



Pro Line Ultra Series

Installation & Service Guide



Ultra-2600-B

Ultra-2600-D

Ultra-5200-B

Ultra-5200-D



*Please read this manual carefully
before attempting installation.*

Introduction

Please read this entire service guide prior to beginning installation.

The Pro-Line Ultra Series commercial reverse osmosis system has been designed for quick and simple installation and maintenance . By carefully reading this instruction manual and following the operational guidelines you will insure a successful installation and reliable operation. Routine maintenance is essential to the longevity and performance of the system.

CONDITIONS FOR OPERATION

Design Temperature	77°F	Max. Turbidity NTU ^	1
Max. Feed Temperature	85°F	Max. Free Chlorine ppm	0
Min. Feed Temperature	40°F	Max TDS ppm	2,000
Max. Ambient Temperature	120°F	Max. Hardness GPG ^^	1
Min. Ambient Temperature	40°F	Max. pH (Continuous)	11
Max. Feed Pressure PSI	85	Min. pH (Continuous)	3
Min. Feed Pressure PSI	45	Max. pH(Cleaning 30 Min.)	12
Max. Operating Pressure PSI	150	Min. pH (Cleaning 30 Min.)	2
Max. SDI Rating	<3		

Test Parameters: Static pressure test for 5 minutes.

^ Appropriate filtration must be installed in order to prevent premature membrane fouling.

^^ Scale prevention measures must be taken to prolong membrane life.

CAUTION

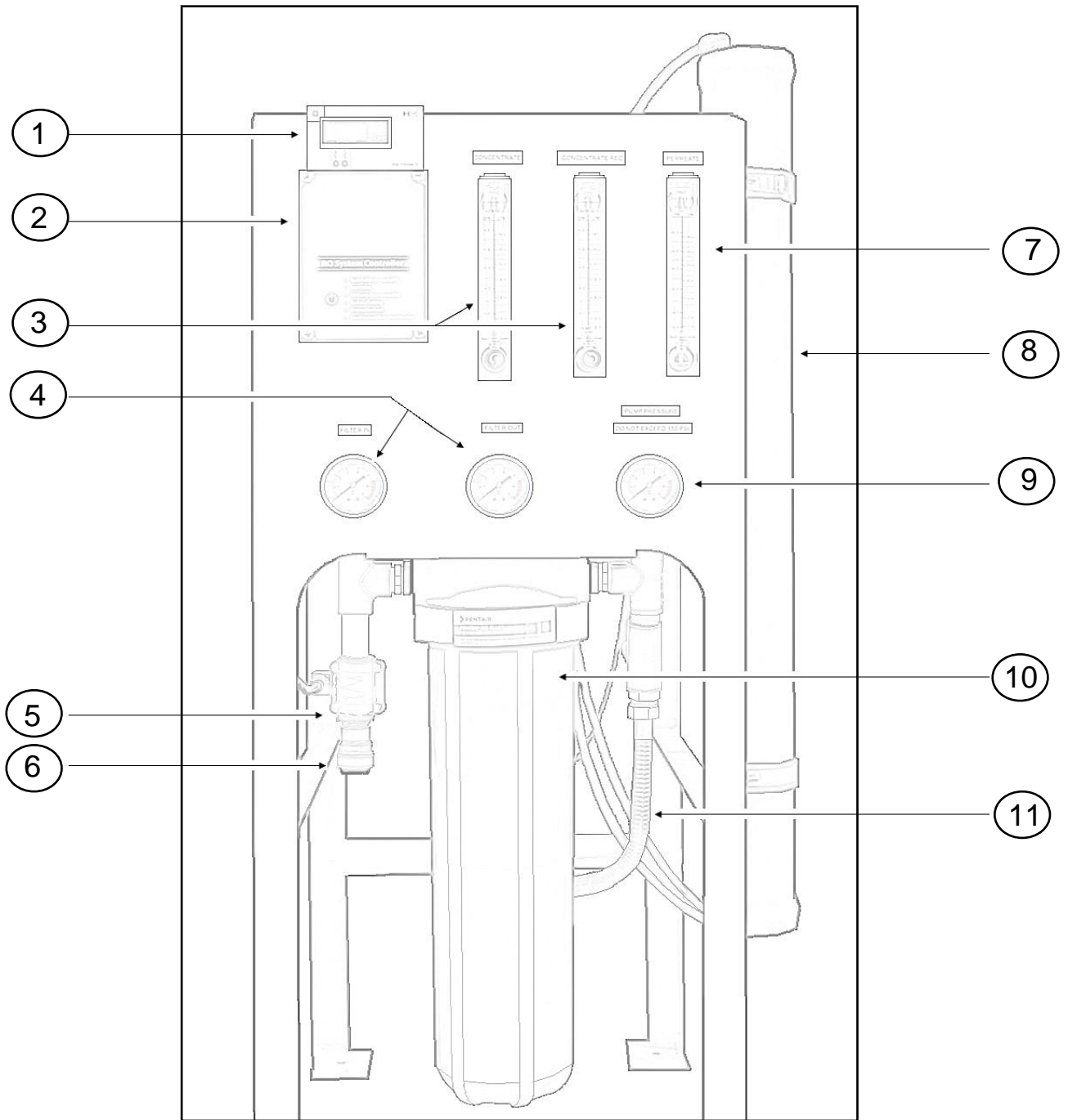
- Do not use this system where the water is microbiologically unsafe or of unknown quality.
- Adequate pretreatment must be installed to remove organic and inorganic contaminants that may lead to membrane fouling.
- Disconnect the electrical power and turn off feed water supply before servicing the unit
- Never allow the pump to run dry.
- Do not run the system with waste or recycle valves fully closed.

Specifications

Product Specifications				
	Ultra-2600-B	Ultra-2600-D	Ultra-5200-B	Ultra-5200-D
Design				
Configuration	Single Pass	Single Pass	Single Pass	Single Pass
Feed Water Source	TDS < 2,000	TDS < 2,000	TDS < 2,000	TDS < 2,000
System Recovery with Recycle*	35%-50%	35%-50%	50%-75%	50%-75%
Rejection and Flow Rates				
Nominal Salt Reduction	98.50%	98.50%	98.50%	98.50%
Permeate Flow Rate*	1.8 gpm	1.8 gpm	3.6 gpm	3.6 gpm
Concentrate Flow Rate	2.0 gpm	2.0 gpm	3.0 gpm	3.0 gpm
Concentrate Recycle Flow Rate	Up to 2.0 gpm	Up to 2.0 gpm	Up to 5.0 gpm	Up to 5.0 gpm
Connections				
Feed Connection	3/4" CTS QC	3/4" CTS QC	3/4" CTS QC	3/4" CTS QC
Permeate Connection	1/2" QC	1/2" QC	1/2" QC	1/2" QC
Concentrate Connection	1/2" QC	1/2" QC	1/2" QC	1/2" QC
Membranes				
Membrane Quantity	1	1	2	2
Membrane Size	4x40	4x40	4x40	4x40
Housings				
Housing Array	1	1	1	1
Housing Quantity	1	1	2	2
Pumps				
Pump Type	Multi-Stage	Multi-Stage	Multi-Stage	Multi-Stage
Motor HP	1/2 HP	1/2 HP	3/4 HP	3/4 HP
RPM @ 60 HZ	3450	3450	3450	3450
Electrical				
Standard Voltage	110v 1ph 60hz	110v 1ph 60hz	110v 1ph 60hz	110v 1ph 60hz
SF Amps	12.4	12.4	14.5	14.5
System Dimensions				
Approx. Dims. (L x W x H)	27" x 25" x 56"	27" x 25" x 56"	27" x 25" x 56"	27" x 25" x 56"
Shipping Weight	135 lbs.	135 lbs.	135 lbs.	135 lbs.

* Product flow and recovery rates are based on feed-water condition of 1,000 ppm of TDS @ 77°F / 25°C. Treatment ability of the RO System is dependent on feed water quality. Higher TDS and/or lower temperatures will reduce product flow. Performance projections should be run for each installation.

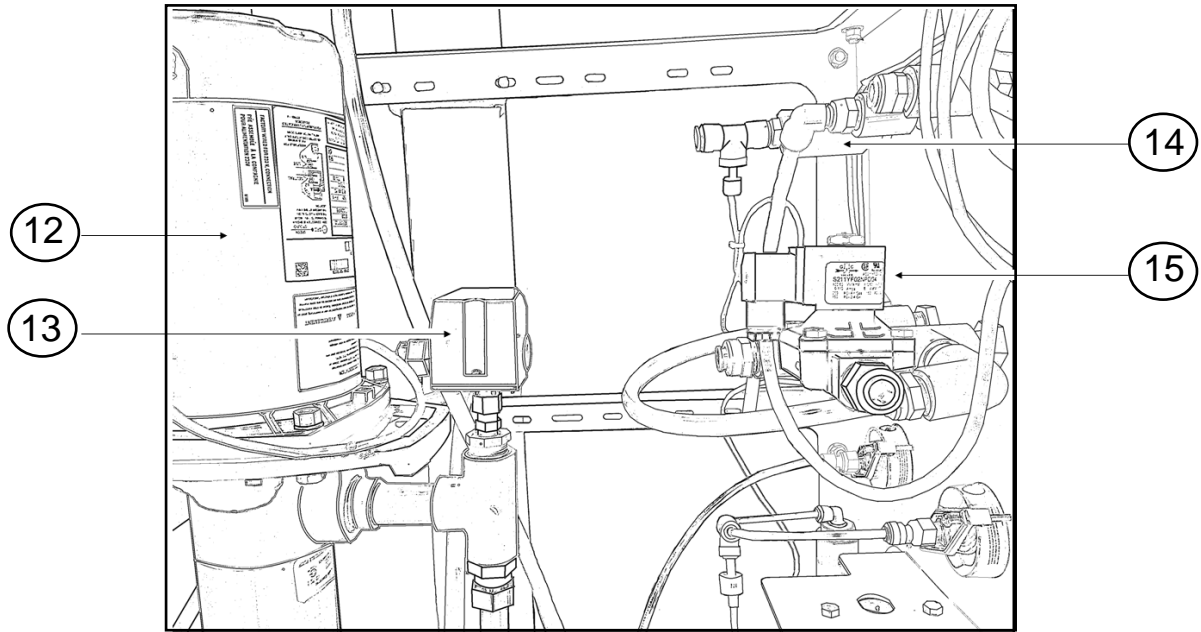
System Diagrams



- | | | |
|-----|-------------------------------|---|
| 1) | DM-2 * | INLINE DUAL TDS METER |
| 2) | CHIP-V | RO CONTROLLER; VERTICAL |
| 3) | AFM-055 | PANEL FLOWMETER C/W CONTROL |
| 4) | PG-100-PC | PANEL MOUNT GAUGE; 0-100 PSI |
| 5) | S211YF02NPEG5 | FEED SOLENOID; 3/4" N/C 120VAC |
| 6) | PSEI012826E | JG 3/4" CTS X 3/4" NPT MALE CONNECTOR, BLACK |
| 7) | PFM-055 | PANEL FLOWMETER |
| 8) | 40L30N-1W *
MH-4040SS.C ** | 4"X40" CODELINE FRP VESSEL; 300PSI; EP; WH
4X40 SS PRESSURE VESSEL |
| 9) | PG-300-PC | PANEL MOUNT GAUGE; 0-300 PSI |
| 10) | 150233 | 20" BIG BLUE HOUSING BL/BK W/PR |
| 11) | FF-36" | FALCON 3/4x3/4 FPT; SS FLEX CONN; 36"L |

* Deluxe models only (2600-D & 5200-D)

** Basic models only (2600-B & 5200-B)



- | | |
|-------------------------|--|
| 12) 95880505 *** | 5FBT05C4 - 5GPM; 1/2 HP 120V; PUMP AND MOTOR |
| 95880710 **** | 7FBT07C4 - 7GPM; 3/4 HP 120V; PUMP AND MOTOR |
| 13) WPS-4-4MF-3-7-30-15 | LOW PRESSURE SWITCH; 30-15 PSI |
| 14) ACV15 | PRODUCT CHECK VALVE; 1/2" FPT |
| 15) S211YF02NPDG4 * | FLUSH SOLENOID; 1/2" N/C 120V |

Items Not Shown:

- | | |
|-----------------|--|
| x) C-4010 | DIN CONNECTOR (required for all solenoid valves) |
| x) 1227868-V-BB | VX05-20" BB 5M SEDIMENT CARTRIDGE |
| x) 3056683 | MEMBRANE AK-90LE; 4X40; HR;ULE; 2800GPD; 110PSI |
| x) 144368 | SW-4; WRENCH FOR 20" BB |

* Deluxe models only (2600-D & 5200-D)

*** Single membrane units (2600-B & 2600-D)

**** Dual membrane systems (5200-B & 5200-D)

System Installation Instructions

1. Feed Water Supply

The 3/4" CTS push to connect fitting for the feed water supply is connected to the solenoid on the inlet side of the pre-filter.

NOTE: Minimum line size for the feed line is 3/4" with a minimum pressure of 45 PSI not to exceed 85 PSI.

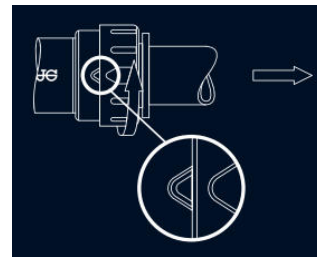
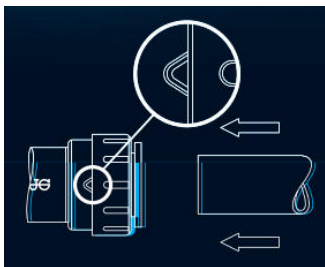
Inlet Solenoid

Feed connector



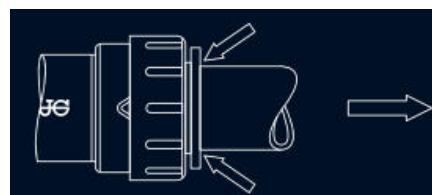
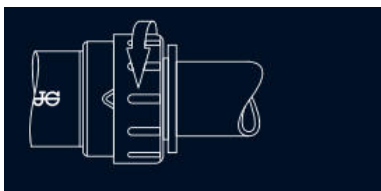
To Connect

- Cut the pipe square, removing all burrs and sharp edges.
- Insert pipe fully into fitting.
- Turn locking cap quarter turn clockwise to locked position; an audible click will be heard; indicator marks will be aligned.



To Disconnect

- Depressurize the system.
- Turn locking cap quarter turn counter-clockwise.
- Depress collet against fitting and remove the pipe.





System rear view

2. Permeate (Product Water) Connection

Locate the 1/2" O.D. push to connect fitting connected to the check valve located on the outlet (top) side of the permeate water flow meter.

The permeate line should be connected to the storage tank by 1/2" O.D. poly tubing or other suitable material.

3. Concentrate (Waste Water) Connection

The 1/2" O.D. push to connect fitting is connected to the outlet of the flowmeter labelled "Concentrate".

Run the drain line in 1/2" O.D. tubing to an open drain, ensuring that the drain is free and unobstructed.

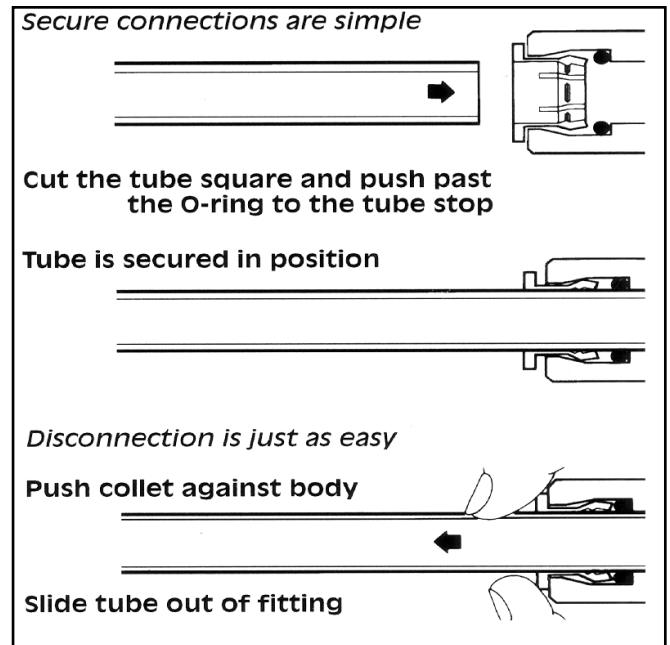
Drain connection to be made in accordance to local plumbing codes.

4. Auto-Flush Drain Connection (Deluxe Models Only)

The 1/2" O.D. push to connect fitting for the auto-flush is on the outlet of the 1/2" flush solenoid.

Run this drain to an open drain via a 1/2" O.D. drain line.

This drain needs to be separate from the 1/2" concentrate drain line.



5. Tank Level Control

All Pro Line Ultra-Series systems are pre-wired for a tank level control (not included).

Tank level control needs to be a normally closed switch (open connection in the tank full position shut the system down).

5' of wiring is included with the system.

NOTE: Tank level control needs to only act as a dry contact.



6. Pretreatment Lockout

Pro Line Ultra-Series systems are also wired for pretreatment lockout, allowing the system to be shut down while critical equipment installed ahead of it is backwashed/regenerated.

5' of system wire is attached to the system controller and can be connected to either a micro switch or relay installed on the pretreatment equipment.

The lockout wire needs to be connected to the terminals on the micro switch or relay that provide an open contact in the service position and a closed contact while in backwash.

NOTE: Pretreatment lockout does NOT need to be installed. If it is not required simply leave the two leads unconnected.

7. Electrical

Pro Line Ultra-Series systems are wired for 110 VAC 60 HZ. A suitable 15 amp dedicated circuit needs to be provided. If required, have a licensed electrician install a suitable power outlet at the install location.

Membrane Loading Instructions

Pro Line Ultra-Series systems are shipped without the membrane installed in the membrane pressure vessels. Membranes are left in their original packaging increasing the time frame the system can sit before installation.

NOTE: Membranes must be loaded correctly. The brine seal on the membrane needs to be on the same side of the membrane housing as the feed water connection. For ease of service, all membrane vessels on Pro Line Ultra-Series are plumbed so that they are fed from the top allowing the membranes to also be loaded from the top.

Please refer to the loading procedure below for initial installation and future replacement of the membranes.

1. End Cap Removal

A) Basic Models with Stainless Membrane Housings (2600-B & 5200-B)

Remove the red locking clip from the push to connect fitting and remove tubing.

Remove the two bolts holding the upper band clamp together.

Gently pull up on the black plastic cap to remove it from the stainless housing.



B) Deluxe Models with Codeline Membrane Housings (2600-D & 5200-D)

Remove the red locking clip from the push to connect fitting and remove tubing.

Using your fore finger in the end of the tab of the retaining ring, lift it up and out of the groove in the shell.

Remove the ring from the groove in the shell by rotating your finger behind the ring as it continues to exit the groove.

Thread a 1/2" threaded pipe nipple into the center port and carefully rock the head assembly to release the seal.

Once the seal is broken, pull straight outward to remove the head assembly from the vessel.



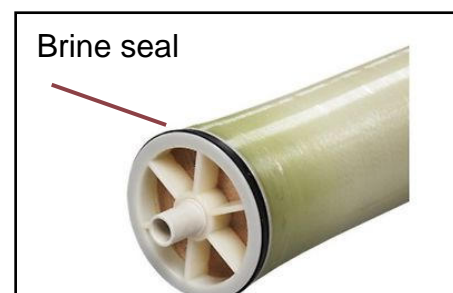
2. Membrane Installation

Carefully remove membrane from the packaging.

Note which end of the membrane that the brine seal is installed on as the membrane will need to be installed so that this is at the top of the vessel.

With a smooth and constant motion, push the membrane into the housing. You will feel some resistance as the membrane product tube seals into the bottom end cap.

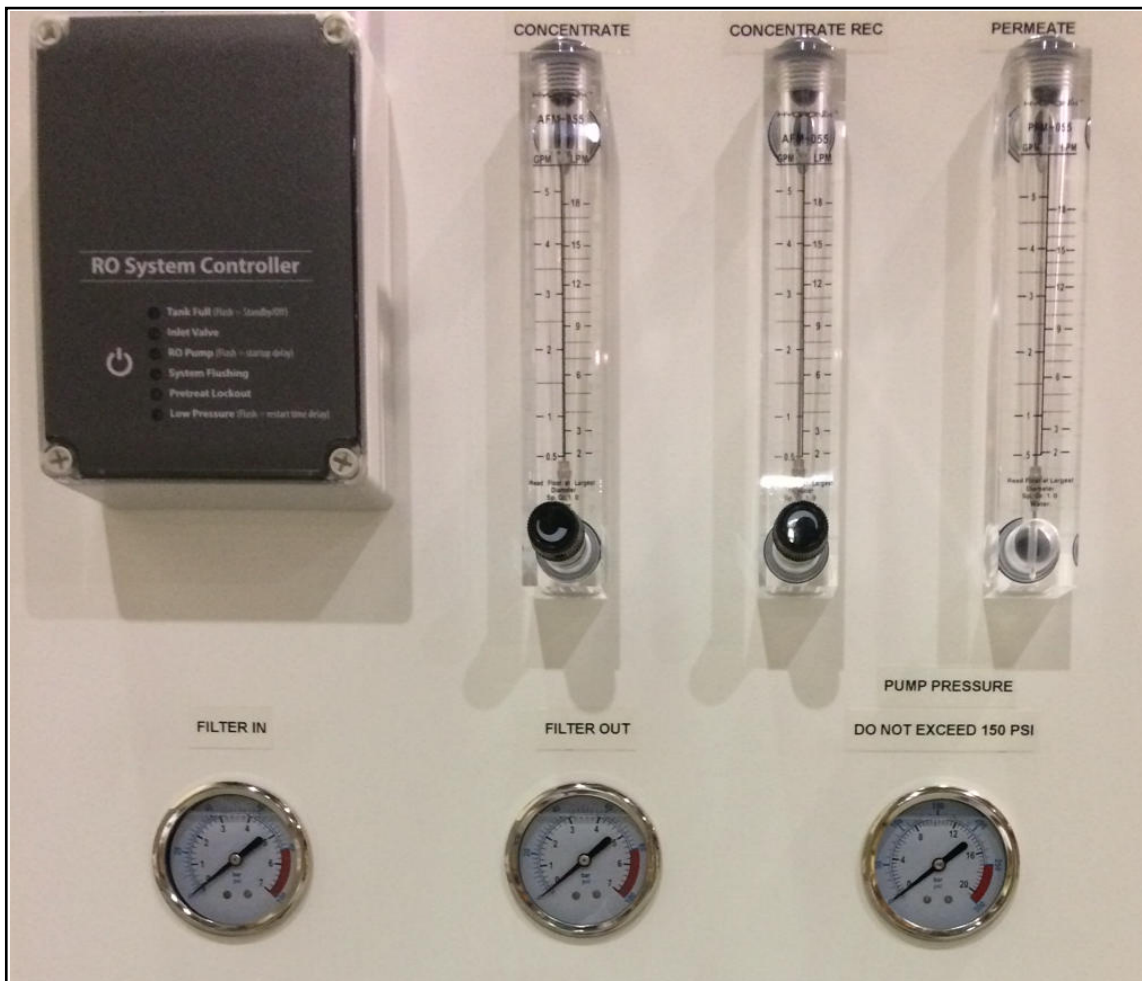
Install the end caps back into the housing and reconnect any fittings that had been disconnected.



NOTE: Should it be necessary to lubricate any of the seals or o-rings, a food grade silicon based product can be used. Never use petroleum based lubricants.

NOTE: Membranes must be flushed for at least 30 minutes prior to being used. During this time all permeate must be discarded.

System Startup



1. Divert permeate water to the drain temporarily.
2. Fully open the concentrate adjustment valve by turning it counter-clockwise.
3. Fully close the concentrate recycle adjustment valve by turning it clockwise.
4. Turn on the feed water supply to the system and connect the power. The TANK FULL light should be flashing green indicating that the system is power on and in STANDBY.
5. Touch a finger to the power button (this is a capacitive switch that only requires contact) to take the unit out of standby.
6. Adjust concentrate and recycle valves to the desired flows and operating pressure.
7. Allow the system to run for 30 minutes and carefully inspect all connections for leaks.
8. After 30 minutes, connect permeate to the storage tank and check the tank float by manually moving it to the high position.

Operation and Maintenance

1. Pre-Filter Pressure Gauges 0 - 100 PSI

The pre-filter in and pre-filter out gauges show the feed water pressure before and after the pre-filter when the system is running. If a pressure differential of 10-15 PSI is present it would indicate that the pre-filter requires changing.

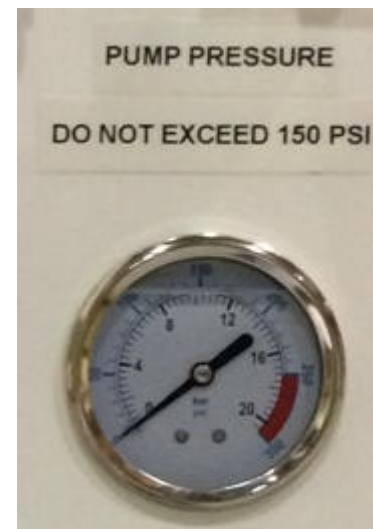


These gauges are installed after the feed water solenoid and should show zero PSI when the system is shut down or in standby.

2. Pump Pressure Gauge 0 - 300 PSI

The pump pressure gauge shows the discharge pressure of the multi stage pump. While the system is operating you can make adjustments to this by opening or closing the concentrate or recycle needle valves.

Changes in feed water pressure and membrane production may affect the pump pressure and require periodic adjustments.



NOTE: Maximum pump pressure for the Pro Line Ultra-Series system is 150 PSI.

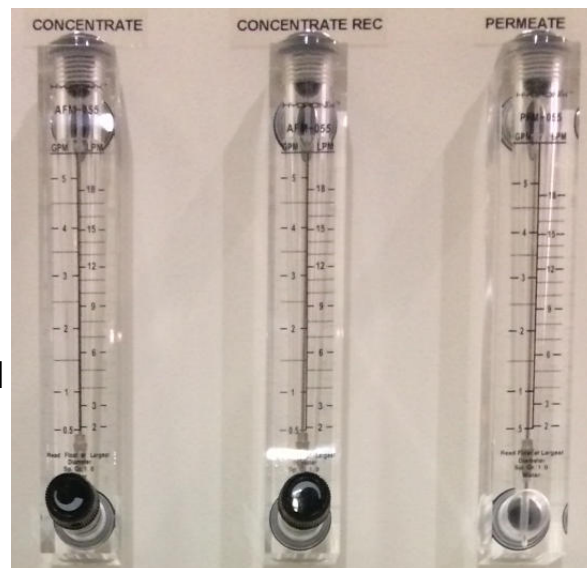
3. System Flow Meters

All Pro Line Ultra-Series models are equipped with three flow meters: Concentrate (waste), Concentrate Recycle and Permeate (product).

The concentrate flow meter includes an adjustable valve allowing the operator to control the flow of water to drain.

The concentrate recycle flow meter also includes an adjustable valve. This allows for a portion of the waste water to be reintroduced in to the raw water feed at the inlet of the multi-stage pump.

The Permeate flow meter shows how much product water is being produced. It is not adjustable but controlled by operating conditions (raw water quality, temperature, and system operating pressure).



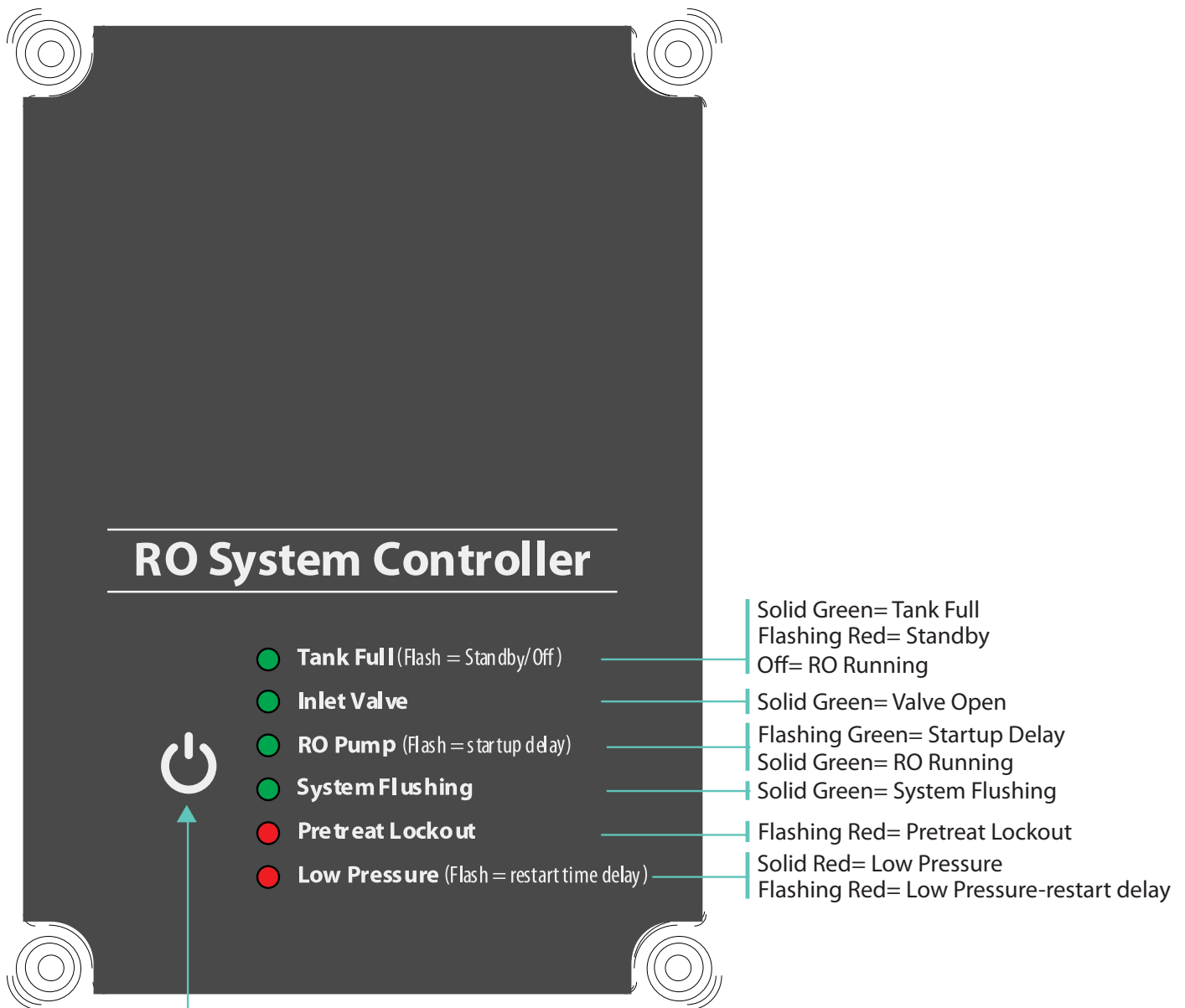
4. RO System Controller

Pro Line Ultra-Series systems include the CHIP system control. This operates all electrical components on the unit including:

- Pump start delay
- Low pressure protection
- Tank level control
- Pretreatment lockout
- Auto flush (on deluxe models)

System status is displayed on the front panel by a series of LED lights.

The capacitive touch button toggles the unit between service and standby mode.

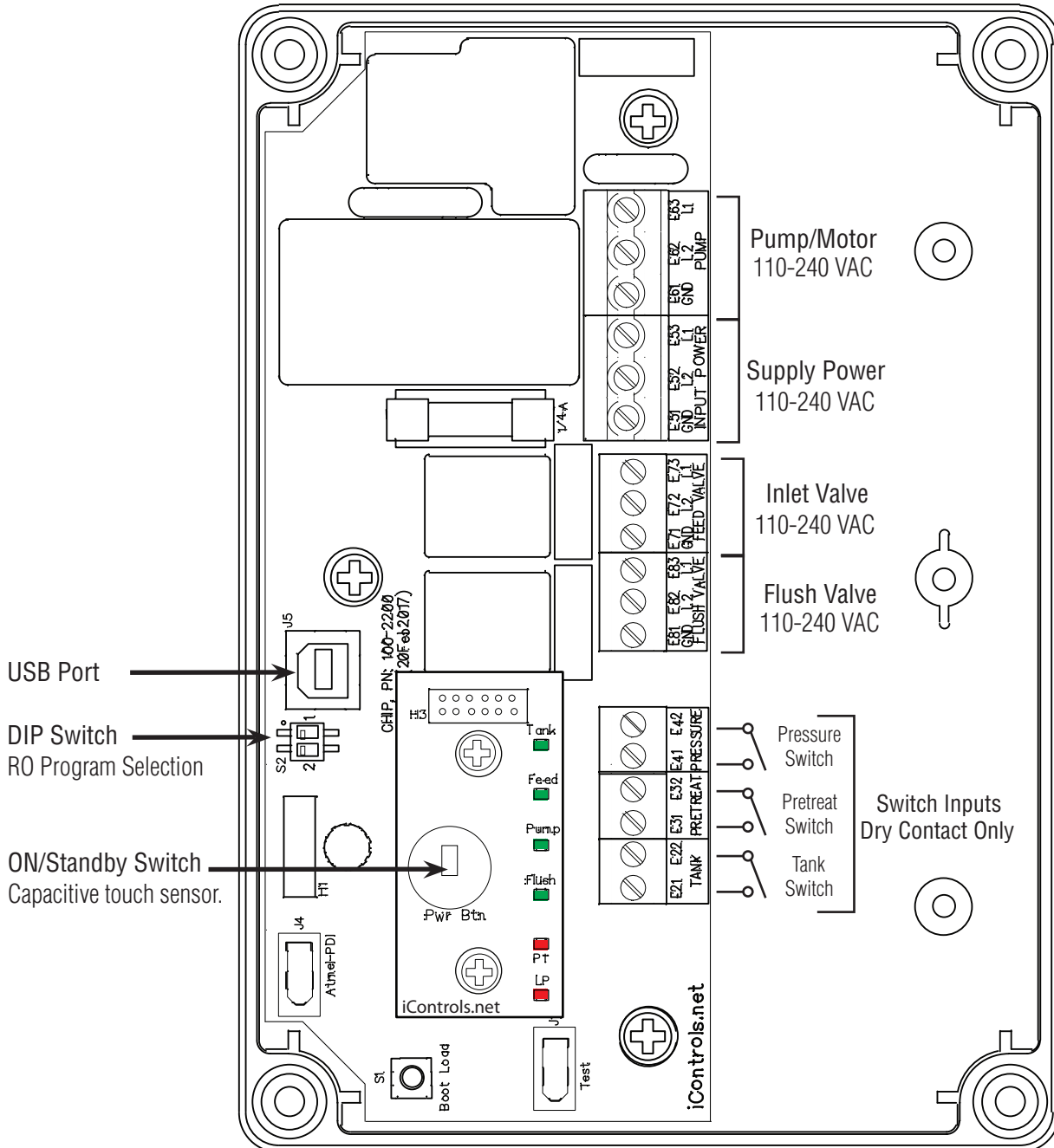


Standby/ON Switch

Capacitive touch switch. Tank Full LED turns Red to confirm button contact. To turn controller OFF/Standby, hold for 1-2 seconds. Momentary contact turns controller On.

5. RO System Controller Electrical Connections

NOTE: The system must be disconnected from the 120v power before opening the control box. It may be necessary to consult a qualified electrician before attempting repair or service.



6. DM-2 Inline TDS Monitor

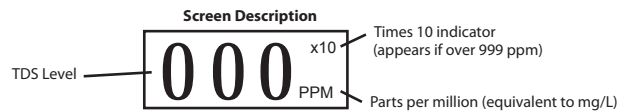
SPECIFICATIONS

TDS Range:	0-9990 ppm
Resolution:	0-999: 1 ppm 1000-9990: 10 ppm (indicated by a blinking 'x10' icon - multiply the reading by10)
Accuracy:	+/-2% (of the reading)
Conversion Factor:	NaCl (avg. of 0.5)
Factory Calibration:	342 ppm NaCl (digital calibration)
Sensor Cable Length:	46" (116.8 cm) (including sensor)
Power Source:	2 x AA batteries
Auto Shut-Off:	After 3 minutes
Battery Life:	Approximately 2 years
Base Unit Dimensions:	4.6 x 2.6 x 0.7 in (11.6 x 6.8 x 1.8 cm)
Base Unit Weight:	7.9 oz (224.3 g) (including batteries)



Usage

1. Press the "POWER" button
2. To display the TDS level of the feed (tap) water, press the IN button. To display the TDS level of the product (filtered) water, press the OUT button.
3. The displayed TDS will be most accurate after approximately 10 seconds.
4. Determining filter effectiveness depends on your particular system. For an RO system, for example, compare the IN water TDS levels with the OUT water TDS.
5. If the "x10" icon appears, then the TDS level is above 999 ppm. Therefore, multiply the reading by 10. For example, if the display shows 143 ppm with the 'x10' icon, the actual TDS level is 1430 ppm. (If the 'x10' icon does not appear, the reading on the display is the actual TDS level.)
6. Turn off the unit. (It will automatically shut off after 3 minutes to conserve battery power).



Changing the Batteries

If the batteries are low, when the unit is turned on, you will see **6AE(bat)** for three seconds.

1. To replace the batteries, unscrew the four metal screws on the rear of the unit and remove the back panel
2. Remove the batteries.
3. Replace both batteries with two fresh AA batteries. Ensure the polarity is correct.
4. Close the back panel and replace the screws. You will not need to recalibrate.

TROUBLESHOOTING

Issue	Potential Solution(s)
Err display (error)	1. The sensor cable is unplugged. Open the back panel and connect the cable securely.
000 display (out of range)	1. The water is out of the monitor's TDS range.
Incorrect readings	1. Re-calibrate the monitor. 2. Change the batteries.
6AE display (low batteries)	1. Change the batteries.
The "OUT" reading is higher than the "IN" reading	1. Check your connections. The sensors may be reversed.

PRO LINE Limited Warranty

Good Water Warehouse warrants its Pro Line Ultra-Series Reverse Osmosis system to be free from defects in materials and workmanship under normal use within the operating parameters listed below. For a period of one year from the date of purchase Good Water Warehouse will repair or replace any part of the Reverse Osmosis System with the exception of the filters, membrane and battery.

Conditions of Warranty

The above warranty shall not apply to any part of the Good Water Warehouse Reverse Osmosis System that is damaged because of neglect, misuse, alteration, accident, misapplication, physical damage, fouling, and/or scaling of the membrane by minerals, bacterial attack, sediment or damage caused by fire, freezing, hot water, or an Act of God.

Good Water Warehouse assumes no warranty liability in connection with this Reverse Osmosis System other than as specified herein. International Water Warehouse shall not be liable for consequential damages of any kind or nature due to the use of Good Water Warehouse products.

Warranty Service

Warranty service will be provided by Good Water Warehouse under the following conditions:

- 1) Contact your local Good Water Warehouse dealer who will obtain return authorization instructions from Good Water Warehouse.
- 2) Ship the unit or part freight prepaid to Good Water Warehouse for warranty evaluation or service. Unit must be returned in the original carton or packaged to prevent possible damage. Systems or parts covered under the warranty shall be repaired (or, at our option replaced) and returned without charge.

Conditions for Operation of TFC - Thin Film Composite Membrane

Used in the Pro Line Ultra-Series

Source Water Supply - TFC		Chemical Parameters - TFC	
Community / Private	Bacteriologically Safe	Hardness (CaCO ₃)	< 1 GPG
System Pressure min/max	45 / 85 psi	Iron (Fe)	< 0.1 mg/L
Temperature	40° / 85° F	Manganese (Mn)	< 0.05 mg/L
pH Range	3.0 to 11.0	Hydrogen Sulfide (H ₂ S)	0.00 mg/L
Maximum supply TDS level	2000 mg/L	Operating Limits	
Turbidity	< 1.0 net turbidity (NTU)	Maximum Pressure	150 PSI