



## MANITOBA RENAL PROGRAM

<b>SUBJECT</b> ▪ Fresenius AquaUNO Reverse Osmosis System; use of	<b>SECTION</b>	30.30 Water Treatment
	<b>CODE</b>	30.30.04
<b>AUTHORIZATION</b> ▪ Professional Advisory Committee, Manitoba Renal Program ▪ Nursing Practice Council, St. Boniface Hospital	<b>EFFECTIVE DATE</b>	November 2013
	<b>REVISION DATE</b>	October 2015 April 2018

### PURPOSE:

1. To provide staff and patients with proper use of the portable reverse osmosis (RO) system for dialysis treatments and disinfection.

### POLICY:

1. Nurses, Technologists, Unit Assistants, Nursing Assistants and Patients who have received instruction and have demonstrated competency, may use the AquaUNO RO system.

### EQUIPMENT:

- Fresenius AquaUNO portable R.O. system
- Disinfectant: Aqua-FX®
- Residual Peroxide test strips # 5105
- 60 ml syringe
- 10 ml syringe
- Single Patient Hemodialysis Delivery Systems
- Gloves
- Goggles
- Container/bucket

### KEY POINTS:

**WARNING! Aqua-FX® can cause irritation and damage to eyes, skin and the respiratory system. Always wear protective eyewear and gloves, and ensure adequate ventilation.**

### FRONT PANEL USER INTERFACE:

**DISPLAY:** The display of the AquaUNO has 2 lines with 20 characters each. The top line displays the CURRENT STATUS, and the bottom line displays the MENU of available program modes.

**MENU KEY:** The left button on the AquaUNO is the MENU KEY. Pressing it scrolls through the menu of available program modes in the bottom line of the display.

**CONFIRM KEY:** The right button on the AquaUNO is the CONFIRM KEY. Holding it down for 3 seconds starts the program mode that is currently displayed on the MENU (bottom line of display).

## GLOSSARY:

- R.O. Abbreviation for "Reverse Osmosis". Refers to the reverse osmosis water purification machine. In this case the AquaUNO.
- H.Q.W. Abbreviation for "High Quality Water". Refers to the water that has been purified by the R.O. and is adequate for use by the dialysis machine in the preparation of dialysate.

## PROCEDURE:

### A. Turning on the AquaUNO

1. Once the power plug of the R.O. is plugged in, the following message is displayed:

**STANDBY**  
**Select: ON**

2. Press and hold the **CONFIRM KEY** and hold it down for three seconds. The screen will display:

**SELF-TEST**  
**Please wait**

3. After 2 minutes the screen will display:

**ON:                   xxxS**  
**Select: OFF**

## KEY POINTS:

- Before starting, make sure the water supply hose to the R.O. is connected, and the water supply tap to the R.O. is open.
- Make sure the R.O. drain hose is connected to a drain.
- Make sure the R.O.'s H.Q.W output is connected to the dialysis machine.
- The R.O. will perform various self-tests for approximately 2 minutes.
- The R.O. is now producing High Quality Water (H.Q.W.) for the dialysis machine. The conductivity of the H.Q.W. is displayed in the top right corner of the display.

### B. Turning off the AquaUNO

1. Press the menu key to scroll through menu until the following text appears on the bottom line of display:

**ON**  
**Select: OFF**

2. Press and hold the **CONFIRM KEY** and hold it down for three seconds. The screen will display:

**STANDBY**  
**Select: ON**

- The R.O. is now turned off.

3. Once the R.O. is turned off, the valve that supplies water to the R.O. can be closed.

**PROCEDURE:**

**KEY POINTS:**

**C. Disinfecting the AquaUNO**

**WARNING!** - Aqua-FX® can cause irritation and damage to eyes, skin and the respiratory system. Always wear protective eyewear and gloves, and ensure adequate ventilation.

**WARNING!** - No Dialysis treatments can be performed while disinfecting the AquaUNO!

**WARNING!** - Disconnect the RO HQW output line from the Dialysis machine

**WARNING!** - Disinfectant can be drawn up by the dialysis machine if left connected to the R.O.

1. While in **STANDBY** mode, press the **MENU KEY** until the following text appears on the bottom line of the display:

**STANDBY**  
**Select: Disinfection**

2. Draw 50ml of AquaFX disinfectant into a 60ml syringe and be prepared to inject it into the AquaUNO disinfectant port.
3. Press the **CONFIRM KEY** and hold it down for 10 seconds. The following message will appear on the bottom line of the display:

**DISINF. – Injection!**

4. Remove the cap from the injection port of the AquaUNO and inject 50ml of AquaFX disinfectant into the injection port.
5. Close the injection port with the cap.

- Take note of the expiry date on the bottle of AquaFX. Do not use AquaFX if it has expired.
- By pressing the Confirm Key you are starting the automatic disinfection program.
- The AquaFX must be injected into the AquaUNO Injection port within two minutes of pressing the Confirm Key. (Step 3.)
- The disinfection and rinsing process is now performed automatically and will take approximately 2 hours to complete.
- During the disinfection the AquaUNO will display the following messages:

**DISINF. – Soaking**

**DISINF. – Rinsing Out**

6. After 2 hours the following message is displayed which indicates the end of the disinfection:

**DISINFECTION – END**  
**Select: \_\_\_\_\_**

## PROCEDURE:

7. Once the disinfection is complete, the R.O. drain and H.Q.W. must be checked for residual disinfectant. Press the **MENU KEY** until the following text appears on the display:

**Standby**  
**Select: Man. Rinsing**

8. Press the **CONFIRM KEY** and hold it down for 3 seconds. The screen will display:

**MANUAL RINSING ON**  
**Select: \_\_\_\_\_**

9. Test the H.Q.W. for residual disinfectant:

- a. Open the sample port on the H.Q.W. sample connector, and allow the water to run into a bucket for 1 minute prior to testing.
- b. Test the H.Q.W. for residual disinfectant using a residual peroxide test strip.
- c. Close H.Q.W. sample port.

10. Test the R.O. drain for residual disinfectant:

- a. Using a 10ml syringe, flush the drain sample port by drawing three 10ml samples of drain fluid into the syringe and discarding them.
- b. Draw a 10ml sample of R.O. drain fluid into the syringe, and test it for residual disinfectant using a residual peroxide test strip.

11. Allow the 5 minute manual rinse program to complete. The screen will display:

**MANUAL RINSING - end**  
**Select: \_\_\_\_\_**

12. If the H.Q.W. or drain samples test positive for residual disinfectant, complete another manual rinse program, and retest for residual disinfectant. (See steps 7 to 11)

If a negative disinfectant result has been obtained, reconnect the AquaUNO H.Q.W. connector to the dialysis machine.

## KEY POINTS:

- By pressing the Confirm Key you are starting the 5 minute manual rinse program. Steps 9. And 10. Must be completed within 5 minutes of starting the manual rinse program.
- While the H.Q.W. sample port is open you may experience momentary “**NO WATER**” alarms. These alarms should be disregarded. They will stop after the H.Q.W. sample port is closed.
- Follow the instructions on the test strip bottle for correct testing technique.
- Rinse cannot be interrupted.
- If after performing 3 additional manual rinse programs the AquaUNO still tests positive for residual disinfectant, **DO NOT DIALYZE!** Call the Dialysis Technologist.

**WARNING! – DO NOT DIALYZE until a negative disinfectant result is obtained.**

## PROCEDURE:

13. After the AquaUNO has tested negative for residual disinfectant, Press the **MENU KEY** once to return to **STANDBY** mode.
14. You may now turn the AquaUNO on if desired.

## KEY POINTS:

- See section: **Turning on the AquaUNO.**

## D. Troubleshooting

### Common Faults

“NO WATER” or “FAULT SUPPLY”

“FAULT DRAIN”

“FAULT CDP MAX”

“ERROR CDI-SENSOR”

### Possible Solutions

- Turn water supply to RO on.
- If unable to clear alarm, unplug. Ensure water supply on. Reconnect to power supply and turn machine on.
- Low water pressure, check filters
- Make sure R.O. drain hose is not kinked or obstructed.
- Inform Dialysis Technologist
- Inform Dialysis Technologist

**For all other ERROR / ALARM messages: Call the Dialysis Technologist for assistance.**

## REFERENCES:

Manufacturer’s information, Fresenius Medical Care, Aqua UNO Operating Instructions, Edition: 4/05.12  
Manager, Renal Technology, Manitoba Renal Program