation 20

Operation

New Systems Start Up and Testing 22
Sensor Calibration 25
Networking 30
Spectra Connect - MFD Integration 32
Normal Start Up 34
Autostore Cycle 38
Dry Testing 39
Manual Operation 40

Service & Maintenance

Long Term Storage Procedures 41
Winterizing 43
Maintenance 44
Oil Changes 45
Membrane Cleaning 46
Suggested Spares 48
Membrane Pressure Vessel Relocation 49
Spectra Connect Settings 53
Troubleshooting and Alarms 58
Component Dimensions 67
Wiring Diagram 82
Farallon 1800-2800c Electrical Specifications 86
Optional Z-Ion Installation and Instructions 87
Pearson Pump exploded view 89

Owner Resources

Warranty, Product Registration, Installation & Commissioning Reports 92

Getting Started

Unpack the system and inspect it to make sure that it has not been damaged in shipment.

Refer to the shipping list for your system to make sure you have received all of the components listed. Do not discard any packaging until you have found and identified all of the parts. The small installation parts are listed on the cellophane bags' pick list.

We will not be held responsible for shortages that are not reported within thirty days of the ship date. Shipping damage must be reported within 30 days of receiving goods.

Next, study the system layout diagram, component photos and descriptions before beginning your installation. This will assist you in understanding the function of each component.

Layout the system. Before starting the installation identify the location where each module and component will be placed. Ensure that there is proper clearance around the components for removal of filters and system service. Also check to make sure you have adequate tubing and hose before starting so additional parts may be ordered. Check to see that the MPC cable is long enough to reach from the display location to the feed pump module.

Farallon shipping list:

- BOOST PUMP
- MANUAL
- INLET SERVICE VALVE
- REMOTE DISPLAY & CABLE
- BRINE SERVICE VALVE
- FARALLON FWF MODULE
- FARALLON PREFILTERS
- FARALLON INSTALL. KIT
- FARALLON SERVICE KIT
- STRAINER ASSSM.
- 3/8" LP TUBE (25')
- 1/2" LP TUBE (25')
- 3/4" SUCTION HOSE (25')
- 3/4" VINYL HOSE (25')
- 5/8" VINYL HOSE (25')
- REMOTE CTRL DISP KIT

Spectra Connect Quick Start Guide

When you first power up the system, you will get a warning message, asking **if the system has been stored with chemicals.** **If the system has been pickled, winterized, this is the first startup, or the condition of the system is unknown, go to COMMISSIONING on page 22 or serious damage may occur.**

Start
Pressing the 'Start' button once advances to the Run Mode selection screen.

Run Mode
Select your desired Run Mode to start making water and filling your tanks. See details on Run Mode options on p. 37

Fresh Water Flush
Pressing the 'Fresh Water Flush' button flushes the watermaker with fresh water from the vessel's domestic water tanks. After completing the flush, Spectra Connect will automatically enter the Auto Store mode.

Stop
Pressing the 'Stop' button from the Home Screen will end the Auto Store mode countdown timer and leave your watermaker in Standby mode.

Spectra Connect Modes and Definitions

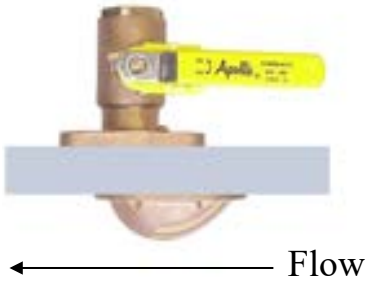
Auto Store: After the watermaker fresh water flushes, it will start a countdown timer that can be seen on the Home screen. The timer indicates the next programmed fresh water flush if the watermaker is not started again, or the 'Stop' button is not pressed.

Fill Tank: The watermaker will automatically run until the Tank Full switch in the water storage tanks closes. Once the Tank Full switch closes, the watermaker automatically fresh water flushes, then reverts to the *Auto Store* mode.

Auto Run: The watermaker can be set to run for a number of hours, or for a quantity of water to be produced. When the desired quantity of water is produced or the run timer expires, the watermaker will Fresh Water Flush and enter the *Auto Store* mode.

Installation Basics

(Thru-hull Not Included)



- **Read the directions!**
- Avoid tight hose bends and long runs.
- Use the proper wire size.
- Boost Pump must be installed below waterline.
- Install Spectra-Pearson Pump as low and as close to the boost pump as possible.
- Use a dedicated thru-hull with scoop type strainer.

Thru-hulls

It is mandatory that a minimum 1" diameter, dedicated, forward facing, scoop-type intake thru-hull and seacock be installed. Install the intake for the system as close to the middle and as far below the water line as possible. Thru-hulls in the bow area are susceptible to air intake in rough conditions. Sharing a thru-hull with another system is not acceptable and will void the warranty. Sharing a thru-hull can introduce unforeseen problems such as intermittent flow restriction, air bubbles, and contaminates. For racing boats and high speed power boats above 15 knots, a retractable snorkel-type thru-hull fitting is preferred to be able to pick up water away from the hull.

Do not install the intake close to or downstream of a head discharge. Install as far below the waterline and as close to center line as possible to avoid contamination and air induction.

The brine discharge through-hull should be mounted above the waterline, in or just above the boot stripe to minimize water lift.

Pipe Fitting Instruction

Plastic to plastic fittings should have 3 to 4 wraps of Teflon tape and will thread almost all the way in. If the fitting bottoms out add more Teflon tape. When applying Teflon tape leave the first thread uncovered so the fitting will start correctly.

Avoid getting dirt or debris into the piping or hoses during assembly. A small bit of debris can stop the system!

Avoid restrictions or long runs on the entire inlet side of the plumbing from the thru hull to the main feed pump module.

Prevent tight bends and excessive elbows. Any restrictions will hamper system performance. Secure the piping away from moving objects such as engine belts and hatches. Prevent chafe on the tubing as required. Test and inspect all piping and hose clamps after several hours of operation.

Wiring

- Pay attention to wire size or system performance will be impaired.
- Perform wiring to UL, ABYC, CE or applicable standards.

Component Placement

Please take the time to think through where all the components will be mounted prior to starting the installation.

Spectra Connect Remote Panel

If a Remote Control panel is required it will use a standard Ethernet cable (Cat 5 or 6).

If there is Wi-Fi available on the boat the Spectra Connect will allow for control access to any internet enabled device.

Sea Strainer

Mount the strainer in an accessible area close to the intake through-hull that can handle water spillage during service. Extra care during assembly must be taken to avoid air leaks from the strainer. Use the supplied "Quick Block" and wire tie for mounting.

Note: **There is a check valve installed on the outlet of the sea strainer and there are hose barb fittings included so it can be installed anywhere in the suction hose before the Boost Pump.**

Service Inlet Module

The service inlet module is mounted between the sea strainer and the boost pump and can be mounted in any orientation. Be sure that once installed you will have access to the yellow valve handle on top and the garden hose fitting on the side. **The Inlet and Brine service modules should be installed so that when the service hoses are attached they can both go into the same bucket (for cleaning or long term storage).**

Boost Pump

The boost pump module should be mounted horizontally. The boost pump, and the entire intake hose leading to it, **MUST** be installed below the water line to ensure that it will prime.

Prefilters

The Prefilters are located between the boost pump and the High Pressure Module. They house the 20 and 5 micron filters. They should be mounted vertically so that water doesn't pour out of the filter bowls during filter changes. Allow 2" below the filter housings for removal. Do not install over electrical equipment as water will spill during filter changes.

Brine Discharge Service Module

The brine discharge service module is mounted between the brine discharge outlet on the Spectra-Pearson Pump Module plumbing manifold and the brine discharge thru-hull fitting. It can be mounted in any orientation. Be sure that once installed you will have access to the yellow valve handle on top and the garden hose fitting on the side. **The Inlet and Brine service modules should be installed so that when the service hoses are attached they can both go into the same bucket (for cleaning or long term storage).**

Spectra-Pearson Pump and Control Module

Mount the Spectra-Pearson Pump and Control Module on a horizontal surface no more than 3' (1.0M) above the waterline. It is preferable to mount it as low as possible. Locate in an area that allows the lid to be easily lifted and is accessible for service and oil changes. Keep future maintenance in mind when choosing a location. The membranes can be damaged at ambient temperatures over 120F (48C). The Control Box can be remotely mounted if space is limited. Call the factory if an extended control cable is necessary.

Charcoal Filter Housing

The Charcoal Filter Housing may be located in any convenient location near the Spectra-Pearson Pump Module. It should be mounted with the filter housing vertical and accessible for changing filters. Allow 2" below the filter housing for removal. The unit contains a charcoal filter for the flush water and a shut-off valve. Do not install over electrical equipment as water will spill during filter changes.

Pearson Pump Module

The membrane maximum temperature specification is 113°F (45°C), as specified by the membrane manufacturer. This module must be installed in an area that maintains a temperature below 120F (50C). Make sure that the area around and under the pump does not have any water sensitive equipment. Water will be spilled during any repairs or if a leak occurs.

Be sure you will have clearance to open the lid of the enclosure, and leave room to remove all side and top panels for easy servicing.

The Spectra Pearson Pump Module comes complete with a mounting system. **Be sure to mount the Module horizontally** and securely bolt the Spectra-Pearson Pump Module to a shelf or level surface.

Membrane Pressure Vessel Mounting

The high pressure pump and membrane assembly has been pre-assembled at the factory. If it is necessary to disassemble this unit and mount the pressure vessels remotely use the guidelines on *pg 49* of the manual. Use only approved hoses for assembly.

Raw Water Plumbing

From the inlet thru hull through to the boost pump module use supplied clear 3/4” (19mm) spiral suction rated hose.

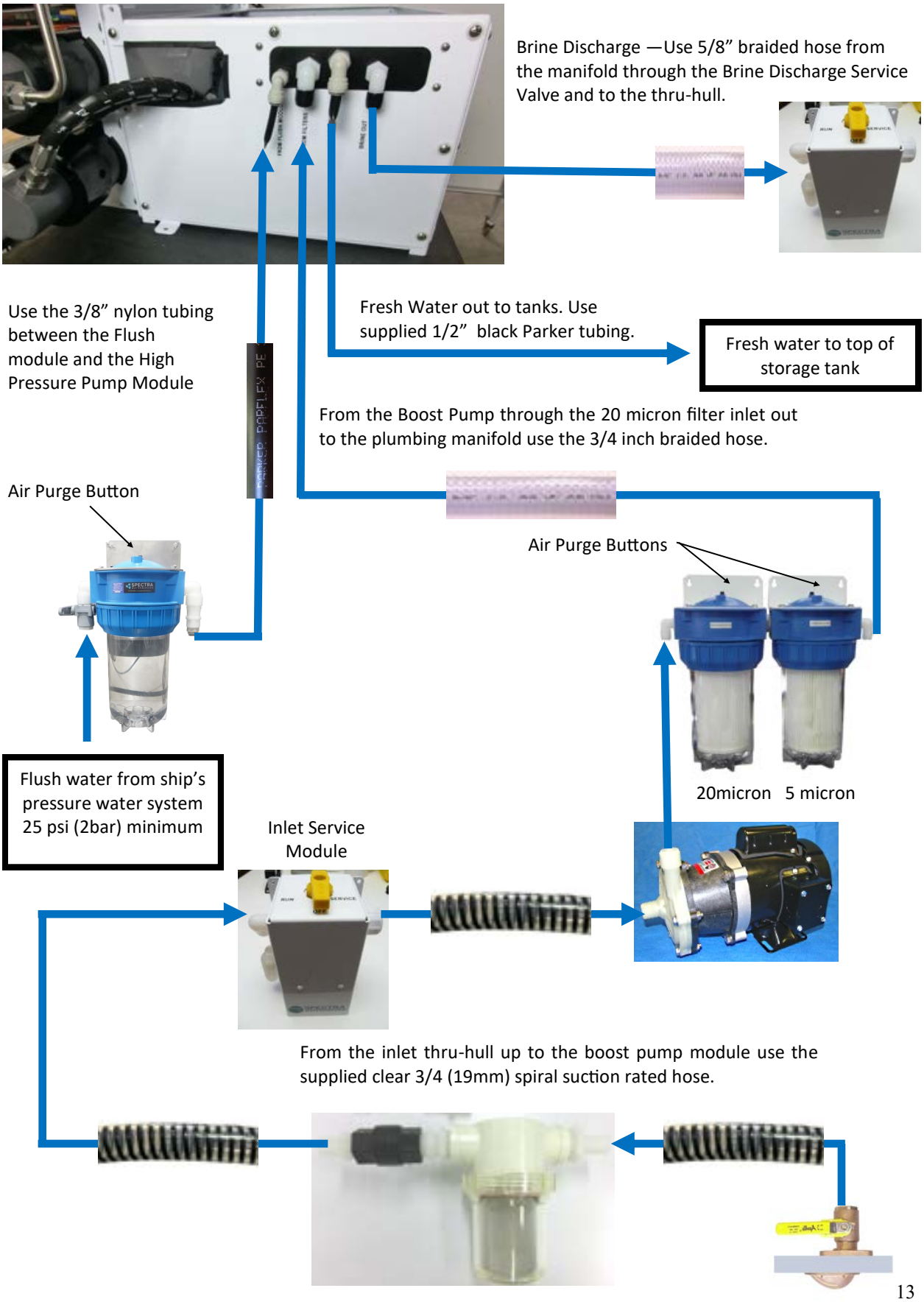
The outlet of the Boost Pump is under pressure (≈20psi) use the supplied 3/4” (19mm) braided clear vinyl hose from the outlet of the Boost Pump to the prefilter assembly.

From the brine discharge on the plumbing manifold to the brine discharge thru-hull use supplied 5/8” (19mm) clear braided vinyl hose.

Air Purge Button

Route all hoses and tubes to prevent kinks and restrictions. Secure piping away from moving objects such as engine belts and hatches. Prevent chafe on tubing as required. Test and inspect all piping and hose clamps after several hours of operation.

Plumbing


Brine Discharge —Use 5/8” braided hose from the manifold through the Brine Discharge Service Valve and to the thru-hull.
Use the 3/8” nylon tubing between the Flush module and the High Pressure Pump Module
Fresh Water out to tanks. Use supplied 1/2” black Parker tubing.
Fresh water to top of storage tank
From the Boost Pump through the 20 micron filter inlet out to the plumbing manifold use the 3/4 inch braided hose.
Air Purge Button
Air Purge Buttons
20micron 5 micron
Flush water from ship’s pressure water system 25 psi (2bar) minimum
Inlet Service Module
From the inlet thru-hull up to the boost pump module use the supplied clear 3/4 (19mm) spiral suction rated hose.

Note: When plumbing the Farallon High Pressure Module route the feed water so that the top and side covers may be opened without removing the hoses or tubing.

Leave room on the left side for attaching tubing and accessing the pump, motor and diversion valve.

(Manifold on left end of unit.)

Feed Water Inlet—From boost pump

Product Water Outlet—To Ship's Tanks

Brine Discharge—To above the waterline Thru-Hull

Product Water Tubing

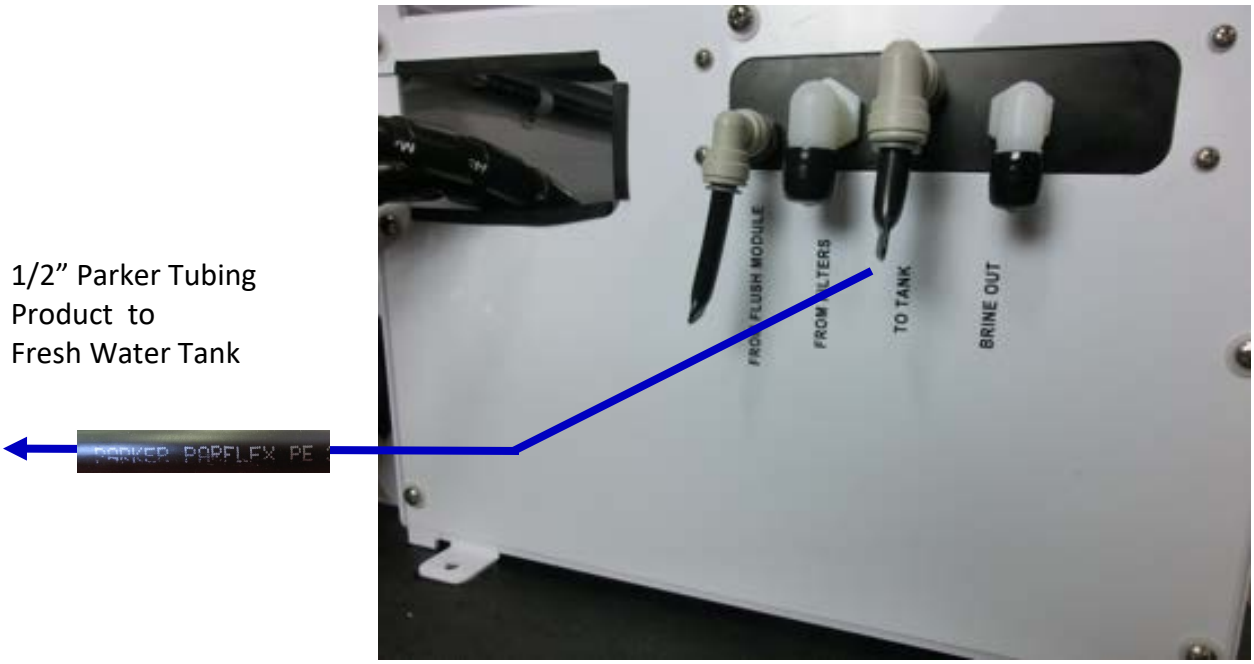
Product water tubing is 1/2” (9.5mm) Parker tubing. Product water goes from the membrane into the pump module manifold where it passes through the flow meter, the salinity probe and the diversion valve. If the salinity is good the diversion valve energizes and the product goes to the tank from the manifold product outlet. If the diversion valve is not energized the product goes back into the feed water.

Route the product water tube from the product water outlet fitting on the High Pressure Module manifold into the top of the tank. Install a tee in the water tank fill or tap a pipe thread into an inspection port in the top of the tank. Do not feed the water into a manifold or bottom of the tank. Make sure there is no restriction in this plumbing.

A product sampling tap can be installed along the tank fill hose between the manifold and the tank connection. If a sampling tap or filling manifold is to be installed on the product water line, then an “open-before-close” type 3 way valve should be used to ensure that the product water line is never accidentally pressurized.

If the length of product water tubing supplied with the watermaker is insufficient, use a larger size hose. Product water **flow restriction will cause reduced output and increased power consumption and can potentially damage the membrane.**

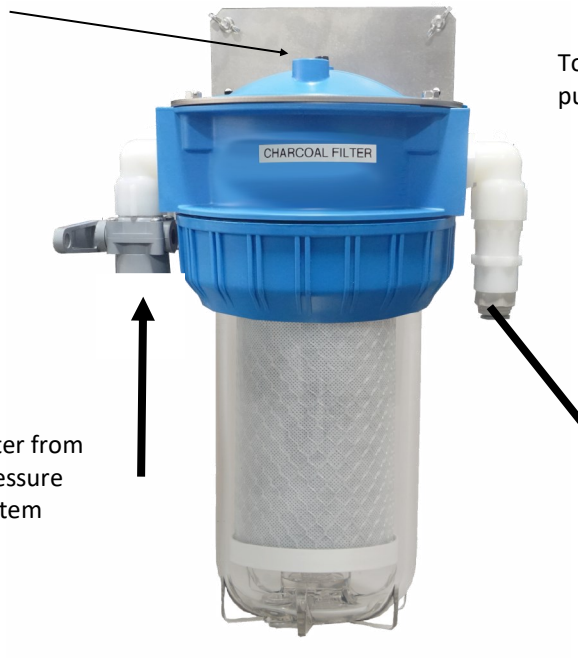
1/2” Parker Tubing
Product to
Fresh Water Tank



Fresh Water Flush Filter

Run a feed line from the domestic cold water pressure system to the 1/2 hose barb on the fresh water flush assembly. This needs to be pressurized even when the boat is unattended for the fresh water flush system to function properly. **The domestic fresh water pump must be able to deliver 2 gallons per minute (7.5lpm) at 25 PSI (1.5Bar)**.

Air Purge Button



To Flush water Inlet on pump module manifold

Fresh water from boat's pressure water system

Brine Discharge

Route the Brine discharge from hose barb fitting to a location above the waterline using the supplied 5/8" braided nylon hose.

John Guest Super Speedfit Fittings

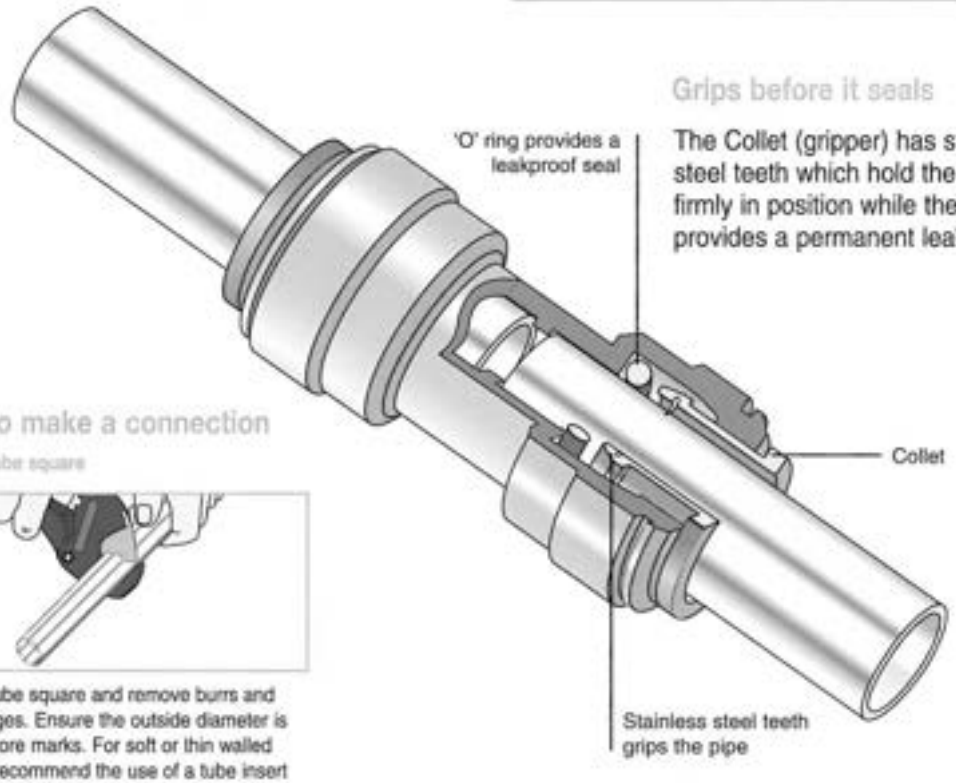
How Super Speedfit Works

To make a connection, the tube is simply pushed in by hand; the unique patented John Guest collet locking system then holds the tube firmly in place without deforming it or restricting flow.

Materials of construction

Super Speedfit fittings are made up of three components:

Bodies are produced in an acetal copolymer or polypropylene.
'O' rings are Nitrile rubber or EPDM.
Collets are produced in acetal copolymer or polypropylene with stainless steel teeth.



Grips before it seals

The Collet (gripper) has stainless steel teeth which hold the tube firmly in position while the 'O' ring provides a permanent leakproof seal.

How to make a connection

Cut the tube square

Cut the tube square and remove burrs and sharp edges. Ensure the outside diameter is free of score marks. For soft or thin walled tube we recommend the use of a tube insert

Push up to tube stop

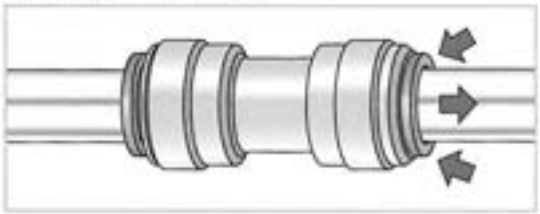
Push the tube into the fitting, to the tube stop.

Pull to check secure

Pull on the tube to check it is secure. Test the system before use.

To disconnect

Push in collet and remove tube



To disconnect, ensure the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed.

Wiring

PROVIDE CIRCUIT PROTECTION AT THE SOURCE! Inadequate wiring will cause a loss of system performance and could be a fire and/or shock hazard.

Wire Sizing

Farallon 1800

- 110V: Use a 15Amp breaker and 12 AWG wire for 10.5 Amperes.
- 220V use a 10 Amp breaker and 12 AWG wire for 5.5 Amperes.
- Amperage ratings assume a Pf of 60%. Actual measurements may vary.

Farallon 2800

- 220V use a 15 Amp breaker and 12 AWG wire for 7 Amperes.
- Amperage ratings assume a Pf of 60%. Actual measurements may vary.

Note: If the specified circuit breaker sizes are unavailable use the next higher rating but do not exceed the specification by more then 10%. All wiring to be done to applicable ABYC, Marine UL or CE standards.

Wiring - Cont.

Make sure that the Control Box is mounted in cool dry place, well above bilge level and not subject to water spray.

If being used connect the remote display cable to the open display jack on the side of the electrical box. Route the remote display control cable through the boat to the MPC remote display location. Be careful not to damage the connector or get it wet. Plug this into the back of the remote display.

Remote display socket

Boost Pump Plug

Route the boost pump power cable to the Control Box from the boost pump. Do not get the cable wet, and be careful not to damage the plug or conductors during installation. The boost pump power cable plug is located under the sockets for the Salinity probe and the Remote display. Route the power cable and use cable ties to keep it in place.

Tank Switch or Level Sensor Installation

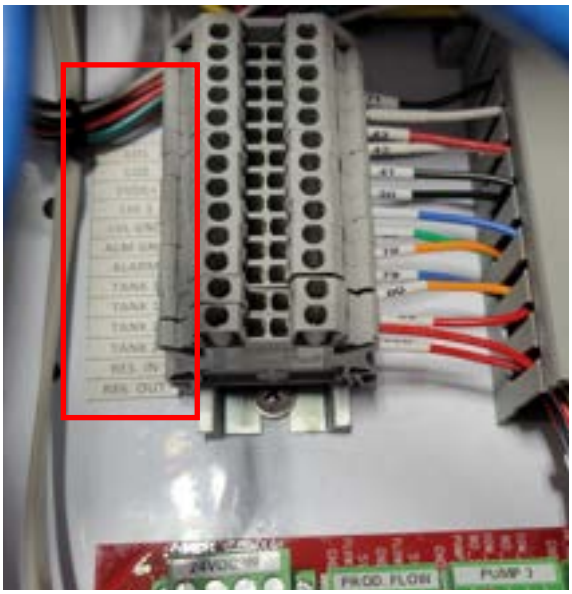
Factory Supplied Tank Switches

There are two types of tank float switches available depending on your installation requirements. Often making an assembly as pictured below (right) is a good solution as there is only a single penetration and it can be above the high water level.

Turning the watermaker off when the high level switch is recommended, so you can just "Fill Tank" and the watermaker will shut off when it's full. We do not recommend that the system is turned on by the low level float switch as it can create a situation that could sink your boat, not likely but possible.

Top mounted float switch **EL-SWT-LV**

Optional:
Side mounted float switch **EL-SWT-SMLV**



Refer to the wiring diagrams for the Terminal Block numbers for the tank level switches.

Note: If tank switches are not used you **must disable the tank full switch** in the system settings.

Tank Level Sensor

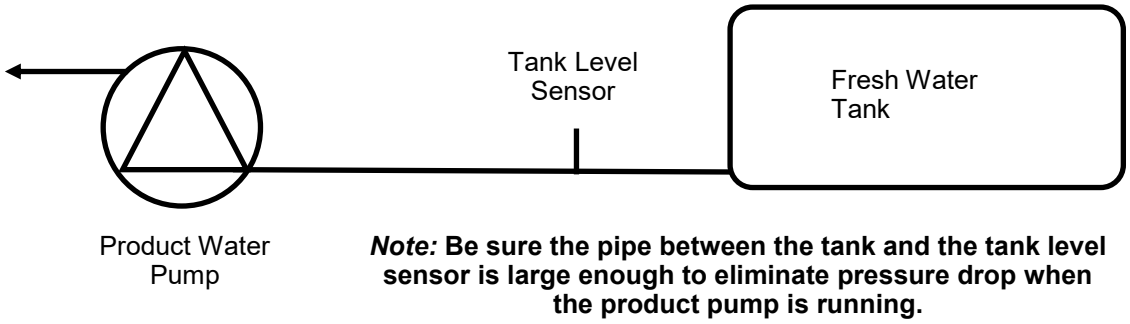
Installing a tank level sensor (**EL-SSR-5PSI**) , which is a pressure sensor in the discharge line from your storage tank will allow the Spectra Connect to track the tank level. Once the sensor is installed connect to the Terminal Block above referring to the wiring diagram for terminal location.

Optional Tank Level Sensor Installation

The optional Tank Level sensor allows even greater control of your ship's fresh water systems. This unique level monitoring system requires no holes to be drilled into your tank while measuring tank volume with greater accuracy than a standard resistive float.

Turn off the ship's domestic water system, close the fresh water supply valve at the water tank, then bleed off the pressure by opening a tap in the galley or head sink.

Install a tee in the **water supply hose at the bottom of the tank, or at the inlet to the domestic water pump**. Connect open leg of the tee to the Tank Level Sensor. ***Note:*** The tank level sensor requires a 1/4" NPT connection. We recommend installing a minimum 1/2" tee, and using a reducing bushing to connect the sensor.



Route the 3 conductor cable back to the Spectra Connect control board at the feed pump module. Extend the wires as necessary. *If you must extend the wires beyond 50' contact the factory to ensure proper operation.*

Connect the Tank Level Sensor cables to the appropriate terminals in the Control Junction Box (pg. 20) and refer to the wiring diagram on pg.82 to identify the correct terminals. **Polarity must be maintained!**

If a 2nd Tank Level Sensor is going to be installed, it should be installed at the base of the second tank. **If monitoring 2 connected water tanks, they must be isolated from each other with a valve to read properly.**

The wiring connections for the second Tank Level Sensor are located inside the Spectra Connect control box. **See System Settings section of this manual for instructions on enabling the second Tank Level Sensor.**

See the Tank Level Calibration (pg. 26) in the Commissioning section of this manual.

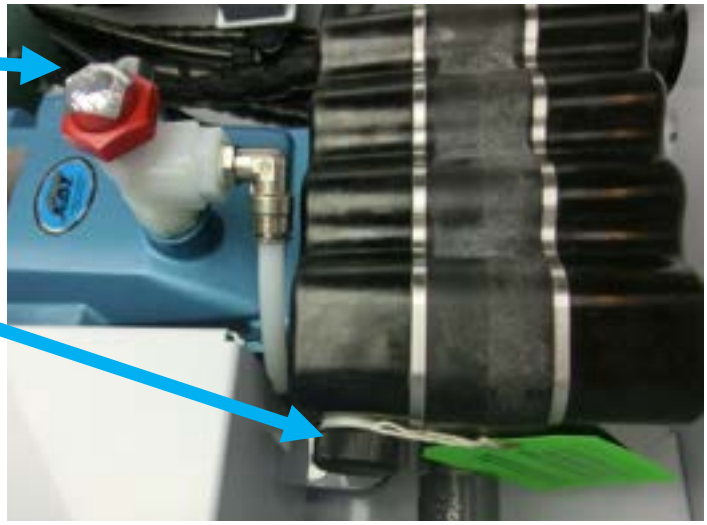
New System Start-Up and Testing

Use this procedure when the system contains preservative or cleaning chemicals.

Warning! Damage will occur if the system is not purged of the storage chemicals before pressurizing the system.

1. **First Check that:**

- Fresh water system is pressurized and there is water in the tank.
- **The tape is removed from the oil vent cap on the top of the crankcase, confirm there is oil in the crankcase.**
- **Pressure Relief Valve is OPEN one full turn**



2. Confirm both the inlet and discharge service valves are in the RUN position

3. Thru-hull valve is open. The brine discharge will contain a small amount of propylene glycol (non-toxic potable anti-freeze) during the purge cycle.

4. Confirm toggle switch on the control box is in the RUN AUTO position.

5. Turn on the power to the system and the Spectra Connect screen will display, “Has the system been stored with chemicals?” Press ‘Yes’, to start the Purge sequence. ***Note:*** The watermaker will shut down if the pressure relief valve is left closed during the Purge mode.

New System Start-Up and Testing - Cont.

6. The system will start purging and the display will show the progress and time remaining for the purge cycle.

7. Using the buttons on top of the filter housings, bleed out the air in the filter housings until water is coming out.

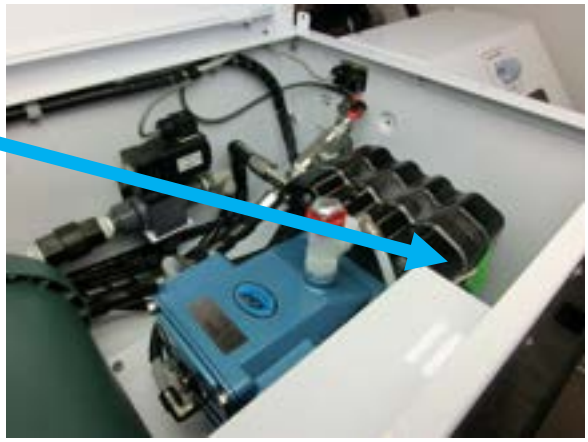
8. Check the system for leaks.

9. Check the brine discharge for water flow. The system should fully prime within 60-90 seconds and all air should be out of the feed water hoses. The pump will should sound smooth.

Note: **If you must stop the purge sequence for any reason, the control will default back to the beginning of the purge cycle to protect your system.**

New System Start-Up and Testing - Cont.

10. After the purge sequence the display will alarm with the message “Close pressure relief valve.” Close the valve and proceed by pressing Ok to resume the Purge Cycle running pressurized and purging the product water to drain.



11. The system will now run under pressure and desalinate water. This mode diverts the product water overboard in case there is any residual chemicals in the membrane. Carefully inspect for leaks over the entire system! Shut down the system and repair any leaks you find.

12. After the Product Purge cycle completes, the system will prompt to Restart, then advance to the Main Menu. If this is a NEW INSTALLATION, continue to the Calibration Instructions to finalize the installation. If you are putting your watermaker back into service after storage or cleaning your system is now ready for use.

If the system is stored with Propylene Glycol, additional purging time may be required if there is chemical odor to the product water, or if salinity remains high after the purge sequence. All systems are shipped from the factory stored with Propylene Glycol.

Sensor Calibration

Many of the settings on your system have been pre-calibrated during standard factory testing, however, there are a few settings that will vary based on the installation conditions. **If the system has just been installed you must calibrate the Prefilter Condition graph before proceeding.**

Prefilter Gauge Calibration

This procedure does **not** need to be done with each filter change under normal operation, it should **ONLY BE DONE IF THE FILTER CONDITION GAUGE WON'T RESET TO 100% WITH NEW FILTERS.**

1. During the calibration sequence the system will automatically start, begin to make water for several minutes and then shut itself down. *Make sure that new filters are in place before proceeding.*
2. Follow the steps in Figures 1—4 below to initiate the Calibration Sequence.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

3. When the Calibration Sequence is complete, press the Back button in the upper left corner to return to the Main Menu.
   *When prompted by the display, Click **Save** to make sure that the Calibration is stored in the system memory.*
4. The **Filter Condition gauge** has now been calibrated to match your installation.

Tank Level Sensor Calibration
(with optional transducer installed)

Installing the optional tank level sensor (**EL-SSR-5PSI**) will allow the control to display tank levels in up to two tanks. Follow the steps below to enter the calibration sequence for the optional Tank Level Sensor(s).

The tank needs to be full to proceed with the calibration process and you need to measure the approximate height of the tank.

1. With a full tank, press the Menu Button

2. Press the Calibrate Sensors Button

3. Press the Tank Level 1 button

4. Press to enter the tank height

5. Enter the height

Press the Feet (Meter) field to enter the tank height in feet (meters).

Press the Inch (cm) field to enter the height in inches.

Ex: If the Tank height is 150cm:
Enter '1' in the field labeled 'Meter'
Enter '50' in the field labeled 'cm'

8. If the entry is correct press Proceed.

8. Press OK to save the settings

Salinity Calibration

The Salinity probe has been calibrated at the factory during testing and is not normally required during commissioning. If the product quality is not reading accurately, follow calibration steps.

A handheld salinity meter (or other reliable device) is required to perform this calibration as you need to confirm the salinity of the product water.

1. Press the Menu Button

2. Press the Calibrate Sensors Button

3. Press the Salinity—Product Button

4. Press Continue to acknowledge the warning

5. Allow the salinity to stabilize for 5 minutes.

6. Press the PPM field and enter the PPM you measured. Press Proceed to save your entry.

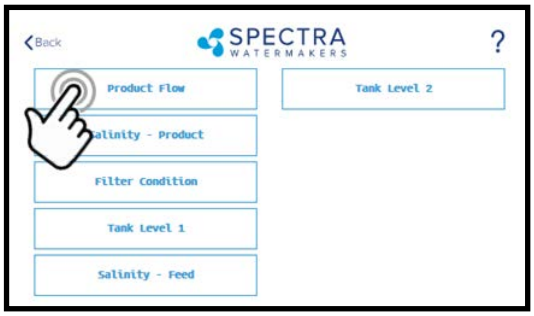
Product Flow Calibration

The Product Flow sensor has been calibrated at the factory during testing and isn't normally required during commissioning. If the product flow is not reading accurately, confirm the product flow rate by following the Product Flow calibration steps.

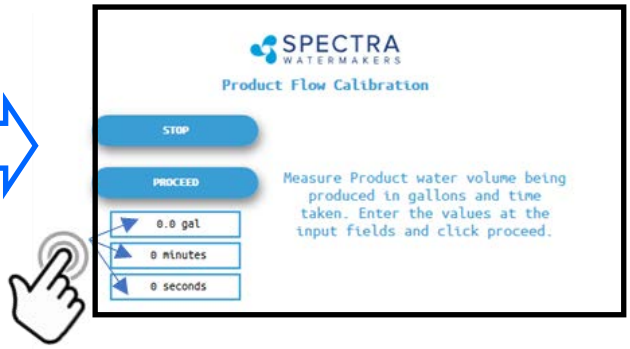
1. Press the Menu Button

2. Press the Calibrate Sensors Button

3. Press the Product Flow Button



4. Measure the product flow per the process described below, enter the numbers below and press Proceed.

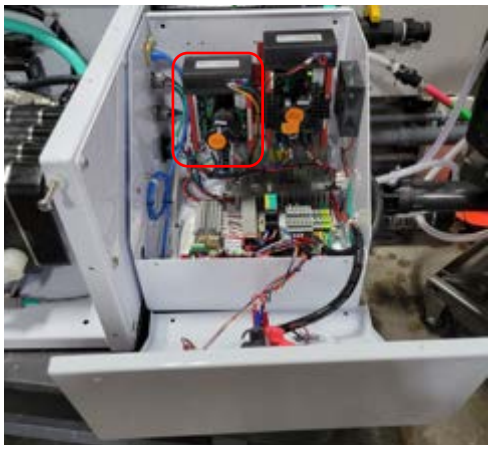


4. Allow the system to run for a few minutes to stabilize and then time in minutes and seconds, how long it takes to fill a container of a known volume.
5. Touch the 'Gal' ('Liter') field to enter the volume of the container used.
6. Touch the 'Minutes' field to enter the minutes it took to fill the container. *Only enter the minutes, ex: 3 min 15 sec should be entered as 3.*
7. Touch the seconds field to enter the seconds it took to fill the container. *Only enter the seconds, ex: 3 min 15 sec should be entered as 15.*
8. Press 'Proceed'. *You must save all changes when prompted after exiting the settings menu*

Adjusting Boost Pressure

Target Boost Pressure on a Farallon 1800-2800c is **15 psi.** Since all Farallon installation layouts are unique in that the distance from the Boost Pump to the Inlet Valve is entirely dependent on the vessel size and the hose lengths required to connect the Boost Pump to the Inlet Valve, you may need to adjust the speed of your Boost Pump in order to bring down your overall Boost Pressure. If your system exceeds Max Boost Pressure (**19psi**) after being installed, you may need to adjust the speed of your boost pump in order to hit target PSI to allow your system to run optimally. Follow the steps below in order to adjust the your boost pump run speed.

1. Open the Control Box.



2. You will need a small Phillips head screwdriver to adjust one of the potentiometers on the left VFD (Variable Frequency Drive).

3. You will be adjusting the potentiometer that can be found second from the far right. The potentiometer will read “MAX” labeled upside down. Turn the screwdriver left to slow the Boost Pump speed and reduce the Boost Pressure or turn the screwdriver right to increase Boost Pump Speed.

Warning: Increasing your Boost Pressure beyond the recommended threshold can damage your Pearson Pump.

Networking

Your Spectra Connect is equipped with state of the art networking options to allow the maximum user control in a wide variety of installations. The instructions below will help you get the most out of your Spectra Connect.

Note: *Your Spectra Connect is only available when your device is connected to the same local network as the Spectra Connect control board. If you have difficulty connecting to your watermaker control application, double check the that your device network is the same as your Spectra Connect*

Connecting to the existing Network

1. Turn power to the system off.

2. Connect a standard Cat5e or Cat6 ethernet cable from the plug inside the watermaker to your router or networking switch.

Note: If you are connecting directly into a wireless router, **DO NOT CONNECT TO THE WLAN (Wireless Local Area Network)** ethernet port. You must connect to one of the LAN ports typically labeled 1, 2, 3, 4, etc.

3. Turn power to the system back on.
4. Follow the screen prompts below:

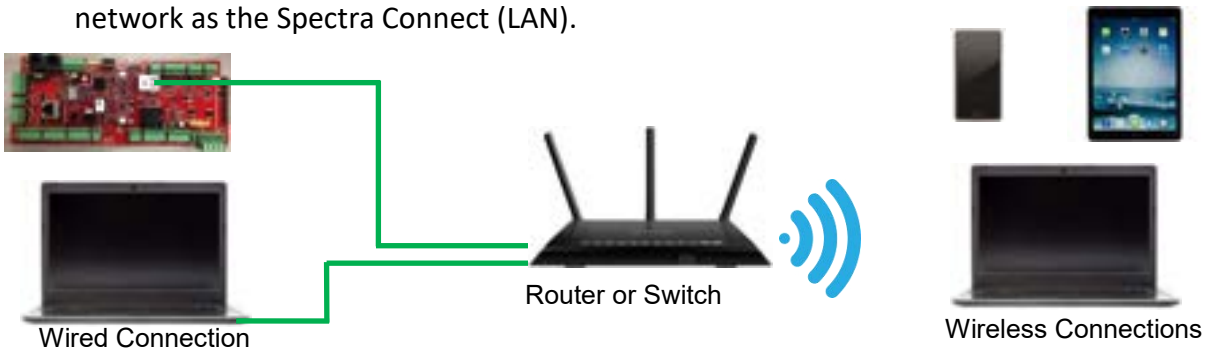
5. Note the 'Device IP' address shown in and record the 10 digit numerical address on the front of this manual for future reference.

Connecting to the existing Network - Cont.

6. Connect your computer, tablet or smart phone to the local network your Spectra Connect is plugged into;

Wired Connection: simply plug your computer's ethernet port directly into the router or switch where you connected the watermaker.

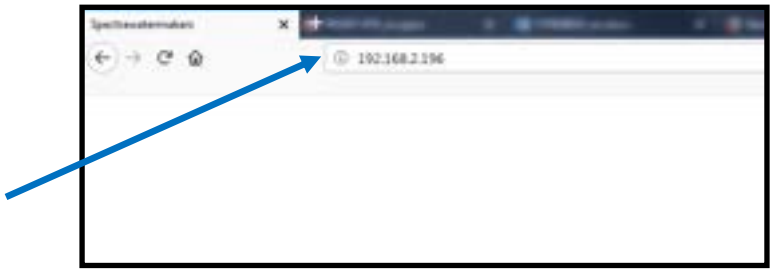
Wireless Connection: make sure your device is connected to the same local wireless network as the Spectra Connect (LAN).



7. On the computer, tablet or smartphone, open a web browser such as Firefox, Chrome, or Safari. In the web address bar at the top, type the 'Device IP' address previously recorded. Press 'Enter'.

Note: **Internet Explorer may not be compatible with your Spectra Connect web app. If formatting issues occur, use another browser such as Firefox, Safari, or Chrome.**

Ex: Address Bar—Firefox



8. Your computer should now show the same image as shown on your local Spectra Connect

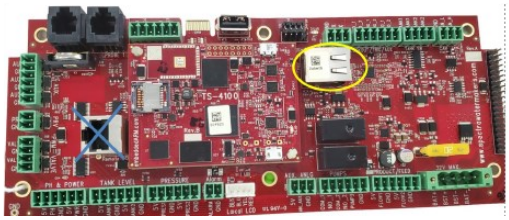
9. Your web browser is now synced with your Spectra Connect. Any buttons you press on your web browser will be controlling your watermaker.

Caution! **If operating your watermaker from a computer, phone, or tablet, you must keep the tab open while the system is in operation and the volume turned up on your device in order to hear any audible alarm faults.**

Spectra Connect — MFD Integration

To connect your Spectra Connect system to a *Garmin*, *Raymarine*, or *Navico/Simrad* MFD, follow **steps 1** and **2**. **Step 3** varies depending on your MFD model, so follow the specific instructions for your device.

Step 1: First, connect the Ethernet cord between the Spectra "Network" port and the MFD Ethernet port. Some Spectra models have this port on the control box, while others require a direct connection to the circuit board, as seen below (circled in yellow).



Step 2: Ensure the MFD firmware is up to date using the appropriate method for your device (Active Captain app/SD card for Garmin, internet/SD card for Raymarine, or internet/Simrad mobile app for Navico/Simrad).

- On the Spectra display, press the Menu button and select "Support" to check for an IP Address. If it shows "NILL", restart the system via Menu Icon > Restart. Next, on Spectra Connect, select the appropriate MFD vendor (Garmin, Raymarine, or Navico) from the Menu.
- On the MFD, look for the Spectra logo app to automatically appear, which may take a few minutes, and tap the icon to complete the setup. This process allows for a duplicate screen connection, ensuring seamless integration between your Spectra Connect system and the MFD. For further troubleshooting, refer to the manual or contact Spectra technical support.

GARMIN

Step 3: On the Spectra Connect, press Menu icon > Select MFD Vendor > Garmin

•On **Garmin**, tap “Vessel” and look for app with Spectra logo that should automatically populate. This can take a few minutes.

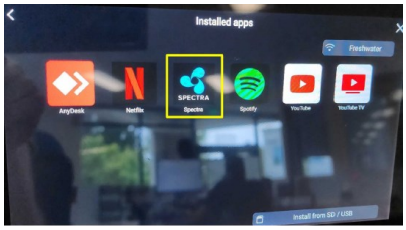
•Tap “Spectra” Icon that has appeared.

This will allow a duplicate screen connection, and completes the setup.

Spectra Connect — MFD Integration Cont.

RAYMARINE

Step 3: On the Spectra Connect, press Menu icon > Select MFD Vendor > Raymarine
•On **Raymarine**, tap "Apps" and look for app with Spectra logo that should automatically populate. This can take a few minutes.
•Tap "Spectra" Icon that has appeared.
This will allow a duplicate screen connection, and completes the setup.



NAVICO/SIMRAD

Step 3: On the Spectra Connect, press Menu icon > Select MFD Vendor > Navico
•On **Simrad**, tap "Apps" and look for app with Spectra logo that should automatically populate. This can take a few minutes.
•Tap "Spectra" Icon that has appeared.
This will allow a duplicate screen connection, and completes the setup.

See below for **troubleshooting** tips and things to check.

- Ethernet cord is plugged into correct "Network" port, as seen in **Step 1** (circled in yellow).
  -Most models also have a network port on the outside of the control box labeled "Network"

- Verify your specific MFD firmware is up to date with latest package.

- Stuck on "Selecting MFD" Screen?
  *-Restart the system and retry your selection. Ensure ethernet cord is installed **prior** to selecting MFD vendor on the display.*
- Ensure your Spectra Connect shows firmware rev v3.1 or newer
  -(Menu > Support).
- Check that your Wireless Access is enabled (by default this should already be enabled)
  -Menu > Dealer Access > User "admin" Password "admin" > Network Setup
- Combination screen compatibility depends on vendor & display size specifics.
  -Below350px will return a message of "Resolution Not Supported".

For further assistance, contact Spectra technical support at techsupport@spectrawatermakers.com or call 415-526-2780, option 3.

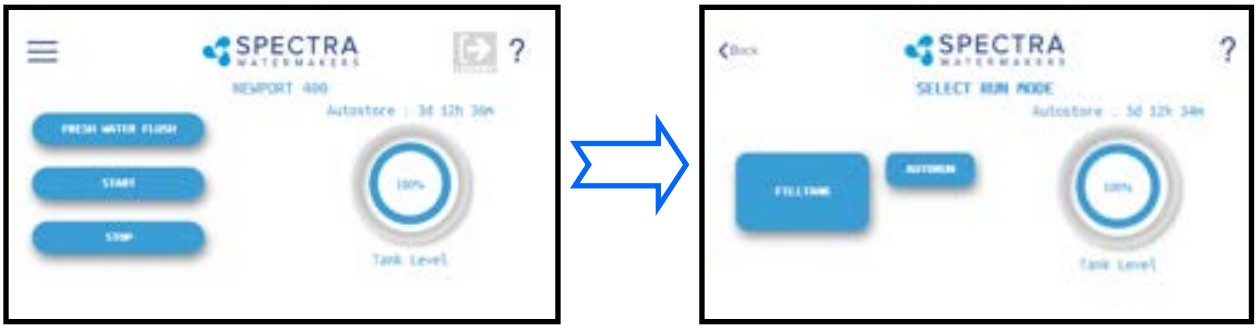
Normal Operation

If the system has been pickled or stored with chemicals, use the New System Startup procedure.

Your watermaker will fresh water flush **after every use**. Remember that you need to run the system approximately half an hour to make enough fresh water for one flush.

1. Check to see that the inlet and brine discharge seacocks are open and the domestic pressurized water system is turned on.

2. Press the 'Start' button, then select the desired operating mode.



Standard Operating Modes

3. Runs your watermaker until the Tank Full switch closes, fresh water flushes the system, then goes into 'Auto Store' mode and the Flush Interval timer starts. *This is the default mode of operation.*

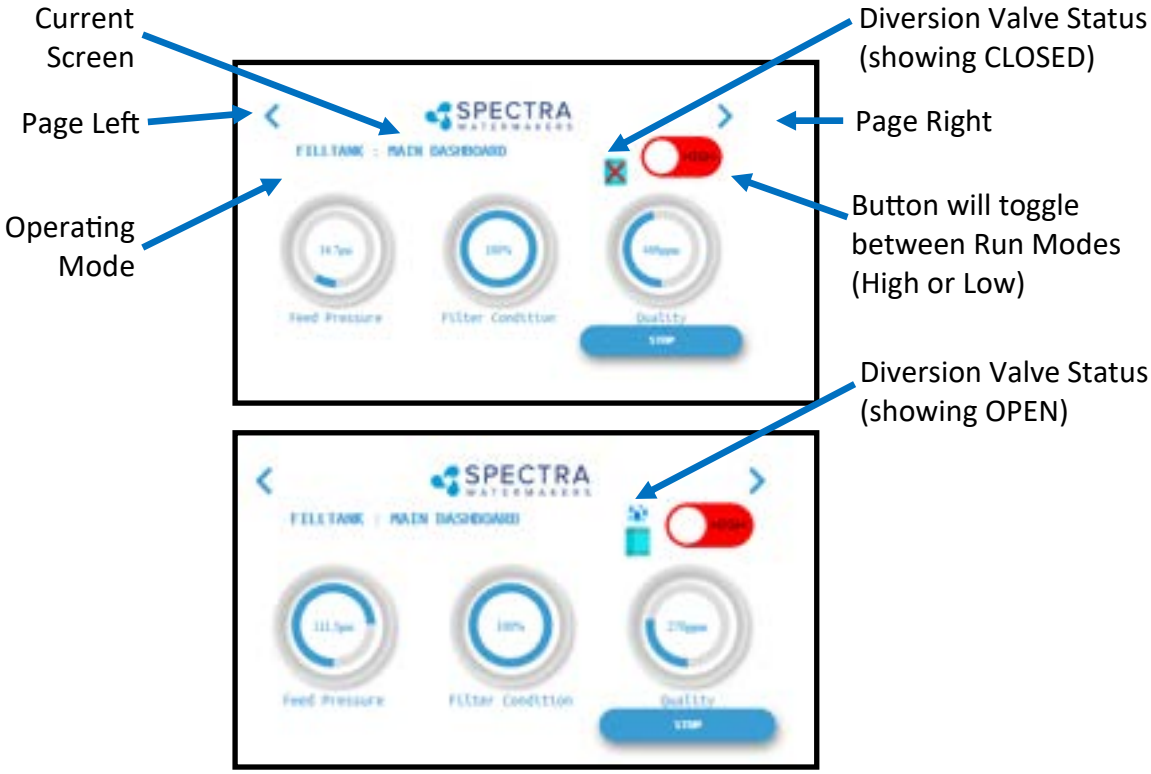
-OR-

4. Gives you the option to run for a preset amount of time, or a preset volume of water to be produced. **If no tank switches are installed, and they have been disabled in the system settings**, this is the only Operating Mode available.

Normal Operation - Cont.

5. The system will now begin the start sequence and will count down to the pump starting. Pressing 'Stop' will stop the sequence and bring you back to the Main Menu.

6. Once the Boost Pressure reaches the minimum threshold, the system starts operating and you will be taken directly to the Main Dashboard which shows the current status.



7. When the Product Water Quality is better than the programmed threshold, the Diversion Valve opens, allowing water to enter the tanks and the screen image changes.

8. Pressing the < (Page Left) or > (Page Right) arrows while the system is running will scroll through the different screens with operating information for your watermaker.

Normal Operation - Cont.

9. When the Run Cycle completes, the system will start the Fresh Water Flush cycle. If you stop the system (interrupting the run cycle) the system will also start a flush cycle.

The system must be FRESH WATER FLUSHED AFTER EACH USE, or serious damage can occur.

10. After Fresh Water Flushing the system will enter standby mode waiting for the next run cycle.

Note: **See for ways to utilize the Auto Store mode.**

Normal Operation - Cont.

Other Operating Modes

Run Low Mode

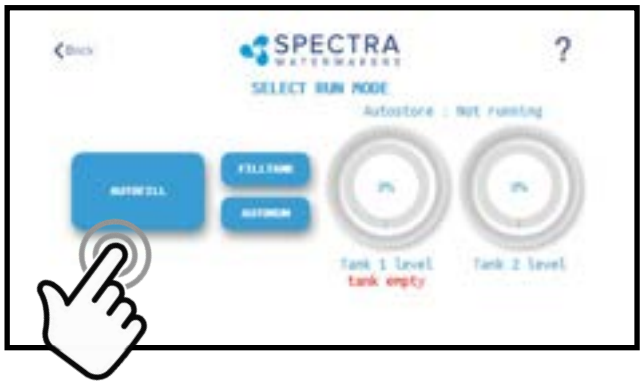
You can toggle back and forth between Run High Mode and Run Low Mode by tapping the 'High' toggle button.

Run Low Mode may be selected to reduce power consumption, lower the membrane pressure, or prolong filter life.

Note: The system will automatically drop to Low Mode when it senses high membrane pressure, or low boost (feed) pressure.

Auto Fill Mode

If using the Tank Low and Tank Full switches, **and both are enabled in the system settings**, then your Start Menu will allow the system to be operated in Auto Fill mode.



In Auto Fill Mode the Spectra Connect will automatically fill your water tank, stop itself, fresh water flush, return to Auto Store mode with the flush interval timer running, and then turn itself on again to fill the tank as soon as the water level drops below the Tank Low Switch with no additional user commands.

Additionally, if power is interrupted at any stage of operation, the Spectra Connect will return to Auto Fill mode, ensuring that your tanks will always have water.

Auto Store

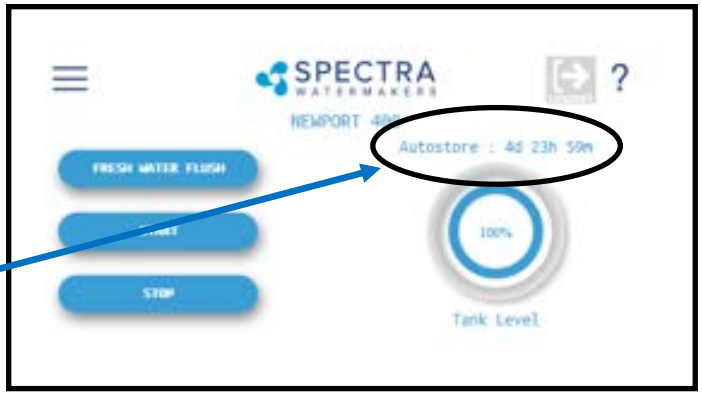
Warning! Proper understanding of the Spectra flush system and the fresh water system is mandatory for extended use of Auto Store.

The Auto Store function flushes the watermaker at programmed intervals. As long as the watermaker is flushed with fresh water every 5 days you need not store the system with chemicals.

***Note:* If the system runs out of water the pump will be damaged.**

- Make sure the pressure relief valve on the Pearson pump is closed.
- **The system must be continually powered on during the Auto Store mode.** Turning off the power will disable the automatic fresh water flush and damage may occur.

Pushing the fresh water flush button flushes the system with fresh water and activates the auto store cycle:



Shows Autostore: time to next flush cycle.

Dry Testing With Artificial Ocean

If it is not possible to test run the system with the boat in the water testing may be accomplished with an artificial ocean. Purchase enough salt to make 5 gallons (20 liters) of salt water. Salt water is 32,000mg/L or 3% salt by weight.

Make sure that the domestic water system is powered up and that there is water in the tank. Confirm that the Charcoal filter is installed in the Fresh water flush module and that the domestic water line has been installed and all valves are open.

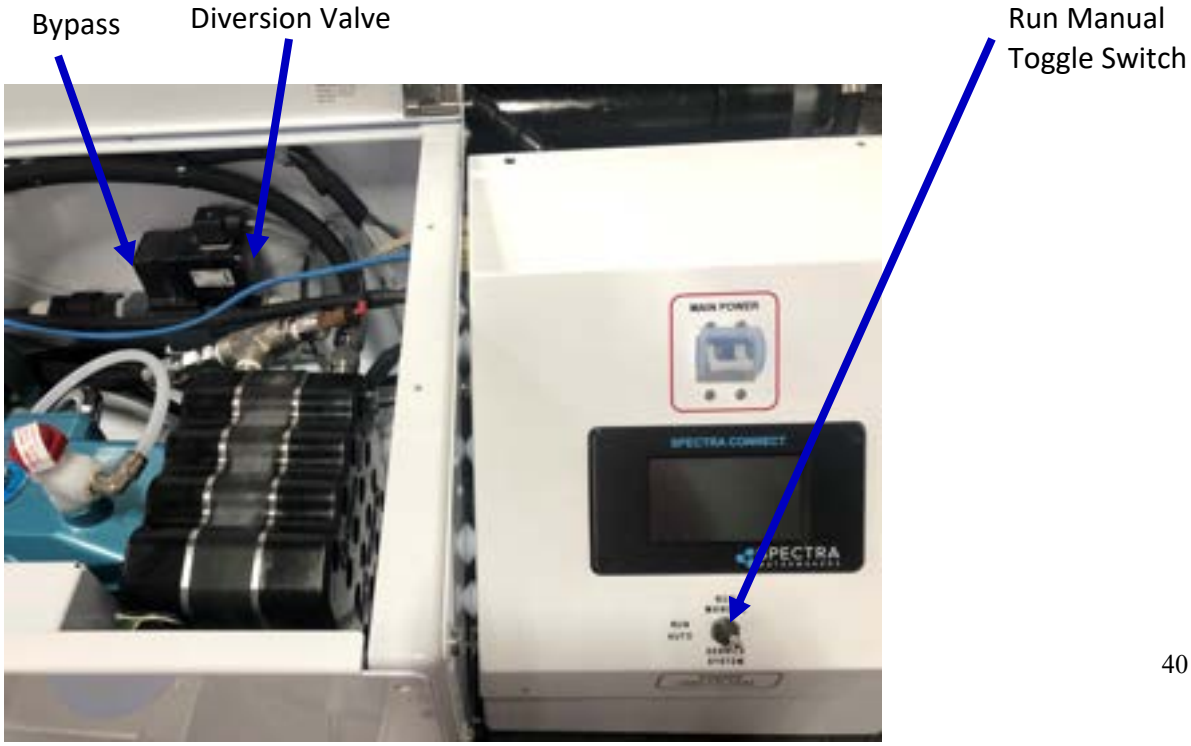
1. **Open Pressure Relief Valve.**
2. Power up the control system.
3. Close the sea cock
4. Press both "**Auto Run**" and "**Stop**" to bypass the purge sequence. If the motor starts, stop immediately and press the Auto run and stop buttons again until you get the message **PURGE MODE BYPASSED.**
5. Press the **"Auto Store"** button and allow the fresh water flush system to cycle through its timed operation. Press the **"auto store"** system 5 or more times to purge all of the storage chemicals out of the system (20 minutes total purging). If the Spectra-Pearson Pump is cavitating during the flush cycle, then there isn't enough flow to the pump. See the instructions for "Flush Cycle Adjustment".
6. Hook up your service hoses to the Brine Discharge Service valve and the Service Intake Module. Route them into a 5 gallon (20 Liter) bucket.
7. Turn the yellow valve on the Service Intake Module from "**Run"** to **"Service.**"
8. Press auto flush one more time to fill the bucket, press **"Stop"** once the bucket is nearly full. Add 32grams of salt for every liter of water in the bucket to approximate the salinity of an ocean. If you have a hydrometer, mix salt into the bucket until you have specific gravity of 1.024.
9. Close the pressure relief valve and start the system using the "**Auto Run"** Button. If you have no way to measure the salinity, slowly add salt while running the machine until the membrane pressure reaches 650psi (45bar).
9. Run and test the system for as long as possible. During the run test carefully inspect for leaks. Check all of the system parameters to make sure the system is operating correctly. Do not allow the water in the bucket to get above 120F (50C).
10. Store the system per the "Storage" instructions.

Manual Operation

In the event of a component failure resulting in a shut down due to a false alarm, the failed component can be overridden using the Programming Function on the display. High Pressure, Service Prefilter, System Stalled (airlock), and Salinity Probe Failed can be defeated. If one safety shutdown is disabled, the other safety shutdowns will still be activated. The pressure sensors and salinity probe can also be calibrated from the display. Complete instructions are found in Part 2 of this manual under "Programming from the Display". **Be absolutely certain that the alarm is false before defeating the automatic controls.**

In the event of complete MPC control failure, the system may be operated manually by using the manual run switch on the Electrical Box and manually opening the diversion valve.

- For manual start up, switch on the Spectra-Pearson Pump and Boost Pump by setting the feed pump switch to "RUN MAN". Shut the unit down if the Spectra-Pearson Pump knocks loudly or sounds rough or if air is continuously present in the intake line. ***The automatic safety controls are disabled in manual mode.***
- The diversion valve, an electrically operated three way valve which is normally energized by the MPC controls to send water to the tank, will not open automatically in manual mode. Instead, it must be opened using the mechanical override button on the valve. The button is located on the side of the valve opposite the electrical connection and above the plumbing fittings. Firmly *press the button in* as far as it will go and *rotate it 90 degrees Clockwise*. This locks the diversion valve open.
- Always discard the product water for the first few minutes of operation. The initial product water from the system may not be potable. Taste the product water before sending to a tank. To get a water sample loosen the 1/2 inch product tube fitting at the diversion valve in the High Pressure Module or remove the tubing from the membrane outlet and collect a sample, or collect a sample of a sampling tap—if installed. Check it with a handheld salinity meter or taste it.



Long Term Storage Procedures

Watermakers are best run frequently (every other day is ideal), biological growth in the membrane is the leading cause of membrane fouling. A warm environment will cause faster growth than a cold environment. The fresh water flush system will greatly reduce biological growth but may not stop it completely in certain conditions.

System Storage for up to 6 months, "Pickling"

If the system is to be left unused for more than 2 weeks, perform the following storage procedure. The procedure introduces a chemical compound, SC-1, into the system that prevents biological growth.

Spectra SC-1 is a special storage compound used by the US Navy. It is formulated to be compatible with the modern engineering plastics and composites in the Spectra pumps. Do not use any substitute except propylene Glycol, SC-1 Storage Compound has to be mixed at a ratio of 1 Spectra container to 3 gallons (12L) of fresh water to have the proper solution. An average of 6 gallons (22L) of water is in the system. The Farallon 1800 or 2800 requires two packets of SC-1 for proper storage.

Caution! Avoid contact with skin, eyes, or lungs with the storage chemical.

Storage Procedure

- Step 1: Do two Fresh Water Flushes.

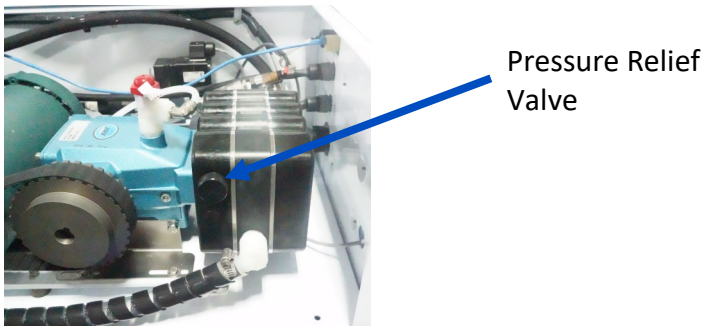
- Step 2: Install the 5/8” braided nylon service hose from the service kit on the three-way valve installed on the brine discharge outlet, and lead the hose to a 5 gallon bucket. Turn the valve handle to the ‘Service’ position.

- Step 3: Push the Fresh Water Flush button: to fill the bucket with 2 gallons of fresh unchlorinated water. When the bucket has reached the desired level Push the “Stop” button.

- Step 4: Connect the hose, using the garden hose barb fitting from your service kit, to the service port of the Service Intake Module. Lead the hose into the same bucket. Turn the service valve on the boost pump module 180° to the ‘Service’ position, so the intake is now coming from the bucket.

- Step 5: Mix the storage chemical compound into the water in the bucket. Note that if the water is cold it may take an hour for the chemical to dissolve.

- Step 6: <u>Make sure the pressure relief valve on the Spectra-Pearson Pump is Open one full turn (unpressurized).</u>



- Step 7: Set the switch on the pump module to “Service System” to turn on the feed pump. Circulate the storage chemical in the system for approximately 20 minutes. Set the switch to “Run Auto” when finished.

Clean Up:

- Remove the brine discharge service hose from the three-way valve, and turn the valve back to the ‘Run’ position. You may at this point, if you choose to, pump the bucket dry by using the feed pump switch. Stop when the bucket is empty.

- Turn the service valve 180° back to its original ‘Run’ position, remove the service hose, and replace the dust cap.

- Turn off the AC power to the system.

- **LEAVE THE PRESSURE RELIEF VALVE OPEN**

Storage & Winterizing

Warning! Use only potable water antifreeze (Propylene Glycol). That does not contain any Ethyl Alcohol.

Do not use automotive antifreeze (Ethylene Glycol).

Propylene Glycol is an effective biocide and antifreeze only at concentrations above 25%. Commercially available products range from 25 to 60 percent. They are usually labeled with a temperature rating. "Minus 50" antifreeze is already diluted to 25%. "Minus 100" is a 60% solution. Purchase the strongest antifreeze available. Use enough to ensure that the system contains at least a 25% solution even after dilution with the residual water inside the watermaker.

Note that there is 3.5 gallons of water in the system so if you want to make a 50% solution you will need 3.5 gallons of Antifreeze.

Follow the procedure on the previous page with the following changes;

- Skip step 2, you will be putting straight Propylene Glycol in the bucket
- Substitute Propylene Glycol for the SC-1 storage chemical in Step-5

Everything else in the process is the same.

Maintenance

General

Periodically inspect the entire system for leakage and chafe on the tubing and hoses. Repair any leaks you find as soon as practical. Some crystal formation around the Spectra - Pearson Pump blocks is normal. Wipe down any salt encrusted areas with a damp cloth.

The Seawater Strainer

- The sea water strainer's stainless steel element should be inspected, removed, and cleaned as needed. A clogged strainer will cause the control to alarm **"Service Prefilters"** Be careful to ensure that the thru-hull is closed before disassembly and the seal and element are in place before reassembly. Put the screen up to a light for inspection. When the system is put into storage, remove, rinse, and reassemble dry to impede corrosion. Check frequently during operation.

The Prefilters

- Service the prefilters as soon as possible after the prefilter condition graph begins to rise. If the filter condition graph gets all the way to "Replace" the machine will slow down. When display reaches "Replace" a second time the alarm sounds and the system will shut down to prevent damage.

- To service the filters shut off the thru-hull, open the housings, discard the old filters, Clean out the housing bowls, reassemble the housings with new 20 and 5 micron filter elements. The 5 micron filter goes downstream from the 20 micron. Leave dry until next startup.

- Use only Spectra approved filters or you may void your warranty. Occasionally, lightly lube the O-rings with silicone grease.
- Note that the ring holding the filter bowls in place only needs to be hand tight. Making the ring tighter will not improve the seal. If it leaks the o-ring is dirty or damaged.

It is important to remember that your Spectra Watermaker is designed to process clean, open-ocean seawater. Any departure from that standard for your seawater intake runs the risk of causing excessive wear or damage to internal pump parts and/or the vulnerable reverse osmosis membrane. Additional prefiltration considerations and/or extremely frequent prefilter replacements may be required in any deviation from open-ocean seawater. Your local service provider or installer may have specific recommendations based on their experience with water conditions unique to your region.

The Charcoal Fresh Water Flush Filter

- Replace the charcoal filter element at least every 6 months.

Maintenance

GEARCASE LUBE OIL

Use only 5W-30 synthetic oil in Spectra-Pearson Pump crankcase. Do not overfill the crankcase with oil. Check oil condition and level frequently. The Oil should be replaced every 5000 hours or annually, whichever comes first.

The Spectra– Pearson Pump comes mounted on a counterclockwise rotating CAT™ crankcase. **Inspect the oil level and condition often.**

The oil in the crankcase should be changed every 5,000 hours or when the oil appears milky. There is an inspection window that is visible from the plumbing manifold side of the Spectra-Pearson Pump, or the oil can be check by the vent plug on the top of the crankcase.

Push the drain tube into the fitting and pull the ring on the fitting into the fitting which will release the tube. Keep pressure on the ring and pull the tube out.

Oil Lever sight glass

Drain oil into a suitable container.

Reattach the tube (pull to make sure it is secure) and refill the pump with oil, checking the level with the sight glass.

The Membranes

- The membranes need to be cleaned only when operating pressures have risen more than 10% or the product quality degrades. The leading cause of fouling in marine use is from biological growth that occurs when the system is left unused without flushing or pickling. Fouling from mineral scaling can happen during operation under certain sea water conditions, and from rust. Monitor the product salinity and membrane pressure for higher than normal readings for the conditions. Other conditions can cause high pressure such as cold water or high ocean salinity. Low product flow is usually due to blocked or partially blocked prefilters, Spectra-Pearson Pump problems, or low boost pressure. Look for all other causes before cleaning the membrane. Membrane life can be shortened by excessive cleaning.

- There are two types of cleaners: acid and alkaline. The acid cleaner (SC-3) will remove mineral scaling. The alkaline cleaner (SC-2) is used to remove biological by-products, oil, and dirt particles that get past the prefilters. If membrane performance is reduced and they have not been pickled recently, cleaning with both chemicals is recommended. The acid cleaner should be used first. If the membrane fails to respond to both cleanings, this is an indication of another problem with the system, or that it is time to replace the membranes. Contact Spectra Watermakers before removing a membrane.

Membrane Cleaning

For normal cleaning, the SC-3 Acid Cleaning Compound is used first, then the SC-2 Alkaline Cleaning Compound. If known bio-fouling is present, the SC-2 may be used first. Use hot water if possible, up to 120°F (45C) is recommended as it greatly enhances the ability of the cleaners to do their jobs.

If the history of the system is unknown or has been left “unpickled” for an extended length of time and biological growth is present, it is recommended that the system is cleaned with SC-2, using an alternate source of unchlorinated fresh water before the system is run under pressure. A simple test can be performed to see if biological growth has occurred. Before running the system, remove the prefilters and examine their condition. If the housings are full of smelly discolored water, the system was not properly stored. Install clean prefilters if they were bad. Next check the membrane. Attach the brine discharge service hose and lead to a bucket. Open the pressure relief valve one turn, and manually run the system for 30 seconds. Examine the brine water: if it’s discolored and smells bad, perform an SC-2 cleaning with an alternate source of unchlorinated water before running the system pressurized. If the brine is fairly clean, the system can be purged, run normally, and checked for performance. Clean the membranes only if performance is reduced.

Heating the water is preferable. One way to do this is to find a camp stove and use a large stainless steel pot to heat the solution in. The cleaning solution throughout the system will heat as it circulates in and out of the pot. An alternative is to heat the one or two gallons of water to 120° on the before mixing in the cleaner and circulating it into the system. Periodically stop and reheat the solution.

Perform the cleaning procedures while the ship is in acceptable sea water for purging and testing.

Membrane Cleaning

Membranes should only be cleaned when it is indicated by understanding the history of the watermaker, see the previous page for details.

Note: Procedures are the same for the SC-2 and SC-3 cleaners

A Spectra Cleaning Compound (SC-2 or SC-3) must be mixed with fresh water at a ratio of 1 container of compound (8oz.) to 3 gallons (12L) of unchlorinated water to have the proper solution. An average of six gallons (8L) of water is already present inside a Farallon system . This water has to be figured into the mixture. A Farallon system will use 2 containers of compound. SC-2 and SC-3 are never mixed together. Do not use them for storage pickling solution.

Warning! The pressure relief valve on the Spectra-Pearson Pump must be open for this procedure or membrane damage may result. Maximum pressure 50 psi.

Cleaning Procedure:

- Step 1: Close the seacock. Flush the system twice. Use the "Auto Flush" button on the MPC-5000 display, once the first flush has been completed, press "Stop" to cancel the 5 day interval timer, then press "Auto Flush" again.

- Step 2: Connect the brine discharge service hose to the **Service Port** on the *Brine Discharge Service Module*, turn the yellow handled service valve to the **Service** position , and lead the hose to a bucket.

- Step 3: Press "Auto Flush" again to fill the bucket with 2 gallons (8L) of fresh unchlorinated water. Press "Stop" when the bucket has reached the desired level.

- Step 4: Connect the intake service hose, using the garden hose barb fitting from your service kit, to the **service port** of the *Intake Service Module*. Lead the hose into the same bucket as the brine discharge service hose. Turn the service valve on the *Intake Service Module* 180°, so the intake is now coming from the bucket.

- Step 5: Mix the cleaning chemical compound into the water in the bucket. *Note that not all of the chemical will dissolve completely into solution. This is acceptable and will not harm the system.*

- **Step 6: OPEN THE PRESSURE RELIEF VALVE ON THE SPECTRA-PEARSON PUMP.**

- Step 7: Use the "Run Manual" switch on the control box to turn on the feed pump. Circulate the storage chemical in the system for approximately 25 minutes. Allow to soak for several hours or overnight if the solution is cold. Run the pump occasionally to agitate the solution. Set the toggle switch to 'Run Auto' when finished.

- Step 8: Replace the brine overboard hose. Remove the Inlet Service hose and turn the Service valve to the Run position.

- Step 9: To avoid damaging the membranes, Follow the "New System Startup" Instructions to Purge the chemicals out of the System.

Suggested Spares

Short term cruising, weekends etc.

We suggest a hand held salinity meter and basic cruise kit. Kit consists of 3 ea, 20micron, and 5 micron filters and two SC-1 storage chemicals.

Cruising 2 to 6 months at a time.

Two basic cruise kits, One each replacement charcoal filter, Oil Change Kit, Salinity Probe.

Longer than 6 months,

Additional filters, membrane cleaning chemicals. One replacement strainer screen, O-ring for strainer screen, O-rings for filter housings, Salinity Probe, Oil Change Kit

Spectra Watermakers parts list:	**Part Number**
SC-1 STORAGE CHEMICAL	KIT-CHEM-SC1
SC-2 CLEANER (Biological)	KIT-CHEM-SC2
SC-3 CLEANER (Acid)	KIT-CHEM-SC3
BASIC CRUISE KIT	KIT-BCK-D
5 MIC FILTER	FT-FTC-5BB
20 MIC FILTER	FT-FTC-20BB
CHARCOAL FILTER	FT-FTC-CCBB10
6” STRAINER SCREEN	FT-STN-6S
6” STRAINER O-RING	SO-STN-6SS
FILTER HOUSING O-RING	SO-FHS-3PS20BB
SALINITY PROBE	EL-MPC-SP4
OIL CHANGE KIT	KIT-SPP5-OP
HAND HELD METER	KIT-HHM

Membrane Pressure Vessel Relocation

Use **ONLY** size –8 hydraulic hose, p/n PL-HS-1/2HP, for high pressure connections. Pay attention to the direction and flow path of the factory installed hoses before disassembly. Make sure that you reinstall the new hoses in the same manner.

The high pressure fittings are typically pre-installed at the factory. The fittings on the Spectra-Pearson Pump seal with an O-ring and require no Teflon tape or pipe thread sealant. The fittings on the pressure vessels are UNF Straight Thread and pre-installed at the factory. These fittings should not be disassembled, contact the factory if further installation options are necessary.

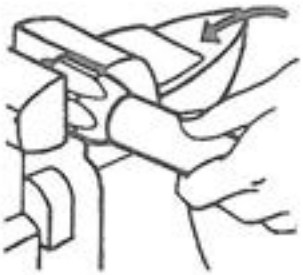
Follow the high pressure hose connection instructions on the next page. Carefully measure the total assembled length from fitting to fitting. It is usually best to assemble one end of the hose fitting, connect it, lay out the hose length required, then mark and cut the hose to length, taking into account the assembled length of the fitting. A 90 degree bend in a tube is better than a 90 degree fitting. Do not exceed a 5” (13cm) minimum radius bend.

When connecting the hoses to their components, be sure to hold the fitting body with a wrench during the final tightening. Of special note are the fittings on the membrane housing seal, these fittings are national pipe thread and must be properly supported to ensure leak-free service.

Factory Pre-assembled reusable high pressure fittings

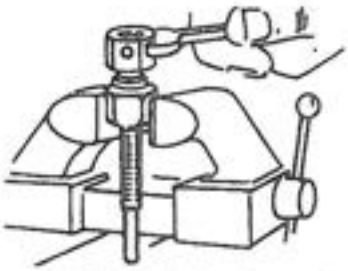
Reusable Fitting Assembly Instructions

22 Series and 23 Series (Group XIII) Mandrel Assembly Instructions



1. Identify Over All Length (OAL) of hose assembly and the Cut Off Allowance (COA) length of fitting(s) on hose ends by use of the fitting data table. Properly measure, mark and cut hose to desired length using fine tooth hacksaw or a cut-off machine. Place socket in vice and screw in hose counter-clockwise until hose bottoms. Back hose out 1/2 turn.

2. When assembling male pipe ends, slide nipple onto mandrel.



3. When assembling swivel ends, screw threaded mandrel all the way into interior threads of swivel and wrench tight.

4. Oil nipple threads and inside of hose with silicone oil or diluted soapy water. DO NOT OIL HOSE COVER

5. Push nipple into socket.
   Male ends: Thread nipple in until it bottoms against socket.
   Swivel Ends: Apply wrench to hex of assembly mandrel.
   Thread nipple clockwise into socket until clearance between nut and socket is approximately 1/32"(.794mm) to allow nut to swivel. Remove mandrel.

Note: **DISASSEMBLE IN REVERSE ORDER**

Caution: Do Not Attempt to Assemble These Fittings to the Hose Without Using a Mandrel.

High Pressure Compression Fittings

The Spectra-Pearson Pump is equipped with compression fittings for reliability and easier service. These fittings are used to connect the raw water outlet on the plumbing manifold to the raw water inlet on the Spectra-Pearson Pump. Should these fittings need to be replaced or repaired, follow the instructions below to ensure leak-free service.

Use **ONLY** Dayco Imperial Nylo-Seal 88-NSR-1/2 or stainless steel tubing for high pressure connections.

Carefully fit and measure the tubing before cutting with a sharp razor knife or hose cutter and remove any burrs. Minimum tubing bend radius is 6”. Route tubing away from excessive heat sources and secure from vibration and chafe. Have at least one shallow bend in a tube assembly after it is installed.

Refer to figure 1. If a fitting has been dissembled, reassemble as illustrated. The notch on the ferrule must engage the inside of the nut properly for the nut to seat down fully. Once the tube is inserted the ferrule and nut will naturally align.

Refer to figure 2. Insert tube fully into the fitting, it should go in 0.9”. Tighten the nut finger tight while moving the tube around to prevent binding. One thread should be showing under the nut. Secure the tube so it won’t back out when tightening.

Refer to figure 3. Use 13/16” wrench to hold a straight body fitting or a 3/4” wrench for a 90º body, and a 7/8” wrench for the nut. Hold the body, recheck the tube insertion, then tighten the nut 1-1/4 turns. Use the index mark on the nut as a guide. The threads should be completely covered by the nut.

Make Sure these fittings are tight on initial assembly or they will fail!

Figure 1.

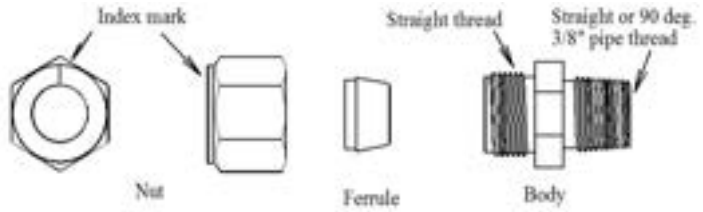
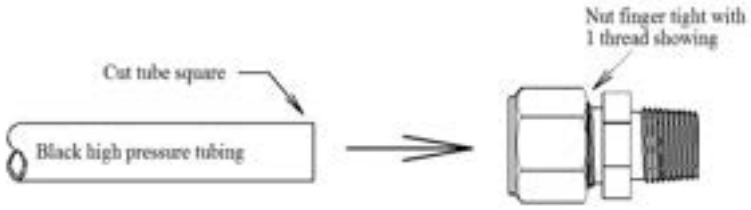
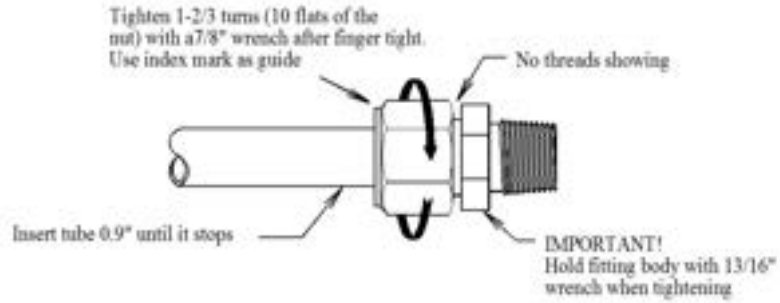


Figure 2.



The correct Torque specification is 85 foot pounds

Figure 3.



This page intentionally left blank.

Spectra Connect Settings

Your new Spectra Connect is designed to make your watermaker easier than ever to operate, maintain and enjoy. This section will guide you through some of the more advanced settings options available.

Always use caution when changing any factory default settings, as serious damage can occur.

The Spectra Connect automatically monitors the operation of the system to ensure a long and trouble-free service life. If an operating parameter changes, the Connect can switch operating modes, shut itself down, or automatically store itself in order to protect your watermaker.

It includes advanced calibration sequences to make proper setup and maintenance of your watermaker easier than ever.

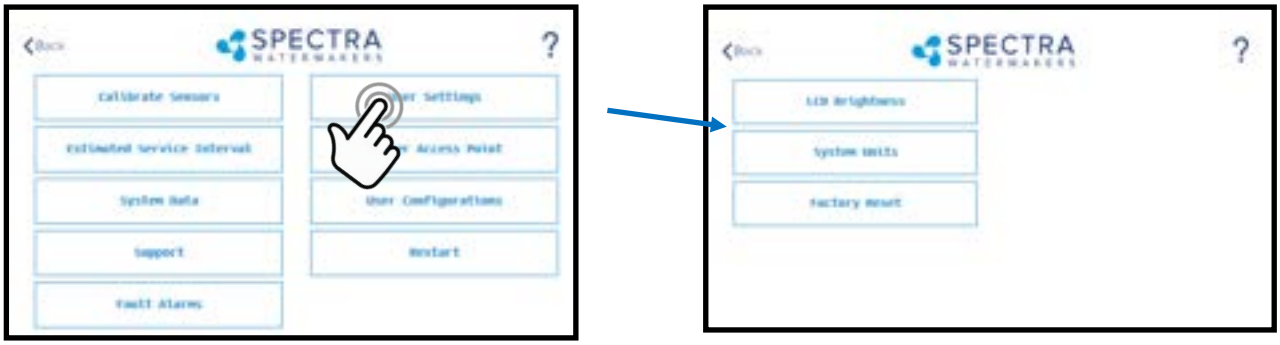
The onboard clock feature allows for temporary power interruptions without detrimental effects on the system. In some cases your watermaker will continue to function in its last known operating state.

The Spectra Connect has built in data logging, allowing for easy access to historical operating data—which can indicate a wearing component or spares to be carried along before a failure occurs.

Built in warnings for preventative maintenance automatically alert a user of pending maintenance items, helping to keep your watermaker's up-time to 100%! Advance warnings are pre-programmed for Prefilter Life, Pump rebuilds, membranes, Z-Ion reactor rod life, and carbon filter life. These warnings are resettable, allowing you to perform the maintenance before a catastrophic failure, then reset the interval—so you're always on top of the maintenance cycle!

Spectra Connect Settings - Cont.

User Settings



LCD Brightness: Set brightness of the hardwired display(s) from 10—100%
System Units: Change from US Standard units to Metric
Factory Reset: Resets any changed parameters a user has made back to the factory defaults for that configuration.

Fault Alarms

CAUTION! Never disable a Fault Alarm without being certain that the issue is with a bad sensor. Disabling a fault and running the system can cause serious damage or injury.

High Pressure Fault: Disables the 'High Pressure' shutdown fault in the event of a feed pressure sensor failure.

System Stall Fault: Disables the 'System Stalled' shutdown fault in the event of a failed rotoflow sensor. System stalled alarms occur when the control board does not sense any product water being produced, and shuts down to protect the pump from running dry.

Poor Quality Fault: Disables the 'High Salinity' shut down fault in the event that the salinity probe has failed or cannot be calibrated within range. **NOTE: The diversion valve will always be active when this fault is disabled. ALWAYS VERIFY PRODUCT QUALITY BEFORE DRINKING. Serious health risks may occur.**

Prefilter Fault: Disables the 'Service Prefilter' shut down fault in the event that the boost pressure sensor has failed or cannot be calibrate within range. **CAUTION: Permanent damage to the feed pump can occur if this fault is disabled, use caution when operating this system with this fault disabled.**

Dealer Access Point - Settings

Dealer Access Settings

It is highly recommended that users consult with a factory trained technician before altering any settings behind the 'Dealer Access Point'. **Changing this settings without understanding the full effect of each change can void the warranty of your system, and cause irreparable damage.**

If any settings are inadvertently changed, they can be reverted back to the defaults by using the 'Factory Reset' feature.

Default Login: admin
Default Password: admin

System Model: Configures the Spectra Connect for a different system model from a preset list of options.

Clear Statistics: Resets all of the Estimated Maintenance Intervals back to 100%. This feature should only be used on a brand new system.

Change Username/password: Changes the default username and password. If you forget your changed username and password, a Factory Reset will revert back to the default username and password.

Set MFD: Changes the Manufactured Date on the system. This should only be adjusted if a control board is being replaced on an older system.

Set Serial ID: Changes the Serial Number recorded in the Spectra Connect. This should only be adjusted if a control board is being replaced on an older system.

Limit Runtime: Limits the maximum run time for the system before shutting down and fresh water flushing. Disabling this setting allows the watermaker to be operated 24/7.

Dealer Access Point - Settings - Cont.

Dealer Access Settings

It is highly recommended that users consult with a factory trained technician before altering any settings behind the 'Dealer Access Point'. **Changing this settings without understanding the full effect of each change can void the warranty of your system, and cause irreparable damage.**

If any settings are inadvertently changed, they can be reverted back to the defaults by using the 'Factory Reset' feature.

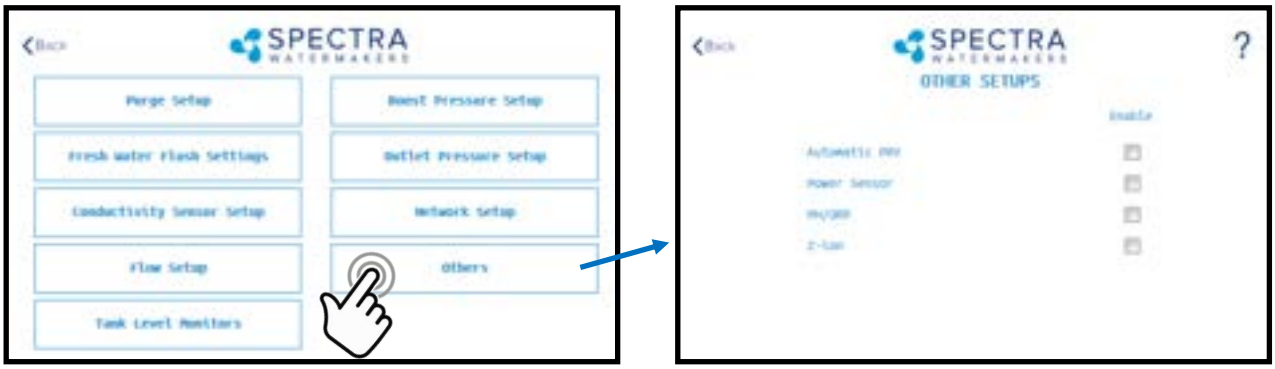
<u>Purge Setup:</u> Adjusts the time and maximum feed pressure allowed for the Purge Mode. **CAUTION: Permanent damage to the membrane can occur if this setting is adjusted. Consult the factory before making any adjustments.**
<u>Fresh Water Flush Settings:</u> Allows adjustment of the fresh water flush duration and the interval between flushes. If the Z-Ion is installed, the Flush Interval should be changed to 30 days.
<u>Conductivity Setup:</u> Allows for enabling or disabling conductivity sensors on the feed water and product water. Set the threshold for the diversion valve to divert water to the tanks.
<u>Flow Setup:</u> Allows the user to adjust the flow sensor settings, or disable a flow sensor circuit altogether. **DO NOT USE THIS SETTING TO CALIBRATE THE PRODUCT FLOW.** Follow instructions on calibrating the flow sensor in this manual.
<u>Tank Level Monitors:</u> Enable and disable the Tank Level Sensors, which read the % remaining in the tank, and the tank switches, which allow the system to turn on/off automatically.
<u>Boost Pressure Setup:</u> Enable alternate Boost Pressure sensors, change the Low Vacuum Limit, or Boost Pressure Setpoint. **CAUTION: Permanent damage to the pump can occur if this setting is adjusted. Consult the factory before making any adjustments.**
<u>Low Vacuum Limit:</u> The minimum boost pressure required at the inlet to the pump. This setting prevents the pump from getting damaged by running under high vacuum. Adjusting it to a lower number in creases the risk that the pump will suffer damage during normal operation.
<u>Boost Pressure Setpoint:</u> During startup the controller turns on the boost pump and waits for the Boost Pressure to reach the Boost Pressure Setpoint. If the boost pressure fails to reach this setpoint, then the main pump won't turn on. Reducing the Boost Pressure Setpoint may cause the system to start, then immediately shut down due to low boost pressure.
<u>Outlet Pressure Setup:</u> Set High Pressure Limit, enable alternate high pressure sensors, select pressure sensor scaling. **CAUTION: Permanent damage to the pump can occur if this setting is adjusted. Consult the factory before making any adjustments.**
Network Setup: Enabling the Spectra Connect Wireless access turns on a Power Over Ethernet feature on the wired connection. **ENABLING THIS FEATURE CAN CAUSE SERIOUS DAMAGE TO YOUR SHIP'S NETWORK. DO NOT ENABLE THIS FEATURE WITHOUT CONSULTING A QUALIFIED TECHNICIAN OR THE FACTORY.**

Dealer Access Point - Settings - Cont.

Dealer Access Settings

It is highly recommended that users consult with a factory trained technician before altering any settings behind the 'Dealer Access Point'. **Changing this settings without understanding the full effect of each change can void the warranty of your system, and cause irreparable damage.**

If any settings are inadvertently changed, they can be reverted back to the defaults by using the 'Factory Reset' feature.



Other Setups—Default is all disabled
<u>Automatic PRV:</u> Enables an optional Automatic Pressure Relief Valve, after it is installed. This setting should remain off unless you are certain that you have this feature installed on your system.
<u>Power Sensor:</u> Enables or disables an optional power sensor, after it is installed.
<u>PH/ORP:</u> Enables an optional pH or ORP meter, after it is installed.
<u>Z-Ion:</u> Enables or Disables the optional Z-Ion system, after it is installed. If the Z-Ion is enabled, you should also adjust the Flush Interval to 30 days.

Tank Level Monitors

Tank Setup - Enable/disable tank sensors.
Enable Tank Switch High - Enable/disable tank high switch high. If this is disabled Auto Fill and Fill Tank run modes will not be available.
Enable Tank Switch Low - Enable/disable tank high switch low. If this is disabled Auto Fill mode will not be available. Both High and Low tank switches must be enabled for Auto Fill mode.
Enable Tank Level 1 - Enable/disable tank level sensor 1. If this is disabled there will be no tank level reading and tank level gauge will read "!".
Enable Tank Level 2 - Enable/disable tank level sensor 2.

Handling Spectra Connect Alarms or Faults

Faults are (potentially hazardous) conditions that might occur during running of your watermaker. The control board has the ability to monitor these faults in real time and take necessary actions to prevent damaging your equipment.

HIGH PRESSURE FAULT

High pressure fault is triggered if

Outlet pressure (Feed/Membrane pressure) > Pressure Limit

If a high pressure fault is triggered, the system goes to low production mode if it is running in high production mode, or stops the operation if it is already running in low production mode. Then the system will begin the Auto Store mode.

Resolutions

Check for kinked or blocked hoses.
Confirm "#3 Sensor PSI High limit" and "#3 Sensor PSI Offset" options on Outlet Settings.
Clean membrane.

SYSTEM STALL FAULT

System stall fault is triggered if

There is no product flow for 1 minute continuously.

If system stall fault is triggered, machine will stop the current run cycle and will prompt to restart. If restarted it will retry the previous running mode. If the stall condition persists even after restart, the system will begin the Auto Store mode.

Resolutions

Confirm product water at membrane endcap.
Check intake line for restrictions, blockages or air leaks.
Close Pressure Relief Valve on Pump.
Confirm controller settings correct.

SERVICE PREFILTER FAULT

The Service Prefilter fault is triggered if

Inlet Pressure(boost pressure) < Low Vacuum Limit

If the Service Prefilter fault triggers, the system goes to low production mode if it is running in high production mode or stops the operation if it is already running in low production mode. Then the system will begin the Auto Store mode.

Resolutions

Change prefilters and the sea strainer screen.
Confirm adequate boost pressure in inlet pressure settings.
Check for obstructions in intake line.
Check sensor for proper operation

POOR QUALITY FAULT

The High Salinity fault triggers if

The Salinity of the product water is above the threshold (measured salinity > Salinity 1 threshold) for more than 8 minutes.

If the High Salinity fault is triggered, the machine will stop the current run cycle and will prompt to restart. If restarted it will retry the previous running mode. If the High Salinity fault condition persists even after restart, the system will begin the Auto Store mode.

Resolutions

Check pump operation - Clark Pump (pressure relief valve closed), Feed Pump (moving water).
Confirm product water quality.
Membrane damage - clean or replace.
Salinity probe out of calibration.
Clean or replace salinity probe.

Troubleshooting Spectra Connect Alarms

SYMPTOMS	PROBABLE CAUSE	REMEDY
Pump runs constantly, will not turn off	• Toggle switch on control box to RUN MAN or SERVICE	• Turn switch on control box to RUN AUTO • Replace Speed Control
Pump runs with loud noise	• Low or high Boost pressure • Intake blocked • Air in system	• Adjust Boost pressure • Check sea strainer for leaks • Check fresh water flush module for leaks • Re-prime system (restart) • Confirm voltage at Boost Pump, check wiring connections.
No lights or display, system does not operate	• Display has gone to sleep • Remote display not connected • No power to control box	• Touch the screen to wake it up • Check display cable connections at back of display and at control box • Check and reset main DC supply breaker • Check for voltage control box, check 20A fuse on control board. • Try manual switch on control box: If pump runs, then control or display may be defective
Display activates, but pump will not run	• Loose or broken pump wire connection • Tanks are full (if equipped with tank switch) • Speed control overheated	• Check wiring at terminal block inside control box • Check tanks– system cannot be started if tanks are full. • Improve cooling
System runs, no product water delivered to water tanks, Product volume gauge good, Diversion valve shows activated on display	• Diversion valve inoperative or wiring fault. • Disconnected or broken product tubing • Diversion valve plunger stuck	• Check wiring at diversion valve and inside control box • Check product tubing • Exercise diversion valve by pressing the manual button top, retest. • Replace diversion valve.
System runs, no product water delivered to water tanks, Product volume gauge good, Diversion valve shows deactivated on display	• Poor product water quality diversion valve open • Salinity probe out of calibration or defective, bad cable • Chlorine damage to membranes • Pressure relief valve partially open	• Check for low feed pressure • Check for leaks at high pressure hoses • Test product water with hand-held tester– if over 500 PPM for 1 hour, see ‘Poor Product Quality’ on p.50 • Close pressure relief valve

Troubleshooting Spectra Connect Alarms

SYMPTOMS	PROBABLE CAUSE	REMEDY
"System Stalled" alarm is caused ty the roto-flow not reading properly, if no product flow the system alarms "System Stalled"	• Pressure relief valve open • Intake thru-hull closed • Airlocked system • No signal from Rotoflow meter	• Close pressure relief valve • Check thru-hull • Purge air • Check wiring, confirm roto-flow is spinning, clean or re-place Rotoflow meter
"High Pressure"	• Blocked brine discharge or product line • Fouled membrane	• Check brine discharge • Clean membrane
"Re-starting"	• No signal from Rotoflow meter at startup. • System airlocked	• See remedy above for "system stalled"
"Service Prefilter"	• Clogged filters • Loose or defective pres-sure sensor wires	• Install new filters • Check sensor wiring • If the error persists, follow Prefilter Calibration instruc-tions.
"Salinity High"	• High product water salinity • Chlorine damage to mem-branes • Defective salinity probe or cable, cable disconnected	• Check for low feed pressure • Check for leaks at high pressure hoses • Remove and clean probe contacts. Check calibration • Check cable connections • Clean membrane
"Can't Connect to Water-maker from Web Browser"	• Device (phone/tablet/ computer) not connected to same network • Router/Switch turned off • Watermaker turned off • Connecting to wrong web address	• Check the wireless network on your mobile device or computer • If using a wired connection, confirm you are connected to the same net-work. • Make sure Router/switch has power. • Restart Router/Switch • Make sure watermaker is powered on • Confirm Device IP address matches address typed into browser

Troubleshooting Spectra Connect

SYMPTOMS	PROBABLE CAUSE	REMEDY
Device IP in Support Menu reads 'NIL'	• Control board not connected to router or switch • Control board not receiving IP address from router or switch	• Connect the control board to a router or switch according to the Networking instructions • Cycle power on the watermaker with the network cable connected
Tank Level not accurate	• Tank Level not calibrated • Domestic water pump running • Water tanks sloshing while underway, no baffles in tanks • Tank sensor failed	• Calibrate tank level according to calibration instructions • Stop domestic water pump and check tank level • Re-check tank level accuracy while vessel in in port and sea state is calm • Replace sensor
Tank Level shows ' ! '	• Tank Level sensor disabled in Settings	• Verify tank level sensor is installed, and enable the tank level sensor
Power suddenly drops out and watermaker restarts	• Electrical short, or failed boost pump • Electrical short, or failed solenoid valve • Electrical short, or failed pressure sensor • Electrical short, or failed speed control • Electrical short, or failed salinity probe	• Disconnect boost pump wires from control board and cycle power. Check boost pump for electrical short. • Replace Boost Pump • Disconnect solenoid valves from control board and check valve for a short. • Replace valve • Disconnect speed control and cycle power. Check speed control for electrical short. • Replace Speed Control • Disconnect salinity probe wires from control board and cycle power. • Replace Salinity Probe
"Low Pressure System Stopped"	• No incoming Freshwater Flush flow • Freshwater Flush Solenoid Malfunctioning • Freshwater Flush Solenoid not receiving voltage • Incoming pressurized freshwater out of spec (20-50psi) • Air Lock	• Ensure ship's pressurized freshwater system is powered on & connected to flush module inlet • Probe Flush solenoid for proper voltage (12v on all systems) • Ensure Flush solenoid is free of rust & debris • Check house pump spec. Add pressure regulator kit if pump is out of spec and above have been ruled out • Attempt with pressure relief valve open

Operation and Repair Bulletins

Many technical bulletins are available on the Spectra website, support.katadyngroup.com.

MB-2 MEMBRANE CARE

Membrane life is affected by a large number of factors and is somewhat unpredictable, however five or six years of use is typical. The biggest killers of membranes are lack of use, chlorine damage, and improper storage.

Don't let membranes sit around with sea water or stale fresh water in them. Biological growth will occur in the membrane. Here at the factory we frequently get back membranes for inspection that reek of hydrogen sulfide (rotten eggs). This odor is produce by anaerobic bacteria that live in an unused membrane, feeding on whatever animal or vegetable matter is trapped in it from the plankton that gets through the system. Membranes badly fouled in this way can seldom be saved. These bacteria are always present but are inhibited by the oxygen in sea water while the unit is in frequent use. If you won't be frequently using your membrane you can prevent biological growth by Fresh Water Flushes or by Pickling your membrane. Keeping the prefilters clean is also important in preventing bio-fouling. If your prefilters are allowed to become a breeding ground for bacteria (get smelly), the contamination will spread throughout the system. When we cut open a failed membrane we also find mildew, another form of bio fouling, probably due to long term storage with no biocide or stale biocide.

After many hours of water making mineral deposits will form and must be dissolved away with an acid cleaner. Alkaline cleaners are used for bio-fouling.

Chlorine destroys a membrane in minutes. It attacks the material that the membrane is made from. Always use product water or water filtered through a charcoal filter for flushing and chemical treatments.

Oil clogs the membrane. We have brought back oil fouled membranes with dish soap (See MB-5 Cleaning with Detergent.)

For storage we recommend using SC-1 or propylene glycol potable water system antifreeze if available. Propylene glycol can safely be left in the system for one year and will keep things from freezing in cold conditions. It is hard to find in warm climates, and takes up a lot of room on a small boat, so our SC-1 is best for tropical cruising.

Even if given good care a membrane will eventually start to slowly fade away. The feed pressure may rise and/or the ppm go up.

Poor Product Water Quality

With any product water quality issue, you must ensure accurate calibration if you are using a salinity meter. For general quality evaluation, your taste is always good enough.

Membranes are not an exact science and two identical systems can have different product quality. World health standards deem water of up to 1000 PPM of total dissolved solids acceptable for drinking. We consider any thing below 750 PPM acceptable, and anything below 500 PPM excellent. Factors that could affect water quality are addressed below.

LOW SYSTEM FLOW OR PRESSURE will equate to lower product quality (higher PPM).

DAMAGE TO THE MEMBRANE by chlorine contamination. Flushing the system with chlorinated water will irreparably damage the membrane. Charcoal filters are used to absorb any chlorine which might be present in flush water. They must be of proper specification to be suitable. There is no test for chlorine damage except the process of elimination of other causes.

DIRTY OR SCALED membranes. A dirty (foreign material), scaled (mineral deposits), or contaminated (bacterial growth) membrane can result in poor water quality and abnormal operating pressures. If operating pressures are above normal, then cleaning is indicated. If the system pressures are within normal operating range, cleaning may have little result. Low water quality after storage with propylene glycol can usually be remedied by flushing with the pressure relief valve for seral hours or if that is not effective a SC-2 cleaning.

MECHANICAL LEAKAGE within the membrane pressure vessel. This is an unlikely but possible cause of poor water quality. A pinched or damaged O-ring within the pressure vessel, a scratch on the product tube on the membrane, a scratch within one of the end caps, or a seal fouled by contamination could allow sea water into the product water.

MB-5 MEMBRANE CLEANING WITH DETERGENT

If the membrane has been fouled with oil it may be possible to save it by cleaning with dish soap such as Joy. Do not use anything that contains bleach. You will need a lot of chlorine free fresh water. If using shore water run it through a charcoal filter at a rate of not more than 1.5 gallons (6 liters) per minute.

Use the "Membrane Cleaning Procedure"

Fill a bucket with fresh water and mix in a couple squirts of the detergent. Run the system unpressurized (with pressure relief valve open) with the watermaker drawing water from the bucket and discharging overboard. When about half the water is gone from the bucket stop the unit and let the membrane soak for a few minutes. Restart and pump the remaining solution overboard. Repeat until the discharge appears clean.

After most of the oil is cleaned out you can put the brine discharge into the bucket and run the system with the soapy water circulating as you would for the other cleaning chemicals. Run the Fresh Water Flush cycle to clean membrane, then flush for twenty minutes using sea water. Pressurize and test.

BAD SMELLING PRODUCT WATER

The reverse osmosis membrane is permeable by many gases including hydrogen sulfide, the gas that causes rotten egg smell. If there are bad odors in the feed water they will go through the membrane and the product water will be affected. Usually the source of the odor is from the decay of plankton trapped in the sea strainer and prefilters. These tiny oxygen loving creatures soon suffocate and die inside the prefilter housings when the unit is shut down and begin to decay. Once this decay starts the only solution is to rinse the Prefilter and let it dry completely (to kill the bacteria) or just replace it with a new filter. If the system is making smelly water, it will likely be the prefilters that are the source of the problem. In cold climates this process of decay and take weeks, but in very warm waters this can happen overnight. These bacteria can spread throughout the watermaker, and begin to grow on the membrane, causing poor water quality and high feed pressures.

Flushing the system with fresh water after every use greatly slows this process, allowing the automated spectra units to operate with less frequent prefilter changes, but units operated for only an hour or so a day will probably need to have the filters changed due to odor before they are dirty enough to restrict water flow. After shutting down the unit remove the used prefilters and install a clean set. Leave the housings full of air until the next use.

If the rotten egg smell does not go away after operating the watermaker for 6 or 8 hours it may be time to clean the membrane with SC-2. Typically the smell will go away with use, but if it persists cleaning may be indicated.

The Z-ION was created to eliminate this problem by disinfecting the system during each fresh water flush, disinfecting the filters and the membrane.

More on this subject is available on our website at www.spectrawatermakers.com.

This page intentionally left blank.

System Dimensions

This page intentionally left blank.

Part Numbers

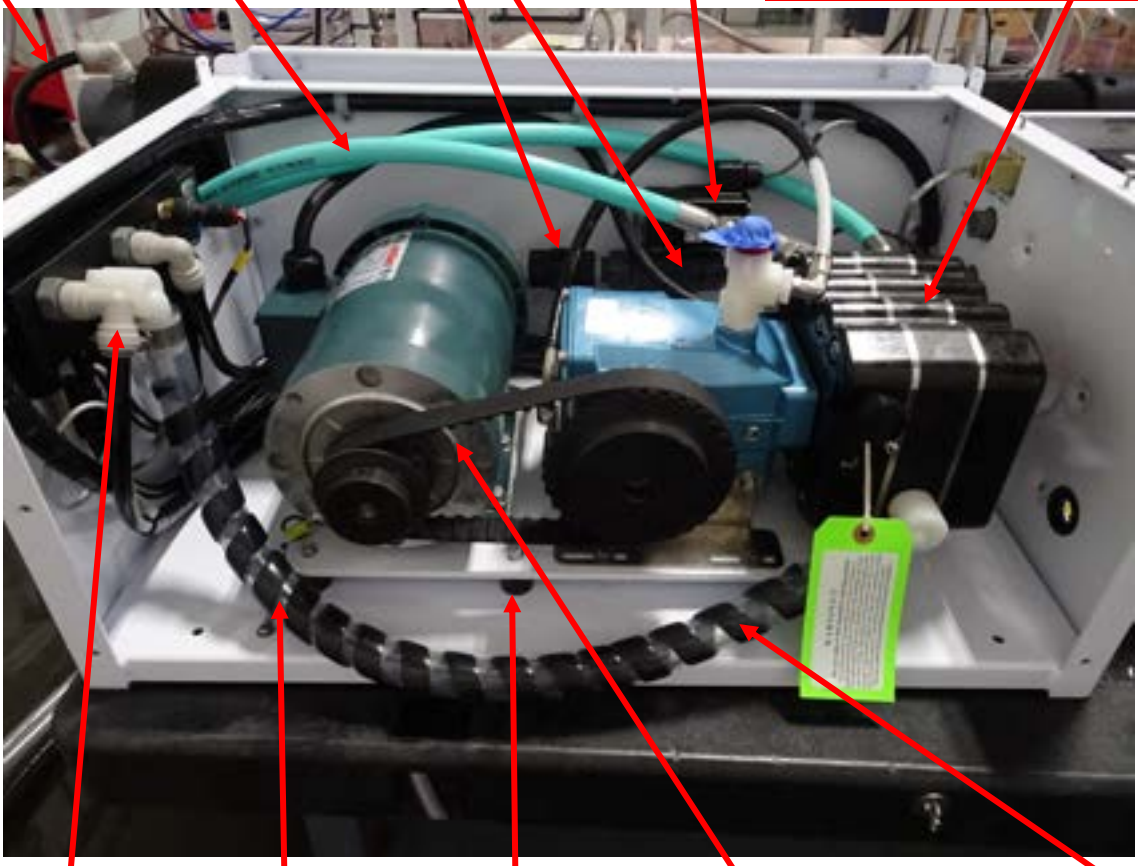
PL-CKV-3/4F-FWS
3/4"FPT CHECK VALVE W/1/3# HAST.SPR

PL-NLT-1/2HP
1/2” HIGH PRESSURE TUBE

PL-SLN-3W220AC
1/2”NPT 3-WAYSOLENOID 9/16” 220AC

PL-HS-1/2HP
"1/2"" PARKER HIGH PRESSURE HOSE"

SP5 PEARSON PUMP
Farallon 1800 - (20%)
Farallon 2800 - (30%)



PL-MNF-FINL
FARALLON INLET MANIFOLD FOR SPARTAN

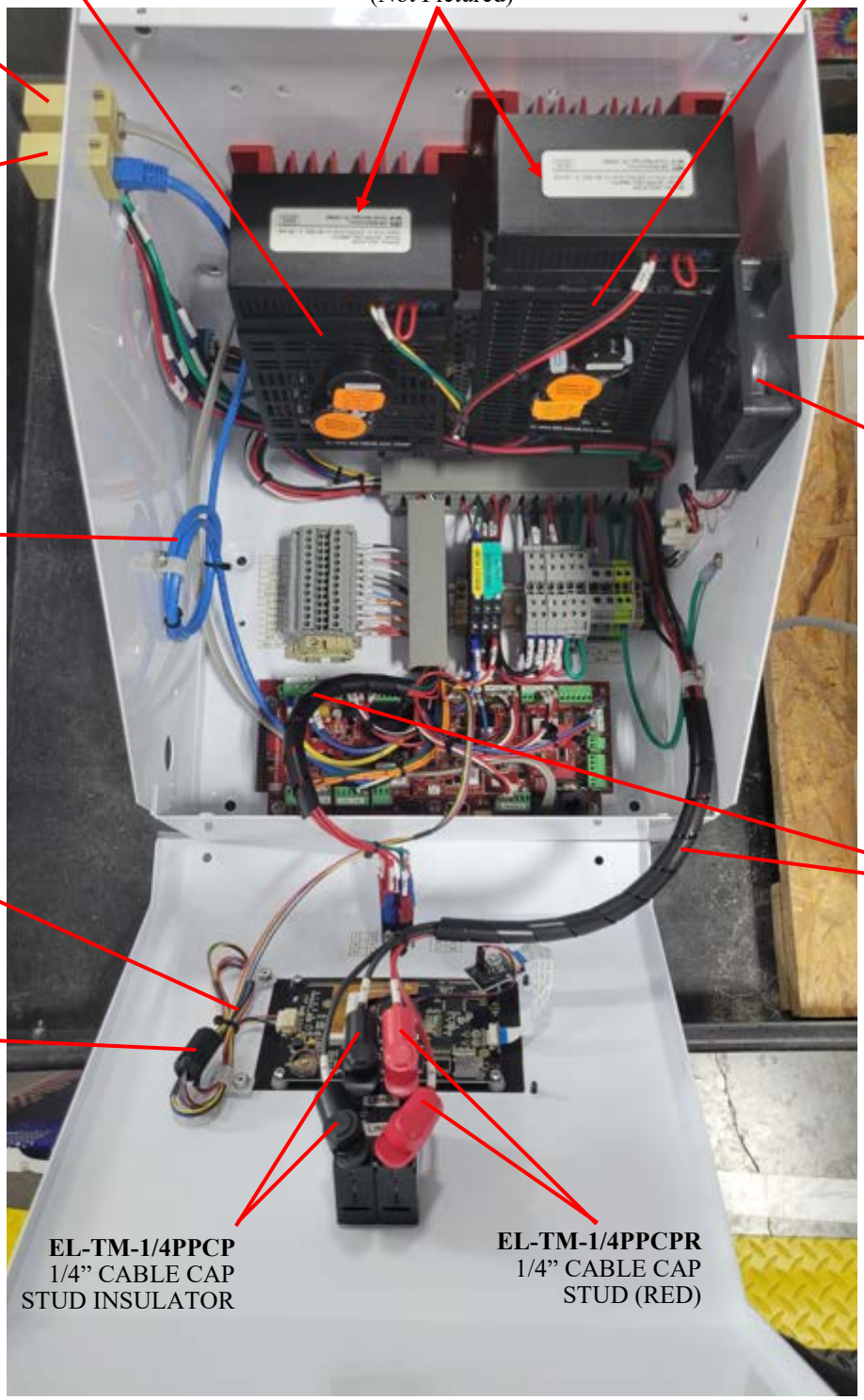
PL-HS-3/4PVCCLP
3/4” PVC HOSE CLEAR LOW PRESSURE

HD-HWR-VDM1
1” DIA X 1” H VIBRATION DAMPING MNT.

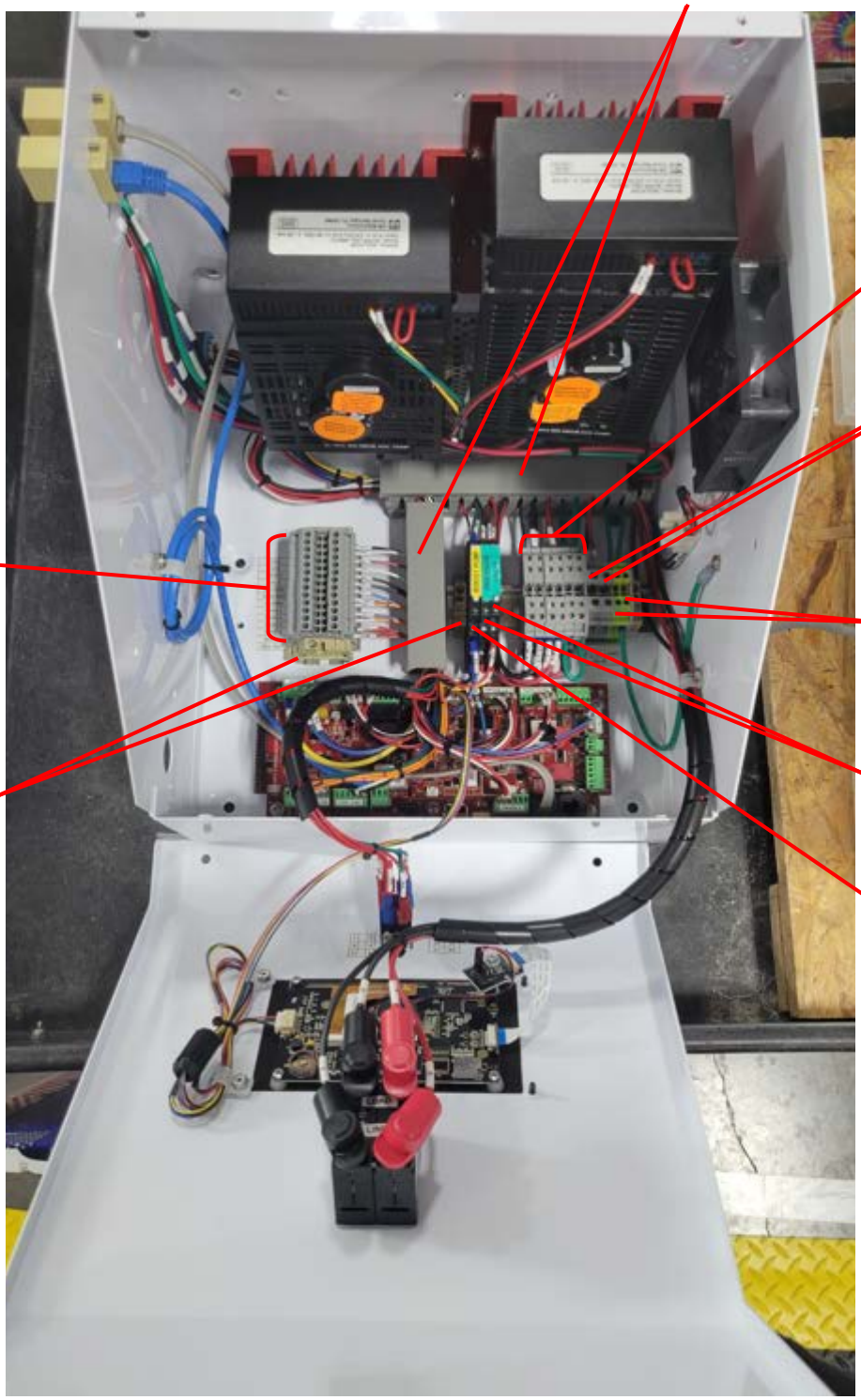
EL-MTR-2HP220AC
2 H.P. MOTOR 220AC 3PH 1750 RPM

EL-LT-3/4SW
3/4” SPIRAL WRAP

Part Numbers



Part Numbers



EL-CD-1X11/2G
1" X 1-1/2" WIRING
DUCT GREY 6'
LENGHTS

EL-TM-DR1P10-26
DIN RAIL TERMINAL
1P 10-26 AWG
6x Total

EL-TM-DR1P8-24
DIN RAIL TERMINAL
1P 8-24AWG
2x Total

EL-TM-DR2P12-26
DIN RAIL TERMINAL
2P 12-26 AWG
13x Total

EL-TM-DR1P12-26
DIN RAIL TERMINAL
1P 12-26AWG
2x Total

EL-RL-35MMDRSP
35MM. DIN RAIL
STOPPER
4x Total

EL-RL-6ASPDT6D
6A SPDT RELAY
6V DIN MOUNT
3x Total

EL-RL-6ASPDT24D
6A SPDT RELAY
24V DIN MOUNT
1x Total

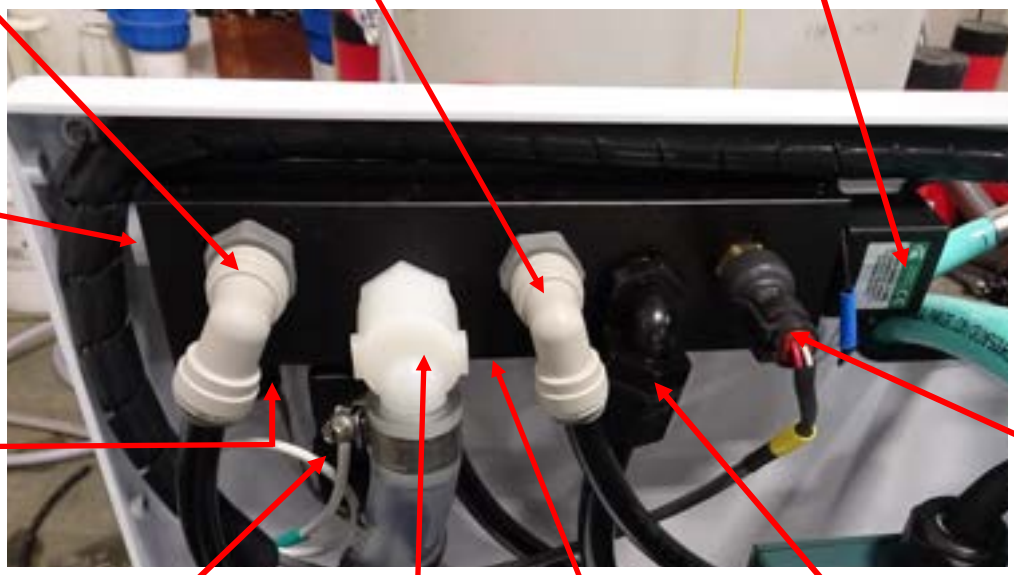
Part Numbers

PL-SWF-1/2X1/2
"1/2""NPT X 1/2"" TUBE SWIVEL

PL-SWF-3/8X1/2T
3/8”NPT X 1/2” TUBE SWIVEL ELBOW

PL-SLN-1/4O12SP
1/4” 1-WAY SOLINOID VALVE

PL-HP-3/8
3/8” HEX PLUG
NYLON



EL-MPC-SP4
SALINITY PROBE 4TH
GENERATION

EL-SSR-150
PRESSURE
TRANSDUCER
(150 PSI)

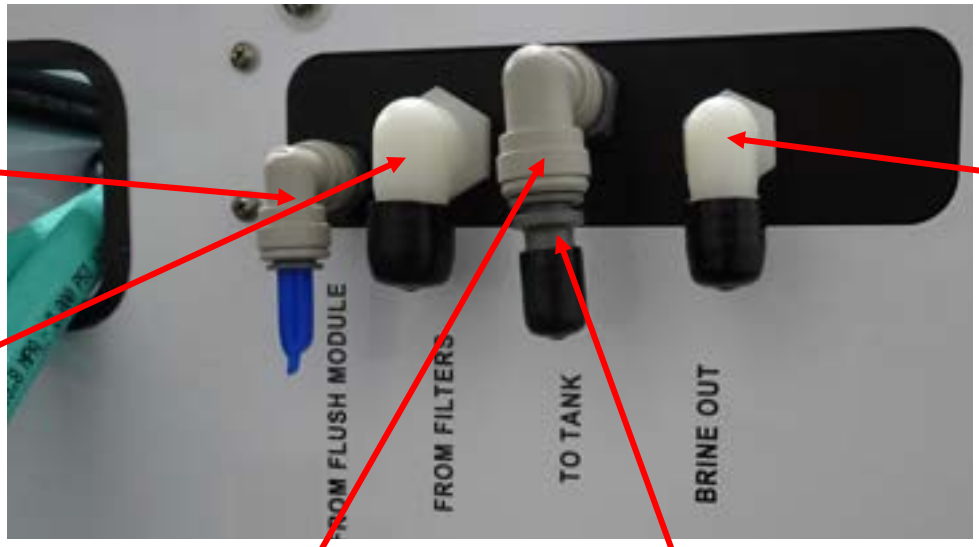
PL-FHB-3/4X3/4E
3/4” FPT X 3/4”
HOSE BARB
ELBOW NYLON

PL-MTE-3/4X5/8P
3/4”NPT X 5/8”TUBE FITTING
ELL NYL

EL-SSR-IFM4GPM
INLINE FLOW SENSOR

PL-MTS-3/8X3/8J
3/8” NPT X 3/8”
TUBE ST. JG.

PL-SWF-3/8X3/8T
3/8”NPT X 3/8”NPT
TUBE SWIVEL ELBOW



PL-HBE-1/2X5/8
1/2”NPT X 5/8” HOSE
BARB ELL NYLON

PL-HBE-3/4X3/4
3/4”NPT X 3/4” HOSE
BARB ELL NYLON

PL-SWF-3/8X1/2T
3/8”NPT X 1/2” TUBE SWIVEL ELBOW

PL-HBA-1/2TX1/2
1/2” TUBE X 1/2” HB
Adaptor

Part Numbers

EL-BRK-15ADP
15A AC BREAKER
DOUBLE POLE
(For 220VAC Farallons)

OR

EL-BRK-30ADP
AC/DC BREAKER DP
TOGGLE 30A
(For 110VAC Farallons)

EL-BRK-BRKB2P
BREAKER BOOT PANEL
MOUNTED 2 POLES

EL-SWT-TSBHC
TOGGLE SWITCH BOOT SEAL

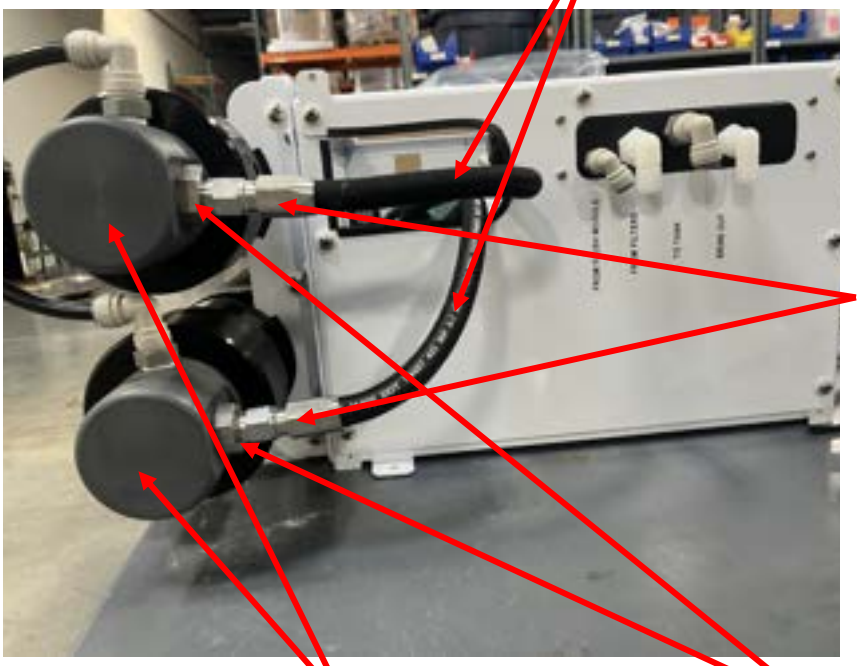
FM-NPC-SCDC
NEWPORT-400/700/1000 SP CONNECT
DISPLAY

EL-SWT-TG-DPDT
TOGGLE SWITCH DP/DT

Part Numbers

FT-PV-ER4IN
SPECTRA PRESSURE VESSEL END RING 4”

PL-HS-1/2HP
"1/2"" PARKER HIGH PRESSURE HOSE"



PL-FFS-1/2HBSS
1/2" FP SWIVEL 37 FLARE 1/2"H SS

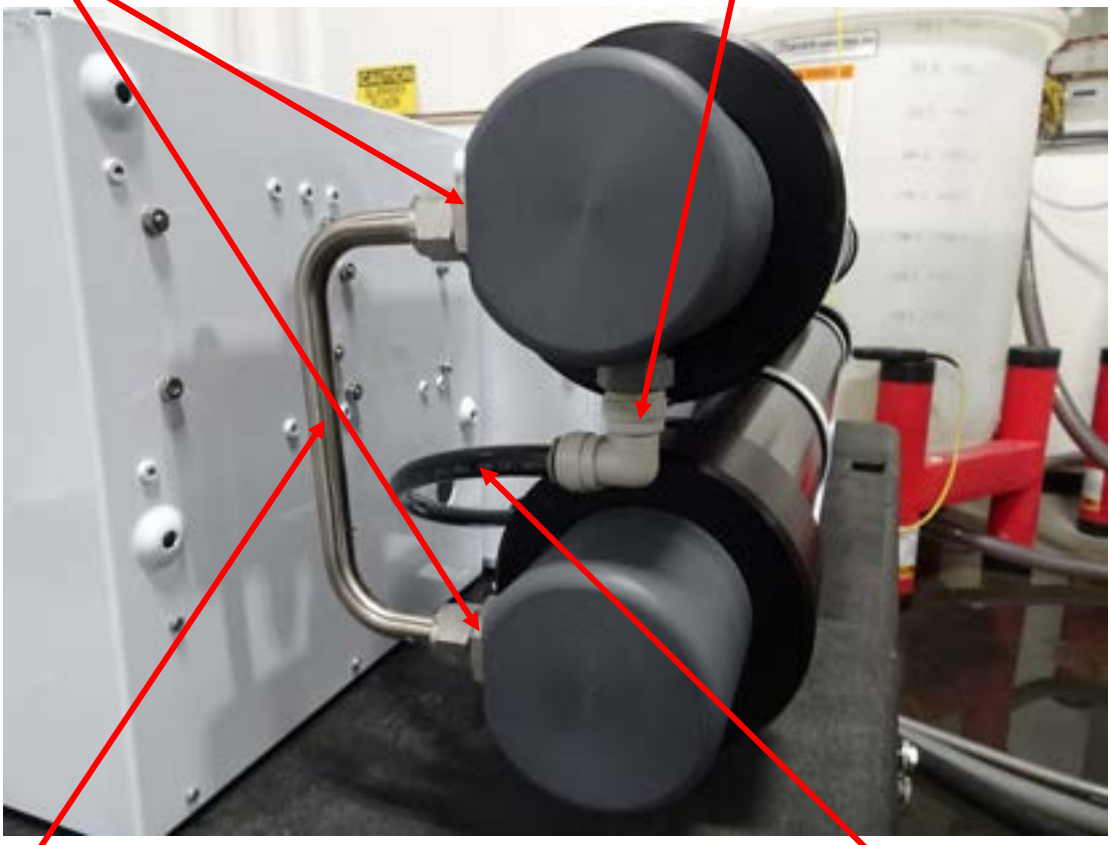
FT-PV-EC4IN
SPECTRA 4” PRESSURE VESSEL END CAP

PL-MFS-11/16S12
1-1/16”S X 1/2” 37DEG FITT ST. SS

Part Numbers

PL-SWF-1/2X1/2
1/2”NPT X1/2” TUBE SWIVEL FITT ELL

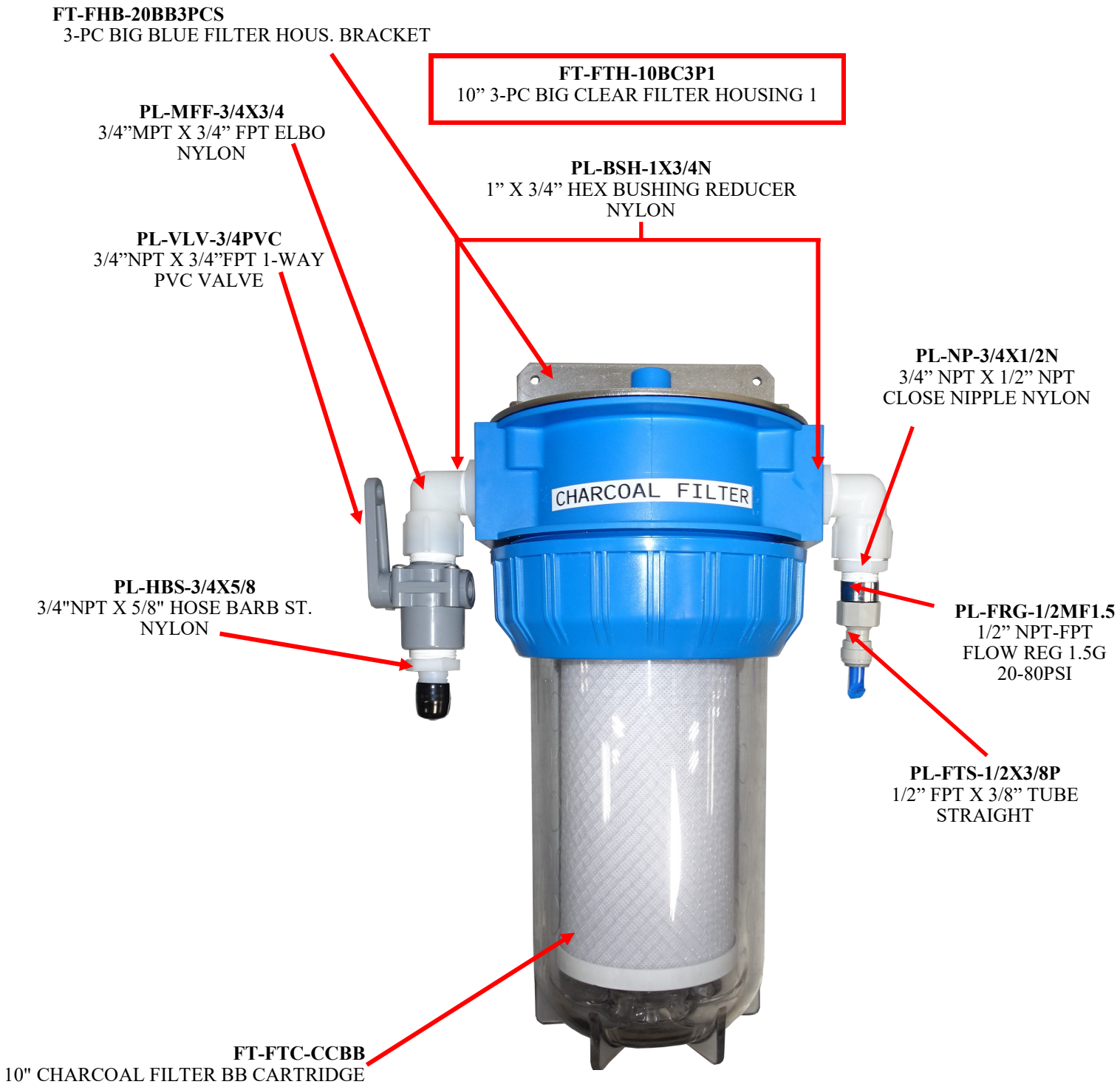
PL-MTS-11/16S12
M/C 1-1/16”S X 1/2” TUBE ST



PL-TB-UTC4V
U-TUBE FOR 4" PRESS. VESSEL.

PL-NLT-1/2LP
1/2" LOW PRESSURE TUBE

Part Numbers



Part Numbers

PL-HBE-1X3/4
"1""NPT X 3/4"" HOSE BARB ELBOW NYLON"

FT-FTH-10BC3P1
10” 3-PC BIG CLEAR FILTER HOUSING 1

FT-FHB-20BB3PCS
3-PC BIG BLUE FILTER HOUS. BRACKET

FT-FTC-20BB
20 MICRON BIG BLUE FILTER CARTRIDGE

FT-FTC-5BB
5 MICRON BIG BLUE FILTER CARTRIDGE

PL-NP-1N
1”NPT HEX CLOSE NIPPLE NYLON

Part Numbers

EL-FP-BP8GPM220
8 GPM 220/60 BOOSTER PUMP

PL-FHB-3/4X3/4
3/4” FPT X 3/4” HOSE BARB
ST. NYLON

PL-CLP-10SS
#10 HOSE CLAMP

Part Numbers

PL-GHF-3/4NP
3/4”NPT X 3/4 GHT NIPPLE

PL-HBE-3/4X3/4
3/4”NPT X 3/4” HOSE
BARB ELL

PLGHF-GC
GARDEN HOSE CAP

Pl-VLV-3W3/4
3/4” 3-WAY VALVE

PL-MFF-3/4X3/4
3/4”MPT X 3/4”FPT ELL
FITT. NYLON

Farallon 1800/2800
Part Numbers

Sea Strainer Assembly

Part Numbers

PL-GHF-3/4NP
3/4”NPT X 3/4 GHT NIPPLE

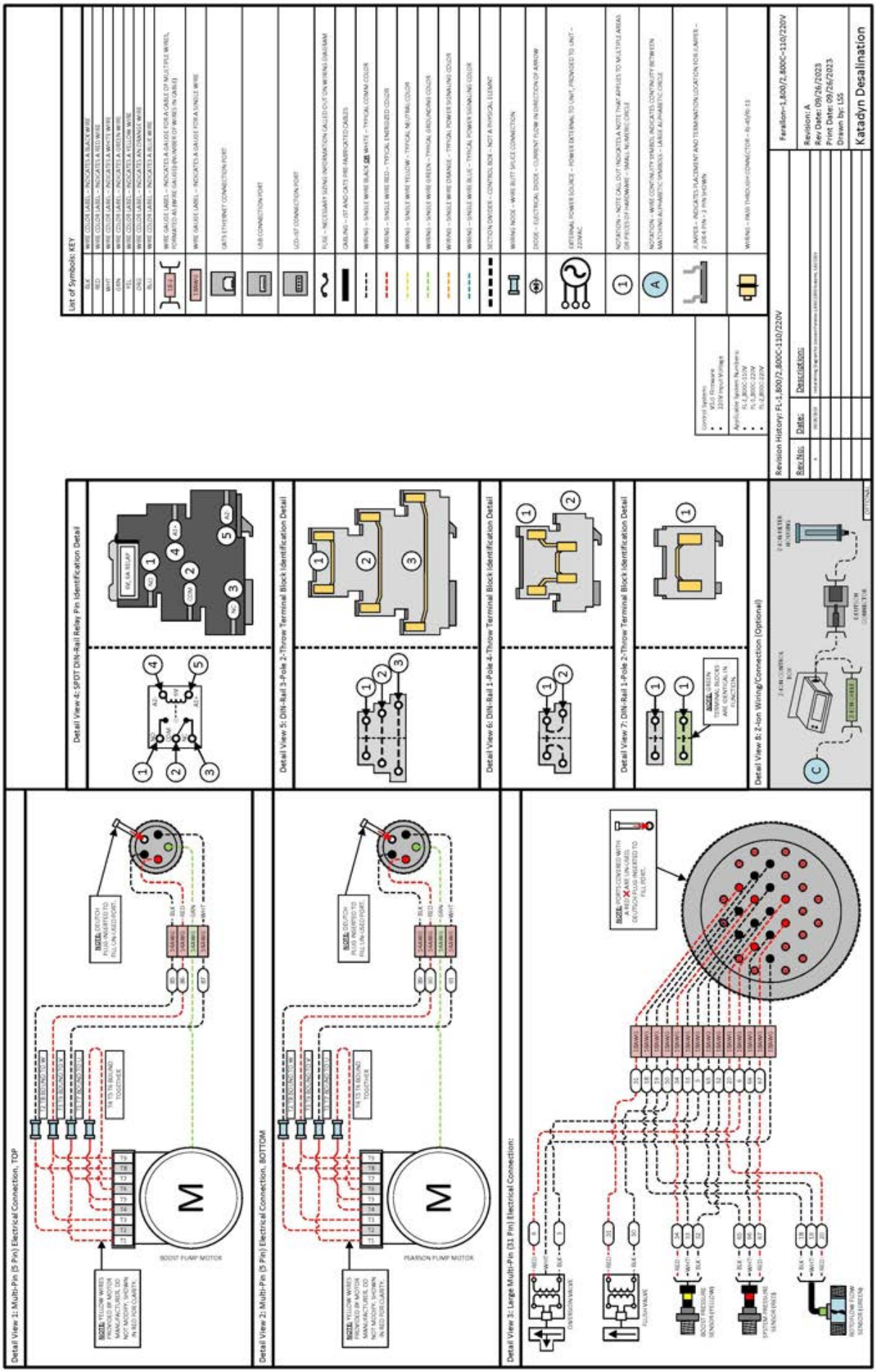
PL-HBE-3/4X5/8
3/4"NPT X 5/8" HOSE
BARB ELL NYLON

PLGHF-GC
GARDEN HOSE CAP

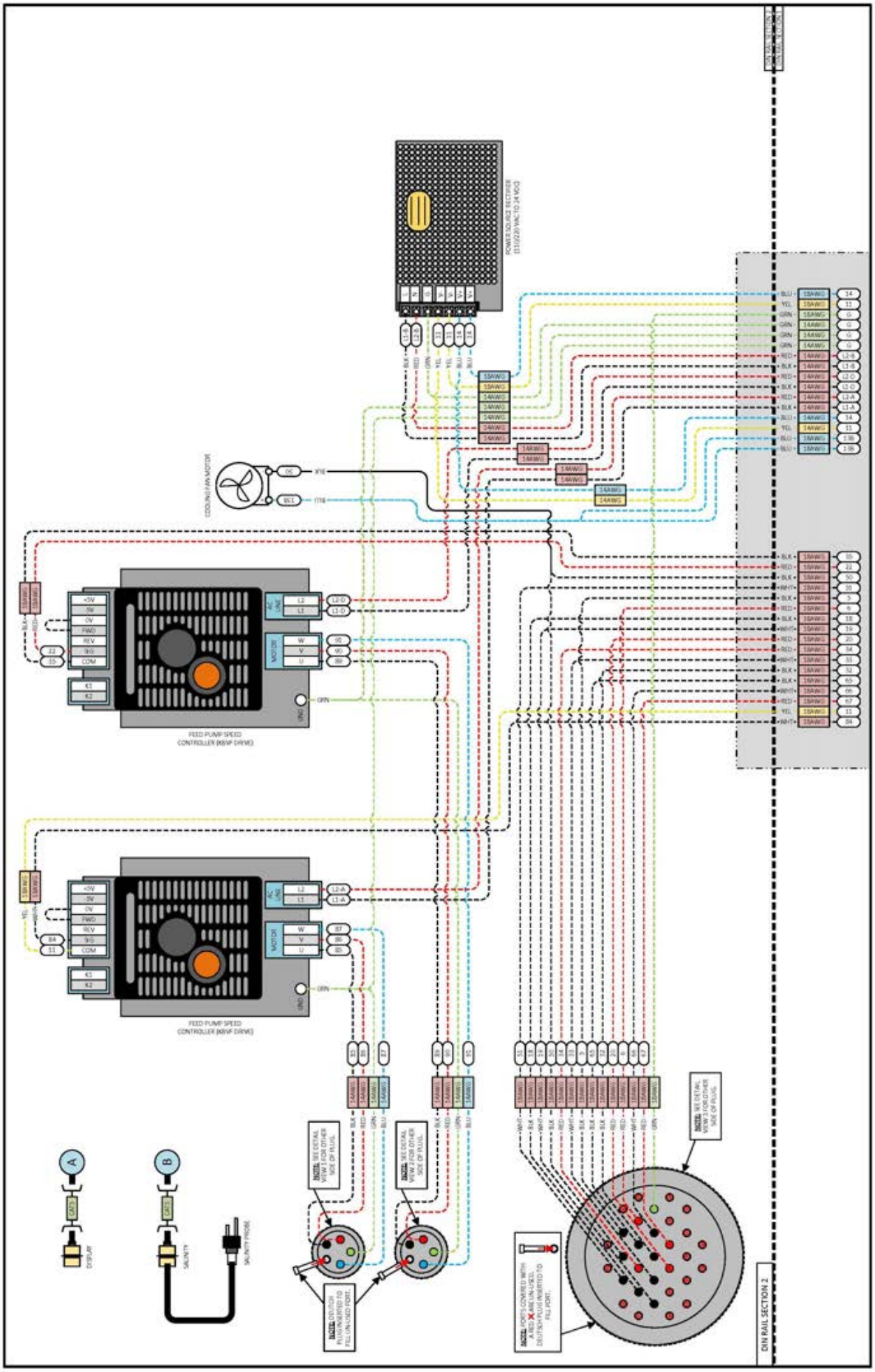
Pl-VLV-3W3/4
3/4” 3-WAY VALVE

PL-MFF-3/4X3/4
3/4”MPT X 3/4”FPT ELL
FITT. NYLON

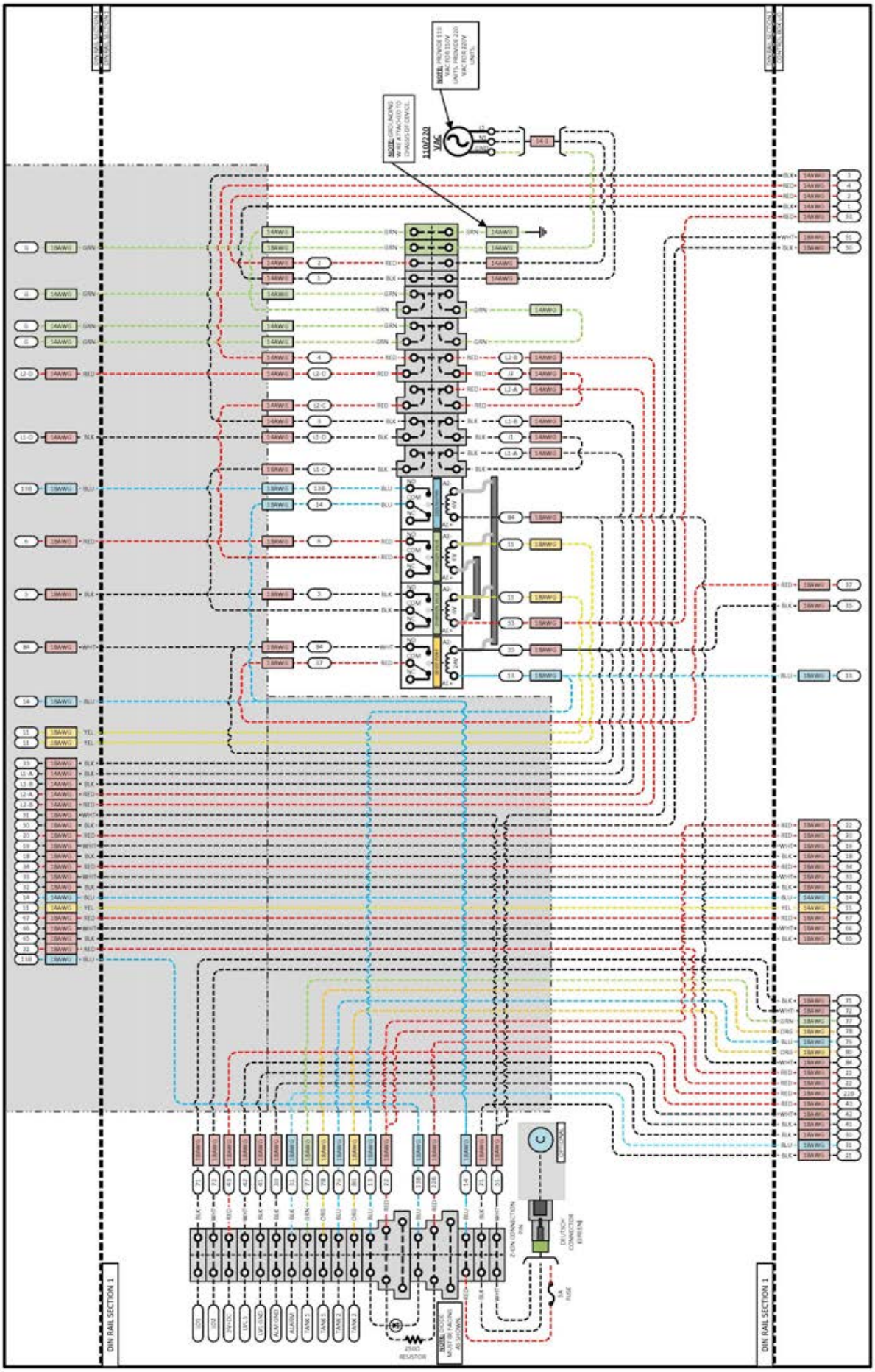
Farallon 1800C / 2800C Wiring Schematic



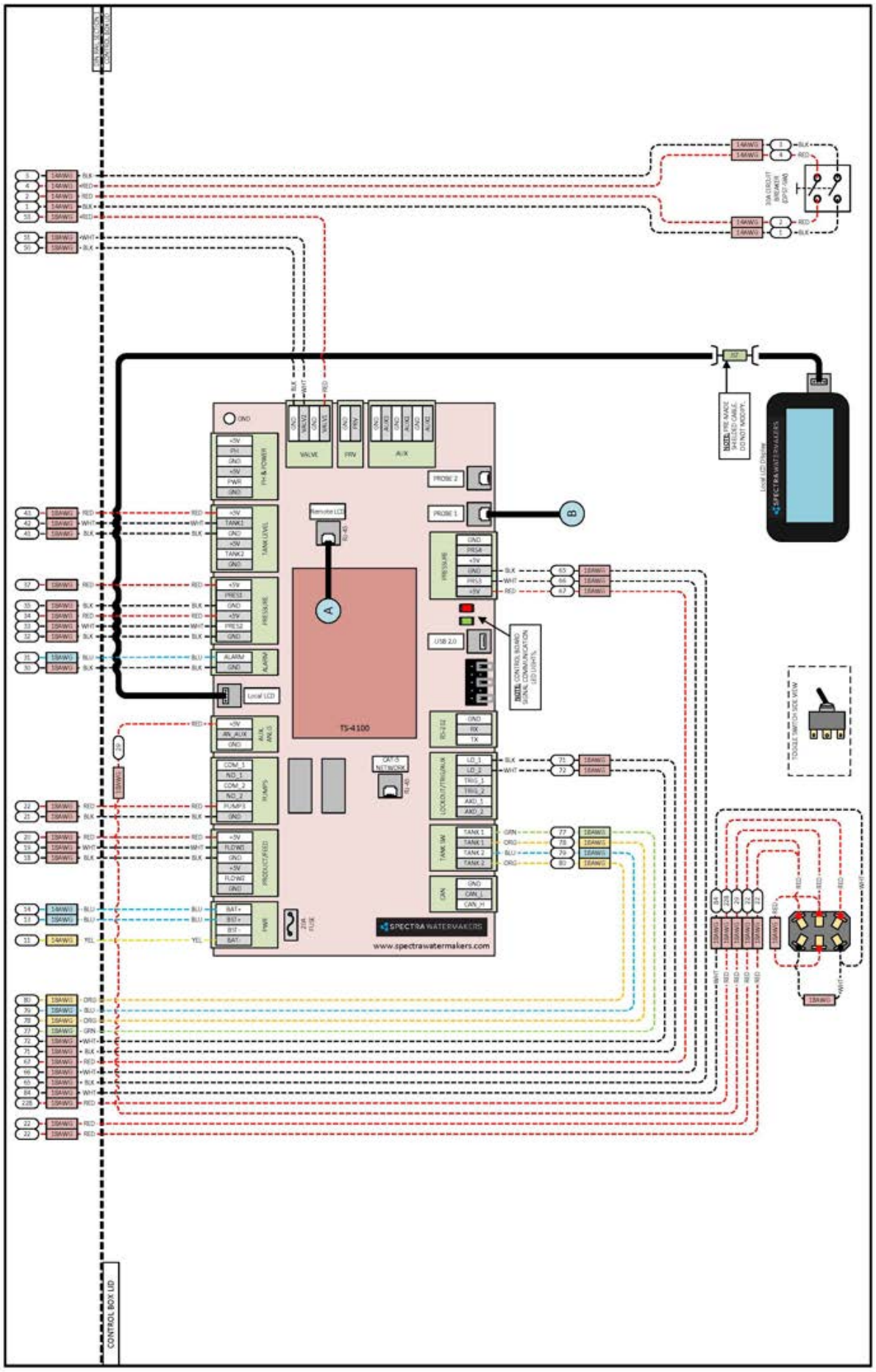
Farallon 1800C / 2800C Wiring Schematic Cont.



Farallon 1800C / 2800C Wiring Schematic Cont.



Farallon 1800C / 2800C Wiring Schematic Cont.



Farallon Electrical Specifications

Farallon 1800C 110V:

Power Supply Voltage: 110 V
Bench Test: 120 V / 17.4 A
Power Consumption: 730W
Efficiency: 10 Wh/gal

Farallon 1800C 220V:

Power Supply Voltage: 220 V
Bench Test: 208 V / 10 A
Power Consumption: 1193 W
Efficiency: 16 Wh/gal

Farallon 2800C 220V:

Power Supply Voltage: 220 V
Bench Test: 209 V / 12.7 A
Power Consumption: 1553 W
Efficiency: 13 Wh/gal

Optional Z-Ion Protection System

The Z-Ion, developed by Spectra, protects the entire system from fouling for extended periods without fresh water flushing or storage chemicals (pickling).

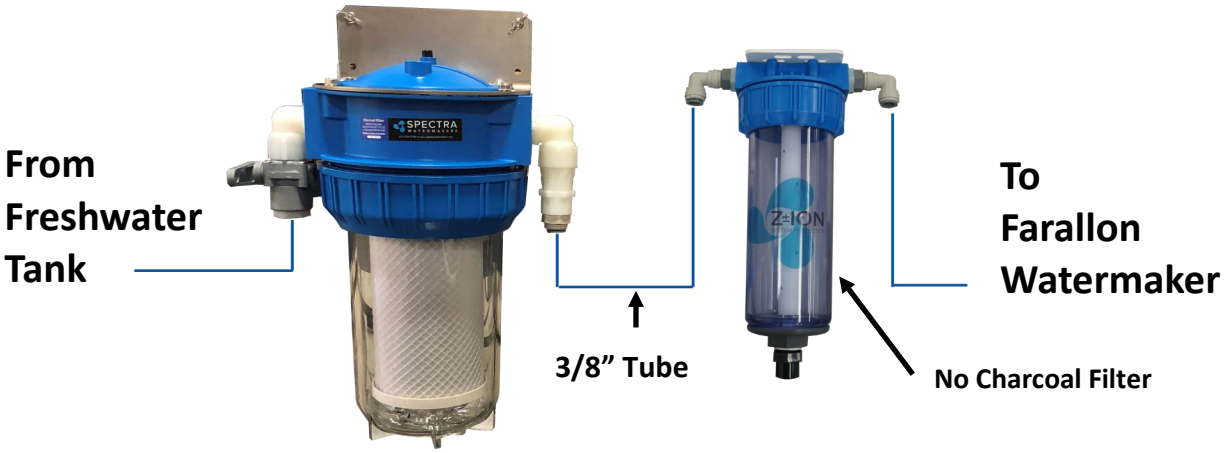
The Z-Ion achieves this end by introducing a stream of metallic ions into the fresh water flush water, thus flooding the entire system with ions that prevent biological growth for up to thirty days. If you are going to let your system sit idle for longer than thirty days, you will still need to treat it with SC-1 storage chemical or propylene glycol.

The Z-Ion will not prevent freezing, so in freezing climates pickling with propylene glycol is still required. Even with the Z-Ion there may still be cases when you need to pickle your system with SC-1 storage chemical or propylene glycol, so we recommend you carry one of these products at all times.

If your system was ordered with the Z-Ion, it will require only some basic wiring and commissioning, laid out in the following pages.

If you didn't order you system with the Z-Ion, it can be retrofitted to any Spectra system.

NOTE: Contact Spectra for more information at: techsupport@spectrawatermakers.com



Z-Ion Operation

The Z-Ion should be energized at all times, but will only consume power when operating. Upon initial power-up the LED will flash red/green and then will turn solid green.

Follow the instructions for Normal Operation and Fresh Water Flush. For treatment with the Z-Ion, the process is identical, only the Z-Ion will release silver and copper ions into the flush water when you turn on the generator with the on/off switch. Turn on the ion generator at the same time that you open the flush valve.

The operation cycle begins and the LED will flash green/amber. The cycle will continue until you turn off the ion generator or the adjustable timer times out (factory set for 15 minutes).

Turn off the ion generator at same time that you close the flush valve. If you forget to turn off the ion generator, the Z-Ion will time out after 15 minutes, so no harm will be done to the unit.

If the voltage is out of range, below 10V or above 56V, the LED will flash red every two seconds and the unit will shut down.

Each fresh water flush with the Z-Ion will protect your watermaker for up to 30 days, after which the process must be repeated.

After 720 cycles the service light on the front of the control box will light up, indicating that the probes on your Z-Ion may be wearing down, and should be tested. The service light is just a reminder, and the Z-Ion will go on functioning while it is lit.

DANGER: To reset the service counter, touch two magnets, at the same time, to the two red reed switches on the Z-Ion circuit board, labeled Switch 1 and Switch 2 below.

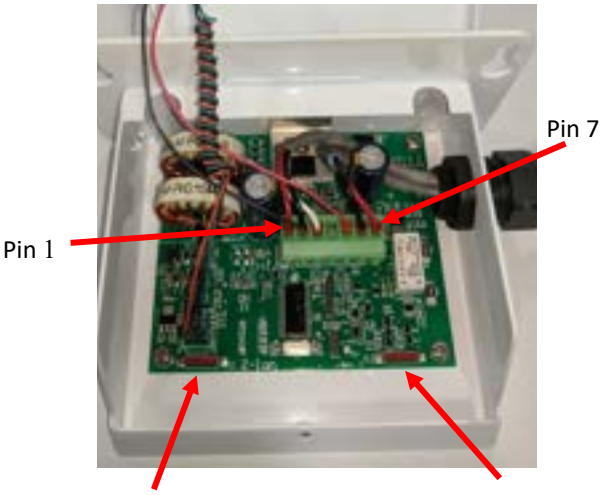


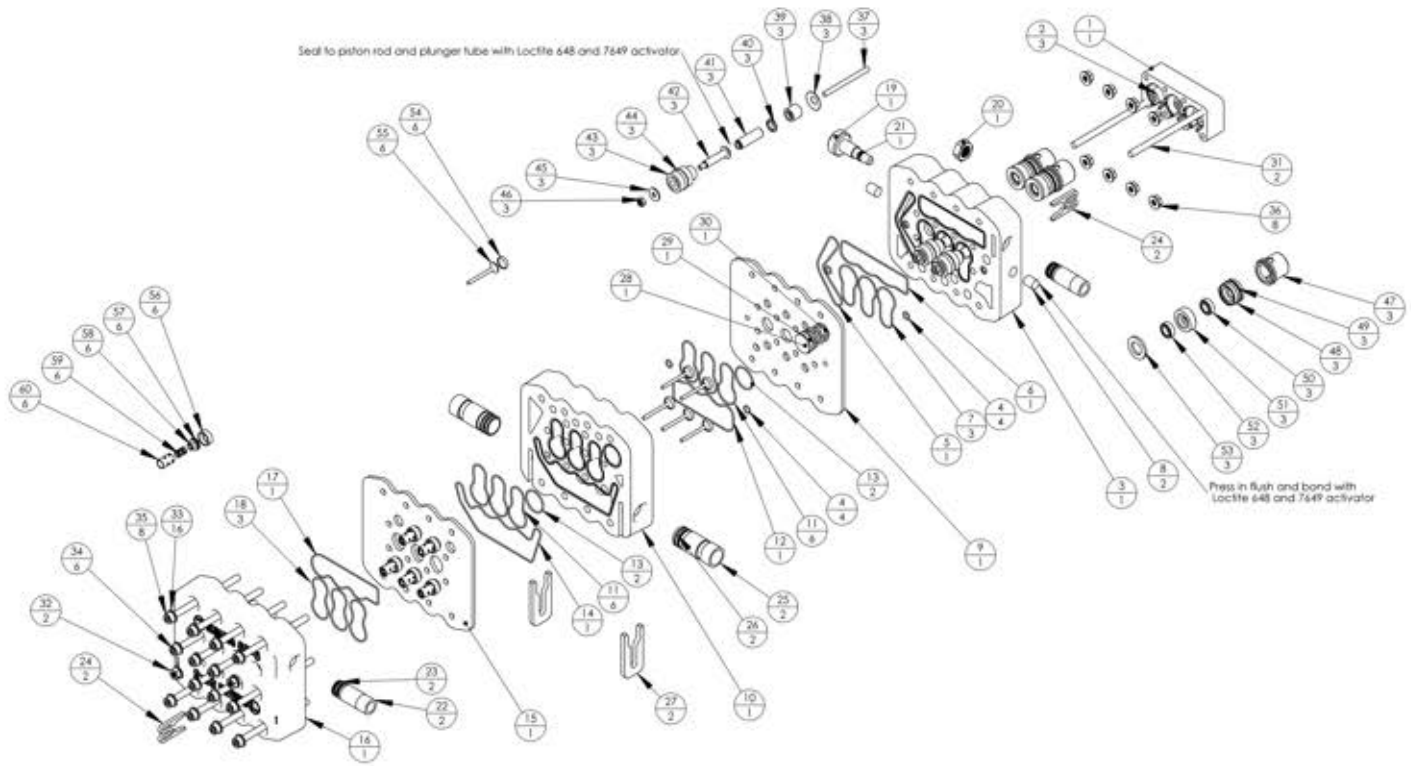
Figure 1

Z-Ion Operation – LED Status Lights & Pinout Info

- Power-up indication – *Fast red/green flash for a few seconds*
- Ready/Idle – *Solid green*
- Generating (during a flush) – *The LED will quickly flash at a programmed interval (factory set to 17 seconds between flashes) The flash color with alternate between green and amber and will be off in between voltage spikes. The color change symbolizes the polarity alternating from positive to negative.*
- Bad power – *Fast red flash followed by shut down*
- High temperature – *Fast red flash*
- Service/Cycle Counter Limit - *Slow red flash*

There are 7 pins on the phoenix connector from left to right in Figure 1.

Pin 1 Supply Voltage-Battery (+)	**Pin 4** Auxiliary Output 1
Pin 2 Ground	**Pin 5** Auxiliary Output 2
Pin 3 Trigger	**Pin 6** To Zion generator (bowl). No polarity.
	Pin 7 To Zion generator (bowl). No polarity.



ITEM NO.	Title	QTY.	
1	SCP Mate Face 37	1	
2	Cat SCP Crosshead Rev A	3	
3	SPSM SCP Layer 1 Rev A	1	
4	SPSM O Ring Flush -011 NBR Shore 70A	4	
5	SPSM O ring L1 Relief -041 NBR Shore 70A	1	
6	SPSM O ring L1 Reject -043 NBR Shore 70A	1	
7	SPSM O ring L1 Cylinder -031 NBR Shore 70A	3	
8	SPSM Layer 1 Plug Rev A	2	
9	SPSM SCP Layer 2 20-30% Rev A	1	
10	SPSM SCP Layer 3 Rev A	1	
11	SPSM O Ring L3 Cylinder -031 NBR Shore 70A	6	
12	SPSM O Ring L3 Waste -042 NBR Shore 70A	1	
13	SPSM O Ring L3 Damper -024 NBR 70 Shore A	2	
14	SPSM O Ring L3 In -049 NBR Shore 70A	1	
15	SPSM SCP Layer 4 Rev A	1	
16	SPSM SCP Layer 5 Rev A	1	
17	SPSM O Ring L5 Out -043 NBR Shore 70A	1	
18	SPSM O Ring L5 Cylinder -032 NBR Shore 70A	3	
19	SPSM Relief Screw Rev B	1	
20	SPSM Relief Nut 5-8 McM 96557A140	1	

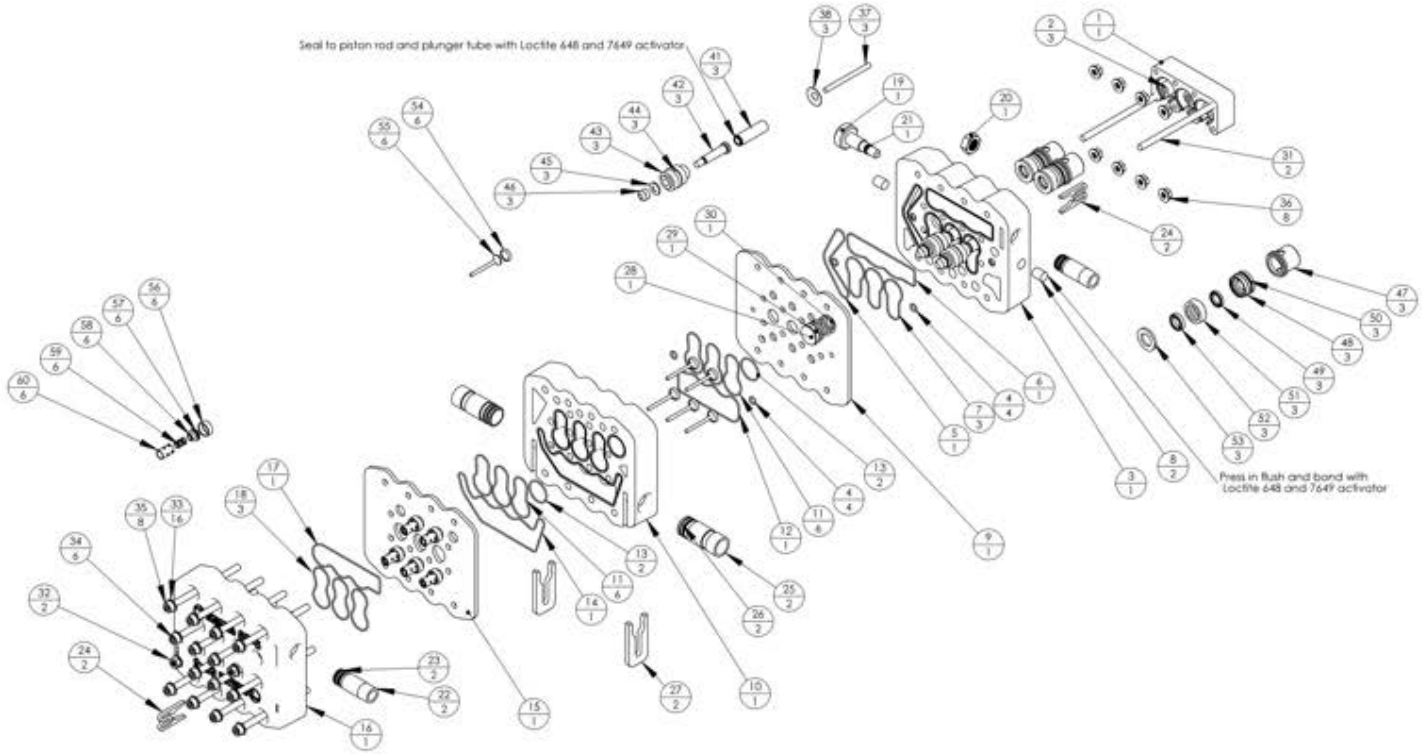
ITEM NO.	Title	QTY.	
21	SPSM O ring Relief Valve -012 NBR Shore 70A	1	
22	Fitting Tube 1-2in Rev C	2	
23	Fitting O Ring 1-2in -017 NBR Shore 70A	2	
24	Fitting Clip 1-2in HP Rev A	2	
25	Fitting Tube 3-4in LP Rev B	2	
26	Fitting O Ring 3-4in -020 NBR Shore 70A	2	
27	Fitting Clip 3-4in LP Rev A	2	
28	Damper piston	1	
29	SPS O Ring Piston + Damper -313 NBR Shore 70A	1	
30	SPSM Damper Spring	1	
31	SPSM SCP M8 x 150 Stud Rev A	2	
32	M8 Nut	2	
33	SPSM M8 washer	16	
34	M8x140 Skt Cap 316 Grade 70	6	
35	M8x120 Skt Cap 316 Grade 70	8	
36	M8 Flange Nut DIN 6923	8	
37	SPSM SCP Plunger Stud Rev A	3	
38	Cat SCP Slinger Washer Large 43328 Rev A	3	
39	SPSM SCP Plunger Adaptor 20% Rev A	3	
40	SPSM SCP Plunger Ring 20% Rev A	3	

ITEM NO.	Title	QTY.	
41	Plunger Tube 12mm Rev C	3	
42	SPSM SCP Piston Rod 20% Rev A	3	
43	SPSM SCP Piston 20% Rev A	3	
44	SPSM O Ring Piston -313 NBR 70A Rev A	3	
45	M6 Washer DIN9021 316 McM 95211A160	3	
46	M6 Nut 316 McM 94150A345	3	
47	SPSM SCP Seal Retainer Rev A	3	
48	SPSM SCP LP Seal Case 20% 20x6 Rev A	3	
49	SPSM SCP O Ring Seal Case -023 NBR Shore 70A	3	
50	SPS LP Seal 20% 12x20x6 Rev A	3	
51	SPSM SCP HP Seal Case 20% 20x6 Rev A	3	
52	SPS HP Seal 20% 12x20x6 Rev A	3	
53	SPSM SCP HP Seal Washer 20-30% Rev A	3	
54	Valve Shoe	6	
55	Valve Rev B	6	
56	Valve Sleeve - Stepped	6	
57	SPS O Ring Valve Plug -013 NBR Shore 70A	6	
58	Valve Plug 0.506 Groove	6	
59	SPS Valve Spring 2009	6	
60	Valve Cage	6	

Remove all burrs and sharp edges, max radius 0.010"					
Material					
Surface Finish					
Dimensions	Inches		B	110316	Layers 1, 3 & 5 use moldings from modified tool.
Tolerances			A		1st issue. SPSM Layer 1 Rev F, SPSM Machined Layer 3 Rev A, SPSM Layer 5 Rev E. Layers 1 & 5 use moldings from unmodified tool.
SCALE 1:10	Do not scale	Isometric Projection	Rev	Date	Purpose & Changes

SP5M 5CP Assembly 20% Rev B Exploded

Contact	Colin Pearson
Phone	+44 / 0 20 8340 8333
Mobile	+44 / 0 7980 093137
email	colin.pearson.spectra@gmail.com
Drg No.	Size C Sht 1 of 1



SPP5MCP-30 PUMP ASSEMBLY

Part No	Item No.	Description	Qty req
PP-SM-CC-CCAC	1	PP5M CRANK CASE DRIVE-END CAT	1
PP-SMCP-LY1	3	PP SMCP LAYER 1	1
SO-PP5M-FL	4	PP5M O-RING FLUSH 011 NBR SHORE 70A	4
SO-PP5M-L1RF	5	PP5M O-RING L1 RELIEF -041 N70	1
SO-PP5M-L1RJ	6	PP5M O-RING L1 REJECT -043 N70	1
SO-PP5M-L1CYL	7	PP5M O-RING L1 CYLINDER -031 N70	3
PP-SM-LY1P	8	PP5M LAYER 1 PLUG REV.A	2
PP-SMCP-LY2	9	PP SMCP LAYER 2	1
PP-SMCP-LY3	10	PP SMCP LAYER 3	1
SO-PP5M-L3CYL	11	PP5M O-RING L3 CYLINDER -031 N70	6
SO-PP5M-L3WST	12	SP5M O-RING L3 WASTE -042	1
SO-PP5M-L3DP	13	PP5M O RING L3 DAMPER -024 N70	2
SO-PP5M-L3IN	14	PP5M O-RING L3 IN -049 N70	1
PP-SMCP-LY4	15	PP SMCP LAYER 4	1
PP-SMCP-LY5	16	PP SMCP LAYER 5	1
SO-PP5M-L5OUT	17	PP5M O-RING L5 OUT -043 N70	1
SO-PP5M-L5CYL	18	PP5M O-RING L5 CYLINDER -032 N70	3
PP-SM-RS	19	PP5M RELIEF SCREW REV C	1
PP-SM-RN	20	PP5M RELIEF NUT 5-8	1
SO-PP5M-RV	21	PP5M O-RING RELIEF VALVE -012 N70	1
PP-SM-FT-1/2UC	22	PP5M FITTING TUBE 1-2 IN JIC 37DEG	2

Part No	Item No.	Description	Qty req
SO-PP5M-FT1-2	23	PP5M FITTING O-RING 1-2 IN 017 NBR	2
PP-SM-FT-1/2HPC	24	PP5M FITTING CLIP 1/2 IN HP REV.A	2
PP-SM-LPF34NU	25	PP-SM LP FITTING 3/4"NPT UHMW	2
SO-PP5M-FT3-4	26	PP5M FITTING O-RING 3-4IN -020 N70	2
PP-SM-FT-3/4LPC	27	PP5M FITTING CLIP 3-4IN LP REV.A	2
PP-S-DDP-PT	28	PP DAMPER PISTON	1
SO-PP5M-PTDP	29	PP5M O-RING PISTON/DAMPER -313 N70	1
PP-SM-DSP	30	PP5M DAMPER SPRING INCONEL	1
PP-SMCP-MBX150	31	PP SMCP M8 X 150 STUD REV A	2
PP-HWR-HN-M8	32	M8 HEX NUT 18-8	2
PP-HWR-WS-M8	33	M8 WASHER 18-8	20
PP-SMCP-SCM8140	34	M8 X 140 SKT CAP SCREW 18-8	6
PP-HWR-SC-M8120	35	M8X120MM SOCKET CAP SCREW 18-8	8
PP-HWR-HN-FM8	36	M8-1.25 FLANGE NUT 18-8 SS	8
PP-SMCP-PG-ST	37	PP5MCP SCP PLUNGER STUD REV B	3
SO-PP5MCP-SWL	38	PP5MCP SLINGER WASHER LARGE REV.A	3
PP-SMCP-PG-TB30	41	PP5MCP SCP PLUNGER TUBE 30% R.A	3
PP-SMCP-PT-RD3	42	PP5MCP PISTON ROD 30% REV. B	3
PP-SMCP-PT-PT3	43	PP5MCP SCP PISTON 30% REV.A	3
SO-PP5M-PTDP	44	PP5M O-RING PISTON/DAMPER -313 N70	3

Part No	Item No.	Description	Qty req
PP-SMCP-HWR-M8W	45	M8 WASHER 316SS.	3
PP-SMCP-SEAL-RT	47	PP5MCP SCP SEAL RETAINER REV A	3
PP-SMCP-SEAL-L3	48	PP5MCP SCP LP SEAL CASE 30% REV A	3
SO-PP5-LPS30	49	PP5 LP SEAL 30%	3
SO-PP5-DPP	50	PP5 SEAL CASE -023 N70	3
PP-SMCP-SEAL-H3	51	PP5MCP SCP HP SEAL CASE 30% REV A	3
SO-PP5-HPS30	52	PP5 HP SEAL 30%	3
PP-SMCP-SEAL-W2	53	PP5MCP SCP HP SEAL WASHER 20%-30% R	3
PP-S-VLV-VS	54	PP5 PUMP VALVE SHOE	6
PP-S-VLV-SLS	56	PP5 VALVE SLEEVE STEPPED	6
SO-PP5-VP	57	PP5 VALVE PLUG -013 N70	6
PP-S-VLV-VPG	58	PP5 VALVE PLUG - 0.506 GROOVE	6
PP-S-VLV-SPR	59	PP5 VALVE SPRING	6
PP-S-VLV-VG	60	PP5 VALVE CAGE	6
HD-CPS-S16X412	**	5/16-18 X 4-1/2 HEX CAP SCREW SS	2
PP-SM-CC-KW20MM	**	PP5M CAT CRANKCASE KEY 20MM	1
PP-SMCP-HWR-M8N	**	M8 NYLON INSERT LOCK NUT 316SS.	3
HD-HXN-5/16N	**	5/16 NYLON INSERT HEX NUT SS.	2
PP-SM-DSPS	**	PP5M DAMPER SPRING SCREEN 1" DIA.	1
PP-S-VLV-VLV	54, 55	PP5 VALVE ASSEMBLY	6

** Not Shown in Exploded view

Remove all burrs and sharp edges, max radius 0.010"					
Material					
Surface Finish					
Dimensions	Inches		B	110316	Layers 1, 3 & 5 use moldings from modified tool. Uses SP5 plunger tube with adaptor.
Tolerances			A		1st issue: SP5M Layer 1 Rev F, SP5M Machined Layer 3 Rev A, SP5M Layer 5 Rev E. Layers 1 & 5 use moldings from unmodified tool.
SCALE: 1:10	Do not scale	Isometric Projection	Rev	Date	Purpose & Changes

SP5M 5CP Assembly 30% Rev B Exploded

Contact	Colin Pearson
Phone	+44 / 0 20 8340 8333
Mobile	+44 / 0 7980 093137
email	colin.pearson.spectra@gmail.com
Drg No.	Size C Sht 1 of 1

This page intentionally left blank.

SPECTRA WATERMAKERS

SPECTRA WATERMAKERS LIMITED LIFETIME WARRANTY

THIS LIMITED WARRANTY APPLIES TO THE ORIGINAL OWNER OF THE WATERMAKER AND IS NOT TRANSFERRABLE

For warranty information regarding products sold within the European Union please contact europe@spectrawatermakers.com.

This limited product warranty is provided by Katadyn Desalination LLC, a Business Unit of the Katadyn Group. ("Manufacturer" of "We" or "Our") to the original, consumer owner of the product ("You" or "Your") with which this limited product warranty is provided (the "Product.")

The Manufacturer warrants to You that the product will be free from defects in material and workmanship under normal use and regular service and maintenance, subject to the exclusions described below, for a period of 1 year (the "Warranty Period") after date of installation, or 15 months after the shipment date, whichever comes first. This warranty will be extended for an additional 12-month period when the product is installed and commissioned by a Katadyn Desalination Authorized Installer. A Spectra Watermakers Commissioning Report must also be returned and approved by the factory. The Spectra Clark Pump has a Limited Lifetime Warranty on Marine systems to the original consumer owner of the product, not inclusive of repair or replacement parts due to wear over time. If the Spectra Clark Pump is used in a Landbased application, the product warranty is provided for a period of 1 year (the "Warranty Period") after date of purchase (if purchaser is installing system) or date of commissioning (if Spectra dealer is installing system).

You will be required to show written documentation supporting the date of purchase or date of commissioning. If you are unable to provide documentation supporting the date of purchase or commissioning, the warranty period shall be based on the product's date code and will be determined by the Manufacturer's sole and absolute discretion.

WHAT IS COVERED

Katadyn Desalination LLC. warrants, for the period defined above, that the Product will be free from defects in materials and/or workmanship and will conform to Manufacturers published specifications if installed and maintained in accordance with the Manufacturers Instructions.

WHAT IS NOT COVERED

The Warranty does not include service, repair, or replacement to correct damage caused by improper installation, maintenance, improper connection with water systems, external electrical fault, accident, alteration, misuse, abuse, neglect, negligence, (other than Manufacturer's), acts of God, failure to install or maintain the

KATADYN OPTIMUS TREK'N EAT ALPINFAIREI.
Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage

SOLE WARRANTY

THE WARRANTIES SET FORTH IN THIS SECTION ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY THE MANUFACTURER WITH RESPECT TOTHE PRODUCTS AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO MANUFACTURER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT MANUFACTURER'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BYMANUFACTURER FOR YOUR USE OR PURPOSE.

WHAT WE WILL DO TO CORRECT PROBLEMS

If You return the defective product during the warranty period and in accordance with the instructions contained herein, shipping prepaid, the Manufacturer shall, at its option and as Your exclusive remedy, repair, correct or replace the product at no charge if the product is found by the Manufacturer to be a valid warranty claim, in Manufacturer's sole discretion. Replacement product may be refurbished and/or different models but will be functionally equivalent to the product or hardware being replaced. Product repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment or purchase, whichever is longer. Contact your Dealer or the Manufacturer's Customer Service at 415-526-2780 to obtain a returns materials authorization (RMA #).

HOW TO MAKE A WARRANTY CLAIM

If You discover any warranty related issues after 30 days, or You have questions concerning Your product or how to determine when service is needed, please contact your local dealer or contact the Manufacturer's Technical Support at 415-526-2780 or email the Manufacturer at techsupport@spectrawatermakers.com. The following information must be provided as part of Your warranty claim: your name, address, phone number, Your products' model number, Your product's 4-digit serial number, and if necessary, upon request, written confirmation of the date shown on Your purchase receipt and the purchase price paid for the product. All products being returned to the Manufacturer must have a return material authorization (RMA) number to be processed. Any item returned to the Manufacturer without an RMA number will not be accepted by the Manufacturer Contact your Dealer or Customer Service to obtain an RMA number. Once we have received Your returned product, we will determine, in our sole and absolute discretion, whether Your claim is covered by, or excluded from, this limited warranty. Repairs or modifications made to the product by other than the Manufacturer will nullify this limited warranty. Coverage under this limited warranty is conditioned at all times upon the original purchaser's compliance with these required notification and repair procedures.

LIMITATION OF LIABILITY TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT, SHALL MANUFACTURER OR ITS AUTHORIZED SERVICE REPRESENTATIVES BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING ANY ECONOMIC LOSS, WHETHER RESULTING FROMNONPERFORMANCE, USE, MISUSE OR INABILITY TO USE THE PRODUCT OR THE MANUFACTURER'S OR ITS AUTHORIZED SERVICE REPRESENTATIVE'S NEGLIGENCE. THE MANUFACTURER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND, IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL MANUFACTURER'S LIABILITY TO YOU EXCEED THE PRICE PAID BY THE ORIGINAL OWNER FOR THE MANUFACTURER'S PRODUCT.

The term "consequential" damages shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use or revenue, the cost of capital or loss or damage to property or equipment. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This limited warranty gives you specific legal rights, and you may also have may other rights which vary from State to State.

KATADYN OPTIMUS TREK'N EAT ALPINEAIRE
Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage

CUT HERE

KATADYN GROUP

SPECTRA WATERMAKERS

Spectra Product Registration Form

Any commissioning/install report (and additional 12 month warranty) may be rejected at the sole discretion of Spectra Watermakers if the system is not installed correctly.

Registration (To be completed by owner)

System Details:
Model _____ Date of install: _____
4-digit S/N_____ Clark Pump S/N: _____ Voltage_____
Dealer/distributor:_____ Boat Location:_____ max speed:_____

Boat model or type (i.e. Leopard 44, Beneteau 55' powerboat, catamaran, powercat, 42' sailboat…)
_____

What type of boating will you be doing and what will the watermaker primarily be used for:
_____
_____
_____

Original Owner Details:
Name:_____ Phone Number:_____
Email Address:_____
Address (Optional):_____
_____
_____

Submission for Approval:
Please submit this document along with the Installation and Commissioning Reports to Spectra Watermakers for approval. Submissions can be scanned and emailed or mailed directly to the factory. Spectra Watermakers Technical Support will email the original owner and the authorized distributor with the status of submission.

Email: TechSupport@SpectraWatermakers.com
Phone: +1(415) 526-2780
Address: Katadyn Desalination
Technical Department
2220 S. McDowell Blvd Ext
Petaluma, CA 94954
USA

Please keep a copy of these reports for your records.

KATADYN OPTIMUS TREK'N EAT ALPINFAIREI.
Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage

CUT HERE

KATADYN GROUP

SPECTRA WATERMAKERS

Spectra Watermakers Installation Report

(To be completed by authorized installer)

The following checklist is designed to confirm that the watermaker installation meets Spectra standards. Fill out the checklist as completely as possible. Check any boxes that apply and note any concerns. Please document any discrepancies or concerns with photos.

INLET

- □ Inlet Seacock is below waterline
- □ Inlet Seacock is dedicated
- □ Inlet Seacock is shared
- □ Inlet Thru-Hull forward facing scoop
- □ Has strainer
- □ Has diving snorkel
- □ Has sea chest
- □ Other

Thru Hull Size: _____IN/CM

Approximate location on vessel and notes:_____

_____

SEA STRAINER/BOOST PUMP MODULE

- □ Module is below waterline
- □ Clearance for filter sea strainer servicing

Notes:_____

_____

FEED PUMP MODULE

- □ Feed pump module is mounted upright
- □ Clearance for filter cartridge changes
- □ Intake hoses are free of kinks

Distance from waterline: _____FT/M above☐/below☐ the waterline

Hose length from boost pump module: _____FT/M

HIGH PRESSURE MODULE and BRINE DISCHARGE

- □ Pressure relief valve is accessible
- □ Brine discharge has no obstructions and vents to atmosphere

Notes:_____

_____

PRODUCT WATER TUBING

- □ Product water flows into top of freshwater tank
- □ Freshwater tank is vented

Notes:_____

_____

INSTALLATION SIGN OFF

Technician's Name: _____ Date: _____

Technician's Signature: _____

Distributor/Dealer_____

KATADYN OPTIMUS TREK'N EAT ALPINEAIRE Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage

CUT HERE

KATADYN GROUP

SPECTRA WATERMAKERS

Spectra Watermakers Commissioning Report – Page 1

(To be completed by authorized installer)

The following checklist is designed to confirm that the watermaker installation meets Spectra standards and that the system is performing at specification.

Fill out the below checks as completely as possible. Check any boxes that apply and note any concerns.

PURGE

□ Storage Chemicals have been purged with PRV open

Length of purge: _____Minutes

□ Diversion Valve is up, in reject position
□ Filter condition has been calibrated
□ "Run Manual" switch engages full speed
□ "Service" switch engages flush speed

RUN HIGH MODE CHECKS

Product Flow: _____ GPH/LPH
Confirmed Product Flow Rate _____GPH/LPH
□ Technician Flow meter. Brand_____
□ Hand Measurement _____Gal/Liters in _____SEC/MIN
Product Quality: _____ PPM
□ Confirmed product quality with handheld TDS meter
Feed Pressure: _____ PSI/BAR
Boost Pressure (with clean prefilters): _____PSI/BAR
Brine Flow Rate: _____ GPM/LPM
Measurement taken with:
□ Technician Flow meter. Brand_____
□ Hand Measurement: _____Gal/Liters in _____SEC/MIN
□ Boost Pump runs
□ Output and motor speed decrease when low mode is engaged
Notes:_____
_____

FRESHWATER FLUSH

□ Freshwater Flush solenoid valve opens
□ Feed Pump is not cavitating when system flushes with seacock closed
Ship's pressurized freshwater pump flow & pressure rating _____ GPM/LPM _____ PSI/BAR
When seacock is open, what is the ppm of brine discharge at the end of the flush_____
Flush duration is _____Minutes
□ Needed to change flush time
□ Needed to change speed of feed pump during flush
Notes:_____
_____

*If the system does not have a dedicated forward-facing scoop type thru-hull or will be on a vessel that moves faster than 15 knots the system needs to complete the following sea trial checks. Spectra Watermakers reserves the right to require a sea trial from any customer before approving a commissioning report.

SEA TRIAL

□ Watermaker will flush while underway
□ Watermaker will start while underway
While the vessel is underway moving _____KNOTS/MPH/KPH the watermaker is producing _____ GPH/LPH at _____PPM

KATADYN OPTIMUS TREK'N EAT ALPINEAIRE Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage

Spectra Watermakers Commissioning Report – Page 2

OWNER EDUCATION

Owner has been trained on the following:

Know locations of

- □ Seacock/Thru-hull
- □ Sea strainer module
- □ Prefilter (and/or) Feed Pump Module
- □ Freshwater Flush Module
- □ High Pressure Module
- □ Clark Pump Pressure Relief valve
- □ Product water inlet to Freshwater Tank
- □ Brine Discharge location
- □ Service hoses and storage chemicals
- □ User Manual

□ How to power the watermaker off and on at the main breaker.
□ How to run the watermaker.
□ How to freshwater flush and the importance of freshwater flushing.
□ Knows when the ships domestic freshwater pump is on.
□ Knows which prefilter cartridges to use and how to change them.
□ Knows how to service the sea strainer module.
□ Knows where the carbon block filter is and is familiar with (6 months) service frequency.
□ Knows how to run the system via "RUN MANUAL." Including knowing how to bypass the diversion valve and sample the product water before it enters the tank.
□ Understands the risks of running the system in run manual.
□ Have visually seen the overboard brine discharge (Should know when the system is pumping water).
□ Know where freshwater enters the tank, would be able to manually sample/taste water if necessary.
□ Understand when the Clark Pump is under pressure and cycling.
□ Has felt the boost pump when the system is on and when the system is off.
□ Understand the relationship between the boost pump and filter condition as well as feed pump health. Note the filter condition change when boost pump cable is disconnected.
□ Be able to identify feed pump cavitation (this is the sound the feed pump makes when the system is running, and the seacock is closed momentarily.)
□ Have seen how the service hoses and bucket are used to circulate seawater or freshwater through the system.
□ Have heard the difference speeds of the vane pump (the difference between Run Hi and Service speed.)

Notes:_____

_____

_____

_____

_____

_____

COMMISSIONING REPORT SIGN OFF

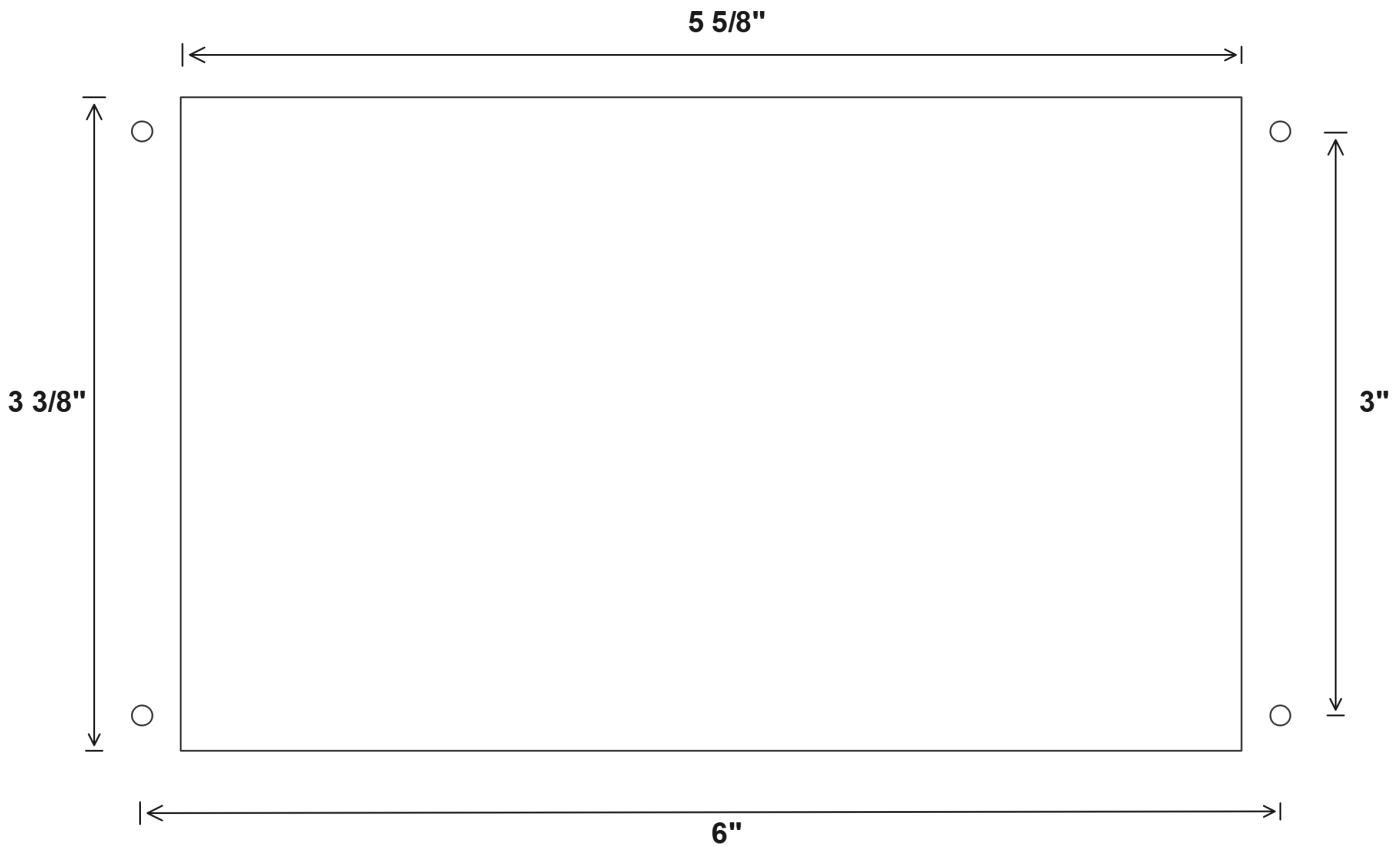
Technician's Name: _____

Technician's Signature: _____

Owner's Name_____

Owner's Signature_____

KATADYN OPTIMUS TREK'N EAT ALPINEAIRE
Steripen MICROPUR certisil SPECTRA WATERMAKERS pharmavoyage



Spectra Connect Display Cutout

Note: Use this template to create a cutout to mount your Spectra Connect Remote Touchscreen Display in the desired location on your vessel.