SpectraPure®
INNOVATORS IN WATER TECHNOLOGY

# PERFORMANCE PLUS™

## 100 GPD Ultra-High Efficiency RO/DI

(MMC-RODI-100-PPLUS)

# OWNER'S MANUAL
# &
# INSTALLATION INSTRUCTIONS

**WARNING**

***Please read carefully before proceeding with installation. Failure to follow any attached instructions or operating parameter may lead to the product's failure and possible damage to property.***

2024-01-22

**Thank You for your purchase of a *SpectraPure® System. With proper installation and maintenance, this system will provide you with high quality water for years to come. All SpectraPure® products are rigorously tested by us for safety and reliability. If you have any questions or concerns, please contact our customer service department at 1.800.685.2783 or refer to our online troubleshooting at www.spectrapure.com.***

## TABLE OF CONTENTS

## OPERATIONAL SPECIFICATIONS

### RO Feed Water Requirements

| | |
|---|---|
| Tap Water Pressure: | 30 psi |
| pH Range: | 3-11 |
| Max. Temperature: | 113°F (45°C) |
| Max. Feed Turbidity: | 1.0 NTU |
| Max. Silt Density Index: | 5.0 (based on 15 min. test time) |
| Maximum Chlorine: | < 0.1 ppm |
| Maximum TDS: | 2000 ppm |
| Maximum Hardness: | 10 grains (170 ppm as $CaCO_3$) |
| Maximum Iron: | < 0.1 ppm. |
| Maximum Manganese: | < 0.1 ppm. |
| Maximum Hydrogen Sulfide: | 0 ppm |
| Langelier Saturation Index (LSI): | must be negative |

**NOTE: MOST MUNICIPAL WATER SUPPLIES MEET THE ABOVE REQUIREMENTS. IF WELL WATER IS USED, PLEASE MAKE SURE THAT YOU OBTAIN A WATER TEST BEFORE INSTALLATION.**

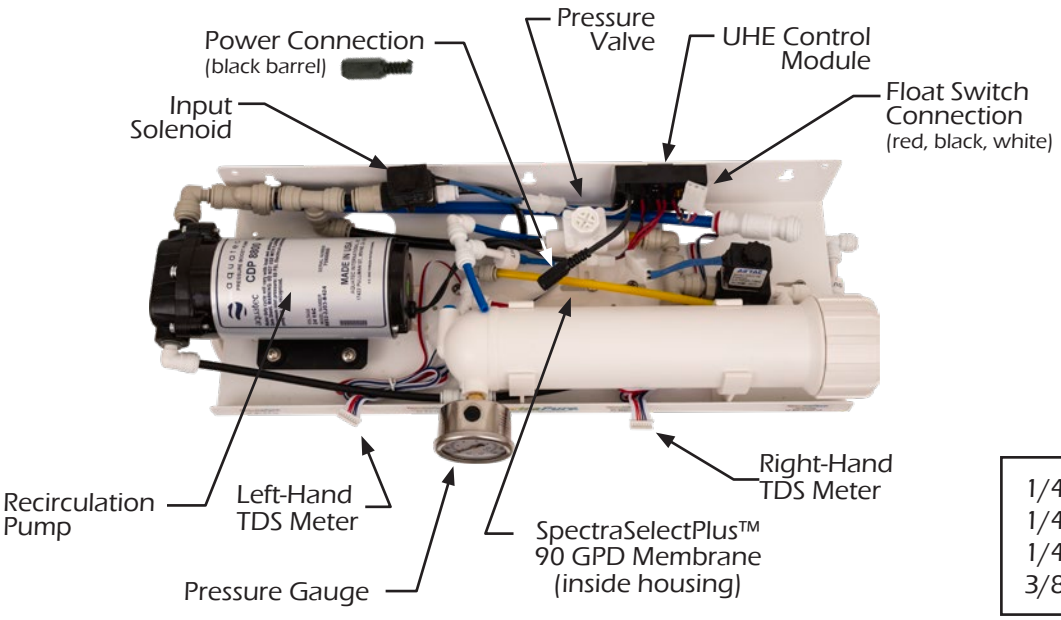
## CONTENTS OF PERFORMANCE PLUS UHE WATER SYSTEM

**UHE System Components**

(1) 5-Stage System
- (1) Membrane (90 GPD SpectraSelectPlus™)
- (1) 0.5 Micron MicroTec™ Sediment Filter
- (1) 0.5 Micron Carbon Block Filter
- (1) Mega MaxCap® DI Cartridge
- (1) Enduro™ DI Cartridge
- (1) High Flow Recirculation Pump
- (1) UHE Module
- (1) Pressure Valve
- (1) Pressure Gauge
- (2) Dual-Probe Inline TDS Meters

(1) High & Low Float Switches (with 6ft extension cable)
(1) 24VDC Transformer
(1) Filter Wrench
(1) 3/8" Bulkhead Fitting (for Pure Water Flush Cycle)
(1) Safety Backup Float

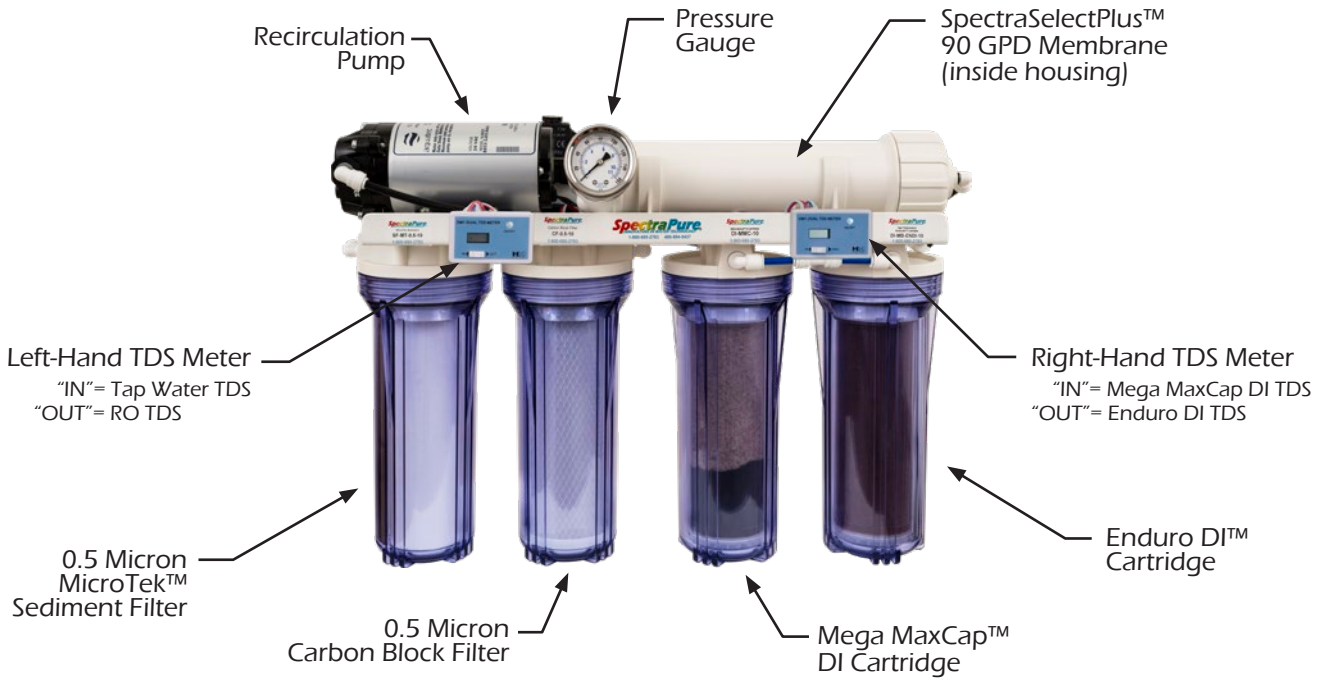
**IF ANY OF THE ITEMS LISTED ABOVE ARE MISSING PLEASE CONTACT SPECTRAPURE PRIOR TO INSTALLATION. ALL RETURNS WITHOUT RMA# WILL BE REFUSED. CLAIMS MUST BE WITHIN 10 DAYS FROM RECEIPT.**



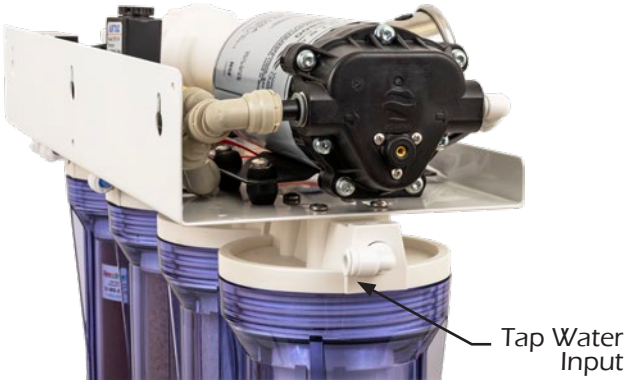

Float Switches &
Extension Cable

1/4" BLACK LINE: Tap Water input
1/4" BLUE LINE: Product Water
1/4" YELLOW LINE: Waste Water
3/8" BLUE LINE: Pure Water Flush

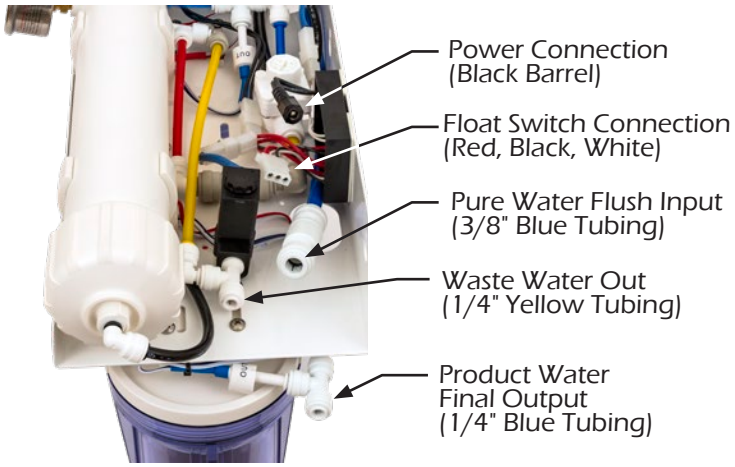
## FRONT VIEW (COMPONENTS)




## WATER CONNECTIONS




LEFT SIDE VIEW




RIGHT SIDE VIEW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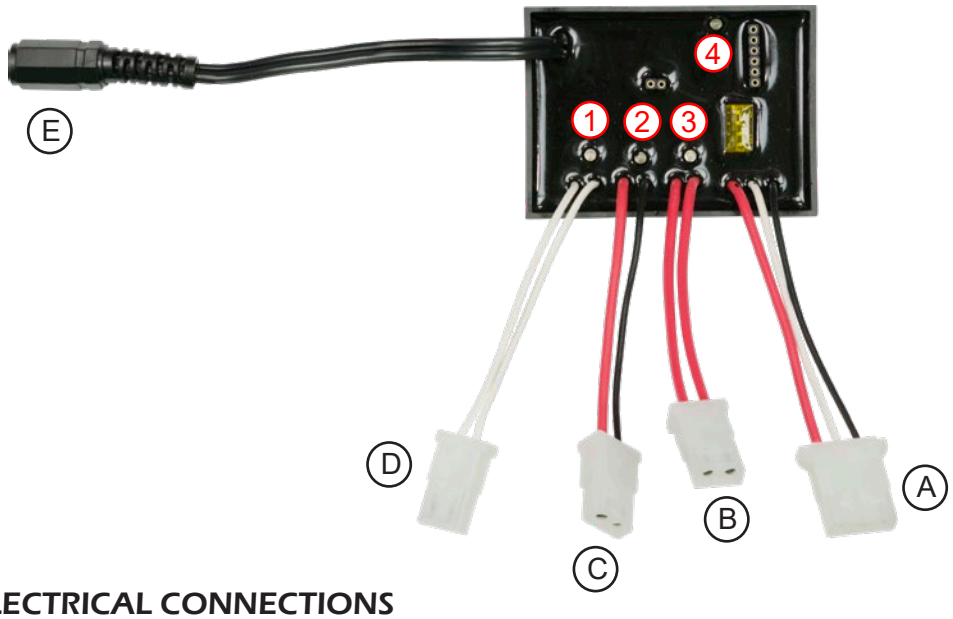
## UHE CONTROL MODULE




### ELECTRICAL CONNECTIONS

- (A) Floats - Red/White/Black (3 sockets)
- (B) Flush Solenoid - Red/Red (2 sockets)
- (C) Pump Connection - Black/Red (2 sockets)
- (D) Input Solenoid - White/White (2 sockets)
- (E) Power Transformer - Black Barrel

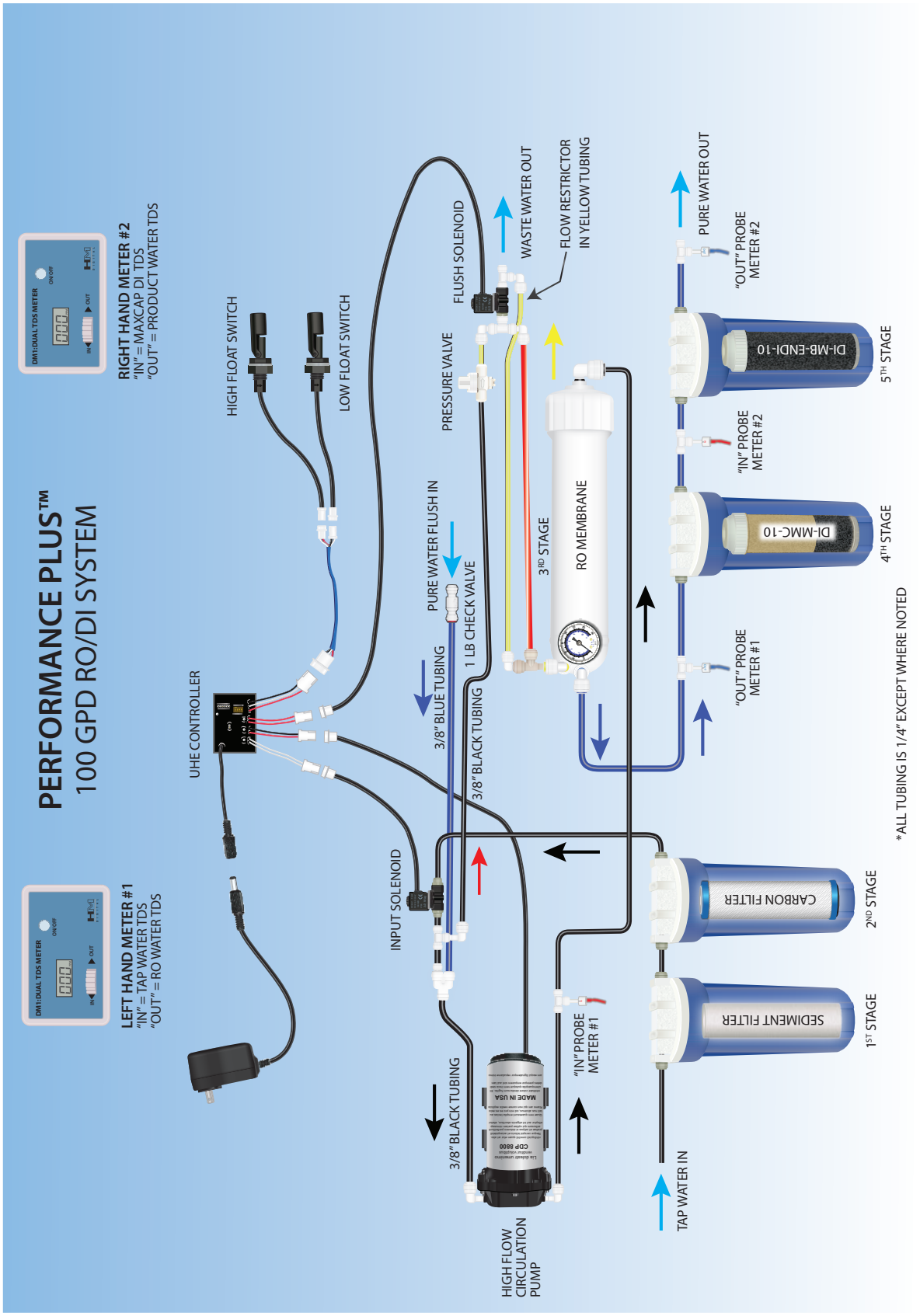
### LED SEQUENCES

1. Input Solenoid LED - Lights when system turns on.
2. Pump LED - Lights when system is pressurized and pump turns on.
3. Flush LED - Lights during flush cycle.
4. RUN LED - Blinks when system is powered on.

Normal Operation - (1) + (2) stay lit.

Flush Operation - (1) + (3) stay lit.

Float Failure - All three LEDs blink sequentially.



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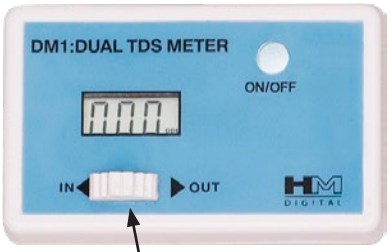
## DUAL-PROBE TDS METERS




**Selector Switch**
**(Set to "IN". Slide to right for "OUT")**

The Performance Plus™ UHE system comes equipped with two (2) dual-probe TDS meters. Use the selector switch on the meter to read the TDS from each of the probes.

The readings from the Left-Hand Meter will be used to monitor the quality (percentage of rejection) of the RO membrane. (See REVERSE OSMOSIS MEMBRANE DIAGNOSTICS on page 14.)

The reading from the Left-Hand Meter will be used to monitor the state of the Mega MaxCap™ DI cartridge and the Enduro DI™ cartridge. Set to "OUT", it will also show the TDS of the product water.

| Left-Hand Meter | | Right-Hand Meter | |
|---|---|---|---|
| IN | OUT | IN | OUT |
| Tap Water TDS | RO Water TDS | Mega MaxCap DI TDS | Enduro DI TDS (also product water TDS |

## OPERATIONAL DESCRIPTION *(how the system functions)*

1. The incoming feed water (1/4" Black line) is passed through a 0.5 micron MicroTek™ Sediment Filter. This filter is required to remove excess turbidity (particulate matter) that may cause the carbon block filter to become fouled.
2. The second stage of filtration is a 0.5 micron carbon block prefilter. This filter removes organics and chlorine from the feed water that can damage the membrane.
3. The third filtration stage of the system is a high rejection thin film composite (TFC) reverse osmosis membrane. It removes over 98% of most inorganic salts, all microorganisms and organics above 100 diatoms molecular weight. A Flow Restrictor, located in the waste water line, is preadjusted for your location's maximum tap water temperature. This Flow Restrictor regulates the amount of water going to drain and determines the waste-to-product ratio. At the maximum yearly tap water temperature, the ratio should be close to 1:1. As the water gets colder, the ratio will increase by a small factor.
4. The fourth and fifth stage filters are our Mega MaxCap DI™ cartridge followed by our Enduro DI™ cartridge. These two cartridges remove the remaining silicates, phosphates, and nitrates that make it past the RO membrane.

**High and Low Float Operation:**

1. Floats are to be mounted horizontal when dry and float up when wet.
2. When the bottom float becomes dry, the input solenoid is opened and one second later, the Recirculation Pump turns on.
3. When the top float becomes wet, a Flush Cycle commences and then the System shuts off until the bottom float becomes dry again.

**Flush Cycle (flush cycle consumes only a couple of quarts of pure water):**

1. As the system is running, a periodic flush is performed.
2. When the top float becomes wet, or every 8 hours of uninterrupted operation, the flush cycle is initiated.
3. After the flush cycle, the system shuts down if the tank is full or pauses for an hour to let the pure water soak the membrane before continuing.

**SpectraPure® Inc.** assumes no responsibility for water damage due to leaks. It is the user's responsibility to determine that the system is leak-free.

## PREPARATION

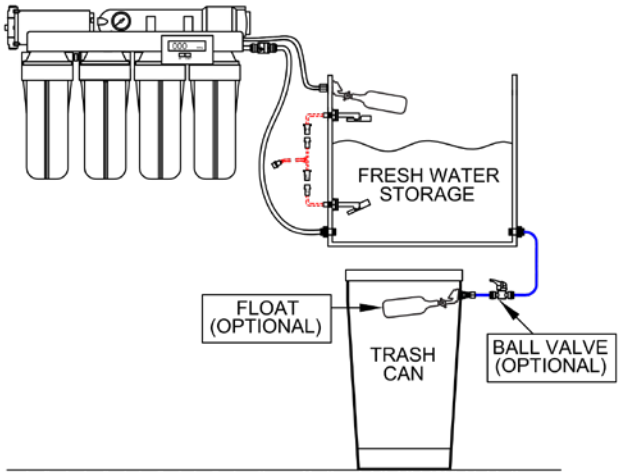
### 1. CHOOSING THE BEST MOUNTING LOCATION:

LIGHT SOURCE: Algae is more likely to thrive inside clear housings when exposed to ultraviolet light and other sources like metal halide lighting. Avoid installing the unit in bright light or direct sunlight.

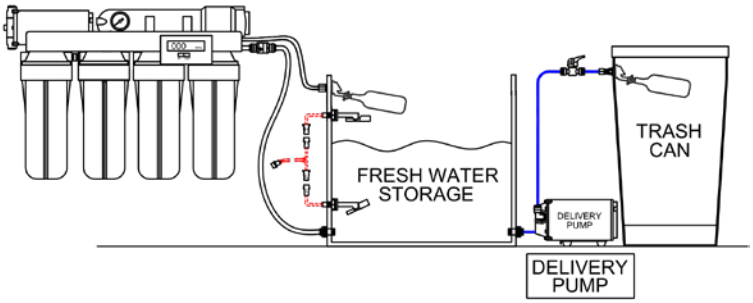
EXTREME TEMPERATURES: The unit MUST be kept out of areas that are subject to extreme temperatures like freezing or temperatures greater than 113° F (45° C)

FRESH WATER RESERVOIR: Mount system in an area that will have enough room for a small trash can or reservoir. This Fresh Water Reservoir is to be used for the Flush Cycle. (Reservoir needs to hold at least 10 gallons)

ELEVATION FOR SYSTEM: When mounting your UHE, make sure it is elevated above your fresh water reservoir:




GRAVITY DRAIN WATER FROM ELEVATED TANK TO TRASH CAN FOR SALT MIXING OR TO SUMP




USE DELIVERY PUMP TO DELIVER WATER WHERE NEEDED FOR SALT MIXING OR TO SUMP

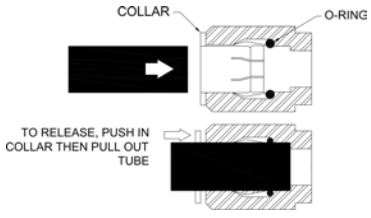
### 2. TOOLS RECOMMENDED FOR INSTALLATION:

- Adjustable Wrench
- Sharp X-acto® Knife
- Open End Wrench(s
- Electric Drill
  - 5/8" Drill bit
  - 13/16" Drill bit
- Phillips Screw Driver
- Trash Barrel or Reservoir
- Optional Ball Valve or Float Valve. (as shown above)
- Optional Delivery Pump (as shown above)

### 3. INTRODUCTION TO PUSH FITTINGS:

Push fittings are similar to a Chinese finger trap toy. In order to release its grip from tubing,..

- Firmly depress and hold the push fitting collar down with your thumbnail.
- While the push fitting collar is depressed, pull the tubing straight out of the push fitting. Once the tubing is removed, release the collar.





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## SETUP PROCEDURES

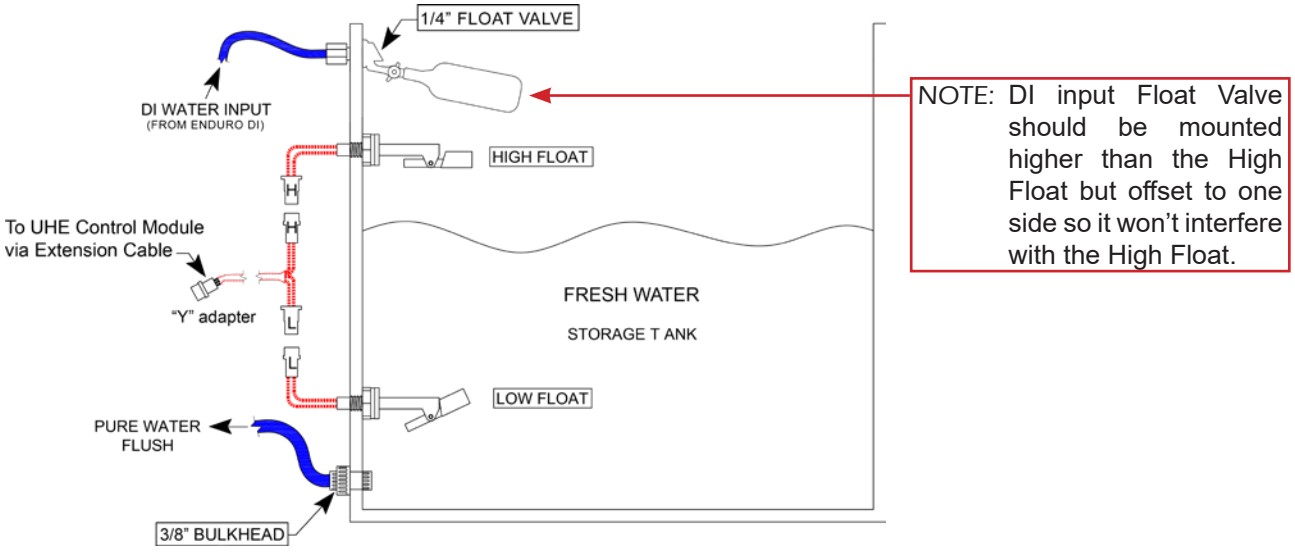
STEP 1: INSTALLATION OF THE HIGH & LOW FLOAT SWITCHES:

A. Install both the High and Low Floats onto an open container, such as a Rubbermaid® trash can. The floats can be mounted by drilling a 5/8" hole. The white washer should be located on the inside of the reservoir. (The High Float shuts down the system, while the Low Float turns the system on).

B. Connect the floats to the "Y" adapter.

C. Attach the 3-pin connector on the float switches to the UHE CONTROL MODULE. (See image on page 5)

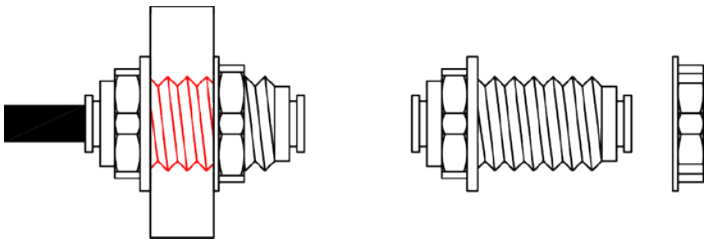
NOTE: Floats are to be mounted horizontal when dry and float up when wet. In most instances we recommend locating the low float approximately halfway down your reservoir. DO NOT OVERTIGHTEN when installing the floats.




**NOTE: Floats must be installed in the FRESH WATER storage container.**
**This system MUST be connected to the floats to operate properly.**
**Failure to install the pure water flush connection for this unit will void any warranty.**

STEP 2: CONNECT BULKHEAD FITTING:
(Bulkhead Fitting MUST be installed on the same container as the floats. See Diagram above.)

3/8" BULKHEAD FITTING:
Use a paddle bit and carefully drill a 13/16" hole for installation at the bottom of the reservoir (below the low level float).



(Setup Procedures are continued on next page)

## SETUP PROCEDURES (continued)

STEP 3: INSTALL THE FLOAT VALVE near the top of the reservoir. This will act as a fill valve and as a safety backup float. The Float Valve should be mounted higher than the High Float and offset to one side so that it does not interfere with the High Float when the reservoir is being filled.

a. Drill a 1/2" hole near the top of your reservoir.

NOTE: If you are installing the Float Valve onto an acrylic tank we recommend using a new Fostner Bit to reduce the chance of cracking the acrylic.

b. (Refer to Diagram below) Remove the Compression Nut from the float body.

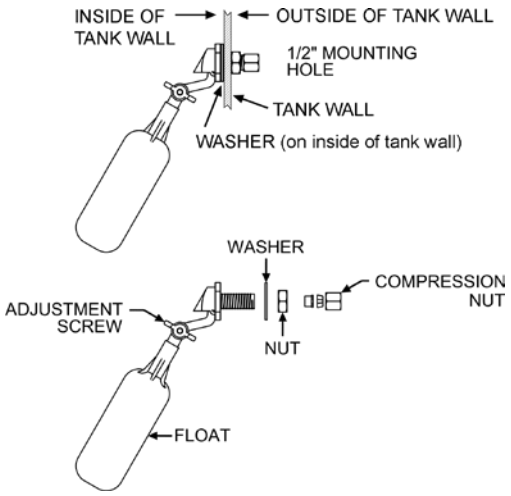
c. Insert the 1/4" Blue Tubing into the 1/2" Compression Nut with the threads towards the end of the tube.

d. Unscrew and remove the remaining nut from the float body.

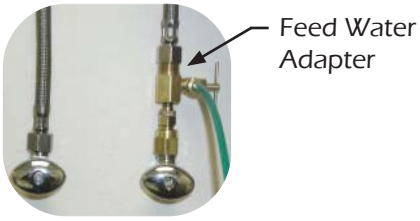
e. Insert the float body and washer into the 1/2" hole and tighten the nut, which securely tightens the float to the tank wall.

f. Push the Compression Nut towards the end of the tubing and screw the Compression Nut back onto the float body.

g. To tighten, use one 1/2" wrench on the flats of the plastic threads and another 1/2" wrench on the Compression Nut.




STEP 4: Connect the 1/4" Black Line to the cold water line by using either the garden hose adapter, which is provided with the system, or a Feed Water Adapter.


(Setup Procedures are continued on next page)

## SETUP PROCEDURES (continued)

STEP 5: Direct the waste line (yellow) to a drain or connect it permanently to a drain pipe via a Drain Saddle. (Drain Saddle is not included with system.)

**CAUTION**

An extremely long drain line may cause excessive back pressure on the system. For drain lines longer than 10 feet, 3/8" tubing should be substituted. An extremely long drain line may also create a siphon which will pull the water past the 4# check valve and cause water to drain from the tank after shutdown. The following solution assumes that you have already installed the system above the tank.

Route the yellow 1/4" waste water line up above the system as high as possible. Run a 1/2" drain pipe (or a garden hose) from the drain location up vertically to the elevated yellow 1/4" waste water line. Insert the waste water line down into the 1/2" drain line a few inches to create a "siphon break".

STEP 6: Open the cold water (tap water) feed, connected to the black line. Plug in the 24V transformer to the UHE Module and connect to 120VAC power.

STEP 7: At this stage, the system will start producing water from the 1/4" blue and yellow lines.

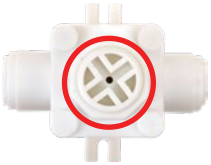
NOTE: At least 2 gallons (7.57 liters) of purified water should be discarded during the initial procedure before you can collect purified water for use.

Upon startup, air may be trapped in the DI cartridges (housings may not appear full). This is a normal condition and will not affect the operation of the RO/DI system.

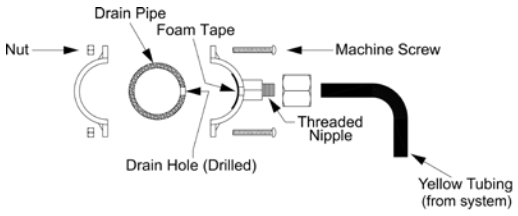
CAUTION: **Inspect for leaks and do not leave the system alone until you are sure there are no leaks. Monitor the system for 72 hrs.**

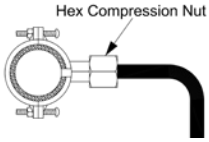
STEP 8: Adjust the system pressure until it reaches 100 psi on the pressure gauge by turning the top of the pressure valve using the included tool. Turning the top clockwise decreases the pressure while turning it counterclockwise will increase the pressure.

Pressure Adjustment Tool 

 Pressure Valve

OPTIONAL INSTALLATION FOR WASTE WATER LINE
(USING A DRAIN SADDLE)




(Setup Procedures are continued on next page)

## SETUP PROCEDURES (continued)

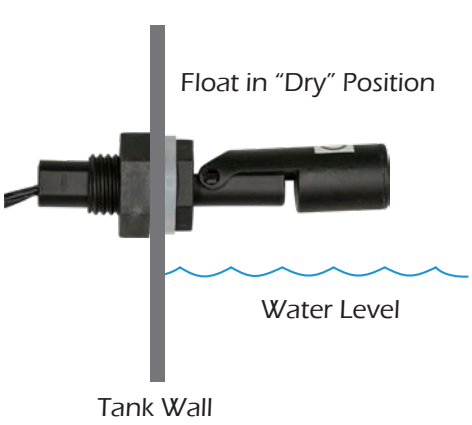
### ERRATIC OPERATION

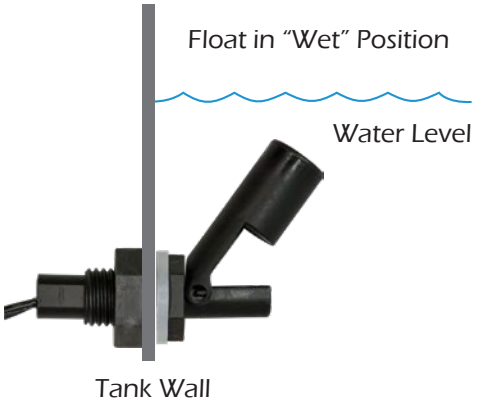
Erratic operation can almost always be determined to be caused by the electric floats or the wires connecting them to the control module.

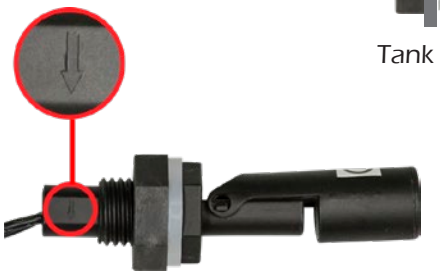
Here is a test to determine if the problem lies with the floats or the control module. Disconnect the 3 pin cable to the floats at the control module. Looking back at the control module, there should be 3 socket holes in the connector. Get two small paper clips and bend them so you can insert one into the red (#1) and white (#2) socket holes and the other into the black (#3) hole and again into the white (#2) hole.

Electrically, this should look like two dry floats and the system should start up. Remove the white/black jumper and the system should continue to run (this represents the bottom float getting wet). Remove the red/white jumper and the system should start its final flush (this represents the top float getting wet) and then shut off. Reverse the sequence by inserting the red/white jumper. Nothing should happen because this just looks like the top float going dry. Insert the white/black jumper and the system should start up again (as the bottom float goes dry). If you can reliably repeat this sequence multiple times, then the problem is with the floats or the wires. Look for loose connections and floats that have rotated in the reservoir, no longer pointing straight out when dry and bending up when wet.

### PROPER ORIENTATION OF LIQUID LEVEL FLOATS



As seen from outside of tank, the arrow should point straight down. This assures that the float is oriented correctly inside the tank.

**CHECK BEFORE LEAVING SYSTEM UNATTENDED:**

- **Ensure that all fittings are tight and leak-free before leaving the system unattended.**
- **The concentrate line (yellow) includes a smaller capillary tube (flow restrictor) that is located "inside" of the tubing. Do not remove or discard this restrictor; the system will not produce permeate water without the flow restrictor.**
- **The following conditions must be met before water can be produced: The water source must be turned "ON" and the water level in the reservoir tank must be below the low level float.**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## MAINTENANCE PROCEDURES

Maintenance and troubleshooting procedures have been made easy and effective with a combination of the two dual-probe TDS meters and a built-in pressure gauge. It is recommended that you keep replacement cartridges on hand, ready to install as soon as the monitor indicates that the cartridge in use is exhausted.

**SHELF LIFE FOR FILTERS:**

PREFILTERS (Sediment & Carbon Block Filters): Prefilters have an infinite shelf life.

REVERSE OSMOSIS (RO) MEMBRANE: Purchase an RO membrane when needed. If you would like to keep one on hand, you can store it in the refrigerator for up to 1 year. (Keep it in its sealed, original packaging). You should always see moisture inside the bag. If the membrane dries out, it will not produce water and any warranty will be voided.

DEIONIZATION (DI) CARTRIDGES: Replacement DI cartridges are shipped in a Mylar® Bag. Keep them in their sealed, original packaging until use. You can store them for up to 1 year.

### SEDIMENT PREFILTER REPLACEMENT:

For maximum contaminant removal and long membrane life, the sediment prefilter must be changed when the system pressure falls below 80 PSI. If your water contains a great deal of sediment, the prefilter may require more frequent changes to maintain adequate production rate and extended membrane life.

**Materials Required:** 0.5 micron MicroTek™ Sediment Filter (SF-MT-0.5-10), Filter Wrench.

**Procedure:** (FIRST FILTER ON LEFT)

1. Turn off water supply to the system.
2. Using the provided filter wrench, remove the first housing on the left. Unscrew it counterclockwise as viewed from the bottom.
3. Remove the old filter and discard.
4. Thoroughly wash the housing with a mixture of hot soapy water and a few teaspoons of household bleach. Rinse well with clean hot water.
5. Install the new prefilter into the housing. Screw the housing back onto the assembly, and **hand tighten only**.

   NOTE: **Do not use filter wrench to tighten housings. Over-tightening will damage housings and void your warranty.**
6. Proceed with carbon block filter replacement.

(Maintenance Procedures are continued on next page)

## MAINTENANCE PROCEDURES (continued)

### CARBON BLOCK PREFILTER REPLACEMENT

For maximum contaminant removal and long membrane life, the Carbon prefilter must be changed when the Chlorine Test Kit shows more than 0.1ppm of chlorine in the waste water stream.

**Materials Required:** 0.5 micron Carbon Block Filter (CF-0.5-10), Filter Wrench, Chlorine Test Kit (TK-CL-10-KIT)

**Procedure:** (SECOND FILTER ON LEFT WHEN FACING SYSTEM)

1. Refer to "Sediment Prefilter Replacement" on previous page.
2. Perform steps 1-5 for the Carbon Block Filter.
3. Turn on system's water supply and check for leaks.

### REVERSE OSMOSIS MEMBRANE DIAGNOSTICS

Although RO membranes are capable of maintaining high water quality over extended periods of time, they eventually will begin to deteriorate. Normally, the conductivity of the permeate water will increase as the membrane ages. By comparing the difference in TDS readings between the Tap water TDS and the RO water TDS, the "percentage rejection" of the RO membrane may be calculated and the resultant value may then be used to determine the condition of the membrane. In this way, the operator will know when the membrane needs to be replaced. Membrane failure will be indicated by a reduction in the percentage rejection which will be determined by calculating the differential between the input and output TDS readings.

In order to accurately determine the condition of the RO Membrane, a conductivity tester (TDS meter) capable of reading the tap water conductivity and the permeate water conductivity has been provided with this system. With the assistance of the Left-Hand TDS meter, you will be able to easily determine the RO membrane's condition.

Before performing the diagnostic test on the RO membrane, make sure that the RO system has been "ON" and producing pure water for a minimum of 10 minutes. Also check the brine (yellow) line to make sure that water is flowing and that the flow ratio between the brine water and the permeate water is at a ratio that is between 1:1 and 2:1.

**Procedure:**

1. Turn on the Left-Hand TDS meter by depressing the "ON" button.
2. Locate the meter slide switch on the front of the meter.
3. Slide the switch to the left (IN) and read the Tap water conductivity (X), then record the reading _____
4. Next, slide the switch to the right (OUT) and read the RO water conductivity (Y), then record the reading _____.
5. Subtract RO water conductivity from tap water conductivity. (X - Y)
6. Divide this quantity by tap water conductivity. (X - Y) ÷ X
7. Rejection = [(X - Y) ÷ X ] ×100

**Rejection of the RO Membrane Calculation Example**

1. Tap water hardness = 150 ppm (X)
2. RO water hardness = 7 ppm (Y)
3. X - Y = 143 ppm
4. (X - Y) ÷ X = 143 ÷ 150 = 0.953
5. Rejection = [ ( X - Y) ÷ X ] ×100 = 0.953 ×100 = 95.3

**Membrane Hardness Rejection = 95.3 % : Rejection rates less than 95% may indicate that the membrane should be replaced.**

(Maintenance Procedures are continued on next page)

## MAINTENANCE PROCEDURES (continued)

### REVERSE OSMOSIS MEMBRANE PRODUCTION CALCULATION

Actual production of a membrane is dependent on two factors: Tap Water Pressure and Tap Water Temperature. In order to characterize a membrane, there must be common testing data. Industry standards for testing membrane performance are:

60 PSI tap water pressure and 77° F (25° C) tap water temperature. Most locations will not have exactly 77 degree water. Use the calculation below to determine what the membrane should produce with your water conditions.

PRESSURE COMPENSATION:
The output (GPD) is directly proportional to the applied pressure. The Performance Plus System uses an RO Membrane which is nominally-rated to produce 90 GPD at 60 psi. To compute the Pressure Compensation Factor (PCF), divide the applied pressure (read from the Pressure Gauge on the membrane housing) by 60. Since the system has an integrated booster pump, the PCF should be greater than 1.

TEMPERATURE COMPENSATION:
The output (GPD) decreases with a decrease in temperature. This is due to water viscosity increasing with a decrease in water temperature. Look up the water temperature on the chart below to determine the Temperature Compensation Factor (TCF) value.

MEMBRANE OUTPUT CALCULATION EXAMPLE:
What is the expected GPD from a 90 GPD membrane at 80 psi water pressure and 59° F water temperature?
PCF = 80 ÷ 60 = 1.3
TCF = 0.73
Expected GPD = 90 x 1.3 x 0.73 = 85.4 GPD ±20%*

*Membrane manufacturers' state their flow ratings as having a factor of ±20%.

**Temperature Correction Factor Table (TCF)**

| °F /°C | TCF | °F /°C | TCF | °F /°C | TCF |
|---|---|---|---|---|---|
| 41.0 /5 | 0.521 | 59.0 /15 | 0.730 | 77.0 /25 | 1.000 |
| 42.8 /6 | 0.540 | 60.8 /16 | 0.754 | 78.8 /26 | 1.031 |
| 44.6 /7 | 0.560 | 62.6 /17 | 0.779 | 80.6 /27 | 1.063 |
| 46.4 /8 | 0.578 | 64.4 /18 | 0.804 | 82.4 /28 | 1.094 |
| 48.2 /9 | 0.598 | 66.2 /19 | 0.830 | 84.2 /29 | 1.127 |
| 50.0 /10 | 0.620 | 68.0 /20 | 0.857 | 86.0 /30 | 1.161 |
| 51.8 /11 | 0.640 | 69.8 /21 | 0.884 | 87.8 /31 | 1.196 |
| 53.6 /12 | 0.661 | 71.6 /22 | 0.912 | 89.6 /32 | 1.232 |
| 55.4 /13 | 0.684 | 73.4 /23 | 0.941 | 91.4 /33 | 1.267 |
| 57.2/14 | 0.707 | 75.2 /24 | 0.970 | 93.2 /34 | 1.304 |

(Maintenance Procedures are continued on next page)

## MAINTENANCE PROCEDURES (continued)

### REVERSE OSMOSIS MEMBRANE REPLACEMENT

1. Turn off the water supply to the RO system and unplug the transformer. Place the system where the membrane housing is easily accessible.
2. Remove the black tubing from the membrane feed push fitting by depressing the collar on the fitting with your thumb and pulling the tubing from the push fitting.
3. Lift the membrane housing from the retention clips.
4. Unscrew the membrane housing lid. This may require two people.
5. Use a pair of pliers to grasp the membrane stem and pull the membrane from the housing.
6. Remove the black housing O-ring. Wash the empty housing with soapy water. Rinse thoroughly with hot, clean water.
7. Insert new membrane into the housing, with the double O-ring end first. The tube must fit into the recess at the bottom of the membrane housing. When the membrane is aligned with the hole, firmly push the membrane into the hole until it bottoms out.
8. Place the black housing O-ring on the housing rim and carefully screw the lid back on to the base.
9. Reconnect the black tubing to the membrane feed push fitting.

**Removing the Membrane Element**


**Proper Orientation of New Membrane in Relation to Housing**


### TIPS FOR LONG MEMBRANE LIFE

1. Replace the 0.5 micron MicroTek™ sediment filter once every 6 months. This will help prevent membrane fouling due to silt or sediment depositing on the membrane.
2. Replace the 0.5 micron carbon block filter at least once every 6 months or when chlorine breakthrough occurs. This will ensure good membrane life and protect the membrane from chlorine damage.
3. Soft water will greatly increase the life of an RO membrane and reduce the chance of membrane fouling .
4. Membrane should not be operated at lower than the preset concentrate to purified water ratios.

(Maintenance Procedures are continued on next page)


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## MAINTENANCE PROCEDURES (continued)

### DEIONIZATION CARTRIDGE MAINTENANCE AND REPLACEMENT

The Performance Plus™ uses two DI stages. The Mega MaxCap DI™ cartridge is located upstream of the Enduro DI™ cartridge and acts as a "roughing" stage by removing the vast majority of residual ammonia, phosphates, and other trace ionized impurities that have passed through the system's RO membrane. The Enduro DI™ cartridge works as the final "polishing" stage. Because it has the MaxCap DI™ cartridge upstream of it to do the heavy lifting, the Enduro DI™ cartridge will not need to be replaced as often as the MaxCap DI™ cartridge. The Right-Hand TDS Meter is used to monitor when you will need to replace each DI cartridge.

**NOTE:** In order to receive an accurate reading, the system must be producing water for at least 10 minutes before reading the TDS meters.

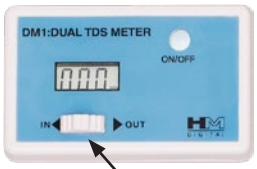
### Maintenance for Mega MaxCap™ DI Cartridge:

**Materials Required:** Mega MaxCap DI™ cartridge, Filter Wrench

When the Right-Hand TDS Meter (Set to "IN") shows a reading of "001", it is time to replace the Mega MaxCap™ DI cartridge.

NOTE: Do not leave the Mega MaxCap™ DI cartridge in longer than the recommended period of time. Doing so could result in a Phosphate and/or Silicate dump which would prematurely exhaust the Enduro DI™ cartridge.

1. Disconnect power to the system and shut down the water supply line.
2. Unscrew the third clear housing and insert the new Cartridge. Discard the old cartridge.
3. Make sure the DI cartridge is installed in the correct direction as marked on the cartridge shell and be sure that the top seal is securely attached to the top of the cartridge.
4. Tighten the cartridge housing by rotating it clockwise and hand tighten.
5. Turn the supply line back on, plug the power back in, and redirect the product water to drain. Allow 2 gallons of water to go down the drain before reconnecting the product water line to the reservoir.
6. Check system for leaks.




Selector Switch
(Set to "IN". Slide to right for "OUT")

Right-Hand
TDS Meter

Mega MaxCap DI

Enduro DI

### Maintenance for Enduro DI™ Cartridge:

**Materials Required:** Enduro DI™ cartridge, Filter Wrench

When the reading on the Right-Hand TDS meter (set to "OUT") displays "001", it is time to replace the Enduro DI™ cartridge.

1. Disconnect power to the system and shut down the water supply line.
2. Unscrew the fourth clear housing and insert the new Cartridge. Discard the old cartridge.
3. Make sure the DI cartridge is installed in the correct direction as marked on the cartridge shell and be sure that the top seal is securely attached to the top of the cartridge.
4. Tighten the cartridge housing by rotating it clockwise and hand tighten.
5. Turn the supply line back on, plug the power back in, redirect the product water to drain and allow the water to run through the Enduro DI™ Cartridge until the Right-Hand TDS meter (set to "OUT") is "000".
6. Check system for leaks.

## TROUBLE SHOOTING GUIDE

1. LOW PRODUCTION RATE.

| | |
|---|---|
| a. Plugged prefilters. | i. Replace prefilters. |
| b. Low water temperature. | ii. Use higher GPD membrane. |
| c. Fouled membrane. | iii. Replace membrane. |
| d. Plugged flow restrictor. | iv. Replace flow restrictor & membrane. |

2. ZERO PRODUCTION RATE.

| | |
|---|---|
| a. Dried membrane. | i. Replace membrane. |
| b. Power supply not plugged in | ii. Plug power in. |
| c. Both floats need to be dry | iii. Both floats need to be dry and level, not drooping. |

3. EXTREMELY HIGH PRODUCTION RATE.

| | |
|---|---|
| a. Ruptured membrane. | i. Replace membrane. |

4. MILKY COLORED WATER.

| | |
|---|---|
| a. Air in system. | i. Air in the system is a normal occurrence with initial startup of the RO/DI system. This milky appearance will disappear during normal use within 1-2 weeks. If condition recurs after filter changes, drain tank 1 or 2 times. |

5. THE WATER IN THE PURE WATER CONTAINER DRAINS OUT WHEN NOT USED.

| | |
|---|---|
| a. The system is not elevated higher than the Pure Water container | i. Elevate the system higher than the Pure Water container to avoid siphoning. |
| b. Check Valve on Pure Water Flush is not functioning | ii. Replace Check Valve |
| c. An air gap is needed | iii. Create an air gap in the waste water line. (See Caution on page 10.) |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## ONE YEAR LIMITED WARRANTY

SpectraPure, Inc.® warrants the product to the original owner only to be free of defects in material and workmanship for a period of one year from the date of receipt. SpectraPure's liability under this warranty shall be limited to repairing or replacing at SpectraPure's option, without charge, F.O.B. SpectraPure's factory, any product of SpectraPure's manufacture. SpectraPure will not be liable for any cost of removal, installation, transportation or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by SpectraPure are subject to the warranty provided by the manufacturer of said products and not by SpectraPure's warranty. SpectraPure will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair or, if the product was not installed in accordance with SpectraPure's or other manufacture's printed installation and operating conditions, or damage caused by hot water, freezing, flood, fire or acts of God.

SpectraPure will not be responsible for any consequential damages arising from installation or use of the product, including any water or mold damage due to flooding which may occur due to malfunction or faulty installation, including, but not limited to failure by installer to over- or under-tighten fittings, housings, and/or push-style fittings, or improper installation of push-style fittings. Consumable items such as prefilters and membranes are not covered under the one year warranty.

To obtain service under this warranty, the defective system or components must be returned to SpectraPure with proof of purchase, installation date, failure date and supporting installation data. Any defective product to be returned to the factory must be sent freight prepaid. Documentation supporting the warranty claim and a Return Merchandise Authorization (RMA) number must be included. SpectraPure will not be liable for shipping damages due to the improper packaging of the returned equipment and all returned goods must also have adequate insurance coverage and a tracking number.

SpectraPure will not pay for loss or damage caused directly or indirectly by the presence, growth, proliferation, spread or any activity of "fungus", wet or dry rot or bacteria. Such loss or damage is excluded regardless of any other cause or event that contributes concurrently or in any sequence to the loss. We will not pay for loss or damage caused by or resulting from continuous or repeated seepage or leakage of water, or the presence or condensation of humidity, moisture or vapor, that occurs over a period of 14 days or more. "Fungus" and "fungi" mean any type or form of fungus or Mycota or any byproduct or type of infestation produced by such fungus or Mycota, including but not limited to, mold, mildew, mycotoxins, spores, scents or any biogenic aerosols.

SpectraPure will not be liable for any incidental or consequential damages, losses or expenses arising from installation, use, or any other causes. There are no expressed or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

*** The one year limited warranty does not apply to consumable items, including but not limited to, filters and cartridges unless specifically stated above.**

## TERMS AND CONDITIONS:

1. Shipping charges on units or parts submitted to our facility for repair or replacement must be borne by the registered purchaser. After repair or replacement, the factory will return the unit or part freight prepaid to the customer.
2. We assume no warranty liability in connection with our equipment other than as herein specified.
3. This warranty is in lieu of all other warranties expressed or implied, including warranties of fitness for a particular purpose.
4. We do not authorize any person or representative to assume for us any other obligation on the sale of our equipment. This is the exclusive remedy and liability for consequential damages under any and all warranties which are excluded to the extent exclusion is permitted by law.
5. Proof of original purchase date must accompany all warranty claims.
6. SpectraPure, Inc. Reserves the right to change prices without notice when necessary. All prices in the catalog are quoted in US dollars.
7. Claims for error in quantity or condition must be made within 10 days of receipt of material. SpectraPure, Inc. will not be responsible for any claimed shortages not reported within 10 days. Returns other than warranty claims may be subject to 20% restocking fee.
8. SpectraPure, Inc. cannot be held liable for damage or loss to a shipment by a freight carrier. Check shipment for damage before acceptance or note on freight bill subject to inspection for concealed damage. Consignee must file claim. SpectraPure, Inc. will offer as much assistance as possible.
9. A complete credit check is required prior to shipping on a Net 30 basis. In the interim period during which credit references are being evaluated, all orders must be prepaid until approved.
10. All returned checks (due to insufficient funds or closed accounts) will be subjected to a **$35 penalty charge.**
11. Invoices on Net 30 accounts not paid within 30 days of shipment will be considered delinquent and will accrue Finance charges at the rate of 1.5% per month (18% per annum).

## REPLACEMENT PARTS

| Catalog No. | Replacement Part | Description |
|---|---|---|
| SF-MT-0.5-10 | 0.5 Micron Sediment Filter | 1st Stage |
| CF-0.5-10 | 0.5 Micron Carbon Prefilter | 2nd Stage |
| MEM-SP-0090 | SpectraSelectPlus™ RO Membrane | 3rd Stage |
| DI-MMC-10 | Mega MaxCap DI™ Deionization Cartridge | 4th Stage |
| DI-ENDI-10 | Enduro DI™ Deionization Cartridge | 5th Stage |


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