AmeriWater
The Water Purification Specialists

MODEL 00SRO365 thru 00SRO1095
COMMERCIAL REVERSE OSMOSIS
OPERATION & MAINTENANCE MANUAL

Manufactured With Pride
In The USA

www.ameriwater.com • 800-535-5585

AmeriWater • 3345 Stop 8 Rd. • Dayton, OH 45414

98-0150
Rev. B

TABLE OF CONTENTS

SECTION 1, GENERAL INFORMATION

1.1 INTRODUCTION

This system is designed to pre-treat and purify water for use in Industrial type applications. Your system is shipped completely assembled with all required water treatment components. This Operation Manual was written for your SRO model without a storage tank. Your SRO system was thoroughly tested and in excellent condition when it was shipped to you. However, because damage during shipment is possible, please unpack and carefully inspect your system as soon as it is received by you. Please notify AmeriWater if you have any questions, or if any problems are encountered.

Please read the Operations Manual before using the system. Contact AmeriWater Customer Service with any questions at 1-800-535-5585 Monday through Friday 8:00 a.m. to 5:00 p.m. eastern standard time. For after hours emergencies call 1-800-535-5585 and follow the instructions on the recorded message. Our on-call technician will return your call as soon as possible. This entire Operations Manual should be read before operating or servicing the system. This Operations Manual should then be kept near the system and used as a reference and troubleshooting guide.

Life Expectancy of Pre-Filter Cartridge:

The pre-filter cartridge should be changed whenever the pre-filter gauge has a pressure drop greater than 15 psi from the original pressure indicated. Protection from sediment, chlorine, hardness, and pH is recommended to ensure the maximum extended life of the SRO.

Safety Features

Your SRO system is equipped with safety features for the benefit the user, consisting of:

Labeled inlets and outlets are on the membrane assemblies to avoid mix-ups.

Incoming Tap Water, Product Water, and Reject Water (to Drain) connections are labeled to prevent incorrect connections.

A light on the control panel changes from GREEN to RED whenever your water quality drops to an unacceptable level.

1.2 CAUTIONARY SYMBOL

Caution, risk of electrical shock!
Attention, risque de choc électrique!

Open by qualified service personnel only!
Ouverture par le personnel qualifié seulement!

Refer to this Operation and Maintenance Manual for instructions and safety considerations. **Référez-vous au manuel des Opérations et Entretien pour instructions et mesures de sécurité.**

SECTION 2, TECHNICAL INFORMATION

2.1 THEORY OF OPERATION

The process of osmosis can be reversed by placing pressure upon the feed water side (concentrated solution side) of the membrane. Water will be forced through the membrane barrier to yield water that is purer on the lower pressure side of the membrane than on the more concentrated solution side (higher pressure side) of the membrane. The feed water will become more "concentrated," and will be discharged through the reject port known as "reject water" or "concentrate". Liberation of purer water from its solutions is caused by the reversal of the osmotic pressure; (the operation termed as "Reverse Osmosis"). Reverse Osmosis is commonly referred to as "RO".

2.2 SPECIFICATIONS

Minimum, Maximum, and Ideal incoming water temperature	Min = 41° F (5° C) Max = 90° F (33° C) Ideal Temperature = 77° F (25° C)
Incoming water pH range	6.5 – 8.5
Prefilter gauge PSI (when running) Minimum to Maximum	20 PSI to 50 PSI (**P**ounds per **S**quare **I**nch)
Pump pressure – Minimum to Maximum	120 PSI to 200 PSI
Water pressure to point of use	less than 35 PSI
Maximum output of product water @ 77°F (25°C), TDS<1000 ppm of NaCl, & pump pressure of 200 PSI	365 GPD/1381 LPD .25 GPM/.95LPM per 2.5"Ø x 21" membrane
Connections	SRO Feed = 1/2" O.D. Tube SRO Product = 1/2" O.D. Tube SRO Reject to Drain = 1/2" O.D. Tube
Electrical Requirements	115V/60Hz/20A GFI (**G**round **F**ault **I**nterrupter)
Dimensions Installed	18"W x 19" D x 35" H
Shipping Weight Operating Weight	65-75 LBS 80-110 LBS

2.3 SPECIFIC ENVIRONMENTAL/TRANSPORT CONDITIONS ANTICIPATED

ENVIRONMENTAL CONDITIONS ANTICIPATED

This device is intended to be used under the following conditions:

Indoor use;

Altitude up to 2000 m;

Temperature between 5°C and 40°C;

Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C;

MAINS supply voltage fluctuations up to ± 10% of the nominal voltage;

Transient over voltages present on MAINS supply = CATEGORY II;

Applicable RATED POLLUTION degree 2.

TRANSPORT CONDITIONS ANTICIPATED

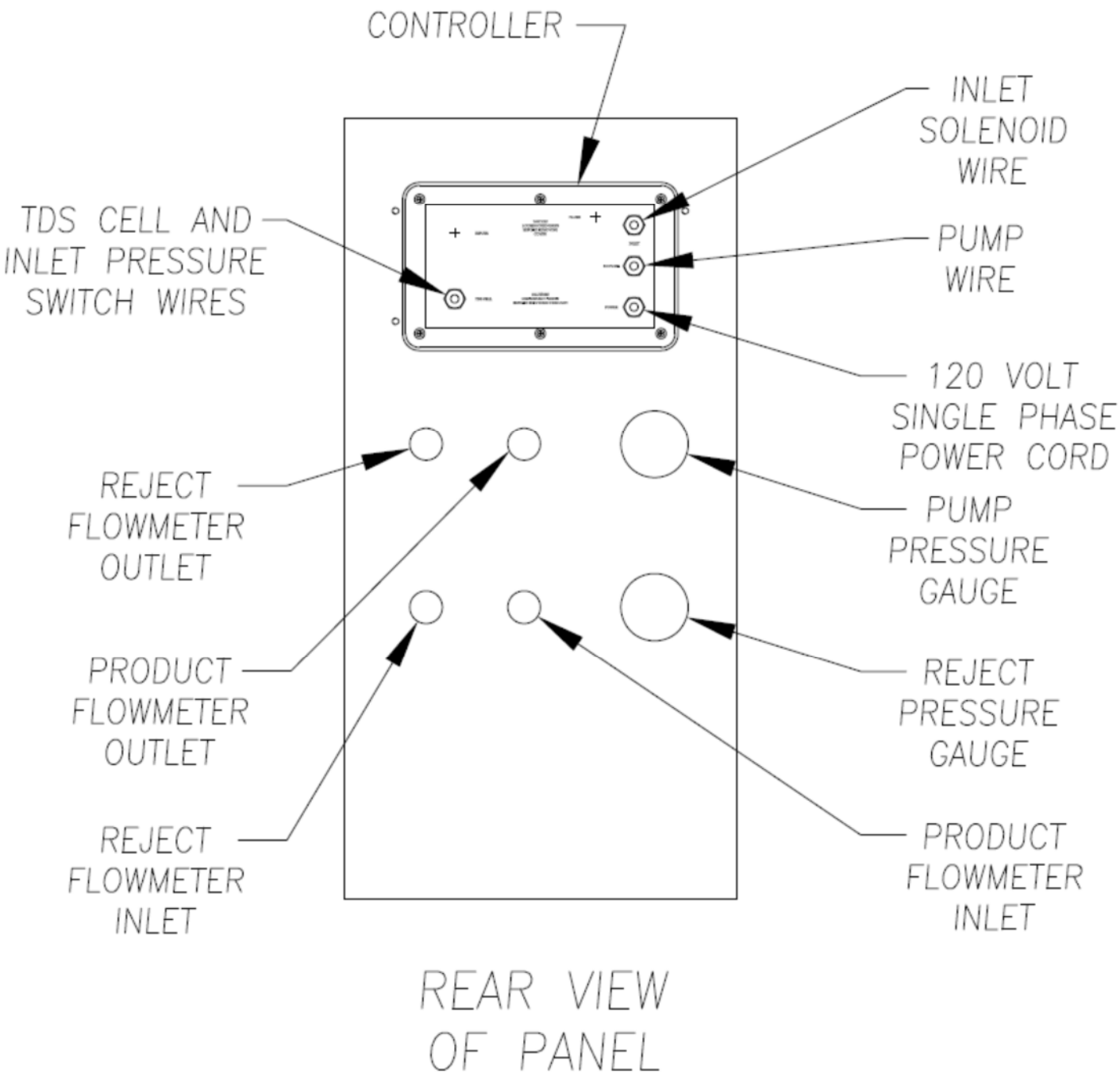
Altitude up to 2000 m;

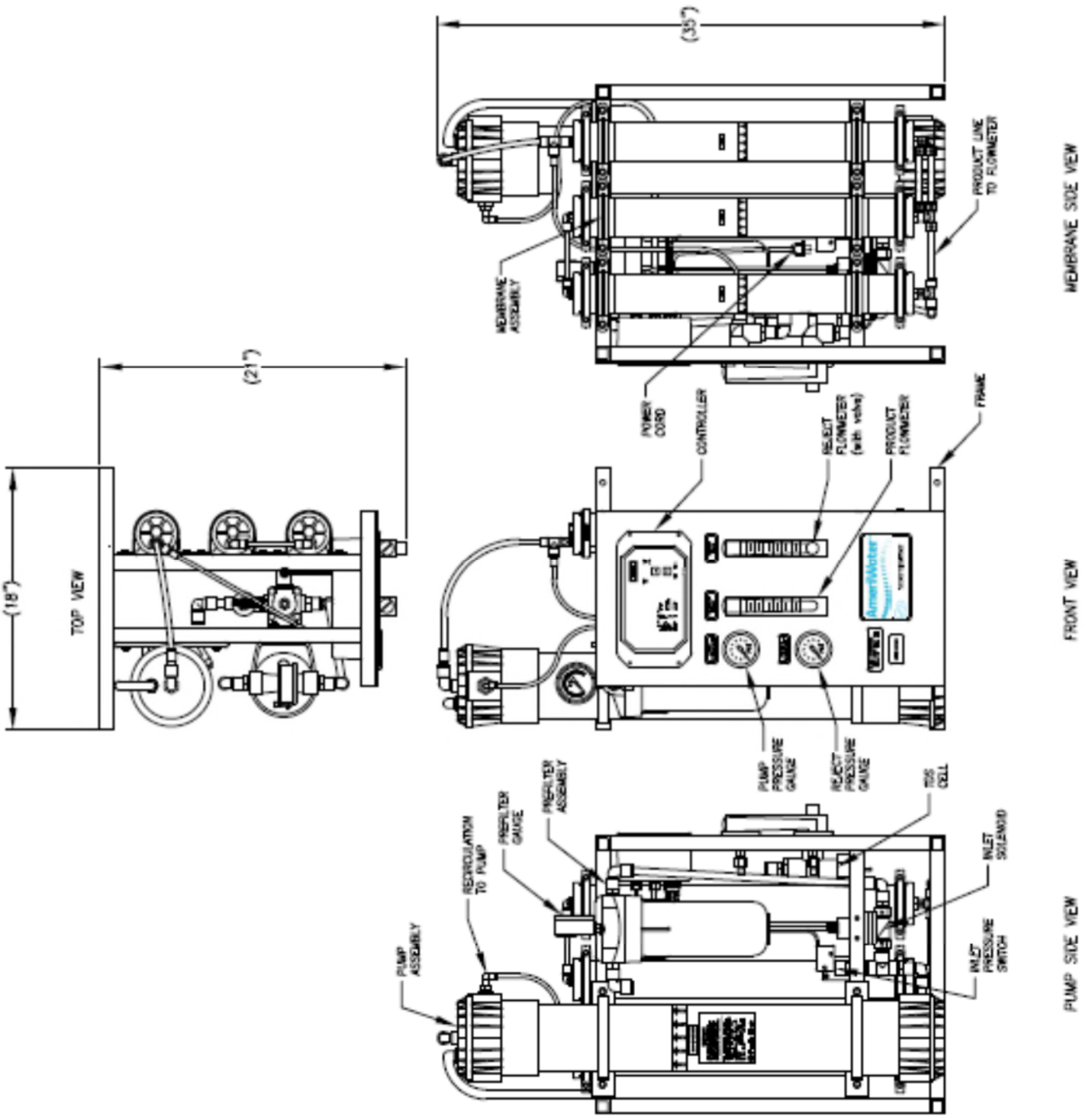
Temperature between 5°C and 40°C;

Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C;

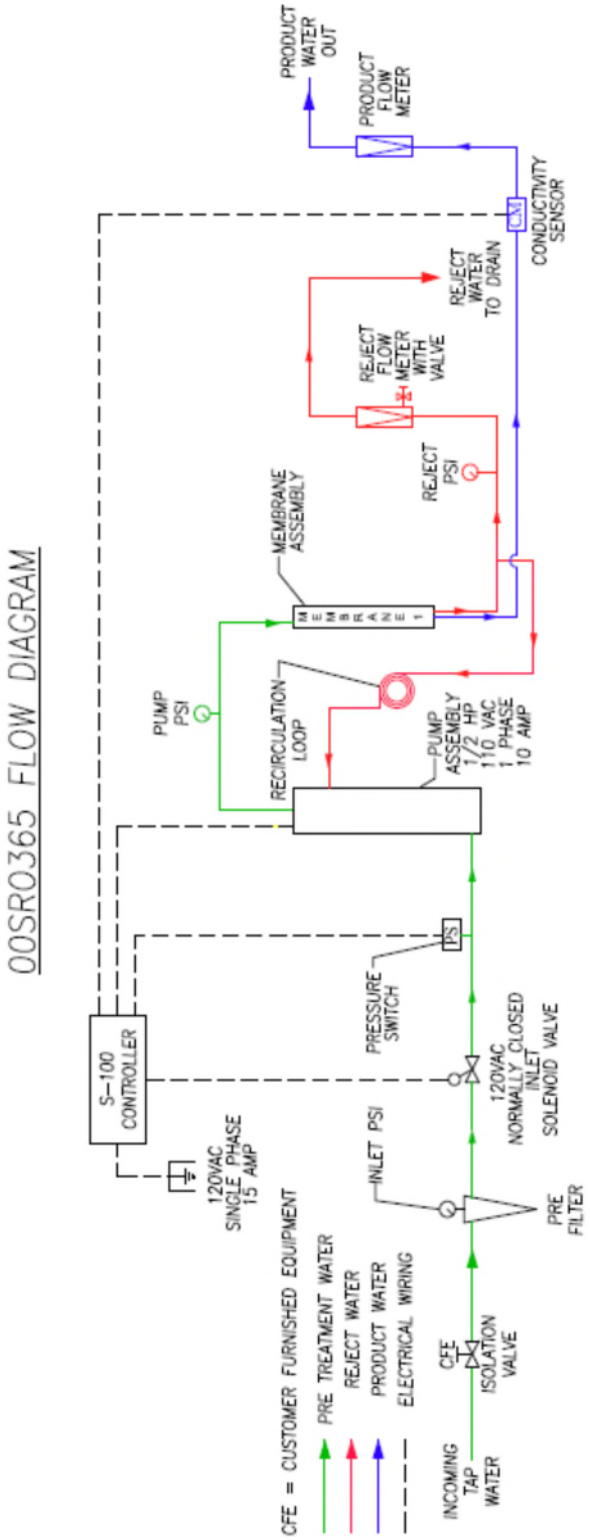
SECTION 3, COMPONENTS AND FLOW SCHEMATICS

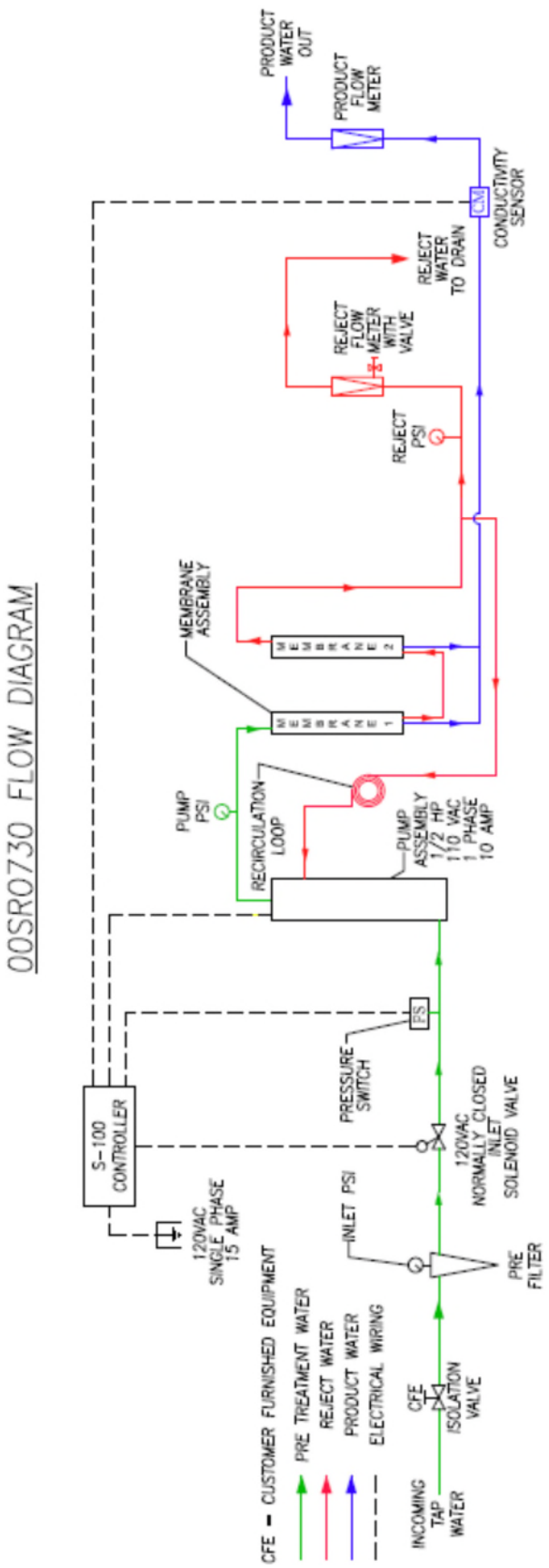
3.1 SRO EXTERNAL VIEWS

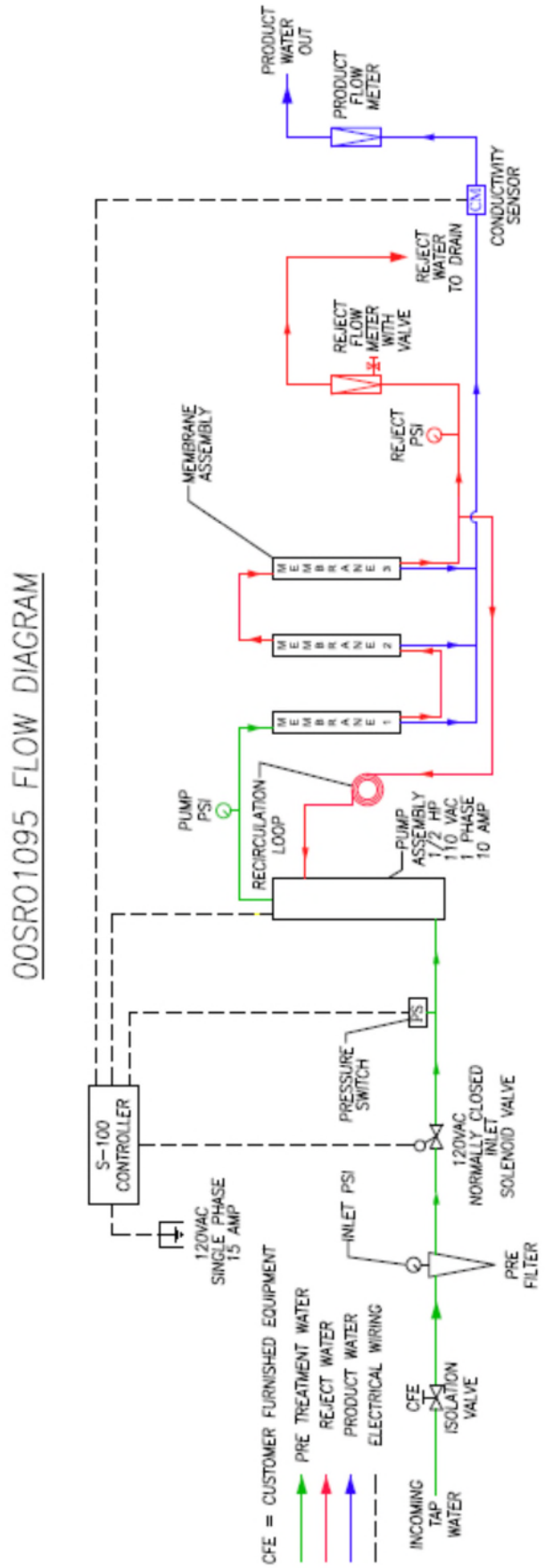



(35")
(21")
(18")
TOP VIEW
MEMBRANE ASSEMBLY
PRODUCT LINE TO FLOWMETER
MEMBRANE SIDE VIEW
POWER CORD
CONTROLLER
REJECT FLOWMETER (with valve)
PRODUCT FLOWMETER
FRAME
PUMP PRESSURE GAUGE
REJECT PRESSURE GAUGE
FRONT VIEW
PUMP ASSEMBLY
RECIRCULATION TO PUMP
PREFILTER GAUGE
PREFILTER ASSEMBLY
TDS CELL
INLET SOLENOID
INLET PRESSURE SWITCH
PUMP SIDE VIEW

3.2 FLUID DIAGRAMS




00SR0730 FLOW DIAGRAM
PRODUCT WATER OUT
PRODUCT FLOW METER
CONDUCTIVITY SENSOR
REJECT WATER TO DRAIN
REJECT FLOW METER WITH VALVE
REJECT PSI
MEMBRANE ASSEMBLY
MEMBRANE 2
MEMBRANE 1
PUMP PSI
RECIRCULATION LOOP
PUMP ASSEMBLY 1/2 HP 110 VAC 1 PHASE 10 AMP
PSS
PRESSURE SWITCH
S-100 CONTROLLER
120VAC NORMALLY CLOSED INLET SOLENOID VALVE
120VAC SINGLE PHASE 15 AMP
INLET PSI
PRE FILTER
CFE
ISOLATION VALVE
INCOMING TAP WATER
CFE = CUSTOMER FURNISHED EQUIPMENT
PRE TREATMENT WATER
REJECT WATER
PRODUCT WATER
ELECTRICAL WIRING


00SR01095 FLOW DIAGRAM
PRODUCT WATER OUT
PRODUCT FLOW METER
CONDUCTIVITY SENSOR
REJECT WATER TO DRAIN
REJECT FLOW METER WITH VALVE
REJECT PSI
MEMBRANE ASSEMBLY
MEMBRANE 3
MEMBRANE 2
MEMBRANE 1
PUMP PSI
RECIRCULATION LOOP
PUMP ASSEMBLY 1/2 HP 110 VAC 1 PHASE 10 AMP
PS
PRESSURE SWITCH
S-100 CONTROLLER
120VAC NORMALLY CLOSED INLET SOLENOID VALVE
120VAC SINGLE PHASE 15 AMP
INLET PSI
PRE FILTER
CFE
ISOLATION VALVE
INCOMING TAP WATER
CFE = CUSTOMER FURNISHED EQUIPMENT
PRE TREATMENT WATER
REJECT WATER
PRODUCT WATER
ELECTRICAL WIRING

SECTION 4, CONTROLLER

4.1 SRO CONTROLLER OPERATIONS

The unit has 2 modes of operation, a standby mode and an operating mode. In the standby mode, the unit is effectively off. All outputs are turned off and the display shows OFF. In the operating mode, the unit operates automatically. All inputs are monitored and the outputs are controlled accordingly. Pressing the Power key will toggle the unit from standby to operate or from operate to standby. If power is removed from the unit, when power is reapplied, the unit will restart in the mode it was in when power was removed.

Display and Status Indicators

Display is a 3 digit display. System operating status, the TDS reading and the TDS setpoint are shown on display. Red/Green LED indicates system status in conjunction with display.

Refer below for the description of the operation of the display and LED.

CONDITION	DISPLAY	STATUS LED
RO OFF	OFF	
RO START DELAY	- - -	
RO OPERATING		STEADY GREEN
TANK FULL	FUL	
TANK FULL RESTART	FUL	SLOW FLASH GREEN
PRETREAT LOCKOUT	PL	
FLUSH	FLS	
PRESSURE FAULT	PF	FLASHING RED
PF AUTO RESET	PF	
PF AUTO RETRY	PF	STEADY RED

4.2 CONTROLLER OPERATION

RO Start Delay

When the controller is placed in the operating mode or restarts from a shut down condition, the inlet valve will open and a 5 second time delay will start. During the delay, - - - will show on the water quality display. After this delay, the RO pump will start. The water quality display will now show the current water quality. The status lamp will show steady green.

Pressure Fault

If the pressure fault input is active for 2 seconds, a pressure fault condition will occur. This will cause the controller to shut down. PF will show on the water quality display and the status lamp will flash red. To clear the pressure fault, press the power key twice.

PF Auto Reset/PF Retry

With J8 in the A position, the power must be cycled using the Power key to clear a pressure fault shut down. A PF auto reset function is enabled by placing J8 in the B position. When a pressure fault occurs with the PF auto reset enabled, the controller will automatically reset after a 60 minute delay and the controller will start. If the pressure fault has cleared, the controller will continue to run. If the pressure fault condition is still active, the controller will again shut down for the pressure fault condition and the auto reset cycle will repeat. During the auto reset delay, the water quality display will show PF and the status lamp will be off.

A PF retry function is enabled by placing J8 in the C position. When a pressure fault occurs with the PF retry enabled, the controller will shut down for 30 seconds and then attempt to restart. If the pressure fault is still active, the controller will shut down for 5 minutes and then attempt to restart. If pressure fault is still active, the controller will shut down for 30 minutes and attempt to restart. If the pressure fault is still active, the controller will lockout for the pressure fault. During the retry delays, the water quality display will show PF and the status lamp will be a steady red. If during one of the retries, the controller is able to start and run continuously for 10 seconds, the retry function is reset. If a pressure fault occurs, the PF retry cycle will repeat from the beginning.

When J8 is in the D position, both the PF auto reset AND the PF retry functions are enabled. If a pressure fault condition occurs, the PF retry function will operate as described above. If the retry function locks out, the PF auto reset function will operate as described above. The PF retry and PF auto reset functions will continue in a 30 second, 5 minute, 30 minute and 60 minute cycle until the pressure fault condition clears.

Tank Full

If tank full input is active for 5 seconds, the controller will shut down for a tank full condition. The water quality display will show FUL. When the tank full condition clears, the unit will restart after the selected restart delay. The delay is selected with J9. With J9 in the A position, the restart delay is 2 seconds. With J9 in the B position, the restart delay is 15

minutes. Position A is normally used with tank level switches that have a large span. During the restart time, the status lamp will flash green.

Pretreat Lockout

If the pretreat lockout input is active for 2 seconds, the controller will shut down for a pretreat lockout condition. The water quality display will show PL. When the pretreat lockout condition clears, the unit will restart.

Membrane Flush

A flush function can be enabled using J11 and J12. When a flush is initiated, the flush valve will operate and the flush will last 5 minutes. The flush can occur when a tank full condition occurs or every 24 hours, depending on the jumper settings. The inlet valve can be open or closed and the RO pump can be on or off, depending on the jumper settings. Refer below for the jumper settings.

J11	J12	FLUSH TYPE	INLET	RO PUMP
A	A	NONE		
A	B	TANK FULL	OPEN	ON
A	C	TANK FULL	CLOSED	ON
B	A	TANK FULL	OPEN	OFF
B	B	TANK FULL	CLOSED	OFF
B	C	24 HOUR	OPEN	ON
C	A	24 HOUR	CLOSED	ON
C	B	24 HOUR	OPEN	OFF
C	C	24 HOUR	CLOSED	OFF

Water Quality Display

The water quality display shows the current water quality when the controller is operating normally and status messages when the controller is shut down. The water quality display is 0 - 999PPM. If the water quality is above 999, the display will show ^ ^ ^. If the water quality is below the setpoint, the water quality lamp will be green. If the water quality is above the setpoint, the water quality lamp will be red.

Water Quality Setpoint

The water quality setpoint can be adjusted from 0-999. If set to 999, the water quality lamp will always remain green. To set the water quality setpoint, press the Setpoint key. The display will alternate between the setpoint and SP. Use a small screwdriver to adjust the SP adjustment to the desired setpoint value. Press the Setpoint key to return the display to the water quality display.

Calibration

To adjust the calibration of the water quality, measure the water with a meter calibrated to a known standard. Using a small screwdriver, adjust the CAL adjustment to get the correct reading on the display.

TANK FULL OVERRIDE

A timed tank full override can be initiated when the RO unit is shut down due to a tank full condition. Pressing the Alarm Silence/Reset key for 3 seconds during a tank full condition will enable the tank full override. The RO will start and TF OVERRIDE 9 will show on the display. The number is the minutes remaining in the override timer. When the override times out, the unit will return to the tank full shut down condition.

PRESSURE FAULT

If the pressure fault input becomes active and stays active for the delay programmed in the PF Delay Setpoint, the unit will shut down for a pressure fault. The display will show PRESS FAULT, the alarm lamp will flash and the audible alarm will sound. The pressure fault can be cleared by pressing the Alarm Silence/Reset key twice.

AUTO RESET

If a pressure fault shut down occurs and the Auto Reset Setpoint is programmed to 0, the unit will remain shut down until manually reset. If the Auto Reset Setpoint is programmed to a value greater than 0, the unit will automatically clear the pressure fault and attempt to restart after this delay times out.

ALARM SILENCE

When a shut down occurs that causes the audible alarm to sound, the alarm can be silenced by pressing the Alarm Silence/Reset key once. The alarm will remain silenced if the Alarm Silence Setpoint is programmed to 0. If the Alarm Silence Setpoint is programmed to a value greater than 0, the alarm will resound after this delay times out. Pressing the Alarm Silence/Reset key will silence the alarm and reset this delay.

PRETREAT

If the pretreat input becomes active and stays active for 2 seconds, the unit will shut down in a pretreat lockout condition. PRETREAT will show on the display and the unit will remain shut down as long as the pretreat input is active.

HIGH TDS

If the TDS reading exceeds the limit programmed the TDS Limit Setpoint for the delay programmed in the TDS Delay Setpoint, the alarm lamp will light and the HI TDS warning message will show on the display. This warning will clear when the TDS drops below the Setpoint.

4.3 CONTROLLER ADJUSTMENTS

TDS CALIBRATION

To calibrate TDS, place cell in a known standard solution. Adjust the span for correct reading. If cell is installed, calibrate by taking a sample of permeate water and testing it with a known, good meter. Adjust the span control until the reading matches the meter.

4.4 FRONT PANEL CONTROLS AND INDICATORS

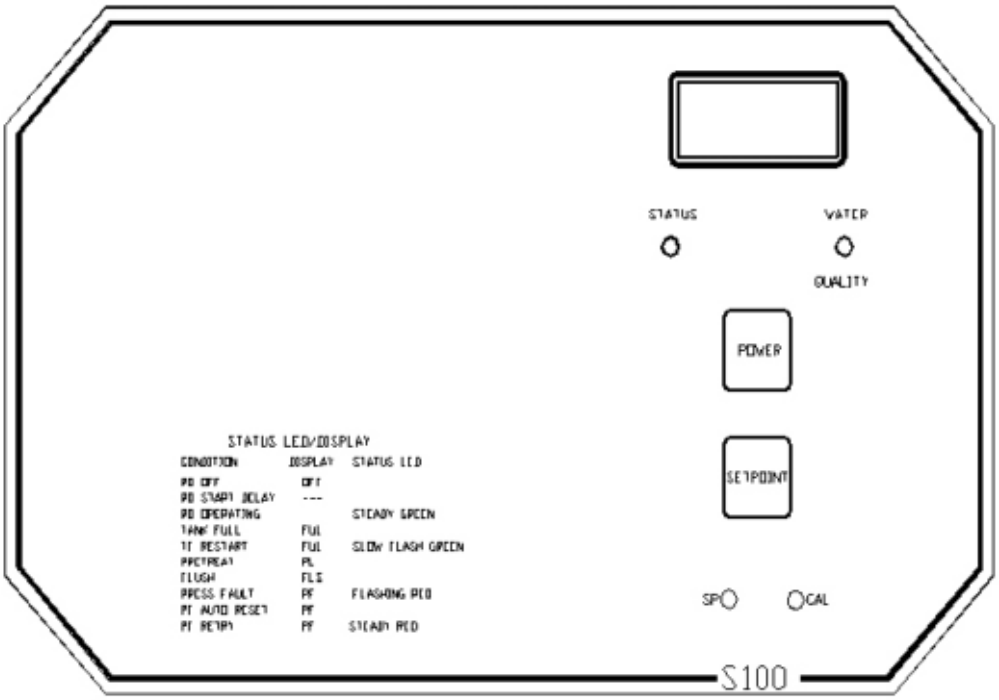


Figure 1

LED DISPLAY	- Shows status of system and water quality.
STATUS LED	- Shows operating status of unit.
WATER QUALITY LED	- Green if OK, Red if above limit.
POWER KEY	- Places controller in operating or standby mode.
SETPOINT KEY	- Places display in mode to display current setpoint
SP	- Setpoint adjustment screw.
CAL	- Calibration adjustment screw.

4.5 CONTROLLER INSTALLATION

Physical Installation

The S100 controller is located on the front of the SRO for ease of adjustment and reading.

Terminal Strip and Jumper Locations

Refer to page 16 for the location of all terminal strips, connectors and jumpers. Page 16 also shows a sample wiring diagram for the controller. NOTE: All terminals on board are labeled.

Power Wiring

CAUTION: Before applying power to the unit, verify that the voltage jumpers are configured correctly for the voltage that will power the unit. The voltage jumpers are located below the transformer. For 120VAC operation, there should be a wire jumper installed between J1 and J3 and a second wire jumper installed between J2 and J4. For 240VAC operation, a single wire jumper should be installed between J3 and J4. AC power for the unit is connected to terminal strip P1. Connect the ground wire of the AC power to P1-1(GND). For AC power with a neutral and hot wire, the hot wire connects to P1-2(L1) and the neutral wire connects to P1-3(L2). For AC power with 2 hot wires, either wire can connect to L1 and L2.

Pump and Valve Relay Outputs

The S100 supplies relay outputs to control the SRO pump and solenoid valves. NOTE: The relays output the same voltage as the AC power to the board. If the pump and solenoids operate on different voltages, a contactor will need to be supplied to operate the pump.

RO Pump Wiring

The RO pump connects to P1-4(L1) and P1-5(L2) RO pump terminals. This output can operate 120/240VAC motors up to 1HP directly. For motors larger than 1HP or for 3 phase motors, this output can be used to operate a contactor.

Inlet and Flush Valve Wiring

The inlet and flush valves must operate at the same voltage as supplied to the board. These outputs can supply 5A maximum and are not designed to operate pump motors directly. If these outputs are to be used to operate a boost or flush pump, the output should be used to operate a contactor. The inlet valve connects to P1-6(L1) and P1-7(L2) inlet terminals. The flush valve connects to P1-8(L1)

SWITCH INPUTS

Switch inputs are connected to P2. The connections for these inputs are not polarity sensitive and can be connected to either terminal. These switch inputs should be dry contact closures only. **CAUTION:** Applying voltage to these dry contact terminals will damage the controller. The switches can be either normally open or normally closed, but all switches must be the

same. If the controller is set for normally open switches, all switches must be open for the unit to run. If the controller is set for normally closed switches, all switches must be closed for the unit to run. **NOTE:** J10 selects normally open or normally closed operation. With J10 in the A position, the unit is configured for normally open switches. When J10 is in the B position, the unit is configured for normally closed switches.

PRESSURE FAULT SWITCH

On systems where a low feed pressure shut down is required, a feed pressure switch can be connected to the pressure fault input of P2. If a high pump pressure shut down is required, a high pressure switch can be connected to this input. If both low feed pressure and high pump pressure shut down are required, both switches can be connected to this input. Both switches must be either normally open or normally closed to operate properly.

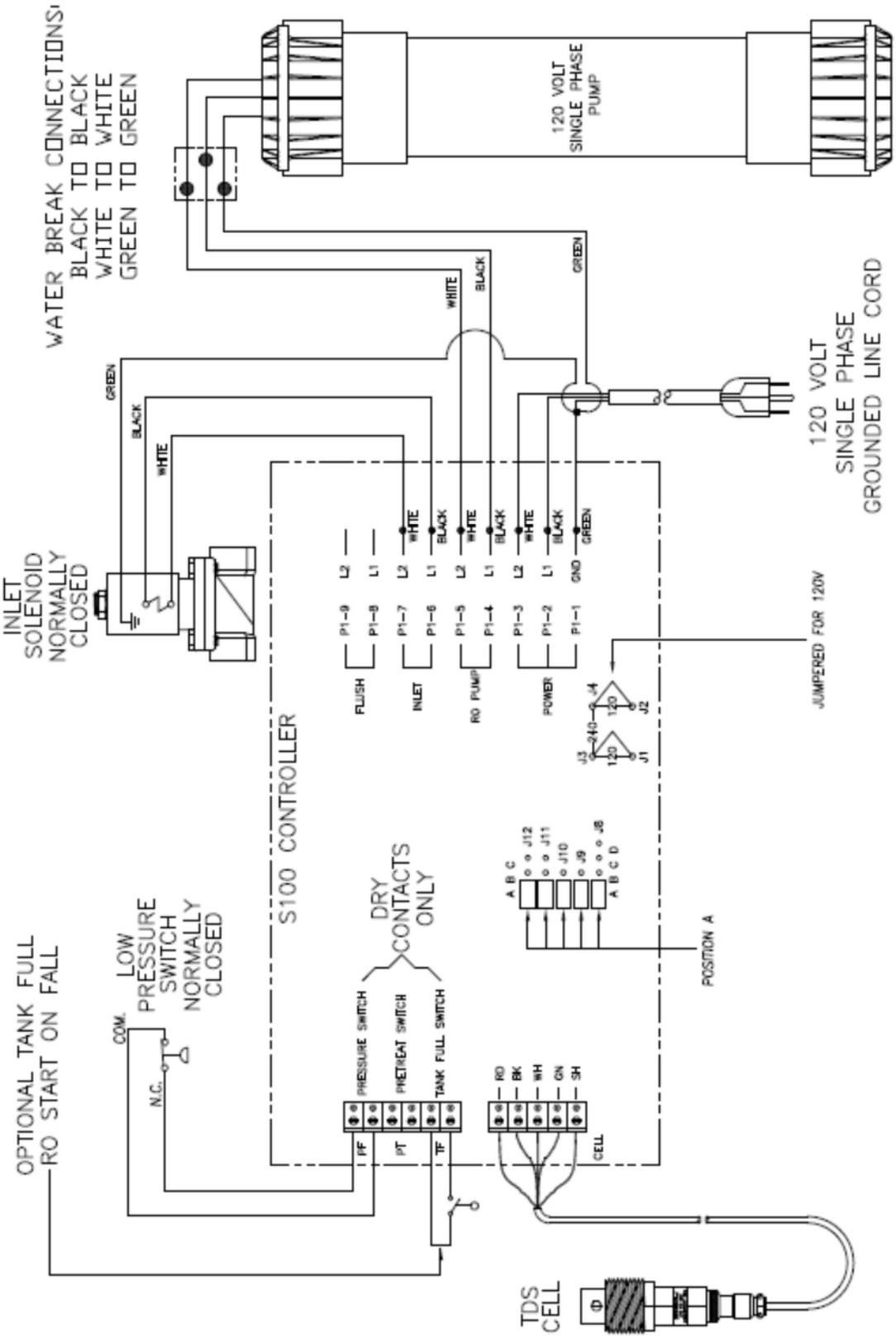
PRETREAT SWITCH

In systems with pretreatment, a pretreat lockout switch can be connected to the pretreat input of P2. This switch should operate when the pretreatment device is out of service. NOTE: The output from the pretreatment device must be a dry contact and must not supply voltage.

TANK FULL SWITCH

Connecting a tank full switch to the tank full input of P2 can cause the unit to shut down for a tank full condition. J9 selects a short or long tank full restart.

4.6 CONTROLLER DIAGRAM



SECTION 5, INSTALLATION

CAUTION: **Local plumbing and electrical codes must be observed.**

5.1 SRO INSTALLATION

1. The electrical source for the S100 controller must be a single phase, 3-conductor receptacle with a ground fault interrupter (GFI) at 120V, 20amp, and 60Hz. The proper polarity and ground integrity must be initially checked and thereafter maintained. Failure to do so may result in electrical shock to the operator. The SRO must only be plugged directly into a GFI receptacle. It must not be plugged into an extension cord or power strip that could cause low amperage.

To avoid electrical shock, always unplug and disconnect the SRO system power source before opening the back of the electrical controller.

2. Mount the SRO (level) on a wall near a drain that can handle the reject water flow. (It is recommended to secure the frame to the wall with anchoring bolts.)

3. Protection from sediment, chlorine, hardness, and pH is recommended for your SRO.

4. Connect the SRO to a feed water supply with an isolation valve. If blending both warm and cold water to improve the product flow rate, DO NOT EXCEED 90° F (33° C).

5. The feed water supply requires a minimum dynamic pressure of 20 psi and maximum of 50 psi (at the pre filter gauge). Feed water supply pipe should be large enough to provide the required feed flow rate for the SRO. Connect the water supply the from your isolation valve to the INLET of the pre filter.

6. Connect the REJECT WATER to an open drain, maintaining a 2” air gap.

7. Connect a product line to the fitting marked PRODUCT WATER.

8. Water with silt density index (SDI) above 5 SDI will foul the membrane.

9. A 5 micron sediment filter cartridge (part number 20-1051) has been factory installed.

10. Always maintain water flow and pressure to avoid damage to the pump.

CAUTION: **To ensure proper assembly, all tubing extensions MUST be fully inserted into fitting bodies, to the tube stops.**

11. Plug the power cord into a dedicated 115-volt, 20-amp GFI receptacle.

SECTION 6, SYSTEM START-UP

1. Open the REJECT FLOWMETER valve at least (2) full turns counter-clockwise.

2. Turn ON the FEED WATER supply and check that the pre filter gauge is 20-50 psi.

3. Plug the 120v power cord into the dedicated 20amp GFI receptacle.

4. Press the POWER button on the S100 controller if the water is not flowing to the drain.

5. Allow the SRO to run the product water to a drain for 10 - 15 minutes. (WATER QUALITY LIGHT WILL BE RED).

6. Press the POWER button to turn OFF the SRO.

7. Connect the PRODUCT WATER to your intended point of use (ex. Storage Tank).

8. Press the POWER button to turn ON the SRO.

9. Adjust the PRODUCT and REJECT FLOWMETERS to an equalized flow rate.

10. Verify pump pressure 120-200 psi.

11. Allow Storage Tank to fill (if used) until float device turns OFF the SRO (displays FUL). If SRO does not operate when tank is low, check that float device is installed correctly.

12. Drain the Storage Tank below the low level start point.

13. Verify the PRODUCT WATER quality at your intended point of use.

14. Refer to the Operation Log in Section 7 MONITORING. Complete the log; making sure that the system is operating within all the required ranges.

WARNING: Do not use the SRO until all specifications are met.

SECTION 7, SYSTEM OPERATION

7.1 OPERATION

Once the system has been started, the SRO will continue to make water until the high-level float switch is tripped on the storage tank. At this point, the SRO will be placed into standby (tank full) until the low-level float switch is tripped. Once the low level float is tripped, the SRO will re-initialize and begin to produce water again. In the event that the conductivity is above the pre-determined set-point, the SRO will automatically divert to drain and an alarm will sound. The storage tank will still operate as normal, however, there will be no water flow from the ROS.

SECTION 8, MONITORING

Fill out the monitoring log prior to each use. Having this information available will help to quickly diagnose issues related to performance. Failure to carry out the daily monitoring and maintenance at the indicated intervals will result in reduced performance of the SRO system and may void the warranty.

SRO-1 LOG (SHOULD BE COMPLETED EVERY TIME THE SYSTEM IS USED)

DATE					
SRO PERFORMANCE					
Temperature (41ºF - 90ºF)					
Product flow (minimum .2 gpm / membrane)					
Pump psi (120 - 200 psi)					
Pre-filter Gauge (Feed) (20 - 60 psi)					
Filter Pressure Drop (maximum 15 psi)					
Good Quality Product Water ≤ 32 ppm (TDS)					
EXCHANGE					
5 Micron Pre-Filter					
Membrane					
INITIALS					

SECTION 9, MAINTENANCE

WARNING: **If any component of the water treatment system is changed or replaced, the user should conduct appropriate tests to ensure that the revised system meets all standards to which it was initially tested.**

1. AmeriWater has provided an Operation Log for the SRO system. The recorded information may be useful in troubleshooting problems encountered with the system.

2. The membrane and carbon cartridge are non-durable components and will need to be exchanged periodically.

9.1 SRO NORMAL MAINTENANCE ITEMS

Preparation

1. Turn OFF the SRO and remove from the power source.

2. Turn OFF the incoming tap water supply.

3. Press the vent button on the Pre filter to relieve the excess pressure on the SRO.

To Exchange the Pre- Filter cartridge:

1. Use the filter wrench to unscrew the filter housing and discard the used filter.

2. Un-wrap the plastic from the new filter and place the new filter in the housing. Discard the plastic after installation.

3. Screw pre-filter housing back on (MAKE SURE O-RING IS IN GROOVE AND NOT PINCHED). Hand-tighten, only.

To Exchange the Membrane:

1. Disconnect the fittings that secure the hoses to the ends of the membrane.

2. Remove the outer portion of the plastic clamp holding the membrane assembly.

3. Lift the membrane assembly from the SRO frame.

4. Remove steel retaining clamp on inlet side membrane cap (ref. flow arrow), to slide old membrane out of the housing, then discard the old membrane.

5. Install the new membrane in the housing with the brine seal at the Inlet end of the housing, replace the cap and refasten the steel retaining clamp.

6. Reconnect the hose fittings at the bottom of the new membrane housing in the same way the system was initially connected. Secure the new membrane assembly into the frame and reconnect the remaining fittings at top of membrane housing.

Rinse Out Cycle

After the exchange is complete, it is important to run the SRO to flush the preservative out of the new membrane(s).

1. Put the PRODUCT WATER hose at a drain.

2. Turn the power to the system ON.

3. Allow water to run through the system for a **minimum of 10 minutes** until the water is clear. This will rinse the preservative out of the new membrane.

CAUTION: The membrane is not rinsed thoroughly until the water is clear!

4. Allow the SRO to run until ppm (TDS) is below the 28 setpoint. Turn the SRO OFF.

5. Reconnect the PRODUCT WATER hose to the Point of Use.

6. Turn the SRO ON. The rinse out is now complete, and the SRO is ready for use.

SECTION 10, TROUBLESHOOTING GUIDE

WARNING: Only those persons who have read the complete operations manual or who have received authorization from the medical facility director should attempt to troubleshoot and/or repair the SRO system.

NOTE: At times it may become necessary to replace parts on your SRO. AmeriWater stocks all parts and components for the system, and can ship the necessary replacement parts to you if you call Customer Service at 1-800-535-5585 between 8:00 a.m. and 5:00 p.m. EST.

To assist you in quickly restoring your system into service, AmeriWater will send your replacement part out immediately and check your bad part when it comes in to verify if it is covered under your equipment warranty.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
IRO will not start	IRO not plugged in	Plug into electrical outlet.
	Circuit breaker blown	Reset the breaker.
	IRO in a FAULT condition	Check IRO controller display for FAULT condition and correct the FAULT.
	Float device	Check/Repair/Replace
System has power but no water flow	Feed source not open	Open Incoming Tap Water valve.
	Feed pressure < 20 PSI	Increase Feed pressure to ≥ 20 PSI.
	Pre-filter clogged	Check pre-filter gauge for pressure drop; replace filter if the pressure drop is 15 PSI or greater.
	Inlet solenoid not operating	Test the solenoid. Replace the valve if it is defective.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Low product flow rate	Low pressure feeding membrane	Verify that the incoming tap water supply is fully open. The pressure on the pre-filter gauges should be ≥ 20 PSI when the SRO is operating.

	Low pump PSI	Pump should be operating at 120 – 200 PSI.
	Reject GPM flow rate too high	Adjust Reject Flow meter valve to reduce pressure .
	Excessive PRODUCT line backpressure	Check for restrictions in the PRODUCT WATER hose.
	Low temperature incoming tap water	Maintain the feed water temperature between 41°F (5°C) and 90°F (33°c).
	Pre-filter clogged	Check pre-filter gauge for pressure drop. Replace if the pressure drop is ≥ 15 PSI.
	Membrane needs replaced	Replace the membrane.
Pressure fault	Low incoming pressure to the system	Verify that the incoming pressure to the system is above the minimum requirements.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
SRO Pump making excessive noise	Low pressure or flow rate feeding the SRO	Check the pre-filter gauge PSI (must be ≥ 20 PSI).
	Inlet solenoid is not operating	Test the solenoid. Replace the valve if it is defective.
	Pump motor or impeller failing	Check PUMP PSI GAUGE to verify that it is within operating parameters. Replace the pump assembly if necessary.

Poor quality product water	High Chlorine levels	Check and /or replace any carbon filtration used before the SRO system.
	Fouled membrane	Exchange all water treatment components.
	Incoming water hardness	Check water hardness.
	Incoming pH (High/Low)	Check pH of water.
	TDS cell bad	Verify the TDS cell accuracy with a known good meter. Follow the calibration procedures or replace cell if necessary.

SRO CONTROLLER TROUBLESHOOTING

Hazardous voltages are present when power is applied to the unit. Care should be taken when troubleshooting any of the input power or output circuits. When disconnecting or connecting any board or accessory, be sure power is unplugged.

Before contacting AmeriWater for technical help, verify the Set point 28 ppm (TDS), check the display and check the status of all lights and indicators. The more information available when you contact us, the easier it will be to determine the source of the problem.

SECTION 11, SPARE PARTS LIST

Part #	Name
20-1051	FILTER CARTRIDGE POLY SPUN, 5 MICRON, 2.5" X 10",DOE
21-0044	FILTER HOUSING,.5 In/Out, WITH PRESSURE RELIEF
R22-2521	MEMBRANE 2.5” X 21”
24-0015	MEMBRANE HOUSING O-RING SET 2.5”
41-0018	FLOW METER,PANEL MOUNT,0.1-1.0 GPM,.5”MPT,NO VALVE
41-0019	FLOW METER,PANEL MOUNT,0.1-1.0 GPM,.5"MPT,VALVED
41-0030	FLOW METER,PANEL MOUNT,0.2-2.0 GPM,.5”MPT,NO VALVE
41-0031	FLOW METER,PANEL MOUNT,0.2-2.0 GPM,.5"MPT,VALVED
43730133	0 – 160 PSI 2.5” BM PRESSURE GAUGE
430001	0 – 300 PSI 2” CBM PRESSURE GAUGE
69932109	WIRE HARNESS FOR SOLENOID VALVES
66932113	LINE,CORD,120V,12/3,HOSP GRADE,STRIPPED ENDS
59-0012	VALVE,SOLENOID,.5FPT,NC,120V,DIN, W/O BRACKET
65-0014	SWITCH,PRESSURE,VACUUM,ADJUST 3-40PSI, 1/4" NPT
69-0023	CONTROLLER, RO, W/CONDCTIVITY SENSOR, 120/240VAC
0180-0141	PUMP ASSEMBLY,SRO, .5HP,115V,10 GPM