NuPure LAB

Ultrapure and RO with PE Tank

USER MANUAL

This Manual Is Applicable to the Following NuPure-Direct Models

NW0P01000S	NuPure-Direct Water System, Ultrapure 10
NW0P02000S	NuPure-Direct Water System, Ultrapure 20
NW0P21000S	NuPure-Direct Water System, Ultrapure 10 and 2-Pass RO
NW0P010UVS	NuPure-Direct Water System, Ultrapure 10 UV
NW0P020UVS	NuPure-Direct Water System, Ultrapure 20 UV
NW0P210UVS	NuPure-Direct Water System, Ultrapure 10 UV and 2-Pass RO

Table of Contents

1. INTRODUCTION

This manual describes in detail about system performance characteristics, installation, operation, and routine maintenance. Please read this manual thoroughly for its instruction on installation, use and maintenance. Proper installation and maintenance guarantee the continuous flow of high quality pure water.
Please contact us or your local distributor if you encounter any issues during installation and use. Professional engineers are fully trained to support you.

Safety Information

WARNING!

To avoid electrical shock, always:

1) Use with a properly grounded electrical outlet of correct voltage and current handling capacity.
2) Replace fuses with those of the same type and rating.
3) Disconnect from the power supply prior to maintenance and service.
4) Refer servicing to qualified personnel.

Contact Information:

NuWaterUSA
125 Mason Circle, Unit A
Concord, CA 94520

(888) 835-9511

www.nuwaterusa.com

1.1 Product Features

NuPure-Direct lab water system is an integrated system which can produce ultrapure and reverse osmosis (RO) water from tap water directly. Quality of ultrapure water produced meets or exceeds ASTM, CLSI, CAP, and ISO Type I water standards.

This system has the following characteristics:

- Electrical and water compartments are completely separated. making the unit Safer to operate.
- Pre-filtration pack removes large particles, calcium and organic compounds to protect RO membrane to extend their usable life.
- System removes over 99% of large molecules and particles and 95% of ions in water.
- Fully automated control system has pre-rinse, RO membrane fouling prevention flush, RO membrane and cartridge life detection and many other functions.
- System automatically rinses a new RO membrane. User does not need to set special rinse program for new RO membranes.
- Two sets of dual-column purification cartridges work sequentially to ensure thorough removal of trace ions and organics in water.
- Resistivity is measured by a high-precision resistivity meter (conductivity cell constant 0.01cm -1).
- User can set water dispensing time for the ease of water collection.
- A 0.2 um final filter or an ultrafiltration filter (optional) removes any remaining contaminants.
- The PE tank with conical bottom ensures no dead space to prevent bacteria growth.
- A dual wavelength UV lamp (optional) kills bacteria and reduces organics to trace level.
- Built-in printer (optional) can be set to print various quality parameters.

NuWater provides full document support to meet user's GMP, GLP, FDA and other certification requirements.

1.2 Main Applications

Pure water can be used in many areas.
Here are some typical applications.

With Ultrapure Water
Important and critical applications:

HPLC (high performance liquid chromatography) mobile phase preparation.

Preparation of reagent blank solution.

As sample diluents for GC, HPLC, AA, ICP-MS and other analytical techniques.

Preparation of buffer and culture media for mammalian cell culture.

Preparation of molecular biology reagents, etc.

With RO Water
Routine and non-critical applications:

Glassware cleaning.

Washing machine for glassware.

Bath water.

Autoclave.

Feed water for laboratory animals.

1.3 Specifications

Operating Voltage	110 V or 230 V
Power	<150 W
System Dimensions	Width × height x depth (in): 13 × 20 ×19
Tank Dimensions	Diameter × height (in): 16 × 26
Water Production Rate	Ultrapure water 1.2-2.0 L/min.
	RO water: typically 10 (or 20) L/h (at 25°C)
Water Tank Capacity	30 L or 60 L (optional)
RO Rejection Rate	> 95%
Resistivity of Ultrapure Water	18.2 MΩ.cm
TOC * Ultrapure Water	<10ppb, or <5ppb (with a dual wavelength UV lamp)
Particles in Ultrapure Water (>0.2 μm)	<1 /mL
UV lamp (optional)	185/254 nm dual wavelength
Microorganism	<1 cfu/mL
Pyrogen Content	<0.001 EU/mL (with a final ultrafiltration cartridge)

1.4 Operation

NuPure-Direct integrated water systems produce ultrapure water directly from tap water. Most particles, ions and organic compounds are removed through the RO membrane. Water is stored in the water tank. When in need of ultrapure (UP) water, RO water flows through NuPack-D1 for further deionization, through a UV ultraviolet light chamber (optional) to kill bacteria and destroy trace organic pollutants in water, through a polish cartridge to remove the last trace of ions, then a 0.2 um final filter to the outlet.

After powering-up, system goes into operation mode when the "**START**" button is pressed. If RO water produced does not meet the preset quality requirements, RO light on the panel will blink. RO water is discharged to the drain until it meets quality standard, then into storage in the water tank. When **RO** button is pressed, RO water from the water tank flows to the RO outlet. RO water flow stops when the **RO** button is pressed again. If the **UP** button is pressed, water from the water tank flows through the NuPack-D1 cartridge, UV lamp chamber (optional), the NuPack-D2 polishing cartridge to the Ultrapure (UP) outlet, then through a final filter to be dispensed.

1.5 The Control Panel

Main features of the control panel are:

- MCU technology is used to measure water conductivity with automatic temperature compensation to 25°C.
- Backlit 12864 LCD displays RO conductivity, Ultrapure (UP) resistivity, temperature and system operation status.
- System is menu driven, and displays status of auto-run programs.

Technical Specifications

Measurement Range	Channel A (RO): 0 ~ 99.9 µS/cm; Channel B (UP): 0~18.2 MΩ·cm
Temperature Compensation Range Range Of Temperature Compensation Coefficient	Automatic temperature compensation of readings Temperature compensation range: 0 ~ 60 °C to 25 °C A channel: compensation coefficient setting range: 0 ~ 5% / °C B channel: non-linear temperature compensation
Display Conductivity (Or Resistivity) Alarm Output Communication Interface Output	Dot-matrix backlit LCD display Can set output upper limit alarm for conductivity (RO) and lower limit alarm for resistivity (UP) Standard RS-232C serial port. System can be connected to devices with RS-232C interface to export data or print records;
Power Supply	AC230 V ± 10%, frequency (50 ± 0.5) Hz; or AC110 V ± 10%, frequency (60 ± 0.5) Hz
Maximum Working Temp. For Conductivity Meter	60 °C
Build-In Printer (Optional)	Print on demand for water parameters
Uv Lamp	185/254nm dual wavelength (optional)

2. INSTALLATION

2.1 Preparation for Installation

2.1.1 Power Supply:

Power supply must be properly grounded.

2.1.2 Feed Water

Water Type: Municipal water TDS <1000 ppm
Water temperature: 5 - 45°C
Water pressure: 1.0 – 4.0 bar/15 - 60 psi

2.1.3 Tools Needed (Not Included)

Scissors or a box opener to open packages and cut water tubing.
A wrench to install prefiltration kit.

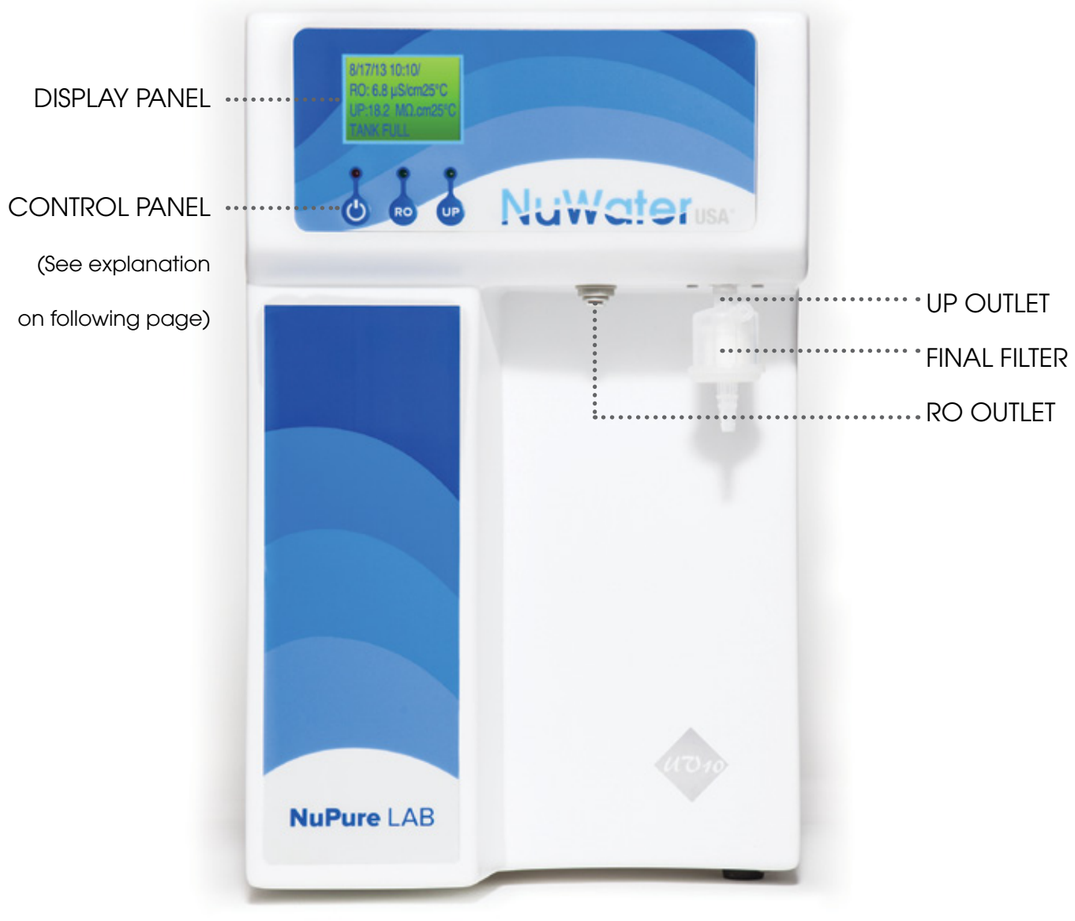
2.2 Items Included

NuPure-Direct comes with the following items in the package. The following items are packed separately. These items need to be installed at initial set-up:

1) Main system, including
   a. One User Manual.
   b. Quality Certificate.
   c. Accessories Pack, including one power cord, one 1/4 inch and one 3/8 inch PE tubing, water tank faucet, transparent tubing with a check valve, a 2-way ball valve for the water tank, one roll of Teflon tape.
2) One NuPack-D1 purification cartridge.
3) One NuPack-D2 ultra purification cartridge with a 0.2 um final filter.
4) One 30-L PE tank with liquid level sensor.
5) One prefiltration kit with 3/8 inch PE tubing and accessories.
6) UV lamp (optional, for UV models) .
7) Ultrafiltration final filter (optional, for pyrogen removal).
8) Tank vent filter (optional).

2.3 System Structure and Flow Diagrams

1. System Front View



2.3 System Structure and Flow Diagrams
Continued

2. System Control Panel

Main Buttons:

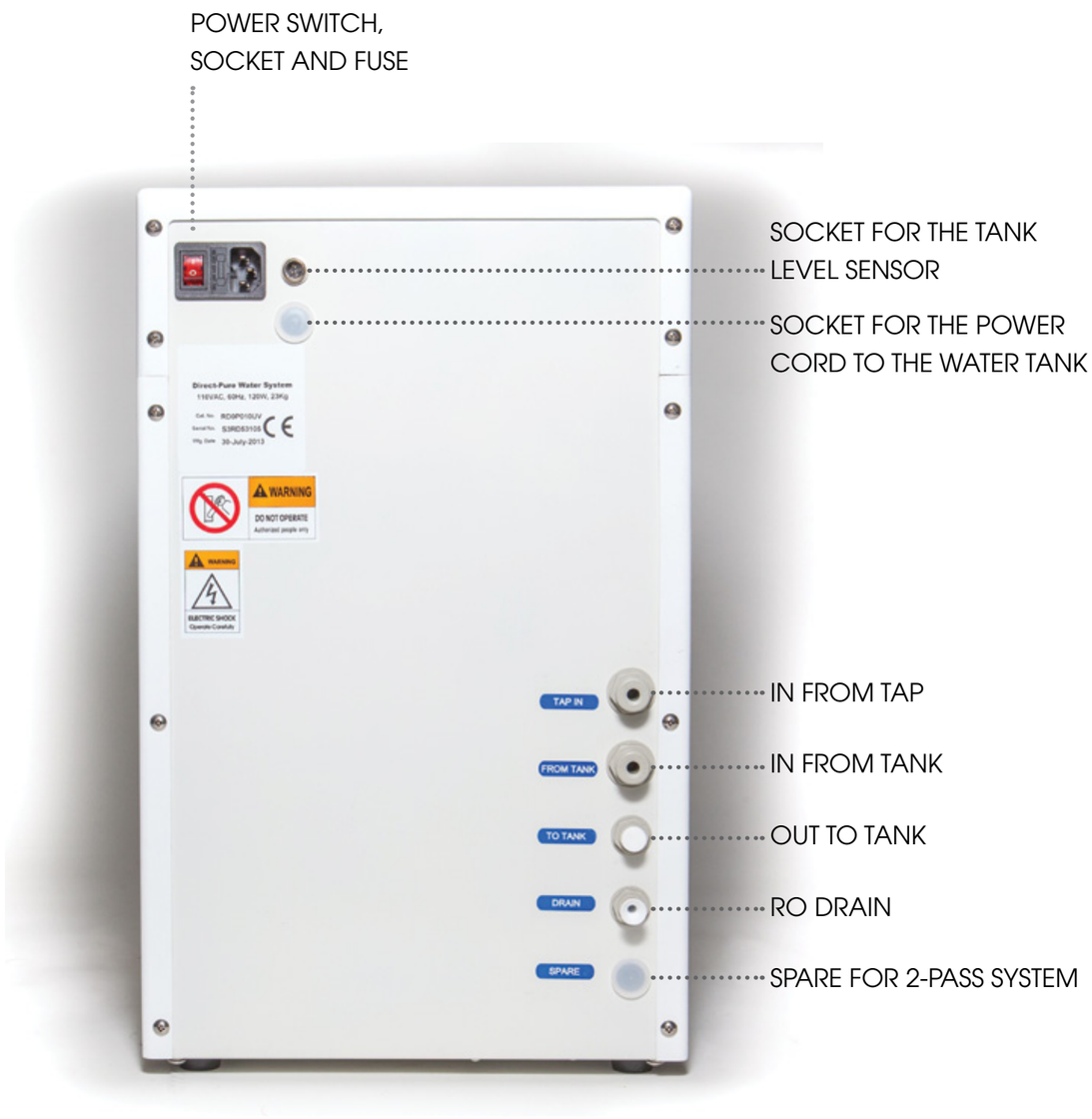
START: Start system. Push once after system power up to start the system. Push again to Standby.
RO: Controls RO water dispensing. Press once to dispense RO water, press again to shut RO valve off.
UP: Controls ultrapure (UP) water dispensing. Press once to dispense UP water, press again to stop dispensing.

Indicator Lights:

Power indicator: Above START Button. Turns RED after power is turned on.
RO indicator: Above RO Button. It turns solid GREEN when dispensing RO water. RO indicator is also used to indicate whether RO water produced meets preset quality parameters. If RO water produced does not meet preset quality requirements, RO indicator BLINKS. RO water produced goes to drain. This automatic operation is behind scene, thus does not interfere with RO dispensing from the water tank if there is water in the tank.
UP indicator: Above UP Button. It turns solid GREEN when dispensing ultrapure water. If Ultrapure (UP) water does not meet quality standards, this light BLINKS.

2.3 System Structure and Flow Diagrams
Continued

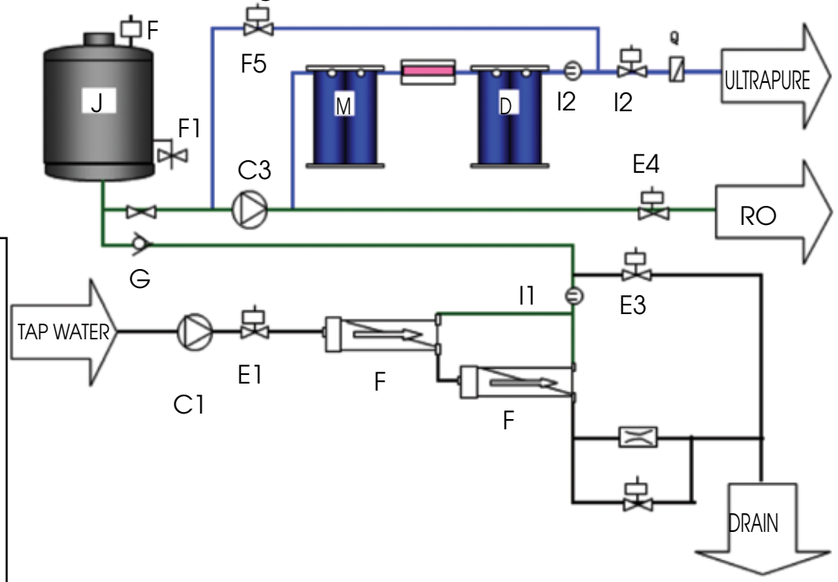
3. System Back Side View



2.3 System Structure and Flow Diagrams

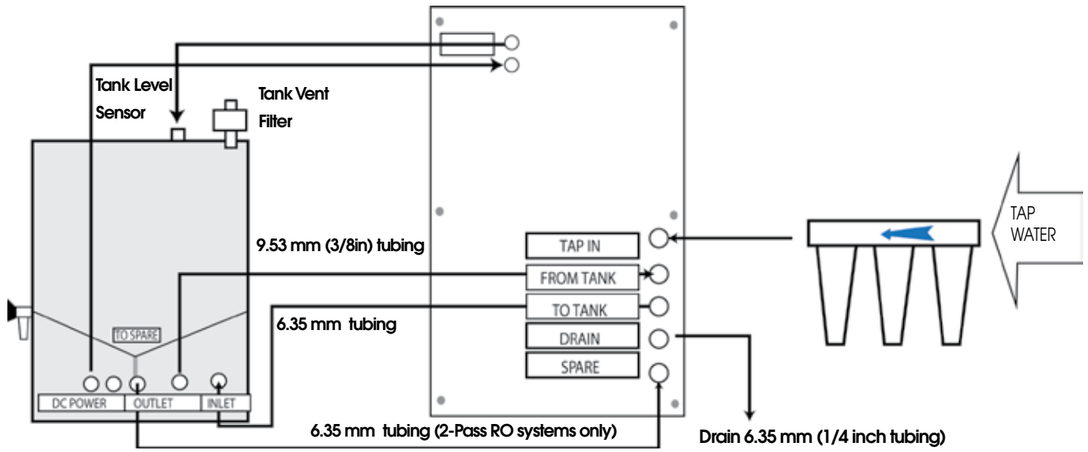
Continued

4. NuPure-Direct Water Flow Diagram



Item	Description
A	Feed Water
C	Pump(s)
E	Solenoid Valves
F	RO Membrane(s)
G	Check Valve
L1	Conductivity Cell
L2	Resistivity Cell
J	Water Storage Tank
K	Valves
M	NuPack-D1 Cartridge
N	185/254 UV Lamp
O	NuPack-D2 Cartridge
P	Tank Vent Filter
Q	Final Filter

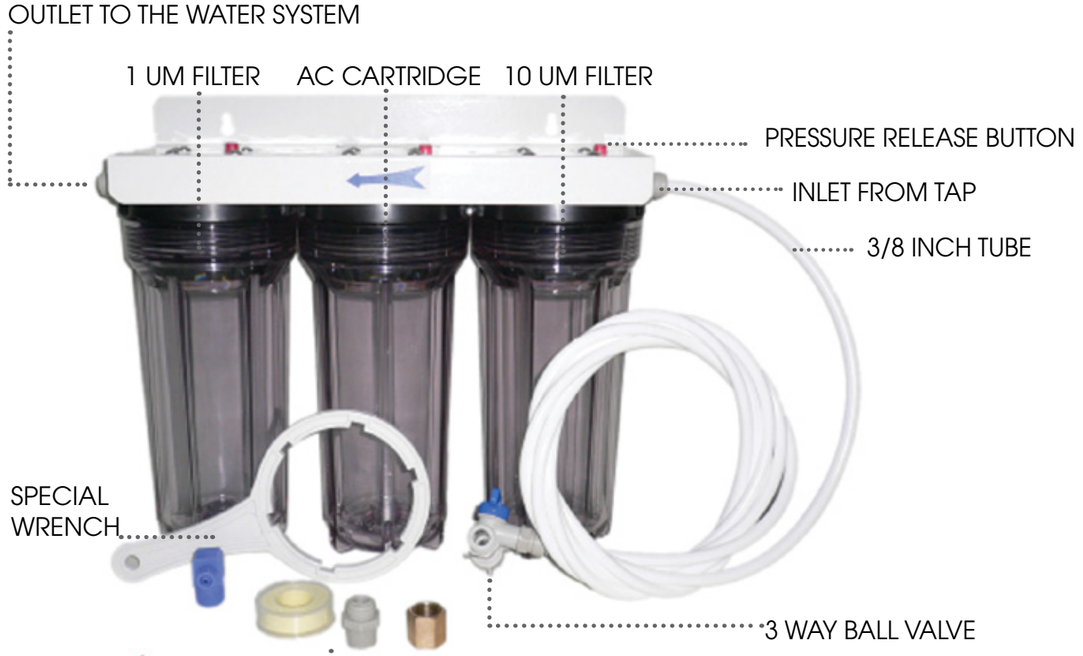
5. External Connection Diagram



PE Tank and base **Main System** **Prefiltration Pack**

2.4 Installation

2.4.1 Installing the Prefiltration Kit



ATTENTION

The Prefiltration pack is directional as indicated by the ARROW ( ). Tap water must connect to the right side of the pack and exit to system from the left side. NEVER reverse the order or the pack won't work.

1) Install the 3-way ball valve to the tap water inlet.
Note: Fitting is based on 1/2 inch diameter. If the tap water outlet is not 1/2 inch, you need an adaptor to convert it to 1/2 inch.

2) Install the filters: a typical set-up is 10µm PP - AC -1µm PP filter.
First, install the 10 µm filter into the upstream housing, the carbon (AC) cartridge in the middle housing, and the 1 µm filter into the downstream housing. Tighten the housing onto the Pack with the special wrench.

3) Cut the included 3/8 inch tubing into two appropriate length tubing for water inlet and outlet connections.

4) Connect one end of the PE tubing from 3-way ball valve on the tap water outlet to the water inlet on the Pack (Refer to Illustration on page 15). Connect the other PE tubing to the water outlet of the Prefiltration pack.

5) Put the outlet tubing into a sink. Turn on tap water and let it run for a few minutes to clean up impurities which might exist in the pack.

6) Block the water outlet with your finger during the process to check whether the assembly leaks.

7) Turn off the tap water. Connect the outlet PE tubing to the inlet of the water system to complete the installation.

2.4.2. Installing the NuPack-D1 and NuPack-D2 Purification Cartridges

ATTENTION

These two cartridges work in sequel order to ensure high quality of water. These two packs must be installed in a proper sequence as indicated in the picture below. Never reverse the positions of these packs.

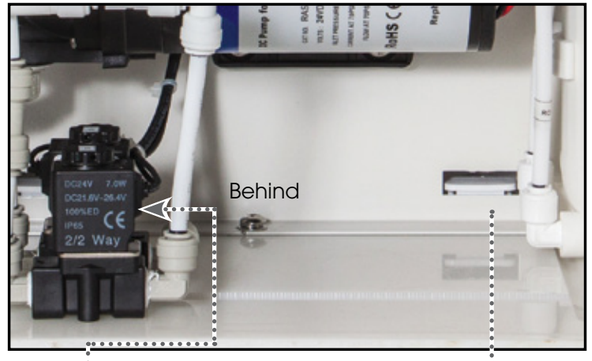
2.4.2. Installing the NuPack-D1 and NuPack-D2 Purification Cartridges

1) Open the right side panel of the system.

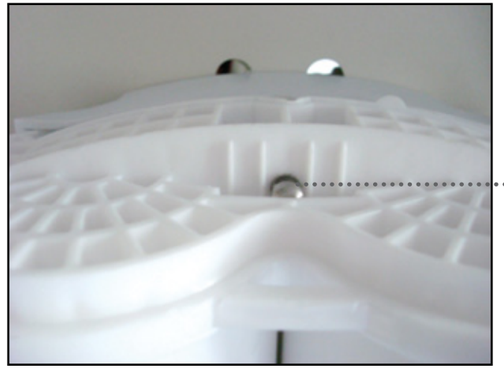
2) Remove blue caps on the new cartridges.

3) Install NuPack-D1 to the LEFT side position, and the NuPack-D2 to the RIGHT side.

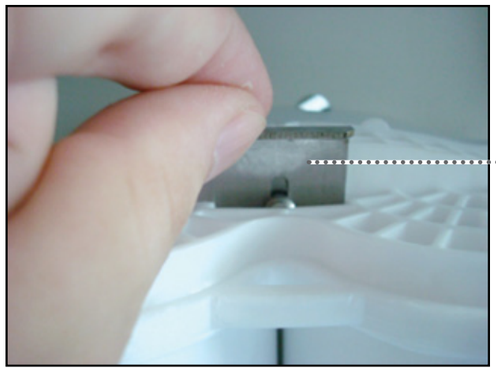
4) Wet the O-rings on the cartridge with pure water, gently insert the lower end first into the opening on the system frame, then down to let the cartridge sit into its slot.



5) Push the upper part of the cartridge through the lock-pin till tight.



6) Lock the cartridge with the lock-key to the notch on the lock-pin.



7) Install the NuPack-D2 cartridge to the RIGHT side of the NuPack-D1 in the same procedure as that for NuPack-D1.

Note: DO NOT install the final capsule filter!

The attached final filter will be installed after system initial start-up and degassing section in the next chapter.

2.4.3. Installing the UV Lamp (For UV Models)

Ultraviolet (UV) radiation is harmful to the eyes and skin. Do not observe the lamp directly when it is illuminated. This system equipped with a lamp cover to prevent UV light leakage. This cover must be on at ALL TIME after a UV lamp is installed.

Keep the UV lamp straight in and out of the stainless steel chamber during its installation to avoid any action that could cause the lamp to break.

1) Remove the top cover from the system.

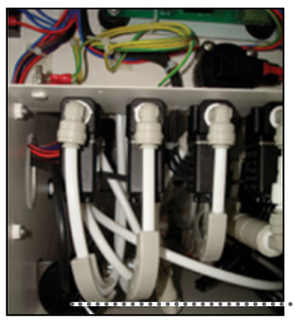
2) Located the UV lamp assembly.

3) Wear gloves included in the UV lamp package. Avoid direct skin contact with the quartz glass of the UV lamp.

4) Carefully insert the new UV lamp into its chamber. When about 2/3 of the lamp is inserted, hold the UV lamp and connect it to the ballast cable connector (4-pin connector) as shown in the picture, then gently insert the UV lamp completely into the chamber.

5) Cap the UV chamber with the black mask (see picture).

6) Install the system top cover only.

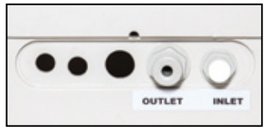


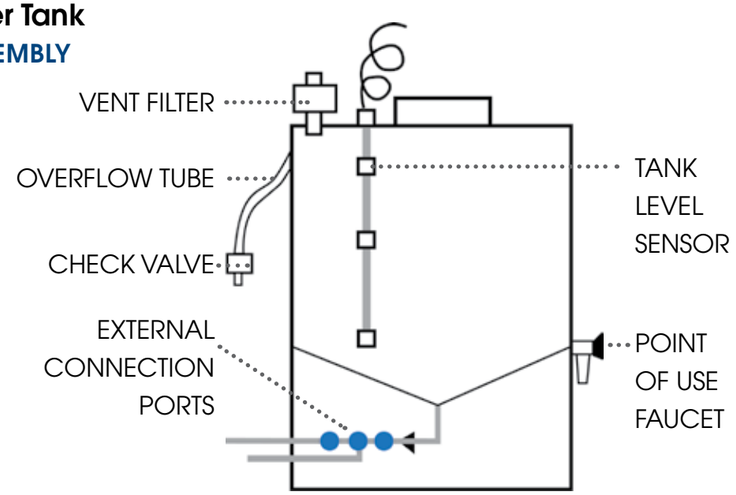
2.4.4 Installing the Water Tank

PE WATER TANK ASSEMBLY

TOP VIEW

BASE BACKSIDE VIEW





1) Remove end caps on all ports
2) Take the 1/4 inch (6.35 mm) tubing from the system accessories bag, cut 2 pieces in proper length for the tank installation.
3) Connect tubing to the **"TO TANK"** on the system and **"INLET"** at the base of the PE tank, and connect the other tubing to the **"FROM TANK"** on the system and **"OUTLET"** at the base of the PE tank.
4) Take the transparent tubing with check valve from the system accessories bag. Cut it to the appropriate length for your use. Connect it to the overflow spout on the PE tank, and put the end with check valve into a sink. Tube length should be just long enough so that the check valve end is hanging in the sink.
5) Screw the tank vent filter to the top of the PE tank (see picture).
6) Plug the wire from the liquid level sensor on the tank to the Sensor inlet at the back of the system. Tighten the cap.
7) Install the faucet:

a) Insert the O-ring into the faucet, make sure it lays flat.
b) Install the faucet to the tank.

For the 2-Pass RO + Ultrapure:

c) Cut another piece of the ¼ inch (6.35 mm) tubing; connect the "**SPARE**" port on the system and the "**TO SPARE**" port on the PE tank base.
d) Unwind the DC power cord in the base of the PE tank, plug it into the DC power port on the back of the system.

2.4.5 Connecting the Tubing to the Drain

Cut appropriate length from the provided 1/4 inch tubing. Then connect it to DRAIN at the back of the system. Put the other end into a sink.

End of System Installation. Proceed to "System Start Up and Operation"

3. SYSTEM START UP AND OPERATION

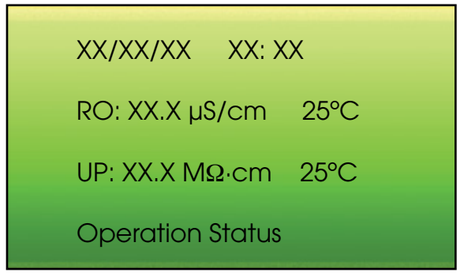
3.1 Check List Prior to System Start Up

Prior to system start up, use the table below to make sure all parts have been installed and connected, and quality of tap water meets minimal requirements.

Check List	Results
Water quality	
Municipal water: TDS <1000 ppm	
Water temperature: 5 - 45 °C	
Pressure: 1.0-4.0 bar/15-60 psi	
If water hardness is greater than 100ppm, NuWater suggest you to use an external water softening device to protect the RO membrane	
Tap Water connected	
Prefiltration Kit Installed and connected to the system	
RO membrane Installed	
NuPack-D1 cartridge installed	
NuPack-D2 cartridge installed	
UV lamp installed	
Water Tank Installed	
Drain tube installed and laid to the sink	

3.2 System Start Up and Time Setting

3.2.1 Panel Display



System display panel shows four rows of information:

First row: Time:

XX / XX / XX XX: XX
In the following order: Year / Month / Day then Hours / minutes

Second row: RO status.

XX.X uS/cm at 25°C
RO Water conductivity compensated to 25°C

Third row: UP status.

XX.X MΩ·cm 25°C
Ultrapure (UP) water resistivity compensated to 25°C
Fourth row: System status.

It displays system operation information and error messages. All messages scroll in sequence.

System status messages:

MESSAGE	MEANING
OPERATE	Normal operation mode. 60-minute interval RO flush, countdown
STANDBY	System at standby
FLUSH	In RO flush mode, 180 seconds countdown
LOW PRESSURE	System feed water pressure is too low to operate
TANK FULL	RO water storage tank is full
TANK EMPTY	Water level inside the PE tank is below the minimum set-point. Water cannot be dispensed through the system.
RO DISPENSE	RO water dispense mode, time displayed is the preset time of dispensing (if set), countdown
UP DISPENSE	Ultrapure water dispense mode, time displayed is the preset time of dispensing (if set), countdown
RO > SET POINT	RO conductivity is above preset level (failure). RO water is discharged to the drain. The green light above the RO button will blink.
EXCH RO PAK	RO membrane has reached its expected useful life. Check RO water quality or exchange membrane
EXCH UP PAK	NuPack-D1 and NuPack-D2 cartridges reached their expected useful life. Check Ultrapure water quality or replace cartridges.

3.2 System Start Up and Time Setting
Continued

This water system has the following alarms. If the system is not working properly, the corresponding warning message will appear at the fourth row on the display panel.

• **Low Water Pressure:** System monitors inlet water pressure at all time. If system water inlet has no water, or water pressure is below 0.5 bar/7.5 psi, system displays "**Low Pressure**", and automatically goes to standby to protect the system.

• **RO failure:** When RO water conductivity is above a preset upper limit, system displays "**RO > Set Point**", and automatically discharge failed RO water to the drain instead of the water tank. The green light above the RO button blinks. It is normal that RO water is above the upper conductivity limit at system start up. It usually lasts a few seconds before the conductivity drops. This message disappears after RO reaches quality standard, and the green light stops blinking.

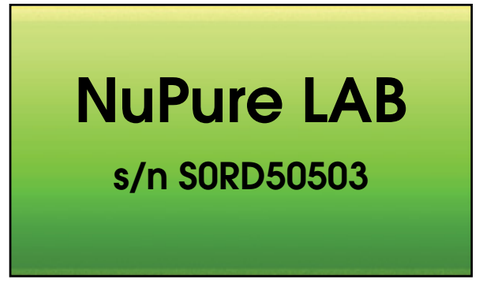
• **UP failure:** When UP water resistivity is below the set limit, UP light blinks. You can continue to dispense water from UP outlet, albeit not at 18.2 MΩ·cm.

• **Cartridge Life Reminder:** System has preset cartridge usage timers (countdown) for both RO and purification cartridges. System reminds you to replace cartridges when these cartridges are about to run out or have been exhausted.

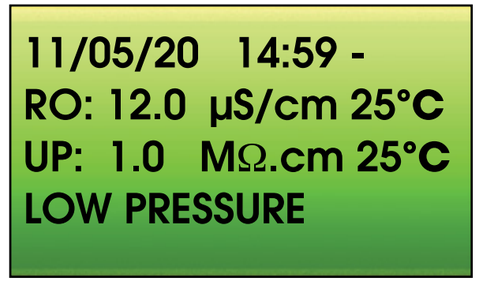
3.2.2 System Start Up

3.2.2.1 Plug in the Power Cord, Turn on Power

After turning on the power, system displays system type and serial number (S / N) for 5 seconds. At this point, system runs self-testing programs in the background.



System automatically checks water pressure, determines the water supply situation. If no water supplied, or inlet pressure is too low, monitor displays "**Low Pressure**" as shown below, and system goes to standby.



3.2.2.2 Start Up the System

When START button is pressed, system enters operational mode after an automatic flush of the RO membrane for 180 seconds. System automatically detects the quality of the RO water, discharges it to the drain if not meeting quality parameters, or sends it to the water tank if it passes quality parameters. At system initial start-up, or after installing a new RO membrane, allow system to run at least one hour to clean up the RO membrane.

A. After the initial installation of a new system, it may take 2 hours or longer before you can dispense water as system is conducting initial RO rinsing and filling the water tank.
B. System automatically runs a rinsing process for a newly installed RO membrane to clean up its preservative solution. You may not be able to dispense water during rinsing. RO light blinks, indicating water quality has not reached preset quality standards. Once the new RO membrane is thoroughly rinsed, water production will return to normal.
C. System goes to standby automatically once the water tank is full. System displays "**Tank Full**". When water is being dispensed, system will automatically restart production of water.
D. If an excessive amount of water is dispensed, water level inside the PE tank may fall below the minimum set-point. Water dispensing is stopped automatically. System will display "**Tank Empty**" on the display panel. Once water tank is refilled sufficiently, water can be dispensed again.

3.2.3 System Degassing

1. Press the **UP** button to dispense UP water for 3-5 minutes.
   System displays resistivity of the UP water. At initial start-up, UP light may blink for a few seconds, indicating UP water not to preset standards. Continue to dispense Ultrapure water until the light stops blinking and no air bubbles come out the Ultrapure spout.
2. Check system leakage. Should there be a leak, reconnect tubing or parts.
3. Reinstall the system cover and tighten screws.
4. Press the **UP** button again to stop dispensing.
5. Install system side panels if no visible leakage from connections inside the system.

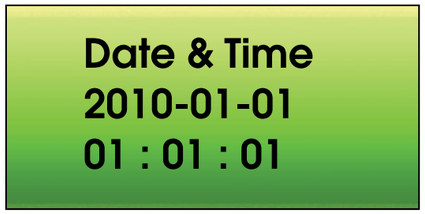
3.2.4 Installing the Final Filter

1. Open the attached 0.2 um final filter package.
2. Screw the final filter onto the Ultrapure outlet till finger tight (no leaking at dispensing). Do not over tighten it as it may damage threads.
3. Press the Ultrapure **UP** button to flush out gas in the filter.
4. Press the Ultrapure **UP** button again to stop dispensing.

If a final ultrafiltration filter for pyrogen removal is needed, please install the device the same way as the final filter.

3.2.5 Setting Up System Time

System default time is preset. If you need to change system time, please follow the procedure below.



1. Press down "**START**" and "**UP**" buttons simultaneously to display system time. Format is Year-Month-Date , and Hour:Minute:Second.
2. Press "**RO**" button to enter editing mode.
3. Press "**RO**" key to move the cursor position, the corresponding number will blink. Press "**UP**" button to increase, and press the "**RO**" and "**UP**" buttons simultaneous to decrease values.
4. After editing, press "**START**" button twice to exit the editing mode.

3.3 Routine Operation

1. Turn on the power switch.

2. When the screen displays "**Press Start",** press the "**Start**" button Booster pump starts to run to fill the RO tank. Once it is full, system will go to standby mode and panel displays "**Tank Full**". System will automatically restart once water is being dispensed.

3. Dispensing Water.

1) RO Water: Press the **RO** button. Press once to dispense RO water, press again to shut RO valve off.

2) UP Water: Press the **UP** button. Press once to dispense UP water, press again to stop dispensing.

4. MAINTENANCE

4.1 Replacing the Prefilters

Prefiltration filters are used to protect RO membrane. Its life depends on the amount of water used and tap water quality. These filters typically need to be replaced every 2-4 weeks or when indicated.

1) Shut the tap water off.

2) Use the provided special wrench to remove the filter housing, remove the depleted filters.

3) Install new filters in: the 10µm filter in the upstream housing, the 1µm filter in the downstream housing.

4) Mount the filter housing back onto the pack head.

5) Use the special wrench to tighten the filter housing.

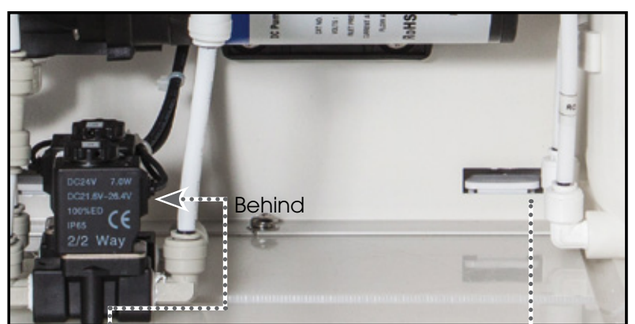
6) Turn on the tap water feed, check for water leakage.

4.2 Replacing the NuPure LAB NuPack-D1, NuPack-D2 Cartridges and the Final Filter

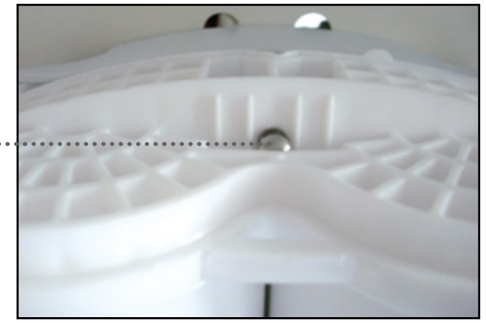
ATTENTION

These two cartridges work in sequel to ensure high quality of water. These two packs must be installed in a proper sequence as indicated in the picture below. **Never reverse the positions of these packs.**

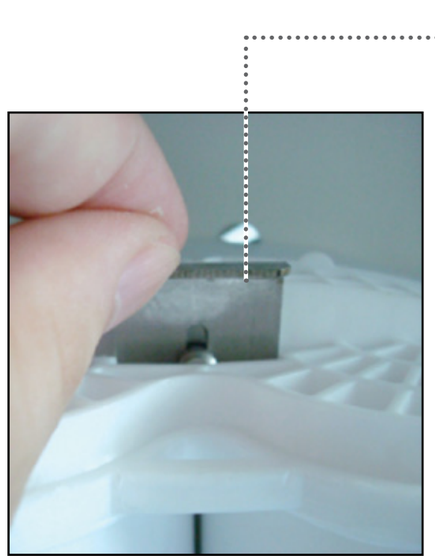
1) Press the "**Start**" button to put system into standby. Power off the system.
2) Remove the system right side panel.
3) Remove the used cartridges by lifting up the lock key, then pull the cartridges out.
4) Remove blue caps on the new cartridges.
5) Install NuPack-D1 to the LEFT side position, and the NuPack-D2 to the RIGHT side.
6) Wet the O-rings on the cartridge with pure water, gently insert the lower end first into the opening on the system frame, then down to let the cartridge sit into its slot.



7) Push the upper part of the cartridge through the lock-pin till tight



8) Lock the cartridge with the lock-key to the notch on the lock-pin



9) Install the NuPack-D2 cartridge to the RIGHT side of the NuPack-D1 in the same procedure as that for NuPack-D1.

10) **Check system leakage**
a) Screw off the used final filter from the UP port.
b) Power up the system, then press "**Start**".
c) Check system leakage. If there is a leak, reconnect the cartridge.
d) Press the "**Start**" button to put system into Standby.
e) Install the system side panel.

11) Press **UP** button to degas the system. UP light will blinks. Continue to dispense UP water for **3-5 minutes** until the UP light stops blinking and no bubbles coming out of the spout.

12) Press **UP** button again to stop dispensing.

13) Screw a new final filter to the UP terminal till figure tight. Do not over tighten.

14) Press **UP** button to flush out gas in the filter.

15) Press **UP** button again to complete the installation. Procedures to replace an ultrafiltration filter are the same as that of the 0.2 um final filter.

4.3 Replacing the UV Lamp (For UV Models)

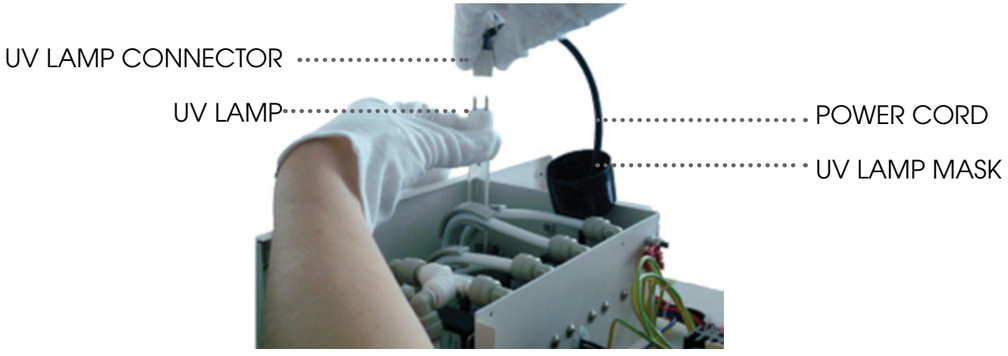
WARNING

Ultraviolet (UV) radiation is harmful to the eyes and skin. Do not observe the lamp directly when it is illuminated. This system equipped with a lamp cover to prevent UV light from leaking out. This cover must be on at ALL TIME after a UV lamp is installed.

CAUTION

Keep the UV lamp straight in and out of the stainless steel chamber during its installation to avoid any action that could cause the lamp to break.

1) Press the "**Start"** button to switch the system to standby mode.
2) Switch off the system power, unplug the power cord.
3) Remove the system top cover.
4) Find the UV lamp chamber (see picture). Remove the UV lamp cover to expose the UV lamp.
5) Unplug the UV lamp from its power cord. Carefully remove the old UV lamp.



6) Wear gloves included in the new UV lamp package. Avoid direct skin contact with the quartz glass of the UV lamp.
7) Carefully insert the new UV lamp into its chamber. When about 2/3 of the lamp is inserted, hold the UV lamp and connect it to the ballast cable connector (4-pin connector) as shown in the picture, then gently insert the UV lamp completely into the chamber.
8) Cap the UV chamber with the black mask (see picture).
9) Reinstall the system top cover and tighten the screws.

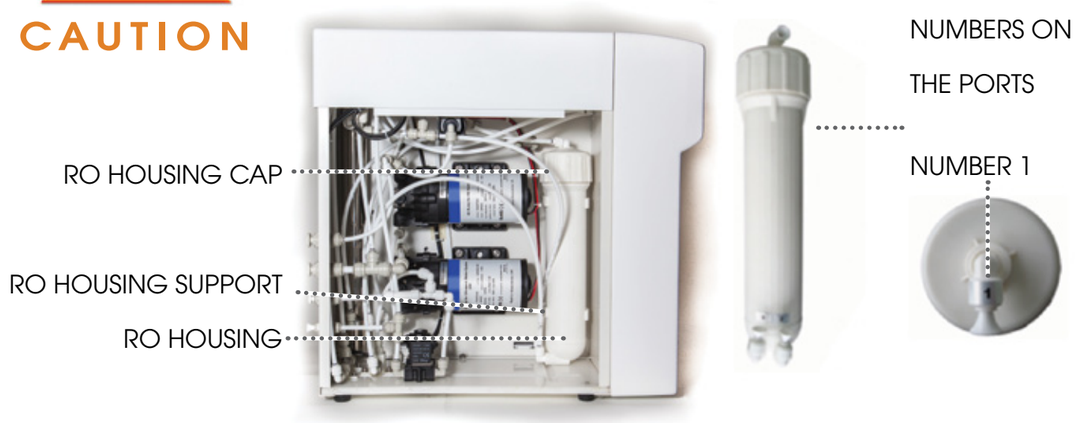
4.4 Replacing the RO Membrane

WARNING

RO membrane contains NaHSO3 as preservative. It may cause irritation to the mucus membrane. Be careful not to get into the eyes! If solution inadvertently gets into the eyes, immediately flush eyes with large amount of water. If you still feel uncomfortable, please seek medical attention!

CAUTION

RO reverse osmosis membrane should be replaced by a fully trained professional technician.



1) Open the left side panel of the system. RO membrane housing is indicated in the picture above.
2) Remove the RO membrane housing from its support.
3) Remove the push-in tubing from the cap by holding down the collet on the connector then pull the tubing out.
4) Twist-open the cap from RO membrane housing. May need a special tool or two people work together to open the cap.
5) Use a pair of pliers to grasp the RO membrane stem and pull it out from the housing.
6) Open the new RO membrane package. Check and confirm that two O-rings on the membrane are installed intact.
7) Two O-ring side in first, insert RO membrane into the membrane housing until it is completely inserted. Tighten the housing cap.
8) Insert tubing back into connector on the cap.
9) Install the assembled RO membrane back onto the support rack.
10) Reinstall the left side panel of the system.

5. BASIC TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
SYSTEM INACTIVE (PUMP AND THE CONTROL PANEL NOT OPERATING)	NO ELECTRICAL POWER MAIN FUSE BLOWN.	ENSURE THE POWER CORD IS CONNECTED TO A LIVE POWER SOURCE REPLACE THE MAIN FUSE
RO LIGHT BLINK	INLET WATER EXCEEDS UPPER TDS LIMIT FOR THE SYSTEM RO MEMBRANE DAMAGED	ADD ADDITIONAL PRETREATMENT STEPS TO REMOVE PARTICLES REPLACE THE RO MEMBRANE
UP LIGHT BLINK	UP CARTRIDGES EXHAUSTED	NUPACK-D1 AND NUPACK-D2 CARTRIDGES
LOW PRESSURE ALARM	NO INLET WATER PREFILTER CLOGGED PRESSURE AT THE TAP WATER TOO LOW	CHECK TAP WATER FAUCET REPLACE PREFILTERS IN THE PREFILTRATION PACK CALL SERVICE TO HAVE AN EXTERNAL BOOSTER PUMP INSTALLED BY A PROFESSIONAL ENGINEER
NO WATER	WATER SUPPLY STOPPED WATER TANK IS EMPTY RO WATER FAILURE	RESTORE WATER SUPPLY WAIT UNTIL WATER TANK IS FILLED WAIT TILL RO WATER PASSES QUALITY PARAMETER IF RO LIGHT BLINKS FOR A LONG PERIOD OF TIME, THEN RO MEMBRANE NEEDS TO BE REPLACED.

PROBLEM	POSSIBLE CAUSE	SOLUTION
NO WATER CONT.	BOOSTER PUMP NOT WORKING PREFILTER CLOGGED PRESSURE AT THE TAP WATER TOO LOW SOLENOID VALVE RO	CONTACT A NUWATER AGENT REPLACE PREFILTERS IN THE PREFILTRATION PACK. CALL SERVICE TO HAVE AN EXTERNAL BOOSTER PUMP INSTALLED BY A PROFESSIONAL ENGINEER REPLACE SOLENOID VALVE. CONTACT A NUWATER AGENT
WATER FLOW SLOW	DISPENSING FAILURE PRE-FILTER FILTER CLOGGED REVERSE OSMOSIS (RO) MEMBRANE CLOGGED FINAL FILTER CLOGGED WATER TANK EMPTY	REPLACE PRE-FILTERS REPLACE RO MEMBRANE REPLACE FINAL FILTER WAIT TILL THE WATER TANK IS FILLED
UP RESISTIVITY DROPPED AT DISPENSING	NUPACK-D1 AND NUPACK-D2 CARTRIDGES ARE EXHAUSTED RESISTIVITY SENSOR OR METER FAILURE	REPLACE NUPACK-D1 AND NUPACK-D2 CARTRIDGES REPLACE RELEVANT PARTS
WATER LEAKAGE	LEAK FROM CONNECTIONS	SHUT OFF POWER AND WATER SUPPLY. REMOVE SYSTEM SIDE PANELS, TURN ON WATER SUPPLY AND CHECK LEAKING POINTS. RECONNECT OR REPLACE LEAKING PARTS.

6. SYSTEM AND CONSUMABLES ORDER INFORMATION

Commonly Used Consumables

CATALOG NUMBER	PRODUCT NAME	DESCRIPTION	UNIT
NW10211KT	PREFILTRATION KIT	PREFILTRATION KIT	SET
NW10311KT	PREFILTRATION KIT	PREFILTRATION KIT	SET
NWLABPA1012	PREFILTERS	10µM PP, 10 INCHES, 12/PK	PACK
NWLABPA0112	PREFILTERS	1µM PP, 10 INCHES, 12/PK	PACK
NWLABAC1012	ACTIVATED CARBON CARTRIDGE	ACTIVATED CARBON CARTRIDGE, 10 INCHES, 12/PK	PACK
NWLABAT1012	SOFTENER CARTRIDGE	CATION SOFTENER CARTRIDGE, 10 INCHES, 12/PK	PACK
NWR0100HG	REVERSE OSMOSIS MEMBRANE WITH HOUSING	RO MEMBRANE FOR DIRECT-PURE 10 SYSTEMS, 1/PK	EACH
NWR0200HG	REVERSE OSMOSIS MEMBRANE WITH HOUSING	RO MEMBRANE FOR 2-PASS RO SYSTEM, 1ST STAGE, 1/PK	EACH
NW300Q201	HIGH PURE WATER CARTRIDGE	NUPACK-D1 CARTRIDGE	EACH
NW600Q201	ULTRAPURE WATER CARTRIDGE	NUPACK-D2 CARTRIDGE	EACH
NWQ2F6SKT	ULTRAPURE WATER CARTRIDGE AND FINAL FILTER	NUPACK-D2 CARTRIDGE WITH A 0.2µM FINAL CAPSULE FILTER,	SET
NWUV357B1	UV LAMP	185/254 NM DUAL-WAVELENGTH UV LAMP	EACH
NWFFC0200	FINAL FILTER	0.2µM FINAL CAPSULE FILTER, 1/PK	EACH
NWTANKVN1	TANK VENT FILTER	TANK VENT FILTER WITH CO2 REMOVER	EACH
NWUFBI01R	ULTRAFILTER	BIOPAK POINT-OF –USE ULTRAFILTER, 1/PK (MILLIPORE)	EACH

NuPure-Direct Systems

CATALOG NUMBER	NUPURE-DIRECT SYSTEM
NW0P01000S	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 10
NW0P02000S	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 20
NW0P21000S	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 10 AND 2-PASS RO
NW0P010UVS	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 10 UV
NW0P020UVS	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 20 UV
NW0P210UVS	NUPURE-DIRECT WATER SYSTEM, ULTRAPURE 10 UV AND2-PASS RO

Other Maintenance Spare Parts

Please contact NuWaterUSA or your distributor for ordering information

Main control panel (230V, 50 Hz)
Main control board (110V, 60 Hz)
RO Booster Pump for NuPure-Direct 10
RO Booster Pump for NuPure-Direct 20
UP circulation pump
Resistivity Sensor
Conductivity Sensor
Low Pressure switch
Pressure Gauge
Commonly Used Connector Package
Check Valve
Flow Restrictor
UV lamp ballast
RO membrane housing (with connectors)
Power Switch
Fuse
3/8" PE tube (5 meters)
1/4" PE tube (5 meters)

Conditions of Sales

NuWaterUSA manufactures and sells various kinds of water systems that meet quality specifications. When used and maintained as instructed in this manual, these systems can produce ultrapure water that meets or exceeds quality standards set forth by all international standardization bodies.

NuWaterUSA is committed to improve its products and services. As a result, the information contained in this manual may be changed without further notice. NuWaterUSA assumes no responsibility for any errors that may appear in this manual.

This NuWaterUSA system was manufactured in a NuWater's plant. The plant's quality management system has passed the ISO9001:2008 quality management system.

Water System Limited Warranty

NuWaterUSA warrants the water system against defects due to materials and workmanship when used in compliance with instructions and operating conditions specified in this manual. NuWaterUSA warrants the system for 12 months from the earlier of:

1. The date of installation, or
2. The 183th day of shipment from NuWaterUSA warehouse.

Within the warranty period, NuWaterUSA will provide replacement for the defected parts at no charge. Such service must be conducted by NuWaterUSA or its authorized distributor.

This warranty does not include cartridges.

Other than the warranty expressed above, NuWater disclaims any other warranty, express or implied, including marketability and suitability of use. NuWaterUSA shall under no circumstance be liable for incidental or consequential damages.

09/13