

VWR[®] A Water System

INSTRUCTION MANUAL

European Catalogue Numbers:

- | | |
|----------|-----------------------------|
| 171-1249 | VWR A Water System |
| 171-1250 | VWR A Water System with TOC |

CE

UK
CA

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Table of Contents

1 INTRODUCTION

- 1.1 System Exterior
- 1.2 Product Features
- 1.3 Main Applications
- 1.4 Specifications
- 1.5 Operation Principles
- 1.6 Technical Specifications

2 INSTALLATION

- 2.1 Installation Site Requirements
- 2.2 Feed Water Requirements
- 2.3 Feed Water Quality Measurements
- 2.4 Installation

3 SYSTEM STARTUP AND OPERATION

- 3.1 Check List Prior to System Startup
- 3.2 System Initial Startup
- 3.3 System Setting-up
- 3.4 Information Menu
- 3.5 Maintenance Menu

4 DISPENSING WATER

- 4.1 Dispensing RO Water
- 4.2 Dispensing UP Water
- 4.3 Adjusting Dispense Rate
- 4.4 Volumetric Dispensing

5 MAINTENANCE

- 5.1 Basic Alerts
- 5.2 Basic Alarms
- 5.3 System Cleaning
- 5.4 Replacing Consumables
- 5.5 History Inquiry and Export

6 PARTS AND ORDER INFORMATION

7 TECHNICAL SERVICE

8 WARRANTY

9 DISPOSAL

1 INTRODUCTION

The VWR A water system is designed to produce ultrapure water (Type I) and RO water directly from tap water. Water quality produced meets or exceeds the corresponding ASTM, CAP, CLSI and ISO 3696 / BS 3997 water standards.

This manual describes in detail about system performance characteristics, installation, operation, and routine maintenance. Please read this manual thoroughly for its instructions on installation, use and maintenance. Proper installation, use and maintenance guarantee the continuous flow of high quality ultrapure 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.

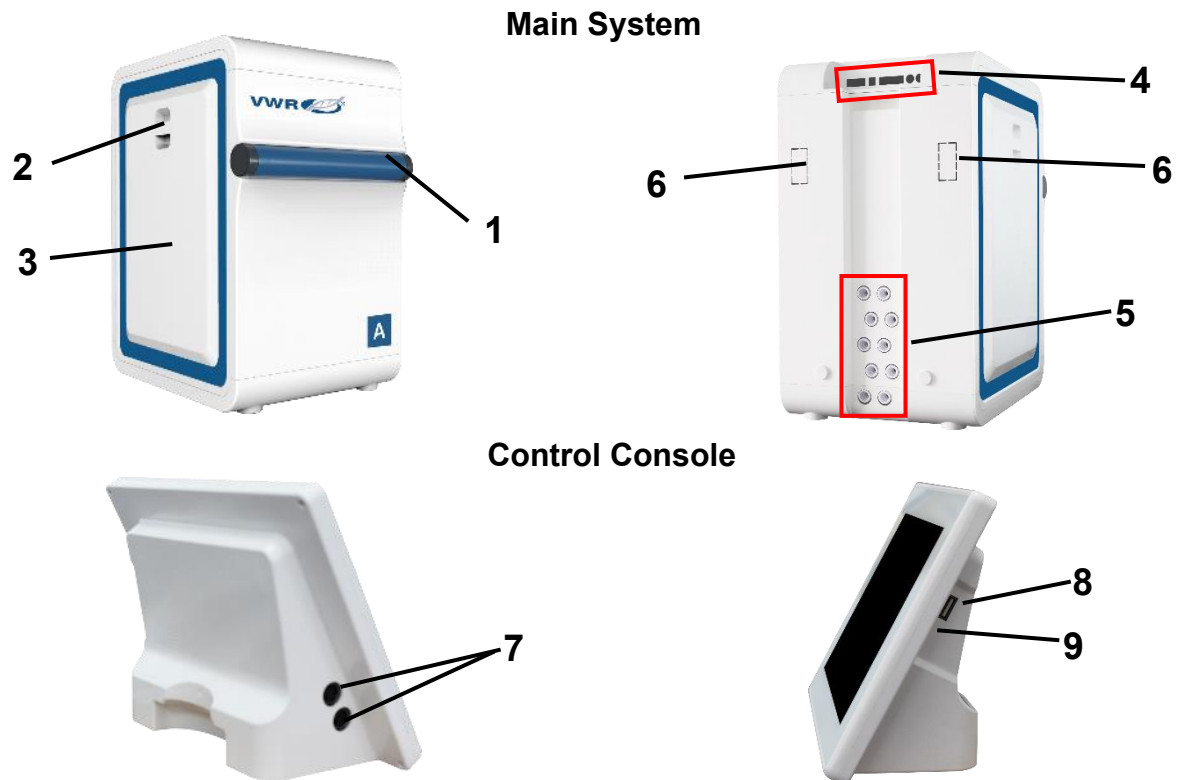
Safety Information



WARNING!

- 1) Always power down the system before plug or unplug any hardware. Never hot swap (hot plug) any hardware, including dispenser, monitor as it may damage control boards.
- 2) Disconnect the unit from the power supply prior to perform service work.
- 3) Refer service to qualified personnel.

1.1 System Exterior



1	Crossbar and dispenser rest (with optional accessories)	2	Side panel handle
3	Side panel	4	Electrical connections
5	Water outlets	6	Wall mount ports
7	Outlets for cable or power adapter	8	USB Port
9	SD card slot		

Description of the system

The VWR A manages the production and distribution of ultrapure water and RO water from tap water. It consists of three main units:

- ◆ **Main System:** manages the production of ultrapure water and RO water.
- ◆ **Dispenser:** integrates the touchscreen and manages the dispensing.
- ◆ **Control Console:** controls and monitors the water system and other components on the 8-inch touchscreen.

1.2 Product Features

The VWR A ultrapure water system provides an integrated solution for lab water supply. This system is easy to install, easy to operate and easy to maintain.

This system has the following features:

- ◆ Type I ultrapure water and RO pure water are produced directly from tap water.
- ◆ The system can be link to multiple dispensers via cable or wireless.
- ◆ Internal P Pack cartridge removes oxidants, organics, particles and scaling ions to prevent them from fouling the RO membranes.
- ◆ The RO drain water is reused to increase the water yield. It is more environmentally friendly.
- ◆ Internal RO membrane removes over 99% of large molecules and particles and 95% of ions in water.
- ◆ Ultra purification cartridge is filled with media to remove trace ions and organics.
- ◆ Built-in 185/254 nm dual wavelength lamp reduces TOC level in ultrapure water.
- ◆ Various final filters (optional) can ensure ultrapure water without particles, bacteria or pyrogen.
- ◆ RFID tags ensure perfect placement of consumables and trace their performance.
- ◆ The control console is an 8 inch touchscreen. The console controls system and peripheral devices (Such as dispensers). All operations can be done on the console.
- ◆ Water quality, operation parameters, the status of the system, dispensers, components, and peripheral devices are stored and displayed on the large colorful touchscreen monitor.
- ◆ The console screen and dispenser screens are water-proof. You may operate the console and dispenser with wet latex gloves on.
- ◆ Signature verification is required for maintenance and service.
- ◆ VWR provides full documents support to meet user's GMP, GSP, GAP, GCP, GLP requirements.

1.3 Main Applications

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

Ultrapure Water	RO Water
Important and critical applications	Routine and non-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 • Nano-material science • Preparation of molecular biology reagents, etc.	• Glassware cleaning • Washing machine for glassware • Water bath water • Autoclave • Feed water for laboratory animals • Other routine use

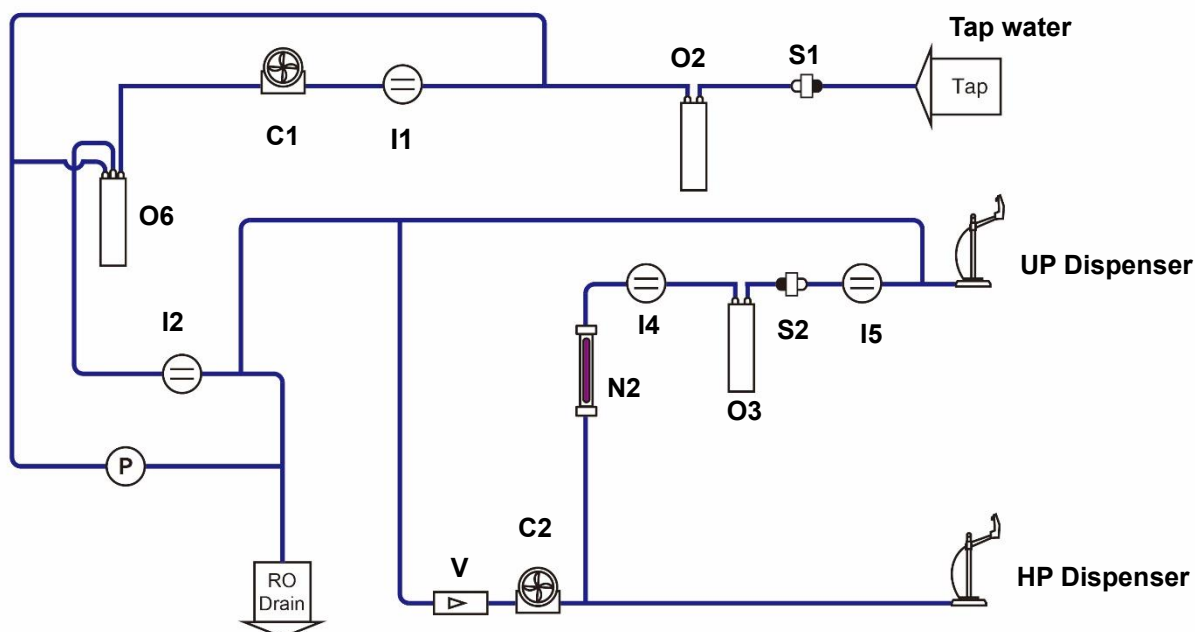
1.4 Specifications

RO Water	
Water Production Rate	32 L/h at 25 °C
Dispensing Rate	Variable speed dispensing up to 0.6 L/min
Conductivity	Typically < 20 µS/cm (at 25 °C)
Rejection Rate	> 95%
Ultrapure Water (Type I)	
Dispensing Rate	Variable speed dispensing up to 0.6 L/min
Resistivity	18.2 MΩ.cm (at 25 °C)
TOC	< 5 ppb
Particles (>0.2 µm)	No particles (with a 0.2 µm final filter or Bio-filter)
Microorganism	< 0.01 cfu/mL (with a 0.2 µm final filter or Bio-filter)
Pyrogen Content	< 0.001 EU/mL (with Bio-filter)
RNAases	< 0.5 pg/mL (with Bio-filter)
DNAases	< 10 pg/mL (with Bio-filter)
Electrical Connections and Specifications	
Operating Voltage	24 VDC
Input Voltage	100 – 240 VAC
Main System Power	< 200 W
Dimensions and Weights	
Main System Width × depth × height	32 × 44 × 54 cm (12.6 × 17.3 × 21.3 in)
System Weight	20 kg
Control Console Length × width	22 × 17 cm (8.7 × 6.7 in)
Control Console Weight	0.75 kg
Dispenser Width × depth × height	21 × 29 × 61 cm (8.3 × 11.4 × 24.0 in)
Dispenser Weight	5 kg

1.5 Operation Principles

VWR A water system produces ultrapure water and pure water directly from tap water. Most particles, ions and organic compounds are removed through the pre-filtration, RO membrane. When in need of ultrapure (UP) water, RO water goes through a UV lamp chamber with a dual wavelength UV lamp to destroy trace organic pollutants in water, then through a polishing cartridge to remove the last trace of ions, then a 0.2 µm final filter to the outlet.

VWR A Water Flow Diagram



No.	Description	No.	Description
C1	RO Booster Pump	C2	Distribution Pump
I1	Feed Conductivity Sensor	I2	RO Conductivity Sensor
I4	TOC Sensor (optional)	I5	UP Resistivity Sensor
N2	185 nm UV Lamp	O2	P Pack
O3	U Pack	O6	RO Packs
P	Pressure Sensor	S1	Inlet Filter
S2	Inline Filter	V	Flow Meter

1.6 Technical Specifications

Measurement Range	Channel A (Feed Water): 1 – 1999 $\mu\text{S}/\text{cm}$ Channel B (RO): 1 – 199 $\mu\text{S}/\text{cm}$ Channel C (UP): 1 – 18.2 $\text{M}\Omega\cdot\text{cm}$ Channel D (HP): 1 – 18.2 $\text{M}\Omega\cdot\text{cm}$
Pressure Range	0 – 1.6 MPa
Flow Meter Range	1 – 30 L/min
Temperature Range	0 – 100 °C
Temperature Compensation Range	Automatic temperature compensation of readings Temperature compensation range: 5 – 45 °C to 25 °C

2 INSTALLATION

2.1 Installation Site Requirements

Item	Requirements
Installation space	≥ 90 cm × 50 cm total
Feed water	Municipal water, outlet diameter > DN 20, ball valve, NPT thread
Drain water tubing	> DN 50
Working Temperature	5 – 45 °C
Power	100 – 240 VAC ± 10%, 1 KW (5 A)
Humidity	20 – 80%

2.2 Feed Water Requirements

Parameter	Value or Range
Pressure	15 – 90 psi (1.0 - 6.0 bar) If the pressure is above 6.0 bar, needs to install an external pressure regulator.
Conductivity at 25 °C	< 1000 µS/cm
pH	4 – 10
Water temperature	5 – 45 °C
Total dissolved solids (TDS)	< 500 ppm
Total Organic Carbon (TOC)	< 2000 ppb
Hardness (as CaCO ₃)	< 120 mg/L (< 120 ppm): use 171-1255 120 – 180 ppm: use 171-1256 > 180 ppm: softener recommended
Free or total chlorine	< 1.5 ppm

2.3 Feed Water Quality Measurements

Parameter	Test Method
Pressure	Use a pressure gauge
Conductivity at 25 °C	Use a conductivity meter
pH	Use a pH test strip
Hardness and chlorine	Use a reputable brand test strip
Total dissolved solids (TDS)	Use a TDS meter
Total Organic Carbon (TOC)	Use a TOC analyzer

2.4 Installation

2.4.1 Items Included

Package			
No.	Name	Quantity	Note
1	VWR A Main System	1	
2	Control Console	1	Including a cable connected to main system
3	Accessories Bag	1	Including 8 mm PE tubing (8 meter), one roll of Teflon tape, a male connector, and a power adapter (with power cords)
4	Instruction Manual	1	On USB
5	Quick Installation Guide	1	

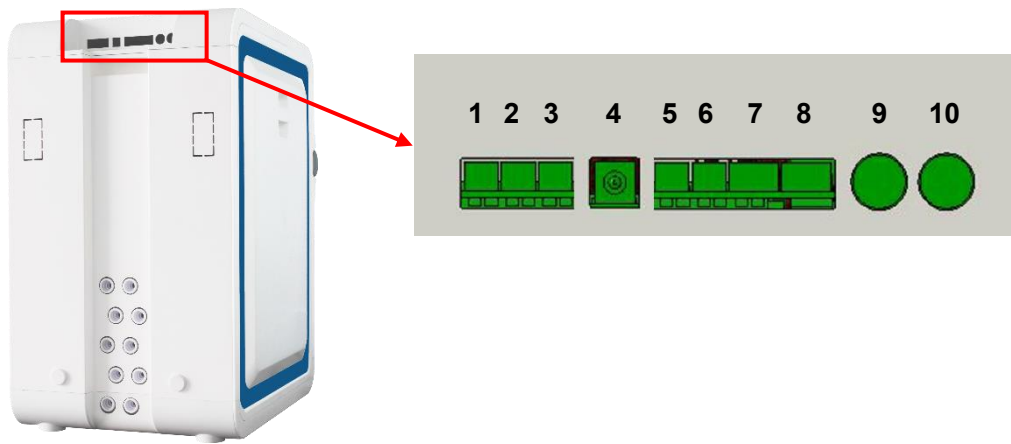
2.4.2 System Structure and Flow Diagrams

2.4.2.1 Main System Back Side View



Illustration of water inlets and outlets

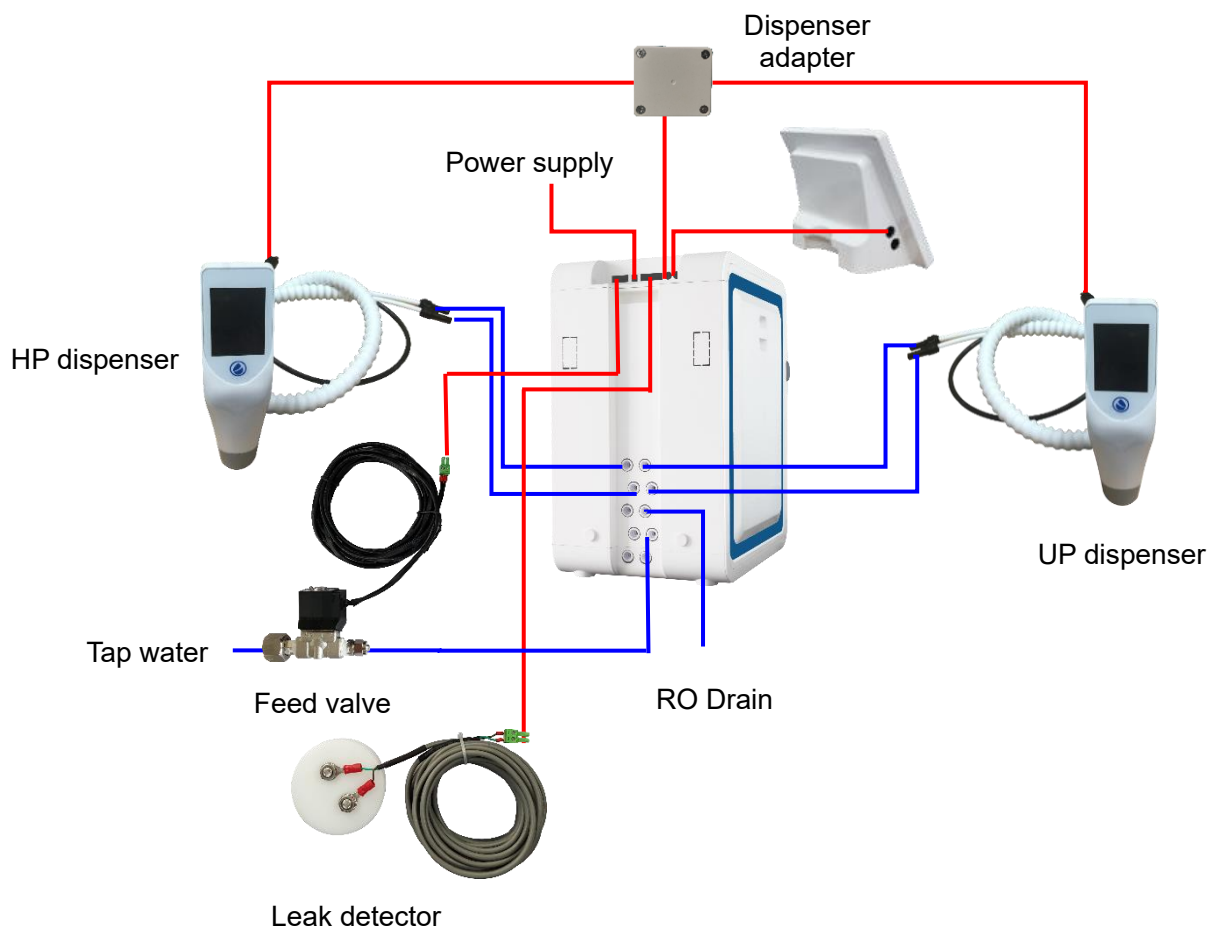
No.	Label	Description	Tubing Diameter	Connect to
A	HP Dispenser A	For pure water	8 mm	Dispenser
B	HP Dispenser B	For pure water	8 mm	Dispenser
C	EDI Drain	Spare	8 mm	
D	Pure Water In	Spare	8 mm	
E	Product To Tank	RO product outlet	8 mm	
F	UP Dispenser A	For ultrapure water	8 mm	Dispenser
G	UP Dispenser B	For ultrapure water	8 mm	Dispenser
H	RO Drain	RO drain outlet	8 mm	Drain
I	Tap Water In	Tap water inlet	8 mm	Tap water
J	Spare	Spare	8 mm	



Description of electrical control board

No.	Label	Description	Connect to
1	Feed Valve	For the feed solenoid valve control line	Feed valve (optional)
2	Tank UV	For the sanitization module control line	Not in use
3	Feed Pump	For the booster pump control line	Feed pump (optional)
4	Power	Power cord port	Power adapter
5	Prefilter Sensor	For backwash signal line	Prefilter (optional)
6	Overflow Sensor	For overflow sensor signal line	Not in use
7	Leak Sensor	For leak sensor signal line	Leak sensor (optional)
8	Level Sensor	For the pure water tank level sensor control line	Not in use
9	CAN A	Data cable port	Dispenser or control console
10	CAN B	Data cable port	Dispenser or control console

2.4.2.2 VWR A External Connection Diagram



Red Line: Electrical loop

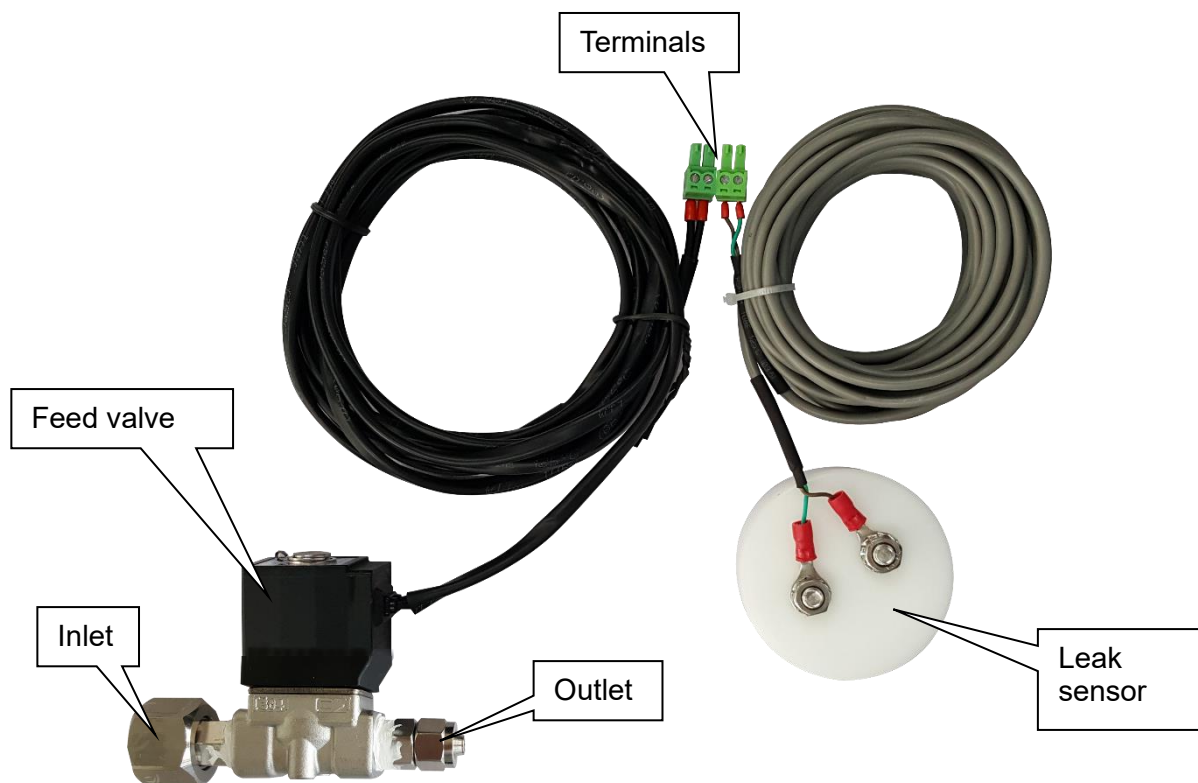
Blue Line: Water loop

2.4.3 Installing the Leak Protector

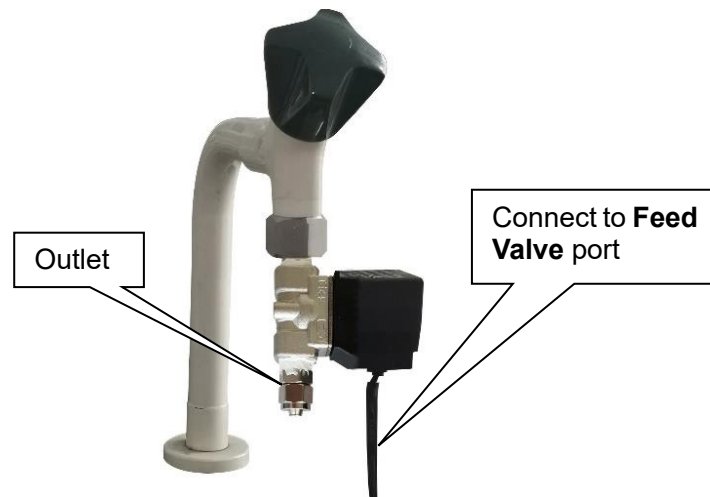
2.4.3.1 Leak Protector Specifications

Catalog No.	171-1476
Operating voltage	24 V DC
Cable length	3 M to solenoid valve
Fitting	1/2 " female BSP (Inlet)-8 mm quick connector (Outlet)
Method of water leak detection	Conductivity. Put the sensor near the water system
Operating temperature	5 – 45 °C
Maximum inlet pressure	6 bar (90 psi)

2.4.3.2 Illustration of Installation



2.4.3.3 Installation



Follow the steps below if the diameter of the faucet is 1/2 inch male thread.

- As the picture shown above, connect the inlet of the feed valve to the faucet.
- Cut an appropriate length of 8 mm PE tubing. Insert one end of the tubing into the port **Tap Water In** on the main system and the other end into the outlet of the feed valve.
- Place the sensor metal probes side down at a lower point on the floor or near the water system.
- Plug the terminal of feed valve into the port **Feed Valve** on the back of the main system, and plug the terminal of leak sensor into the port **Leak Sensor**.

Follow the steps below if your system is equipped with a prefiltration device.

- As the picture shown above, connect the inlet of feed valve to the faucet.
- Cut an appropriate length of 8 mm PE tubing. Insert one end of the tubing into the inlet of prefiltration device and the other end into the outlet of the feed valve.
- Similarly, cut another appropriate length of 8 mm PE tubing. Insert one end of the tubing into the port **Tap Water In** of the main system and the other end into the outlet of the prefiltration device.
- Place the sensor metal probes side down on the floor or near the water system.
- Plug the terminal of feed valve into the port **Feed Valve** on the back of the main system, and plug the terminal of leak sensor into the port **Leak Sensor**.

2.4.3.4 Instruction for use

The leak protector is activated automatically when the system powers up.

When it detects water, the system will shut the **Feed Valve** down, and switch to Standby mode automatically. A red icon  will appear on the screen and an alarm message box will pop up. The message "**Leak or Tank Overflow, all valves are closed, system could run after troubleshooting**" will disappear by tapping **Confirm** when the leak is resolved. Switch system from Standby to Ready mode manually so system will work again.

2.4.4 Installing the Dispensers

This water system offers two different dispensers: Dispenser 1 has an anchor base and stand, while Dispenser 3 is anchored on the system itself with no dispenser base.

2.4.4.1 Items included for Dispenser 3



No.	Description	Connect to
1	Touch screen	
2	Dispense button	
3	Dispenser tubing connector	Main system
4	Dispenser cable connector	Main system

Package			
No.	Name	Quantity	Note
1	Dispenser	1	
2	Base kit	1	Including screws
3	Accessories bag	1	One dispenser adapter, two 8 mm tee connectors, two 8 mm quick connectors, eight 8 mm lock-clamps, two 6 mm lock-clamps, 1.5 m CAN cable

2.4.4.2 Installing the Dispenser 3 (171-1275)

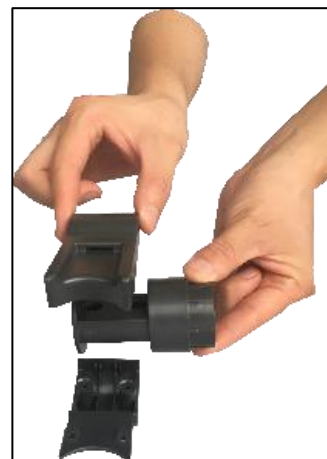
- a) Take out the base kit and assemble. The base is assembled differently on the left and right sides of the crossbar. Refer to the pictures below to install the base.



Install one base on the left side of the system



Base kit



Install the other base on the right side of the system

- b) Open the side panels of the main system on both sides. Remove the screws as shown below.

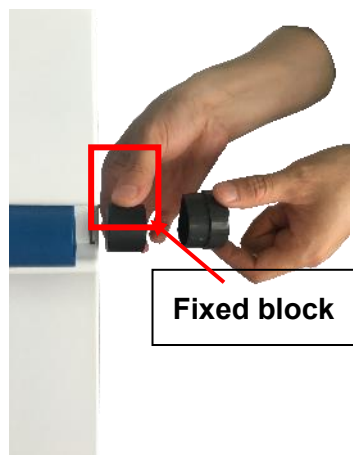


The left side of the system

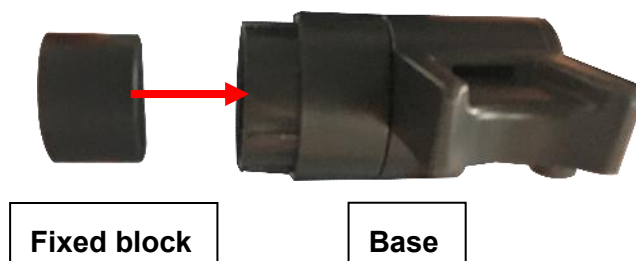


The right side of the system

- c) Remove the corresponding cap from the crossbar. Remove the insert block from the cap.

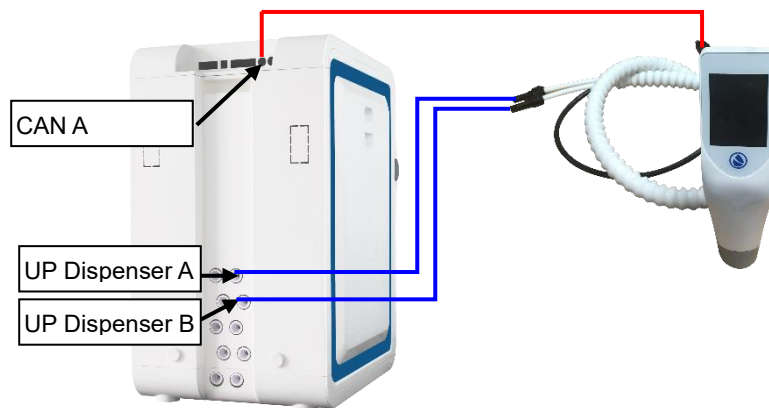


- d) Insert the inner block into the base and then insert the base into the crossbar. Fix it with the screw.



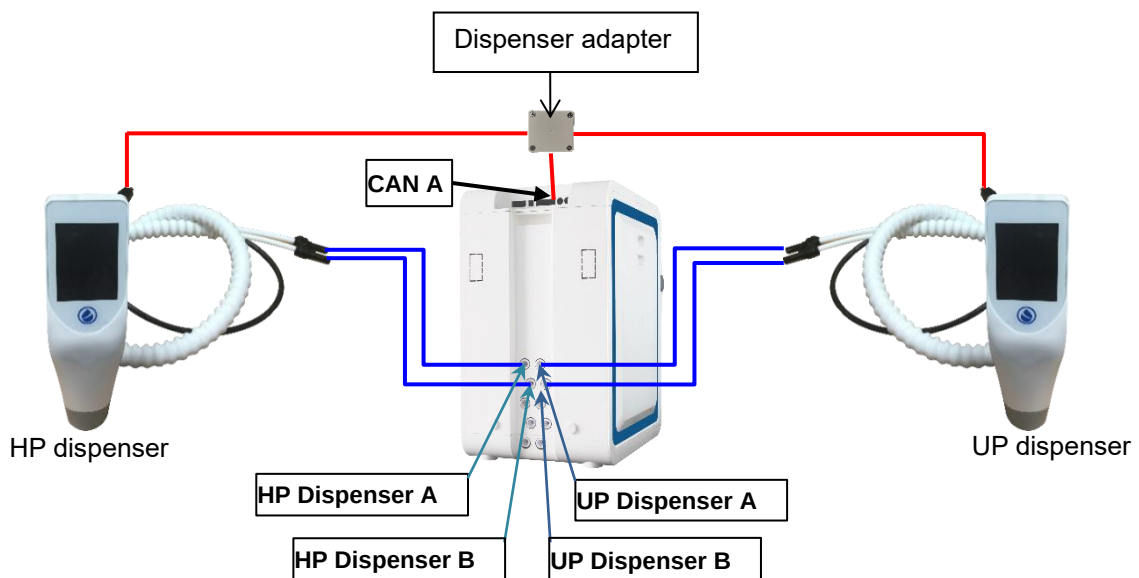
- e) Install the tubing and cable.

Ultrapure dispenser: Insert the dispenser tubing connectors into the **UP Dispenser A** port and **UP Dispenser B** port on the back of the main system respectively. Then insert the dispenser cable connector into the **CAN A** or **CAN B** port on the back of the system.

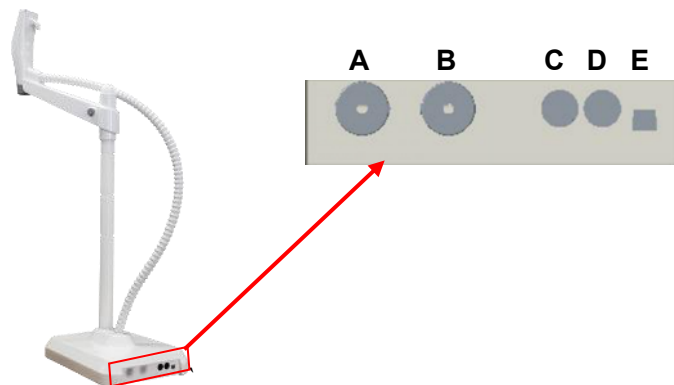


Pure dispenser: Insert the dispenser tubing connectors into the **HP Dispenser A** port and **HP Dispenser B** port on the back of the VWR main system respectively. Then insert the dispenser cable connector into the **CAN A** or **CAN B** port on the back of the system.

Pure and Ultrapure dispenser: Follow the picture below to connect the pure dispenser and the ultrapure dispenser using the dispenser adapter.



2.4.4.3 Installing the Dispenser 1 (optional)



No.	Description	Connect to
A	8 mm tubing port	Main system
B	8 mm tubing port	Main system
C	Data cable port	Main system or power
D	Data cable port	Main system or power
E	Foot switch port	Foot switch (Optional)

2.4.4.3.1 Items included

Package			
No.	Name	Quantity	Note
1	Dispenser base	1	The handle is connected to the base with corrugated pipe.
2	Center post	1	With Screw
3	Crossbar	1	
4	Accessories bag	1	Including one roll of PVC tubing, a male barb connector and an Allen wrench.

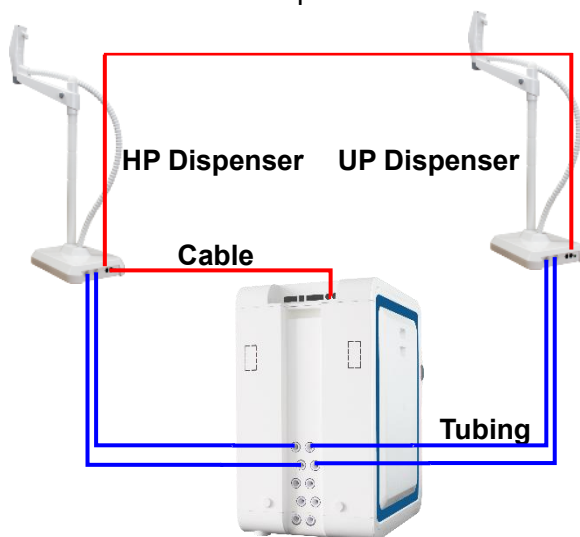
2.4.4.3.2 Installing the Dispenser Kit (171-1273)

- a) Open the package and take out the dispenser from the package. Set the dispenser base on a stable surface. This kit comes with a 3-meter link bundle.

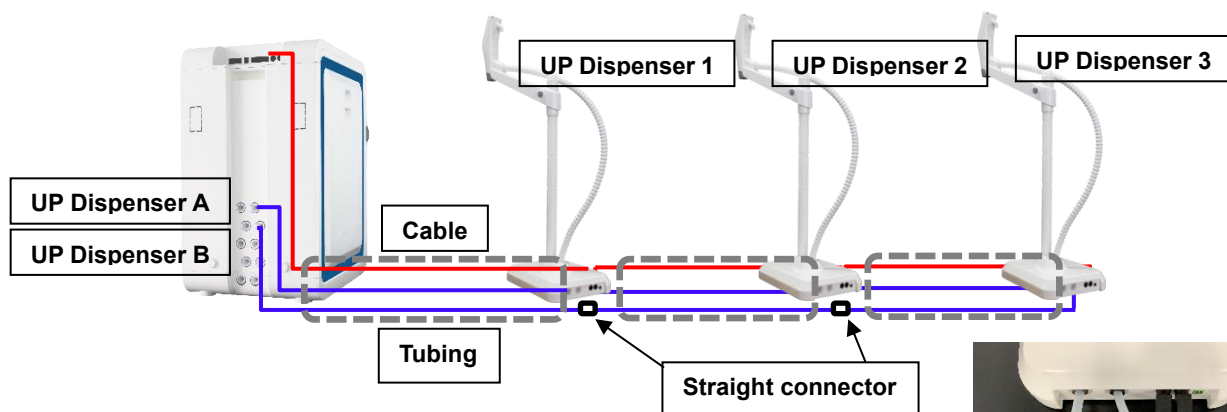


- b) Install the dispenser center post to the base, then insert the crossbar on the center post, place the dispenser handle on the magnetic base of the dispenser arm.

- c) Take the tubing bundle out from the package, including two pieces of tubing and a cable. Install the tubing and cable as shown in the pictures below.



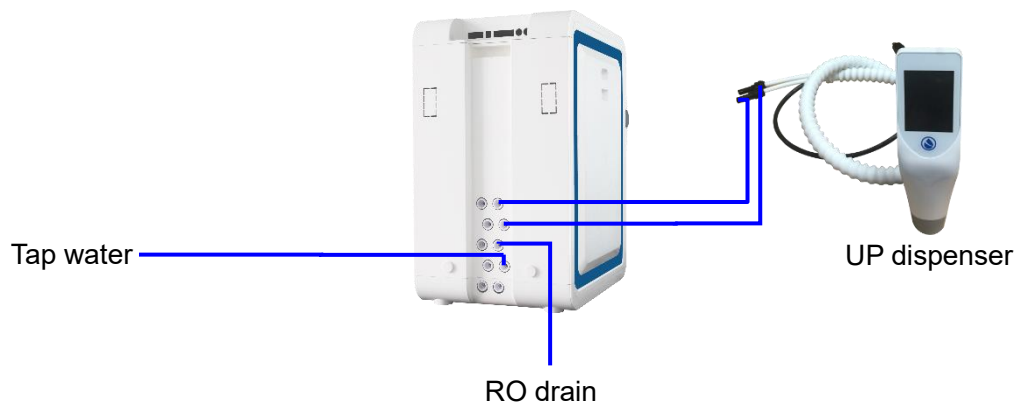
Connection of one dispenser for UP water and another dispenser for HP water.



Connection of multiple dispensers for UP water or HP water.



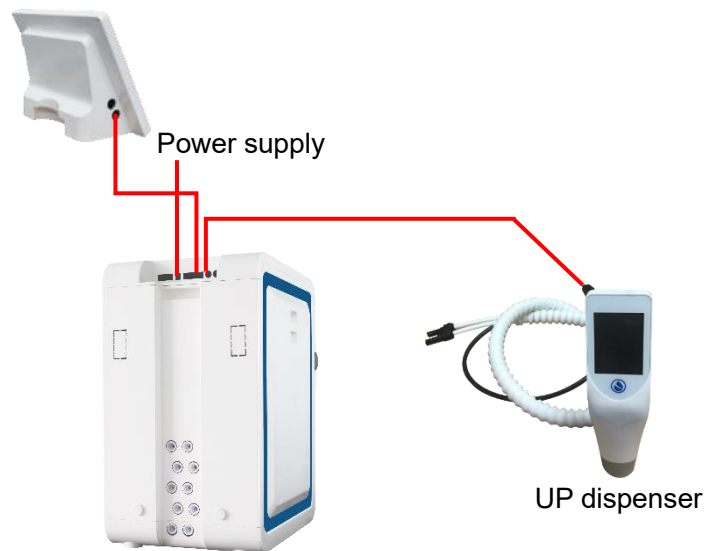
2.4.5 Installing the Water Tubing



2.4.5.1 Connecting the Feed and Drain Tubing

- Remove the stopper on the tap water inlet on the system. Take the 8 mm PE tubing from the accessories bag and cut two pieces of the tubing with proper length.
- Insert one end of the first 8 mm PE tubing into the water inlet on the system (Mark as **Tap Water In**). Connect the other end to the tap water. Gently pull the tubing outwards to check if the connection is secure.
- Insert one end of the second 8 mm PE tubing into the **RO Drain** on the system. Connect the other end to the drain.

2.4.6 Installing External Cable Connection



Make sure all power cords and signal cables are connected to their corresponding ports.

Connect the power adapter after all other signal cables are connected. Power up the system.

3 SYSTEM STARTUP AND OPERATION

3.1 Check List Prior to System Startup

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

Check List	
Feed water quality Municipal water: TDS < 500 ppm, Conductivity < 1000 µS/cm (at 25 °C), Water temperature: 5 – 45 °C, Pressure: 15 – 90 psi (1 – 6 bar)	
Feed water connected	
Leak protector installed	
Dispenser installed and connected	
Drain tubing connect	
Control console connected	
Power adapter plugged in	

Note: RO membranes and cartridges will be installed AFTER system power-up. DO NOT install them now.

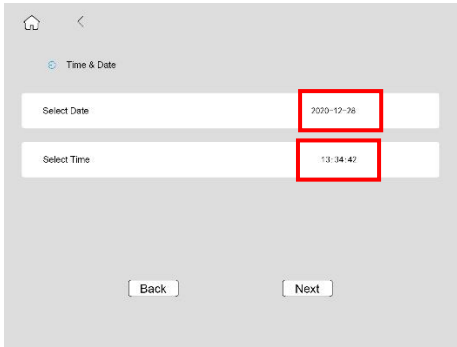
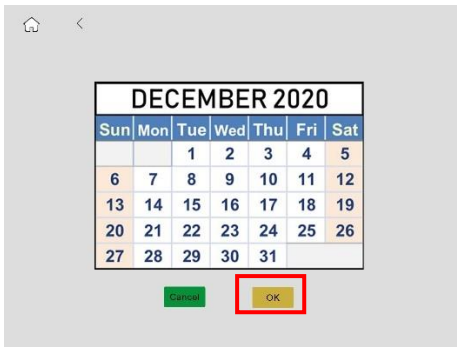
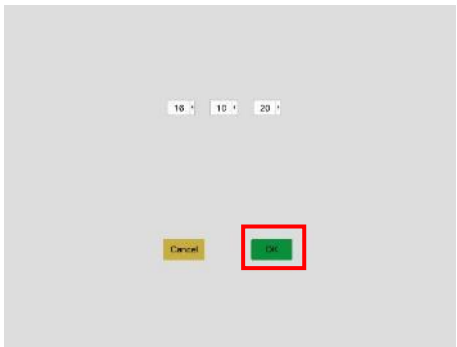
3.2 System Initial Startup

Connect the power adapter to the system to power on the system. A setup menu will show up at the initial power-up in a few seconds.

3.2.1 Language Setup

	The language setup menu will show up in the first page. Default is English. You may choose the language desired and then tap Next to set up Time & Date.
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3.2.2 Time & Date Setup

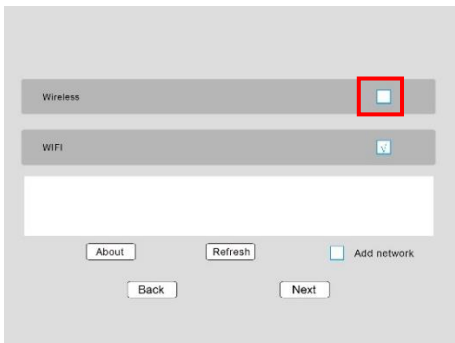
	Tap red box to enter set-up menu.
	Select locate date and then tap OK to confirm setting.
	Select locate time and then tap OK to confirm setting. Tap "Next" to enter Connectivity setup menu.

	Note: If the power outage exceeds 3 days, a pop-up box will appear to reset the system Time & Date.
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3.2.3 Other Devices Setup

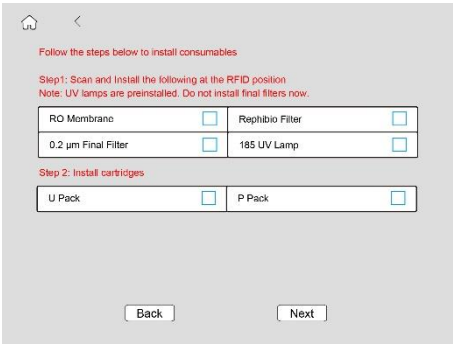
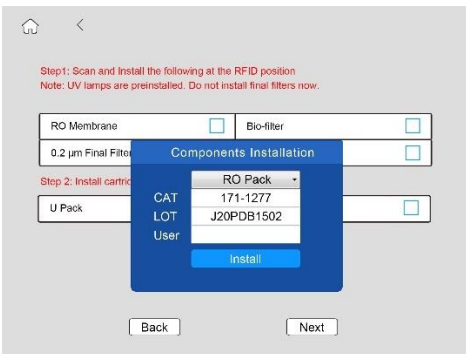
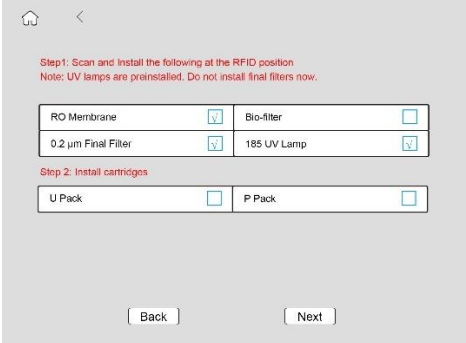
	Put “√” in the box of Printer if a printer is used. Put “√” in the box of Bio-filter if a Bio-filter is installed. Put “√” in the box of 0.2 µm Final Filter if a 0.2 µm final filter is installed.
	Printers supported: Epson Dot matrix VWR recommends Epson's TM-U330D dot matrix printer. Other USB based dot matrix printers may not be supported. After each dispense, the printer will automatically print out dispense time, water quality and other displayed parameters.

3.2.4 Connectivity Setup

	Select Wireless if wireless dispenser is opted. Check “√” in the red box. Tap “Next” to enter consumables installation interface.
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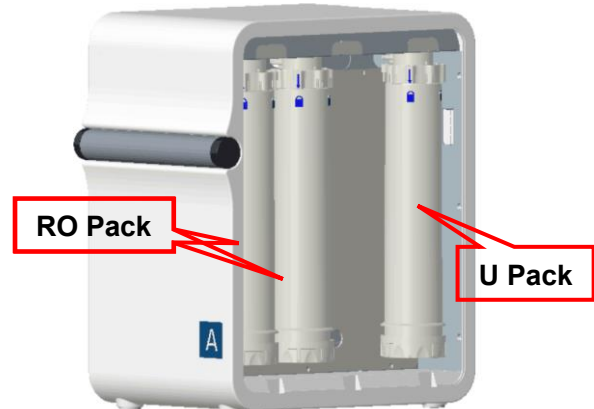
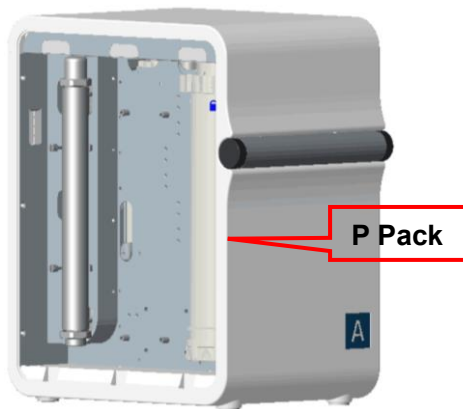
3.2.5 Install Consumables

3.2.5.1 Register Consumables (Not including cartridges)

 	Follow instructions on the screen, scan RFID tags for the RO Packs, 185 nm UV lamp and final filter at the position with an antenna sign () on the system. Details are shown below Note: 1. RFID tags are either inside consumable packages, or for preinstalled UV lamps etc, inside USB key package. 2. For traceability, your User Name is required to install/register consumables. For a new installation, enter system manager's User Name.
	Remove the right side panel to find the RFID reader position () as shown left.
	A pop-up dialog will be shown as left after every scan, enter manager's User Name and tap Install to register the consumables.
	Follow steps below to install cartridges after finishing the scan.

3.2.5.2 Install and Register Cartridges

VWR A system has a total of up to 4 packs, 1 or 2 RO packs, 1 P Pack, 1 U Pack. Each cartridge's position is labelled on the system. Install a cartridge to its corresponding position.



Cartridge installation is illustrated below.

a) Remove the right side panel from the system as shown below.

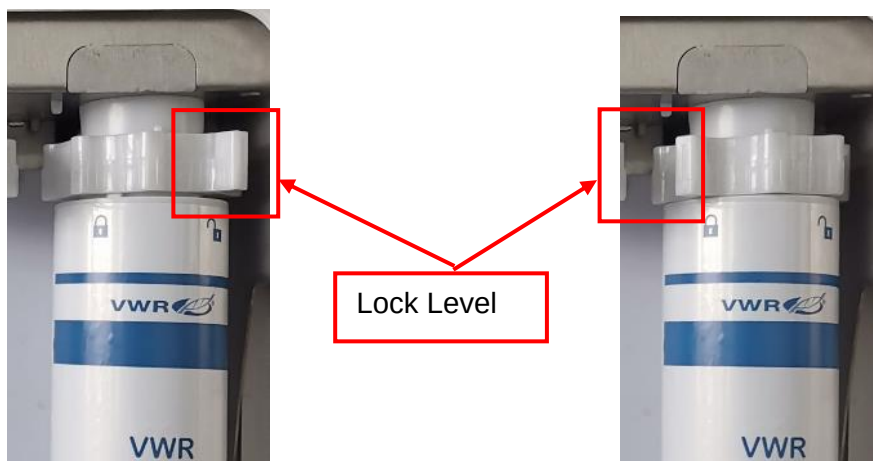


b) Take out the cartridges from their packaging, respectively. Remove caps on the cartridge's inlet and outlet on the system.

c) Follow the instruction below to install the U pack to its corresponding position.

d) Wet the O-rings on the U Pack cartridge with pure water.

e) Turn the lever on the cartridge adapter to the right side at the unlock position  as shown in the photo.



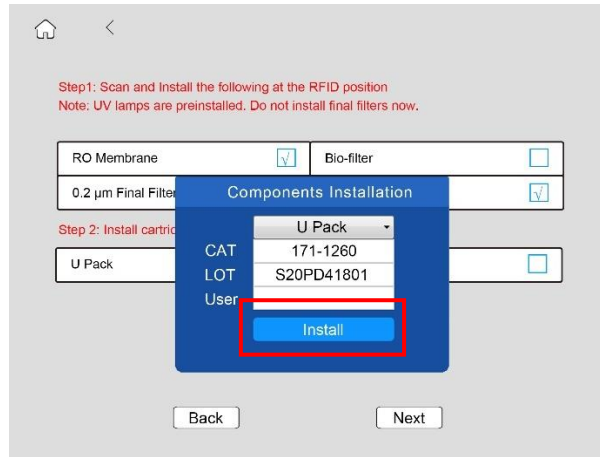
Unlocked position

Locked position

- f) Align the cartridge label facing out. Insert the cartridge's up end first into the opening on the cartridge adapter, then turn the lever handle to the left  to lock the cartridge.



g) A pop-up dialog will be shown as below, tap **Install** to complete the installation.



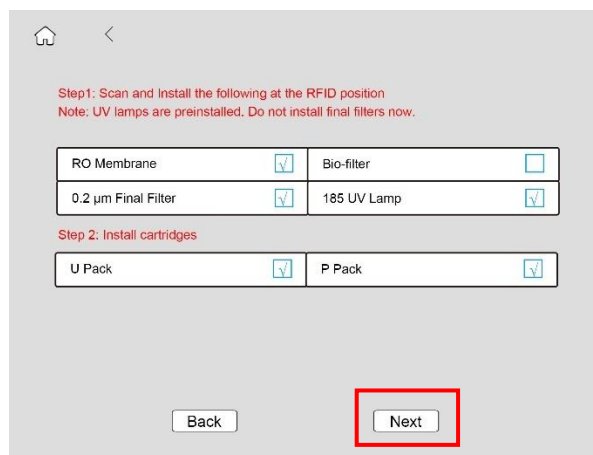
Follow the same procedure to install other cartridges. Install the P pack cartridge to the left side of the system, the RO Pack(s) to the right side.



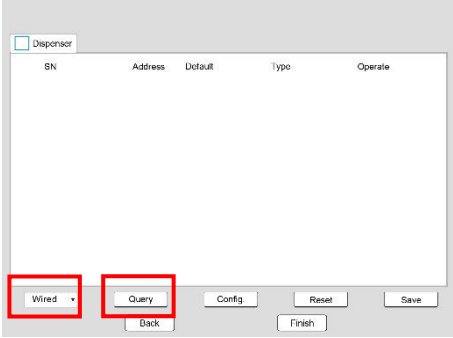
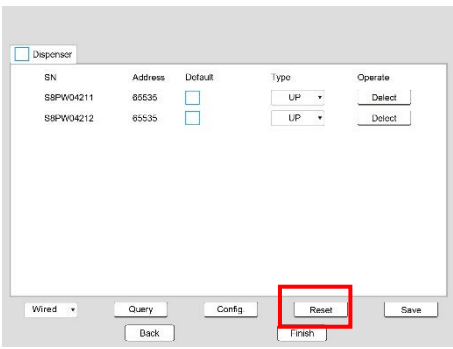
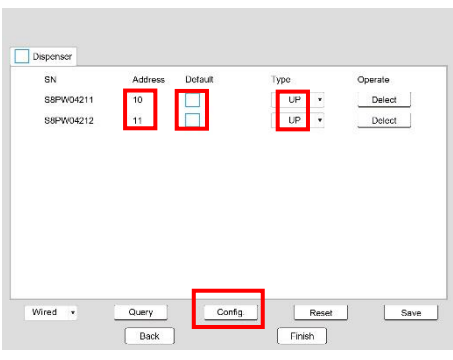
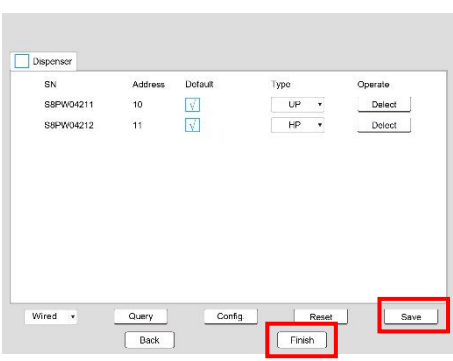
Note!

The control console will display “RFID Error!”, and the alarm icon  if a pack is installed incorrectly. Reinstall it to the correct position.

h) Make sure all consumables have been registered and tap **Next** to enter Dispenser setup menu.

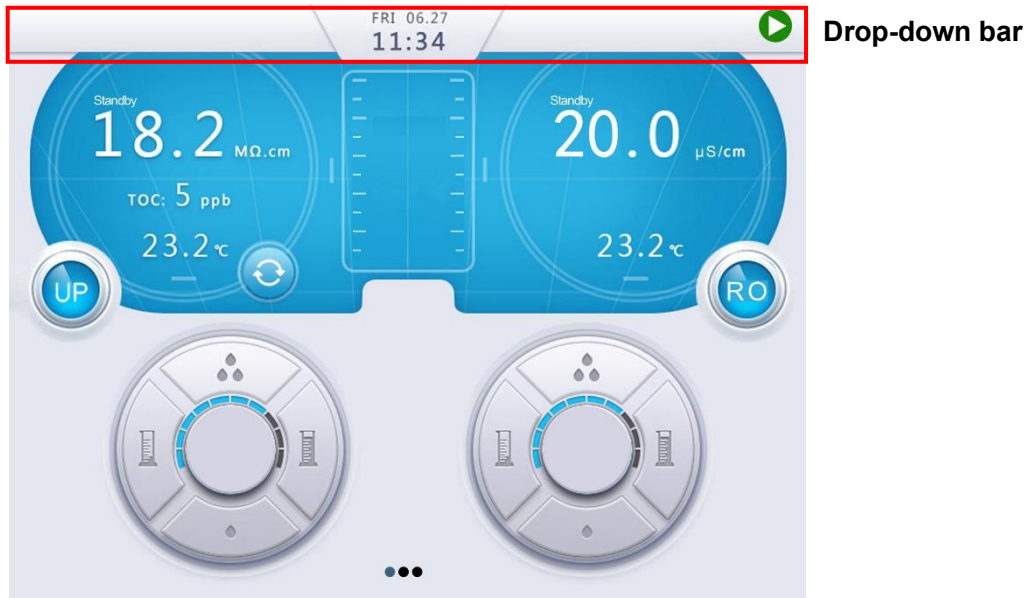


3.2.6 Dispenser Setup

	Select connection mode for the dispenser from the pull-down menu at the left corner: Select Wireless for wireless connection. Select Wired for the wired connection. Tap Query, the system will automatically search for the dispensers that have been installed. Note: The dispensers may have been prior registered to other systems, causing problems in installation if record in the dispenser is not cleared. Press Query will clear such record.
	Tap Reset, system will automatically reset the address.
	Tap Config., system will automatically configure the dispensers. Need to choose a dispenser as default for each type of water. Water will come out from the default dispenser when you tap dispense button on the control console. Choose the Type of the dispenser. Note: An Address shown between 10 and 20 means the dispenser setup is successful.
	Tap Save to save the configuration. Confirm the configuration by tap Finish.
	System will enter the home screen automatically.

3.3 System Setup

Swipe a finger down the top section of the home screen to see the drop-down bar. Make sure the system is in Ready mode. If not, toggle between Standby  and Ready  modes using the drop-down bar to switch the system from Standby to Ready.



Note!

Alarms  icon and / or alerts  icon may present in the middle of the home screen when setting-up the system. It's normal. Just follow this user manual to finish the rest of operations.

3.3.1 Flushing the RO Membrane

Newly installed system or the system with newly installed RO membrane needs to flush RO membrane to clean up preservatives in the RO membrane. System will initiate a 20 - minute flush automatically after the system enters into Ready mode at the system starts up for the first time. System will enter into production mode after flush.

The system automatically detects the quality of the RO water, discharges it to the drain if it doesn't meet quality parameters, or sends it to U Pack if it passes quality parameters.

3.3.2 Degassing the System

- Remove the stopper from the UP dispenser outlet.
- Screw on the barbed adapter (in the accessory bag) to the dispenser outlet. Connect the PVC tubing inside the accessory bag; insert one end to the adapter and put the other end into the drain.
- Press the dispense button to enter **Wait** mode until dispensing water. Gas inside the system will be released out of the system.
- Wait till no more gas bubbles coming out of the tubing. Press the dispense button again to stop degassing. Screw off the adapter.

3.3.3 Installing the Final Filter

- a) Open the attached final filter package.
- b) Screw the final filter onto the remote dispenser until finger-tight (no leak at dispensing). Do not over tighten it as it may damage threads.
- c) Press the dispense button to flush out gas in the filter.
- d) Press the dispense button again to stop dispensing.

This completes the system hardware installation.

3.4 Information Menu

Control Console Main Page

Section 1: Drop-down menu, including the located time and system operating status.

Standby
 Ready

Section 2: UP water quality, TOC, temperature, operation mode and UP water recirculation icon.

Section 3: RO water quality, temperature and operation mode.

Section 4: UP water dispensing set up

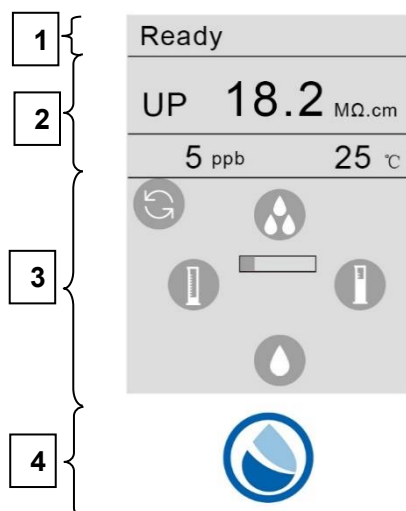
Volumetric dispensing button, decrease the volume, down to 0.1 L.
 Volumetric dispensing button, increase the volume, up to 99.9 L.
 Dispense rate down button, decrease the rate.
 Dispense rate up button, increase the rate up to 2 L/min.
 Bar graph shows the relative dispensing rate.
 Dispensing button, press the button to dispense water after setting up the volume. If it displays 0.0 L, it's non-volumetric dispensing.

Section 5: RO water dispensing set up
 Refer to Section 4

Section 6: Alarms icon and alerts icon present in the middle to display current alarms or/and alerts.

Section 7: Indicates multiple screens. Swipe left & right anywhere in the blank area on the screen to switch pages

Dispenser



Section 1: System operating status (including Ready, Dispense, Standby, Pressure Relief and Recirculation).

Section 2: Water quality parameters. UP dispenser displays water resistivity, TOC and temperature. RO dispenser displays water conductivity and temperature.

Section 3: Dispensing set up



Recirculation button



Volumetric dispensing button, decrease the volume, down to 0.1 L.



Volumetric dispensing button, increase the volume, up to 99.9 L.



Dispense rate down button, decrease the rate.



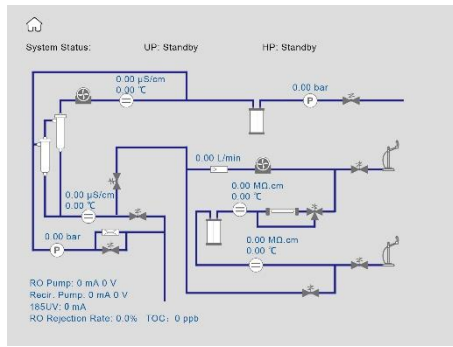
Dispense rate up button, increase the rate up to 2 L/min for RO dispenser.



Bar graph shows the relative dispensing rate.

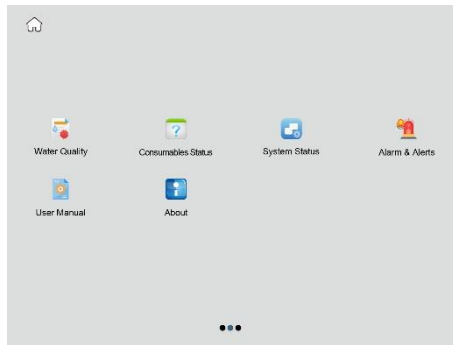
Section 4:  Dispensing button

Control Console - More Pages



Information Menu I

Swipe the screen to the right. This page shows system operation status and parameters in a flowchart format.



Information Menu II

Swipe the screen to page 2 in Standby mode. Page 2 is Information Menu which contains information about system status and history.

Tap Cond.	358.1 $\mu\text{S/cm}$	23.2 $^{\circ}\text{C}$	RO Feed Cond.	407.8 $\mu\text{S/cm}$	23.2 $^{\circ}\text{C}$
RO Product	20.0 $\mu\text{S/cm}$	23.2 $^{\circ}\text{C}$	RO Rejection Rate	95.1%	
RO Feed Pressure	1.5 bar		RO Pressure	4.3 bar	
HP Resist.	20.0 $\mu\text{S/cm}$	23.2 $^{\circ}\text{C}$	HP Disp. Rate	0.0 L/min	
UP	18.2 M.D.cm	23.2 $^{\circ}\text{C}$	TOC	3 ppb	
UP Disp. Rate	0.0 L/min				

Water Quality displays measured values about water.

- UP, TOC and Temp.:** UP water resistivity, TOC and temperature are monitored.
- RO and Temp.:** RO water conductivity, temperature and rejection are monitored.
- Feed and Disp. Rate:** Feed water flow rate and UP water dispense rate are monitored.

P Pack	OK	Installation Date 2020-12-28 Replace in 180 Days	CAT NO: 171-1255 LOT NO: 520PD02401	
U Pack	OK	Installation Date 2020-12-28 Replace in 360 Days	CAT NO: 171-1258 LOT NO: 520PD41601	
185 UV	OK	Installation Date 2020-12-28 Replace in 720 Days	CAT NO: 171-1283 LOT NO: UV200101B	
0.2 μm Final Filter		Installation Date 2020-12-28 Replace in 360 Days	CAT NO: 171-1262 LOT NO: 520PX10201	

Consumables Status

Displays details of consumables installed, including processed volume/time, installation date, remaining life, catalog number and lot number.

You can order consumables by clicking  on this page.



Means the component working normally.



Means the component needing to be replaced.

Device Status	Execution Board OK	RFD OK	Dispenser OK
System Status	UP: Standby	HP: Standby	
RO Inlet Valve		RO Reject Valve	
RO Drain Valve			
UP Recir. Valve			
185 UV Lamp	 0 mA		
RO Pump	 0 mA	24V	
Recir. Pump	 0 mA	24V	

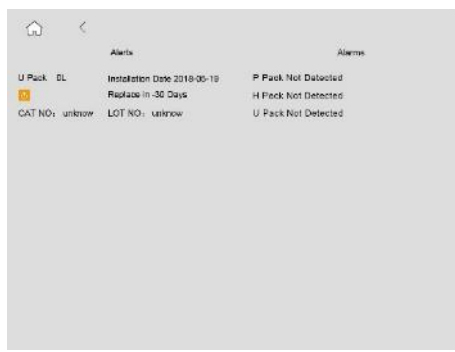
System Status provides information about the components operation status.



Means the component is functional. The screen displays operating current or voltage for UV lamp and pump.



Means the component is off.



Alarms & Alerts:

Alarms sign appears when there is a technical issue. Some **red alarms** stop the system from operating to protect the system.

Alerts appear when a consumable needs to be replaced or a non-critical event occurs.



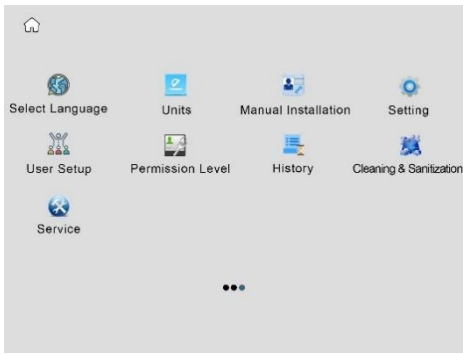
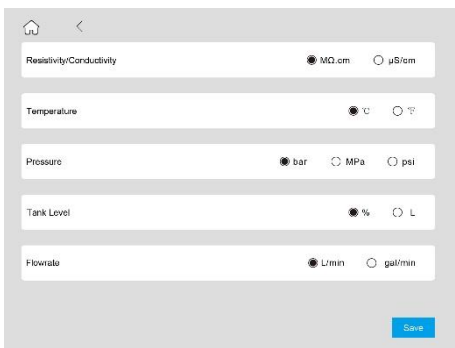
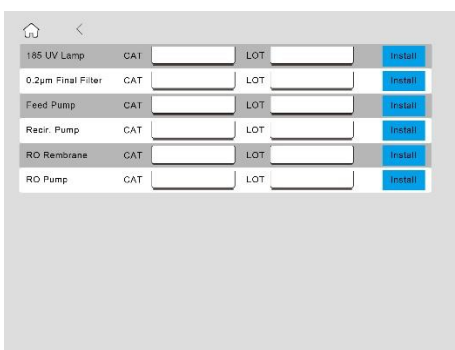
About

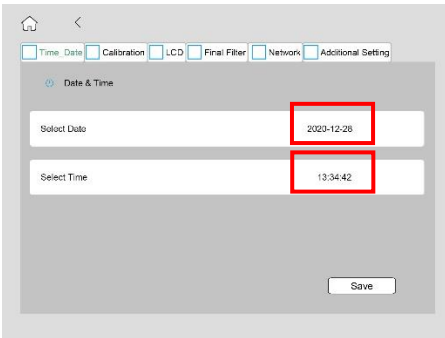
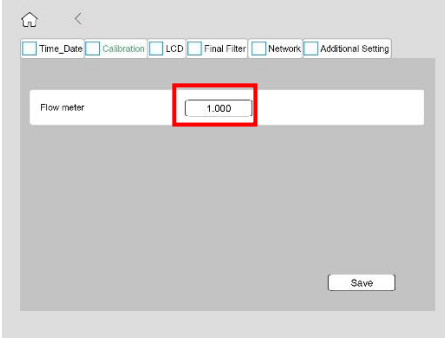
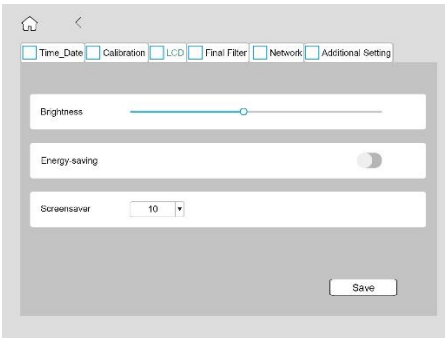
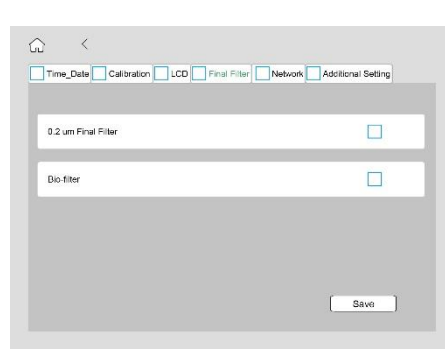
Including: catalog number, serial number, production date, installation date and software version.

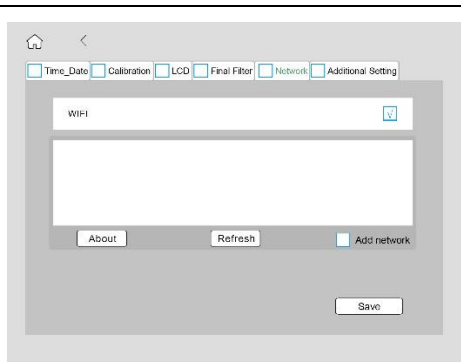
You may need to provide some or all of these information when requesting service.

3.5 Maintenance Menu

Notes: Maintenance menu is password protected for system administrators. The log-in information is in the USB stick shipped with the system.

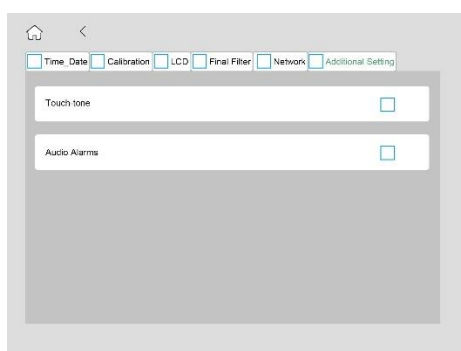
	Maintenance Menu Swipe left on the Screen to page 3 in Standby mode. Page 3 is Maintenance Menu which contains parameter setup, RO cleaning, etc. Page 3 is a manager authorized operation interface. When clicking the above options, a password login popup will appear. Enter the user name and password in the popup and click "login" to do the operation. The initial manager user name is "manager", please refer to the "password.txt" file in the USB flash drive for the password.
	Select Language (no password required) Choose your working language desired.
	Units (no password required) Change unit of display, including water quality, temperature, pressure and dispense rate.
	Manual installation Users can manually fill in the CAT number and LOT number of consumables in the "manual installation" interface. Click "install" in the next circled box to manually enter information without scanning the RFID. Pay attention to letter case when entering. Note: The letters in the CAT number must be capitalized.

	Setting Including time & date, calibration, audio, LCD and additional setting. Time & Date Choose the locate time and date.
	Note: If the power outage exceeds 3 days, a pop-up box will appear to reset the system Time & Date.
	Calibration The calibration menu is used to calibrate water dispense rate from the dispenser.
	LCD Change screen brightness and choose energy-saving if needed. Set the time for screensaver.
	Final Filter Put “√” in the box of 0.2 µm Final Filter if a 0.2 µm final filter will be installed. Put “√” in the box of Bio-filter if a Bio-filter will be installed. Note: In this interface, restarting the system is required after tapping Save, or the setting will not take effect prior to a Restart.



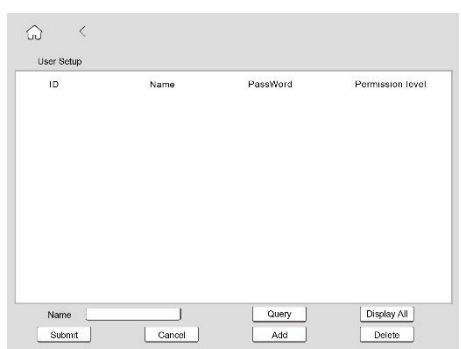
Network

In this interface, you can connect the system to WiFi network, make sure there is a “√” in the box, and then tap **Refresh** to search for your accessible network name (SSID), enter its password. Tap **Save** to complete the setting. System restart is required after tapping **Save**. A clip icon  after network name (SSID) means the system is connected to this network at present. Tap **About** to view IP address for the network if needed.



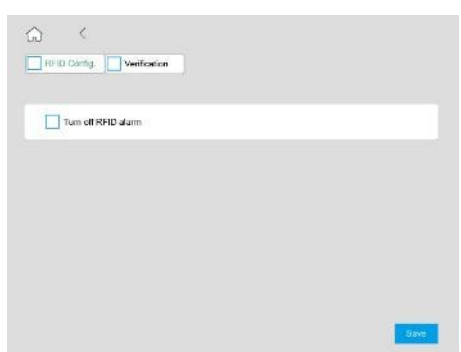
Additional Setting

Activate **Touch-tone**, the control console will make a sound when you touch the screen. Also, if activate **Audio Alarms**, the control console will make beeping sounds when alarm(s) appear(s).



User Setup

Manager can add new account to operate the system. Tap **Add**, then enter a new username and password under **Name** and **Password** to add a new account. Select the user level under **Permission**. **User** is for general user, **dispense water only**. **Manager** means a user has the right to add new accounts. Then tap **Submit** to complete the setup.

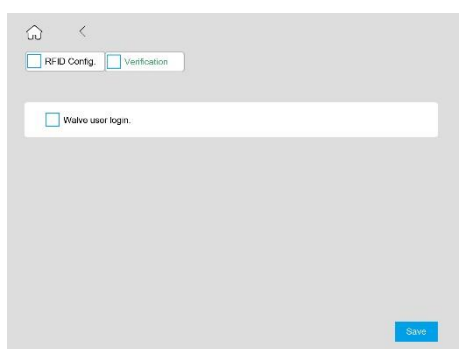


Permission Level

Including RFID Config. and Verification.

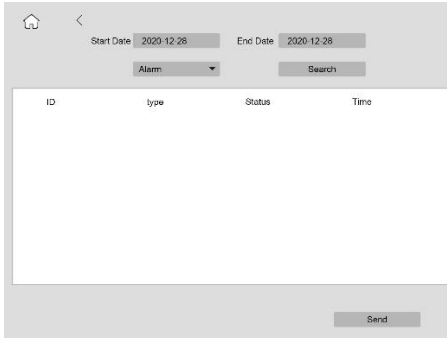
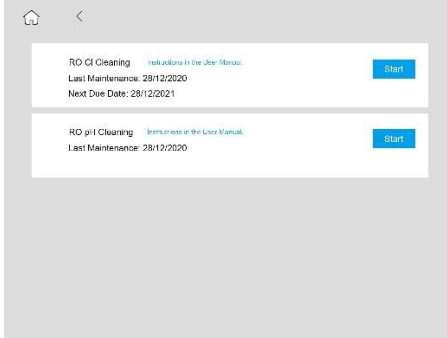
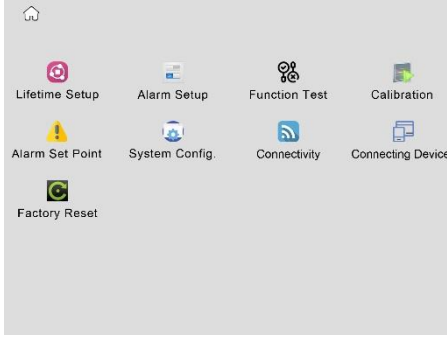
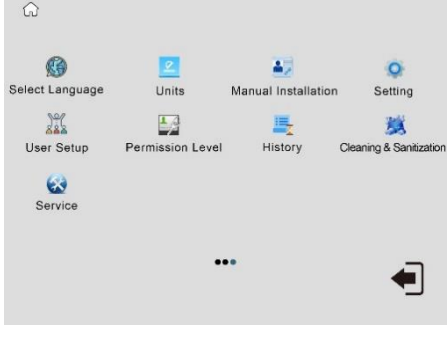
RFID Config.

Turn on and off RFID alarm. System wouldn't show alarms about consumable status and type.



Verification

Turn on and off user verification. Users don't need to enter a name when replacing consumables if it is checked. It's off by default.

	History Provide historical information related to your system. The system data can be filtered by date and the selected data can be exported.
	Cleaning & Sanitization Shows information about the cleaning that is performed on the system. Including Cl cleaning and pH cleaning.
	Service Service menu is an engineer authorized operation interface.
	After the maintenance operation, click the icon  in the lower right corner to exit the login.

4 DISPENSING WATER

Water can be dispensed from the dispenser handle either by pressing the dispense button on the handle or from the main control console.

4.1 Dispensing RO Water

4.1.1 Press the dispense button  on the dispenser to enter **Wait** mode until dispensing RO water. Press the dispense button again  to stop dispensing. Or

4.1.2

	Tap the left cylinder icon to decrease the volume to 0 L. Tap the dispense button  to enter Wait mode until dispensing RO water. Tap it again to stop dispensing.
---	--

4.2 Dispensing UP Water

4.2.1 Tap recirculation icon  on the main console or  on the dispenser to start recirculation. When the resistivity reaches 18.2 MΩ.cm, press the dispense icon  on the monitor or  on the dispenser to enter **Wait** mode until dispensing UP water. Press the dispense icon again to stop dispensing.

4.3 Adjusting Dispense Rate

To change the dispense rate, tap the icon  or  on home screen or dispenser monitor.

4.4 Volumetric Dispensing

	Setting up is the same on the dispenser or the control console. Tap recirculation icon  on the home screen to enter Recirculation mode until the resistivity reaches 18.2 MΩ.cm.
	Tap the right cylinder icon to increase or the left cylinder icon to decrease the volume. You can set the volume between 0.1 and 99.9 liters.

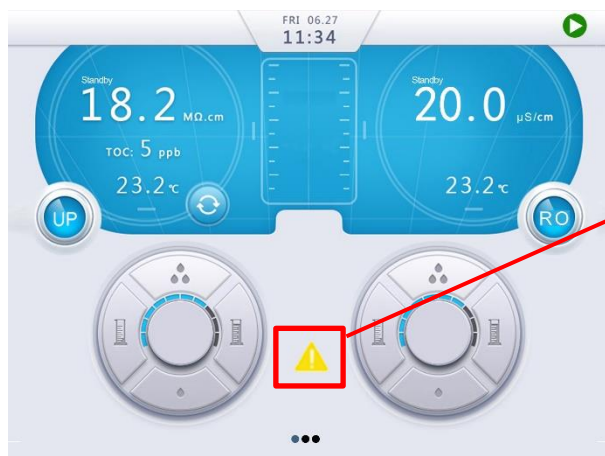


Tap the middle dispensing icon  to enter **Wait** mode until dispensing water. Volume dispensed is displayed at the start button position. Volumetric dispensing will stop automatically after completion.

Note: If the interval for dispensing water is less than 1 minute, press dispense button will enter **Product** mode directly.

5 MAINTENANCE

5.1 Basic Alerts



Message	Solution
RO Cl ₂ Cleaning Last Maintenance XXXX-XX-XX	Perform RO Membrane Cl ₂ Cleaning
P-Pack 30000 L Installation Date: XXXX-XX-XX It is XX days overdue. Please replace it in time so as not to affect the performance of the system. CAT NO: 171-1255 LOT NO: S6PDC0101	Exchange the P Pack and reset.
U-Pack 3000 L Installation Date: XXXX-XX-XX It is XX days overdue. Please replace it in time so as not to affect the performance of the system. CAT NO: 171-1258 LOT NO: S6PDC0101	Exchange the U Pack and reset.
185 UV 500 H Installation Date: XXXX-XX-XX It is XX days overdue. Please replace it in time so as not to affect the performance of the system. CAT NO: 171-1283 LOT NO: S6PDC0101	Exchange the 185 nm UV lamp and reset.
Final Filter 360 D Installation Date: XXXX-XX-XX It is XX days overdue. Please replace it in time so as not to affect the performance of the system. CAT NO: 171-1262 LOT NO: S6PDC0101	Exchange the final filter and reset.

5.2 Basic Alarms

If you encounter any electronic error, **restart the system first before doing any troubleshooting.**

Alarm	Solution
Low Feed Water Pressure	- The system detects the feed water pressure is below the lower limit. - Check the tap water faucet. - Replace prefilters in the prefiltration pack when check the prefilter is clogged. - Contact VWR's engineer to have an external booster pump or solenoid valve installed if there is still the problem.
Feed Water Conductivity > SP	- Feed water quality is too poor - Contact a VWR professional engineer.
RO Product Conductivity>SP	- RO product conductivity is above preset value. - Replace the RO membrane or contact a VWR professional engineer.
RO Rejection Rate<SP	- RO rejection is below preset value. - Replace the RO membrane or contact a VWR professional engineer.
UP Product Resistivity < SP	- UP product resistivity is below preset value. - Exchange both H Pack and U Pack cartridges, or contact a VWR professional engineer.
Pure Water Dispensing Resistivity < SP	- HP product resistivity is below preset value. - Exchange T Pack or contact a VWR professional engineer.
Check 185 UV Lamp	- The 185 nm UV lamp may be burnt. - Exchange the 185 nm UV lamp or contact a VWR professional engineer.
xx-Pack Error!, system does not start	- Incorrect cartridge is installed. Reinstall to the correct position - Turn RFID alarm off, so system can start
P-Pack Not Detected	- Reinstall the P Pack. - Check the RFID chip. - Contact a VWR professional engineer.
U-Pack Not Detected	- Reinstall the U Pack. - Check the RFID chip. - Contact a VWR professional engineer.
Feed Temperature>45°C	Contact a VWR professional engineer.
Feed Temperature<5°C	Contact a VWR professional engineer.

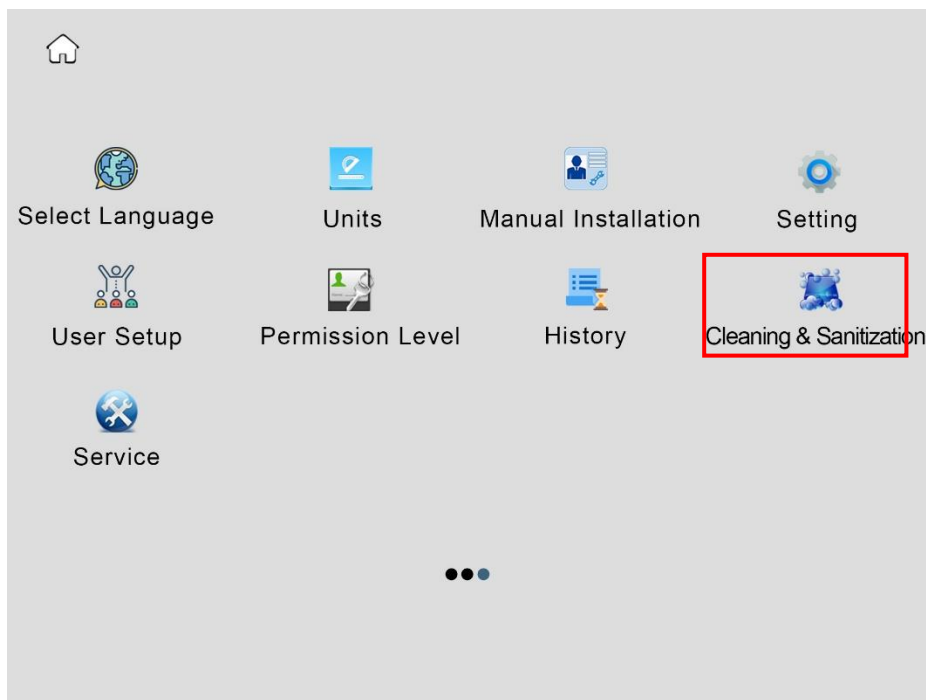
RO Product Temperature>45°C	• Contact a VWR professional engineer.
RO Product Temperature<5°C	• Contact a VWR professional engineer.
UP Product Temperature>45°C	• Contact a VWR professional engineer.
UP Product Temperature<5°C	• Contact a VWR professional engineer.
Cannot dispense water from dispenser. It shows “In Use”	• Another dispenser connected to the same systems is being used. System allows one dispenser working at a time. Wait till the other dispenser stopped dispensing.
System leakage	• The system detects a leakage. • Shut off power and water supply. • Remove system side panels, turn on water supply and check leaking points. • Reconnect or replace leaking parts.

5.3 System Cleaning

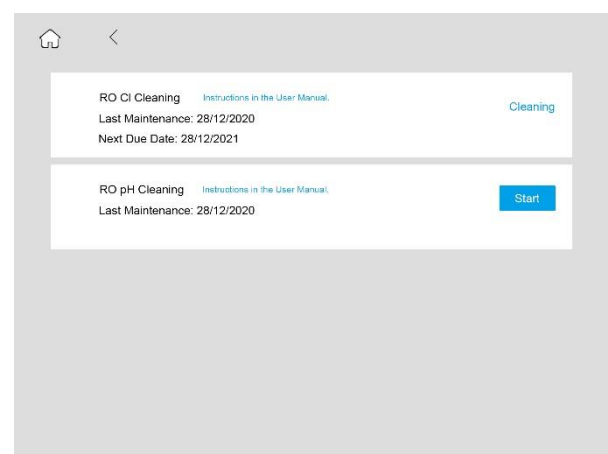
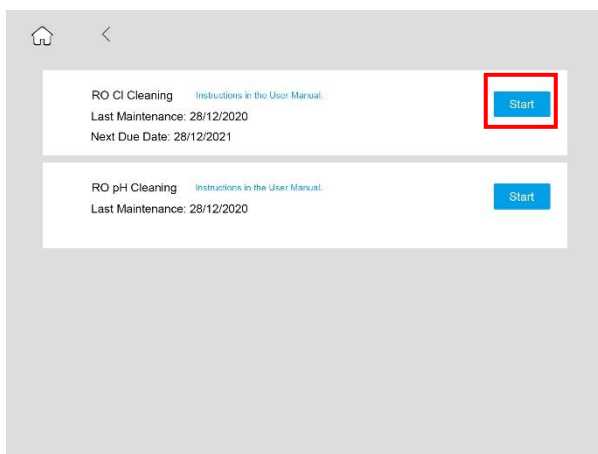
5.3.1 CI Cleaning

CI cleaning is recommended once a year and it takes 20 minutes to complete.

- Switch the system to Standby mode and remove the left side panel.
- Remove the P Pack cartridge.
- Install the Cleaning Pack (come with each new system). Need to add one chlorine pill in to the Cleaning Pack.
- Tap **Cleaning & Sanitization** on **Maintenance Menu** to enter setup menu.



- Click **Start** to enter cleaning process. Choose **Yes** on the pop-up dialog.



- System will be back to Standby mode after CI cleaning stops.
- Remove the Cleaning Pack and install P Pack back.
- Switch the system to Ready mode.

5.3.2 pH Cleaning

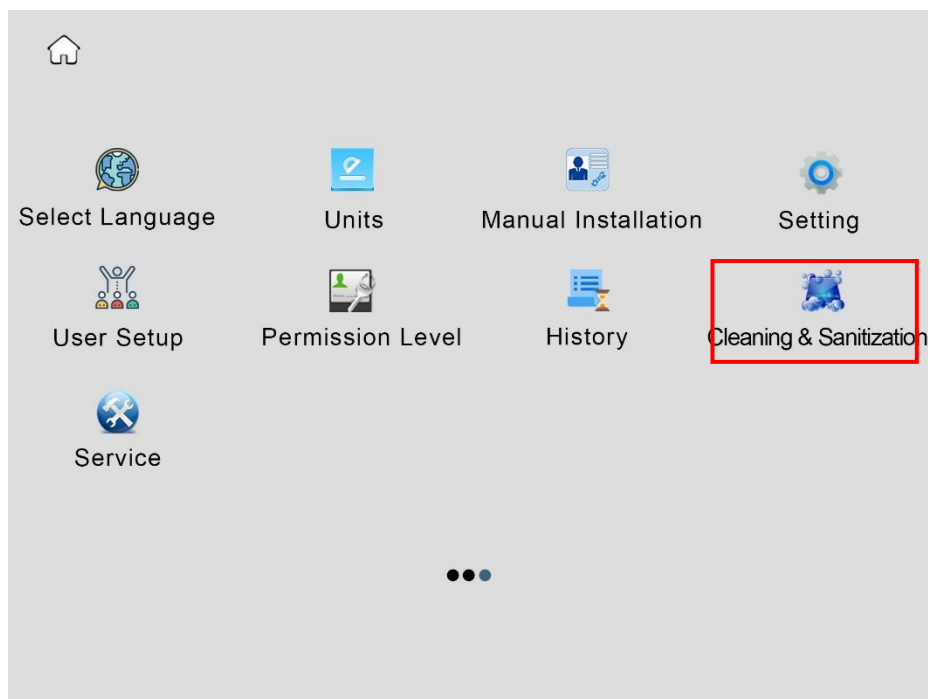
pH cleaning is recommended for the following situations and it takes 90 minutes to complete.

1. RO water production rate decreased significantly;
2. RO rejection rate is significantly reduced.

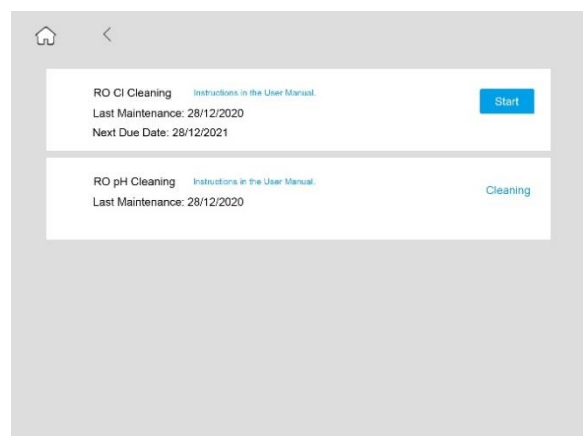
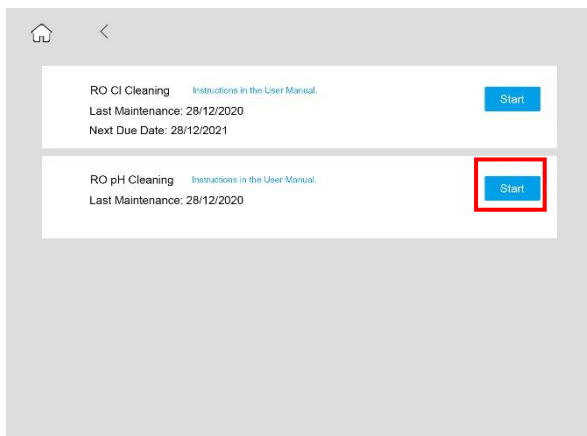
pH cleaning are divided into acid cleaning and alkali cleaning. The acid cleaning is used to remove scale and other inorganic compounds attached to the RO membrane, and the alkali cleaning is used to remove adherent organic substances on the RO membrane.

The Acid cleaning steps are as follows:

- a) Switch the system to Standby mode and remove the left side panel.
- b) Remove the P Pack cartridge.
- c) Add 5 g analytical grade citric acid into the Cleaning Pack.
- d) Install the Cleaning Pack to the position of P Pack.
- e) Tap **Cleaning & Sanitization** on **Maintenance Menu** to enter setup menu.



- f) Click **Start** to enter cleaning process. Choose **Yes** on the pop-up dialog.

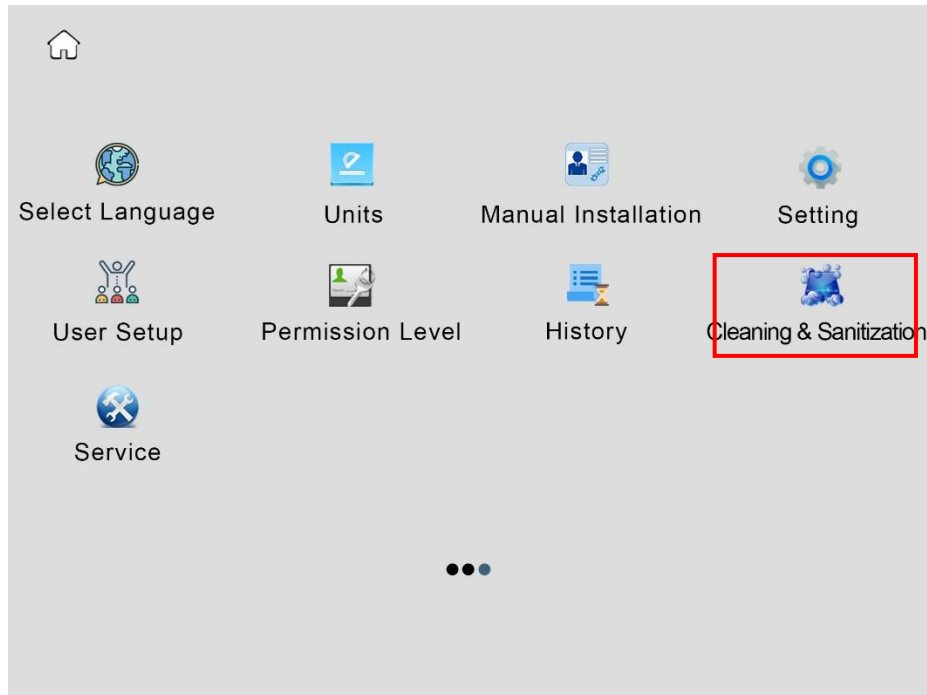


- g) System will be back to Standby mode after pH cleaning stops.

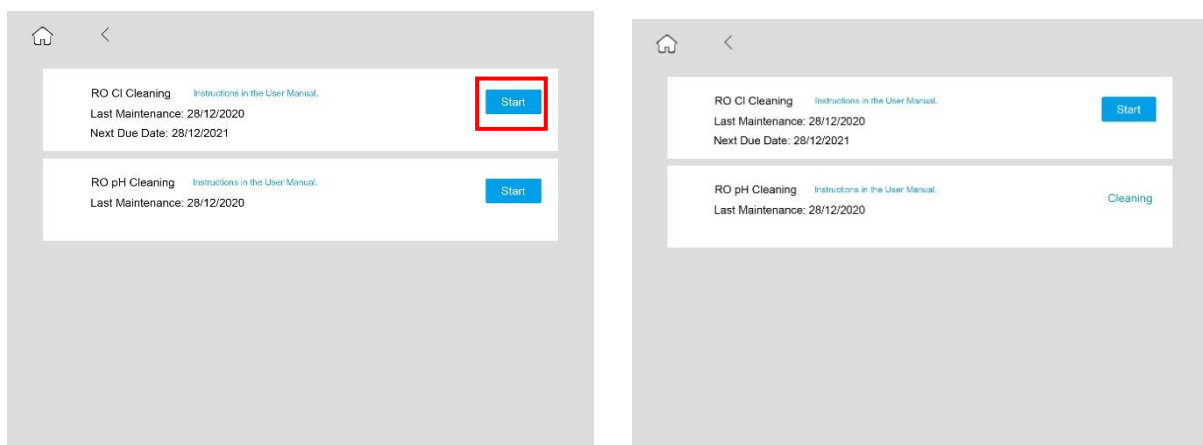
- h) Remove the Cleaning Pack and install P Pack back.
- i) Switch the system to Ready mode.

The Alkaline cleaning steps are as follows:

- a) Switch the system to Standby mode and remove the left side panel.
- b) Remove the P Pack cartridge.
- c) Add 5 g analytical grade NaOH into the Cleaning Pack.
- d) Install the Cleaning Pack to the position of P Pack.
- e) Tap **Cleaning & Sanitization** on **Maintenance Menu** to enter setup menu.



- f) Click **Start** to enter cleaning process. Choose **Yes** on the pop-up dialog.



- g) System will be back to Standby mode after pH cleaning stops.
- h) Remove the Cleaning Pack and install P Pack back.
- i) Switch the system to Ready mode.

If the effect is not obvious after the cleaning, need to do pH cleaning once again. If there is still no obvious improvement after cleaning twice, replace the RO membrane.

5.4 Replacing Consumables

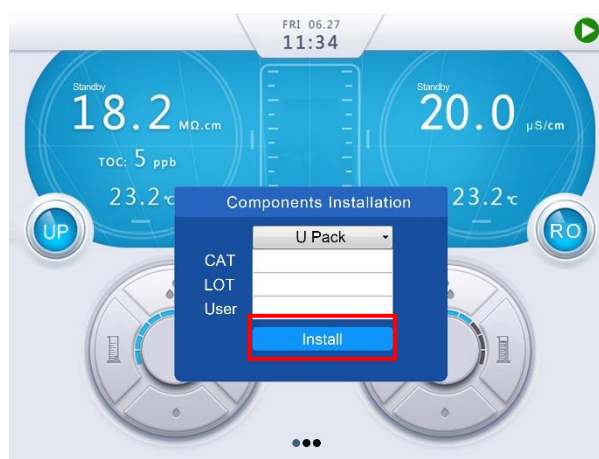
Consumable life, in particular cartridges, is heavily dependent upon feed water quality and amount of water used. Below is a general guideline of frequency to replace consumables.

Consumables		Replacement Frequency	Performance Indicator
P Pack		6 months	May cause irreversible scaling and oxidation of RO membrane.
Dual UV lamp		24 months	Increase in TOC
Final Filter	Remove bacteria and particles	12 months	Reduce in flow rate
		When needed	Flow rate is less than 1 liter per minute
U Pack	Polishing pure water	When needed or 12 months	Reduce in resistivity of ultrapure water
Bio-filter	Removes pyrogen, RNAses and DNAses	3 months	Increased pyrogen, RNAses and DNAses levels

System administrator can set Permission for cartridge replacement in Maintenance Menu. System default is OFF. If the **Permission** is **On**, User need to enter a name to verify the installation. Only authorized Users registered in the system are allowed to install or replace consumable.

The following consumables need to be registered to the system on the RFID tag reader at installation.

Scan the RFID chip for the installed RO Pack, 185 nm UV lamp and final filter in their corresponding box to register the consumables. Tap **Install** when a pop-up dialog is appear.



5.4.1 Replacing the VWR P Pack and VWR U Pack Cartridges

- a) Switch the system to Standby mode, then remove the system left and right side panels.
- b) Turn the lever on the cartridge adapter to right to the unlock position, pull the cartridge downwards to disengage the cartridge from its adapter. Install the new one as described in 2.4.4.
- c) After installation, do not install the system side panel. Power up and degas the system, and check any leakage. If leaks, reseal the cartridge, then test again.
- d) If there is no leakage, install back the right side panel.
- e) Remove the final filter before replacing VWR U Pack. Release pressure by dispensing some water. Install the final filter after installing the cartridge.
- f) Tap **Install** on the pop-up dialog to reset the cartridge life.

5.4.2 Replacing the UP UV Lamp (185 nm)



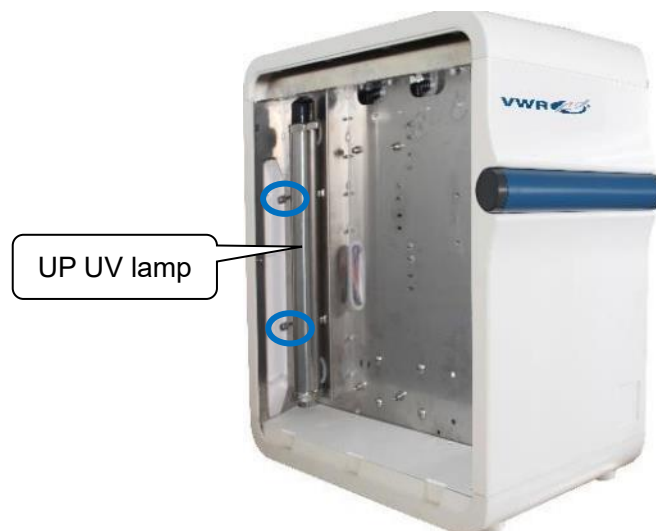
Warning!

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



- a) Turn off the power.
- b) Remove the left side panel to find the UV lamps.
- c) Loosen the UV lamp chamber screws. As shown above, the blue circles indicate the UP water UV lamp chamber screws.
- d) Tilt the upper end of the UV lamp chamber out.



- e) Wear gloves included in the new UV lamp package. Avoid direct skin contact with the quartz glass of the UV lamp. Remove the UV lamp cover to expose the UV lamp. Unplug the UV lamp from its power cord, and then carefully remove the old UV lamp from the chamber.



- f) 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, and then gently insert the new UV lamp completely into the chamber.



- g) Cap the UV chamber with the black mask.
- h) Install the UV lamp chamber back to the original position.
- i) Turn on the system power. Scan the RFID chip for the UV lamp on the system. Tap **Install** on the pop-up dialog to reset the corresponding UV lamp.

5.4.3 Replacing the RO Pack

- a) Switch the system to Standby mode, then remove the system right side panel.
- b) Turn the lever on the cartridge adapter to right to the unlock position, pull the cartridge

downwards to disengage the RO Pack from its adapter. Install the new one as described in 2.4.4.

- c) After installation, do not install the system side panel. Power up and degas the system, and check any leakage. If leaks, reinstall the cartridge, then test again.
- d) If there is no leakage, install back the right side panel.
- e) After RO Pack is installed, the system will perform 5 minutes RO flush when switching to Ready mode.
- f) Scan the RFID chip for the RO Pack on the system. Tap **Install** on the pop-up dialog to reset the cartridge life.

5.4.4 Replacing the Final Filter

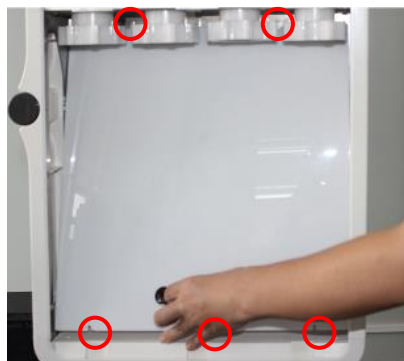
- a) Remove the final filter
- b) Install the filter into UP outlet firmly and make sure no leaking. Dispense UP water to degas. Stop UP dispensing, installation finished.
- c) If a final ultrafiltration cartridge is needed, install the device the same way as the final filter.



Note: Any change of type of final filter, need to reconfigure the final filter types in the setting menu (Maintenance menu→ Setting→ Final Filter)!

5.4.5 Replacing the pipe filters

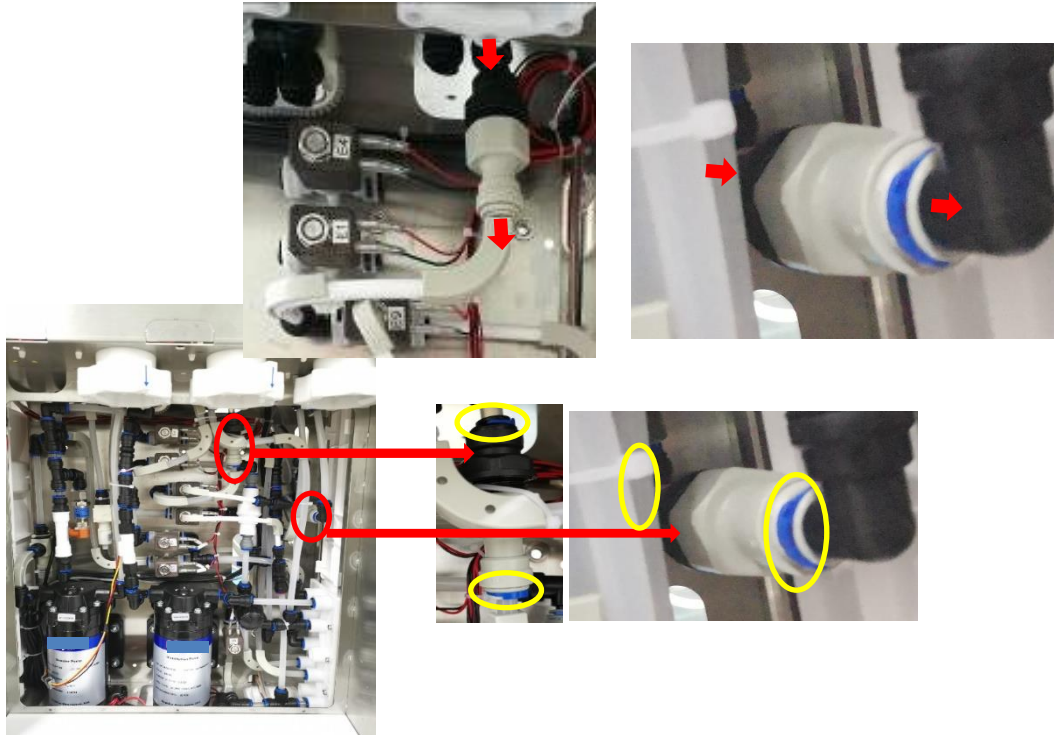
- a) Switch the system to Standby mode, Tap the dispense button  on the dispenser to dispense water. Gas inside the system will be released out of the system. then remove the system right side panel.
- b) Turn the lever on the cartridge adapter to right to the unlock position, pull the cartridge downwards to disengage the cartridge from its adapter. Remove all the cartridges.
- c) Using a Phillips screwdriver, remove the 5 screws in the red circle on the white back panel.



d) Find the pipe filters shown as the red circle in the left side picture below, remove the blue buckles shown as the yellow circle in the right side picture below.

e) Remove the pipe filters and install a new one.

Note: Please confirm each filter needs to be placed in the right direction.



5.4.6 Cleaning the Inlet filter

a) Switch the system to Standby mode, Tap the dispense button  on the dispenser to dispense water. Gas inside the system will be released out of the system. Close the Inlet Valve.

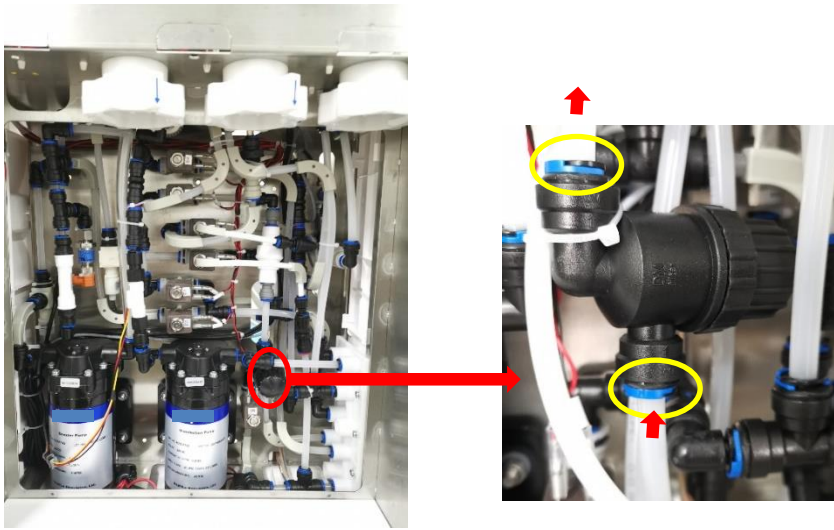
b) Remove the system right side panel.

c) Turn the lever on the cartridge adapter to right to the unlock position, pull the cartridge downwards to disengage the cartridge from its adapter. Remove all the cartridges.

d) Using a Phillips screwdriver, remove the 5 screws on the white back panel.

e) Find the inlet filters shown as the red circle in the left side picture below, remove the blue buckles shown as the yellow circle in the right side picture below.

Note: The direction of inlet filter are shown as the red arrow.



- f) Remove the inlet filter and screw out the cap in the red circle below.
- g) Clean the Strainer in the red circle below by tap water, then reinstall the strainer back into the inlet filter, and reinstall the inlet filter back into the Genie main system.

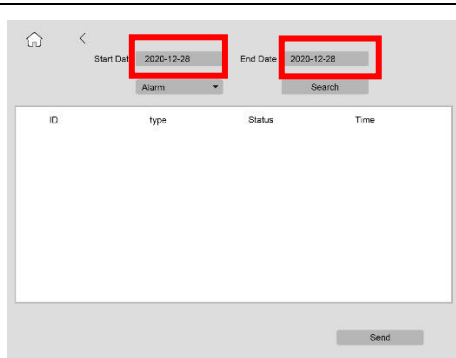


Note: Please confirm the inlet filter needs to be placed in the right direction.

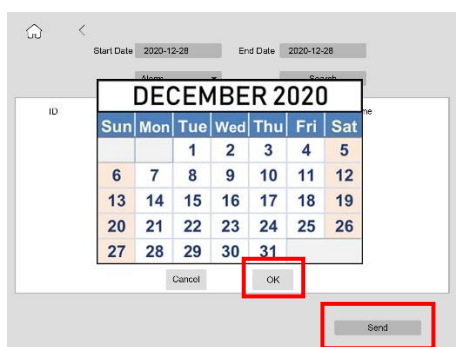


5.5 History Inquiry and Export

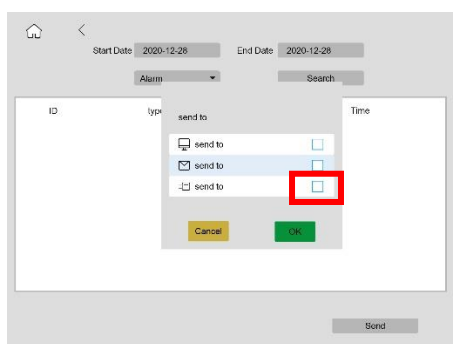
	Insert a USB stick into the port on the control console as shown.
	Swipe left on the home screen to Maintenance Menu in Standby mode. Tap History on Maintenance Menu.



Tap **Start Date** and **End Date** to choose the date that need to check.



Tap **Search** to check the history data. The history data include- water quality, alarms information, dispensing information, product information and daily record.

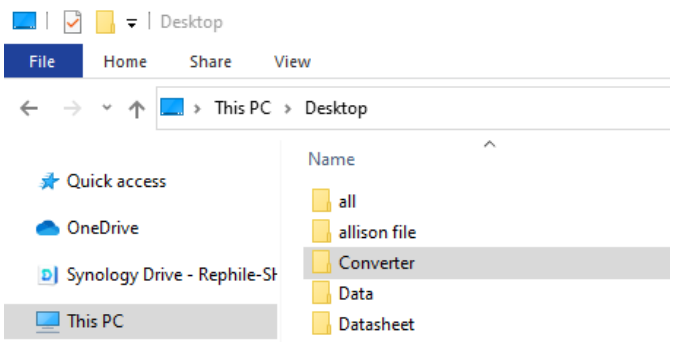
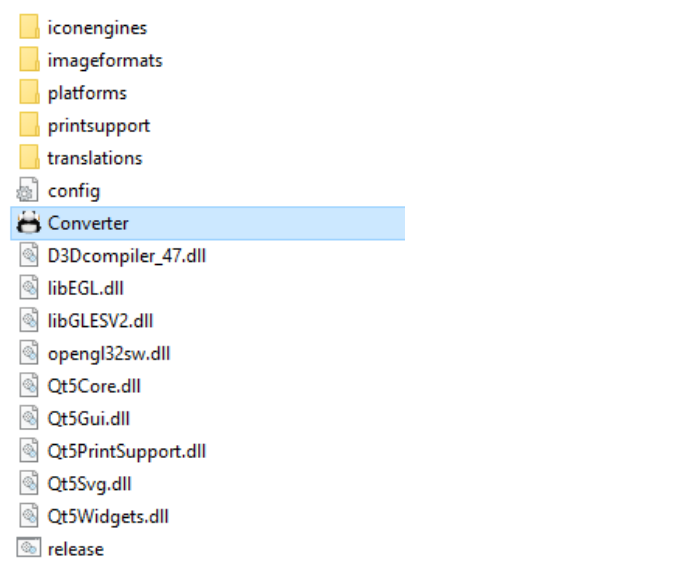
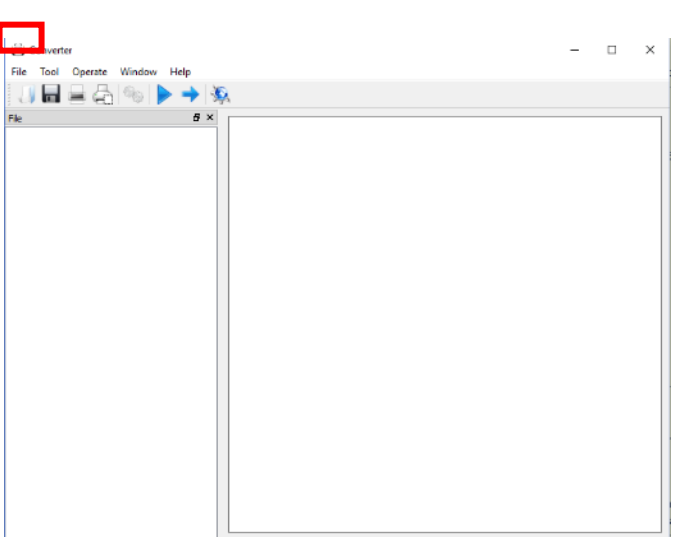


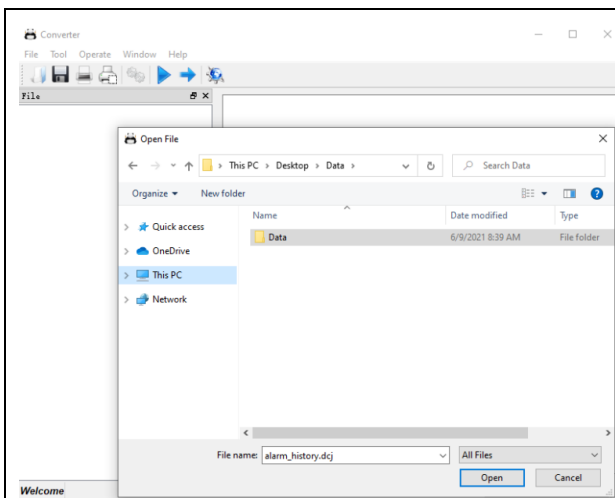
Choose the way to send the data. Check the red box and tap **OK**, then tap **Send**.

Read and Print the Exported History Data from a PC Computer:

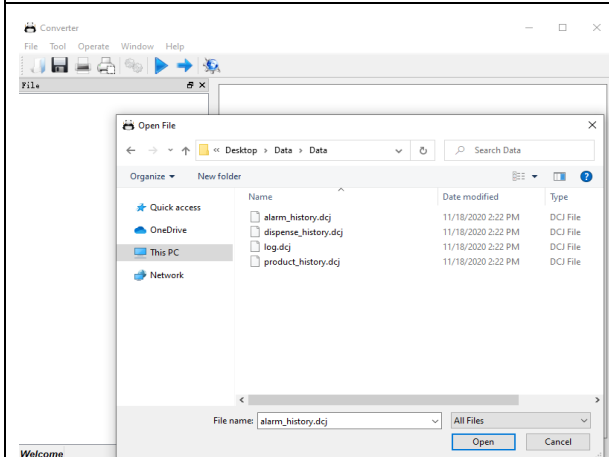
Exported data are encrypted. The files exported can be read as pdf files or printed using VWR's VWR Data Converter.

- Insert a USB stick to the right side of the control console to export the history data as shown above.
- Insert the USB stick to a computer.
- Follow the steps below to read, save or print the data for the first time, then tap the data in the .dcj file in Data to open it directly.

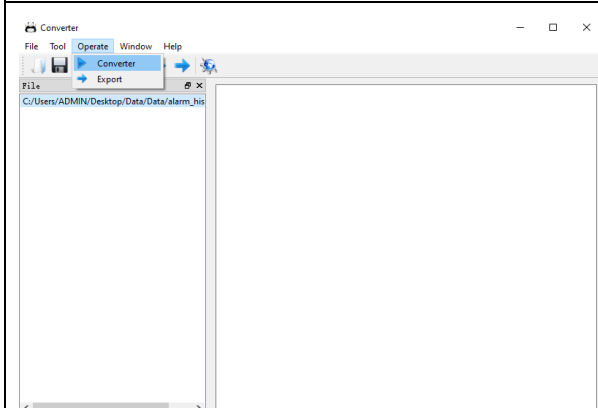
	Copy the Data Converter file to your computer from the SD card. Tap the file "Converter.exe" as an administrator to complete the registration.
	Tap the file "Converter.exe" to open it.
	Tap "File", choose "Open".



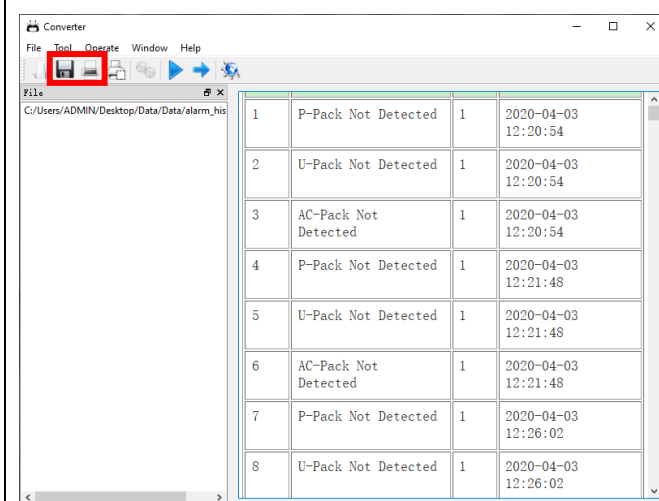
Choose the file folder **“Data”** from the USB stick to open it.



Choose the data file you wish to check and then open it.



Tap **“Operate”**, then choose **“Convert”**.



The data are as shown right.

You can **Save** the data in pdf format or **Print** it by tapping the icons as shown in the red boxes.

6 PARTS AND ORDER INFORMATION

VWR A System

Catalog Number	VWR A System
171-1249	VWR A Ultrapure water system
171-1250	VWR A Ultrapure water system with TOC

Commonly Used Consumables and parts

Catalog No.	Product Name	Description	Unit
171-1275	Dispenser kit with on-system base kit		Set
171-1284	Control console		Each
171-1255	VWR P pack		Pack
171-1258	VWR U pack		Pack
171-1260	VWR U pack (low TOC)		Pack
171-1277	VWR RO pack, 16 L/H	For VWR A, two packs need to be replaced every time	Pack
171-1283	185 nm UV lamp		Each
171-1279	RO booster pump	24 VDC, 1/pk	Each
171-1280	UP recirculation pump	24 VDC, 1/pk	Each
	Feed pump	24 VDC, 1/pk	Each
171-1262	Final filter	0.2 µm PES final capsule filter, 1/pack	Each
171-1263	Bio-filter	Point-of-use filter, 1/pack	Each
171-1476	Leak protector	Contain a feed valve and a leak sensor	Each

7 Technical service

Web Resources

Visit the VWR website at **www.vwr.com** for:

- Complete technical service contact information
- Access to the VWR Online Catalogue, and information about accessories and related products
- Additional product information and special offers

Contact us

For information or technical assistance contact your local VWR representative or visit.

www.vwr.com.

8 Warranty

VWR warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of delivery. If a defect is present, VWR will, at its option and cost, repair, replace, or refund the purchase price of this product to the customer, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

Items being returned must be insured by the customer against possible damage or loss. This warranty shall be limited to the aforementioned remedies. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

Compliance with local laws and regulations

The customer is responsible for applying for and obtaining the necessary regulatory approvals or other authorisations necessary to run or use the Product in its local environment. VWR will not be held liable for any related omission or for not obtaining the required approval or authorisation, unless any refusal is due to a defect of the product.

9 Equipment disposal



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you

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