



LABORATORY WATER PURIFICATION SYSTEM

BLPS-101 BLPS-201

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1. Preface

Dear customer, in the beginning, we sincerely thanks for your choosing our water purification system. This water purification system has incorporated new cutting-edge technology. It is installed and used easily, and can provide you with RO water and ultrapure water for science research. So, it will benefit your work.

For the water purification system's maximum efficiency, it is suggested that the user manual should be read before installation. Any question in the installation process, please contact our technology engineers or dealers.

2. Specification

Model	BLPS-101	BLPS-201
Output -2nd stage RO water*	12 or 24 liters/hour	
Output -ultrapure water	Up to 2 liters/minute (when tank is full)	
Ultrapure water quality		
Resistivity(25°C)	18.2MΩ.cm	
TOC*	<3ppb	
Bacteria	<0.1cfu/ml	
Particle(>0.1μm)	<1/ml	
Endotoxin	N/A	
RNases	N/A	
DNases	N/A	
RO water quality		
Conductivity - 1st stage RO water	Feed water conductivityx5%*	
Conductivity - 2nd stage ROwater	1-5μs/cm*	
Feed water requirements	Tap water, temperature:5-35°C,pressure:1.0-4.0bar	
Dimension and weight	LengthxWidthxHeight:545x470x610mm / Weight: 25Kg	
Electrical requirements	AC220V, 50Hz	
Power	240W	
Standard configuration	Main body (Including 1 set of cartridge)+built-in 12 liters pressure tank	
Purification System		
Sequence number	Specification	Quantity/set
LV.1	D-pp pretreatment cartridge	1

LV.2	D-ak Kinetic degradation fixation cartridge	1
LV.3	D-ac2 active carbon block cartridge	1
LV.4	12 series-150GPD RO membrane	1
	24 series-200GPD RO membrane	1
LV.5	12 series-50GPD RO membrane	1
	24 series-100GPD RO membrane	1
LV.6	D-pocart ultrapure polishing resin cartridge	1
LV.7	D-tefit (0.45+0.2) μm terminal filter	1

Table 1

REMARKS:

*The value will be influenced by temperature and feed water's quality.

3. Water Flow Chart

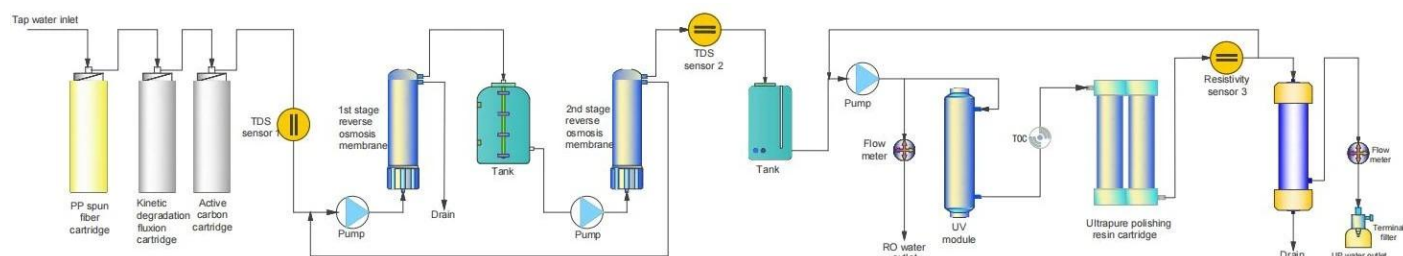


Figure 1

4. Working Environments

- Inlet water: Tap water (Conductivity<400us/cm will be suggested).
- If inlet water Conductivity<400us/cm, pretreatment is recommended. Water with higher TDS will affect the quality of outlet water and life of purification cartridge.
- Work temperature: 5-45°C
- Pressure: 1.0-4.0bar
- Power: AC220V,50Hz,240W
- 【Clean, dry working environments would be suggested!】

5. Installation

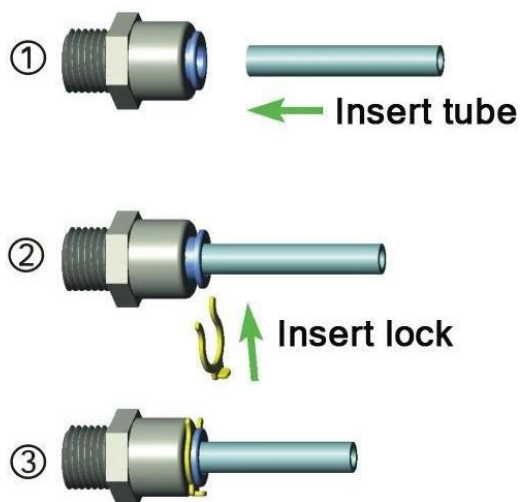
5.1 Preparation for installation

The purification system should be installed horizontally and near to tap.

5.2 Tube and adapter's connection

The adapter of the machine is high quality easy-put adapter. And material of tube is high quality's PE. Tube installation and drag diagram

Tube installation



Drag out tube

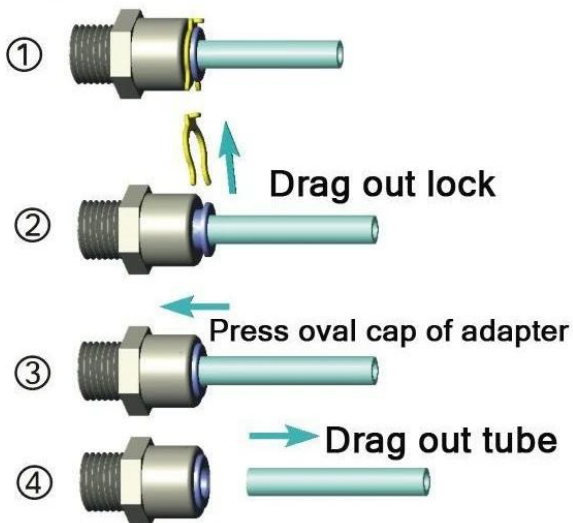


Figure 2



■ ATTENTION:

The tube should be cut with special tube cutter for rounded cut section. And rounded cut section should be guaranteed as much as possible with other cut tools.

Connect the tube-press the oval cap of the interface strongly, then insert the tube to the bottom of adapter.

Take off the tube-press the oval cap of the interface strongly, then drag out the tube. Do not drag when the tube can't be dragged out any more.

The fore-end of the tube, which has been inserted to adapter, should be cut, when it will be used again. Sufficient PTFE thread seal tape should be used in all the threaded joints for water leakage inhibitor or preventing.

5.3 Installation steps

- (1). Open the packing-case, take out main body, accessory box, water tank (optional).
- (2). Take out adapters and tube from accessory box, and read the Instruction Manual carefully.
- (3). External interface are on the back of machine, and it is labeled with different color's label. Moreover, its adapters are inserted with different color's stop plug.



■ ATTENTION:

Stop plug should be pulled out before the following steps.

(4). Connect To Tap Water

There are two ways to connect to the tap.

Guide Chart of 2 Ways to Connect To The Tap

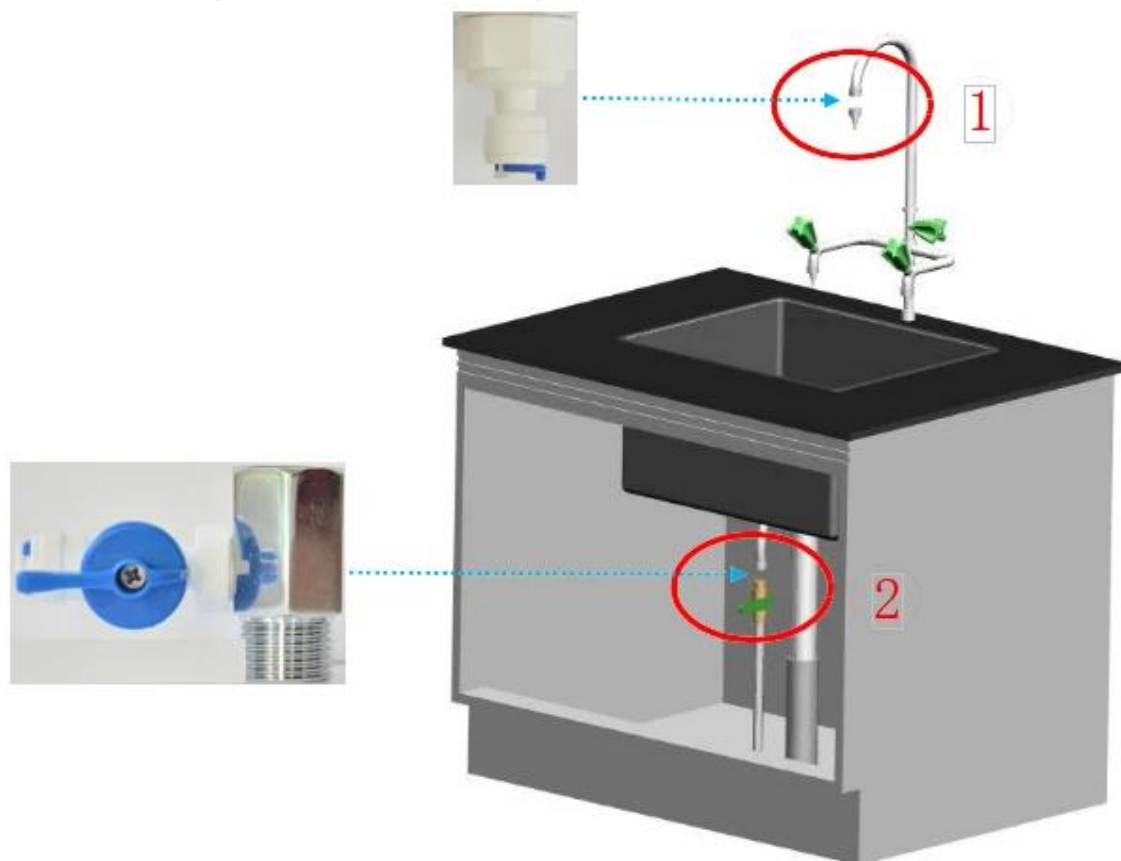


Figure 3

1,2 is the place where the interface of machine's inlet water should be connected.

1st way-with tap water adapter 1(1/2"internal thread to 3/8"fast-plug) to connect to tap water.

1st. Step: connect tap water adapter 1 to water source

Close the valve of the gooseneck. Dismantle the faucet of gooseneck. Screw tap water adapter 1 into the external thread of gooseneck.

2nd. Step: connect tap water adapter 1 to interface of machine's inlet water

Use 3/8" PE tube with a suitable length. Insert one side into the interface of tap water adapter 1, and insert the other into the interface with blue label marked "To inlet water" at the back of machine.

2nd way-with tap water adapter 2(tee joint and 3/8"ball valve) to connect to tap water.

1st. Step: connect tap water adapter 2 to water source

Close the chief valve of tap water. Dismantle the tap.

Screw the 3/8" ball valve with external thread into the side thread with internal thread of tee joint. Screw the tap into the internal thread at one end of the tee joint, and at last, screw the other end with external thread of the tee joint(with 3/8" ball valve and the tap at this time) into the internal thread of the tube, where the tap has been connected.



■ ATTENTION:

Sufficient PTFE thread seal tape should be used in all the threaded joints for water leakage inhibitor or preventing

2nd. Step: connect tap water adapter 2(3/8"ball valve) to interface of machine's inlet water

Use 3/8" PE tube with a suitable length. Insert one side into the interface of 3/8 " ball valve, and insert the other into the interface with blue label marked "To inlet water" at the back of machine.



■ ATTENTION:

Extra pretreatment filters (optional) should be connected between the water source and main body.

(5). Connect To RO Wastewater

Use 1/4" PE tube with a suitable length. Insert one side into the interface with black label marked "To drain" at the back of machine, and the other side is directed to drain. (DO NOT JAM!!)

(6). Connect to UF drain

Use 1/4" PE tube with a suitable length. One side connects with the interface with green label marked "To UF drain" at the back of machine, and the other side is directed to drain.

Thus the installation is OK.

Installation Guide Chart

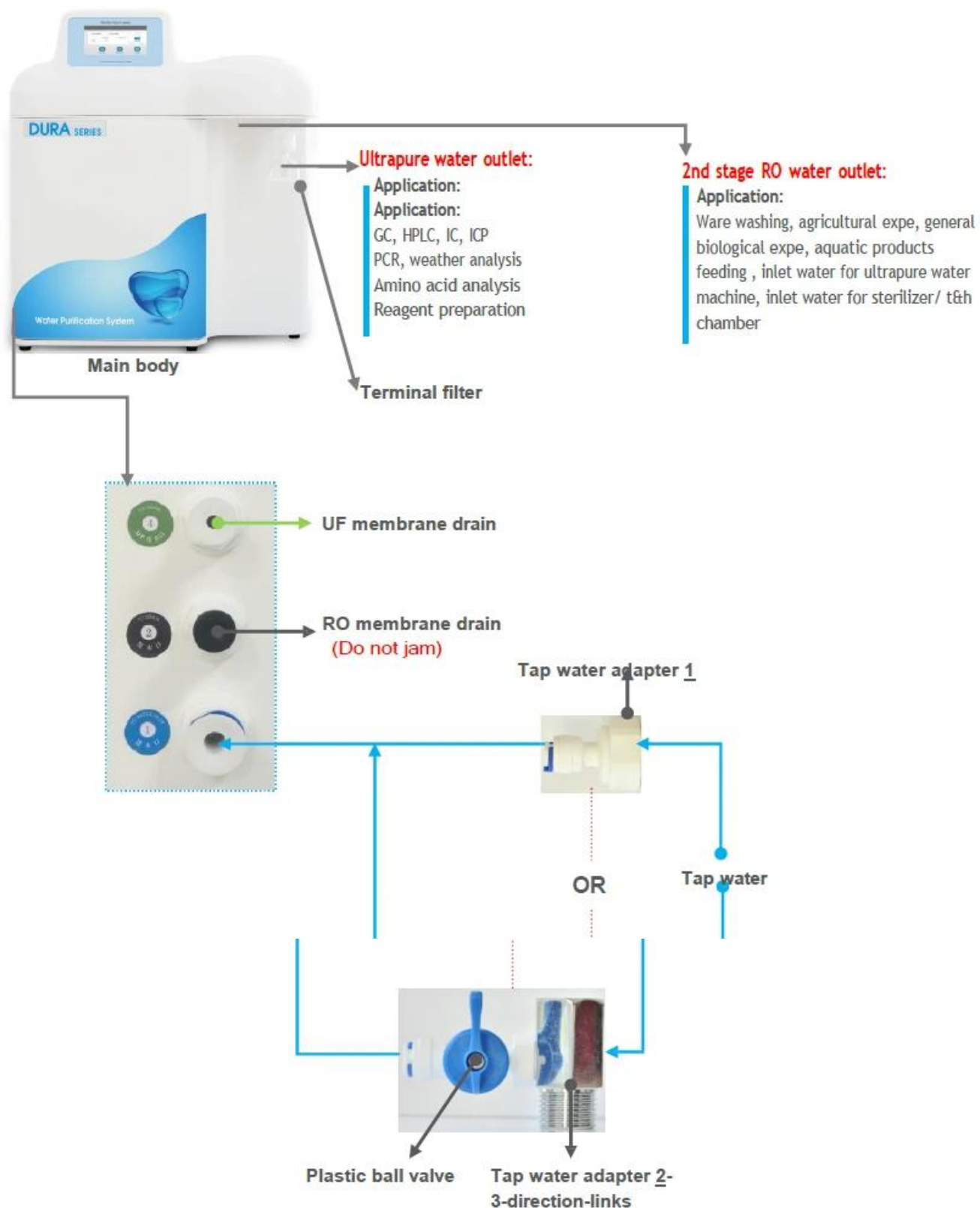


Figure 4

6. Usage Guide

All data have been set in the factory.

The machine will operate smoothly without any data-setting and debugging.

All work state will display on the LCD. If there is abnormal state, the system will alarm automatically. If data modification is necessary, specific step is in "Microcomputer Controller".

- The power switch is on the side of the shell. Specific picture is as follows

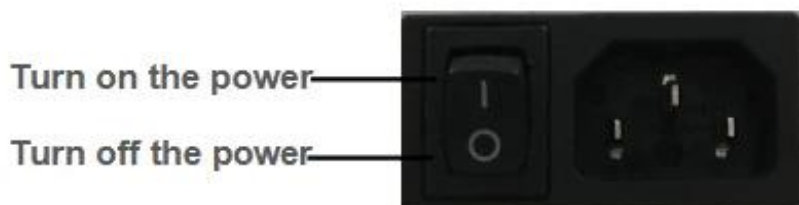


Figure 5

6.1 Starting Up

At first, make sure of that the source water is connected to the main body's inlet.

Then insert the power line into the power source and turn on the power switch.

Touch anywhere of the touch screen's boot screen. Then system will switch to main interface to produce pure water.

6.2 Getting Corresponding Pure Water

There are 2 kinds of dispensing model to get pure water, instant dispense and quantified dispense.

In the main interface, touch the icon "Dispense-pure water" or "Dispense-ultrapure water" to switch to the interface of "Dispense-pure water (reverse osmosis water)" or "Dispense of ultrapure water (ultrapure water)".

- Instant dispense

In the interface of "Dispense- pure/ultrapure water", touch the icon "Instant" to switch to the interface of "Instant dispensing-pure/ultrapure water", then pure/ultrapure water goes out. When dispensing water is ok, touch the icon "Stop" to stop pure/ultrapure water going out.

- Quantified dispense

In the interface of "Dispense- pure/ultrapure water", touch the icon "Quantified" to switch to the interface of "Setting-quantified dispense". Input the amount and confirm it, at last touch the icon "Dispense" to switch to the interface of "Quantified dispense-pure/ultrapure water". Touch the icon "Start" to get pure/ultrapure water, touch the icon "Pause" to pause, and touch the icon "Pause" again to regain water. Touch the icon "Cancel" to stop getting water.

When dispensing water process is ok, touch the icon "Back" to switch to the main interface.



■ ATTENTION:

The value of quantified dispensing water will be more accurate, when the pure water in the external pressure tank is enough.

6.3 Standby

When 2nd stage RO water and ultrapure water is not for use, the system will be in standby state. The system still produces 2nd stage RO water to store in the interior water tank. Until tank is full, the system will automatically stop. The system will begin to produce pure water again when any pure water is used.

6.4 Shutdown

Turn off the tap water valve and turn off the power switch. Then it is ok.



■ ATTENTION:

Make sure that the source water and power source is not connected, when the system is not in the use state for long time (for example, off duty).

6.5 Releasing Internal Air Of Terminal Filter

Unscrew the rounded bolt, which is on the side of terminal filter, open the valve of ultrapure water. When ultrapure water goes out, internal air of terminal filter will be released. Until terminal filter is nearly full of pure water, then tighten rounded bolt.



■ ATTENTION:

If the internal air of terminal filter is not released, pure water can not go through the terminal filter for air's resistance, then the system will stop working for high pressure.

6.6 Flushing UF membrane

Method of flushing UF membrane:

Turn on the UF drain valve (in the right side of case, connecting with UF cartridge), and press "UP" button, which are on the panel, to turn on Ultrapure water's valve.

UF drain ball valve,
Located in the left door,
specific picture at right.



Figure 5



■ ATTENTION:

The "UF drain valve" is shut on normal condition, except for flushing UF membrane. Frequency of flushing UF membrane:

At least one times every week, and at least lasting 30 seconds every times.

6.7 The Usage to Keep High Quality Pure Water

- (1).The pure water is easily polluted by surrounding environment. So getting fresh pure water is suggested.
- (2).Keep water tank from sunlight for microbes reproducing.
- (3).When get high pure water, initial high pure water is suggested to drain to get steady pure water.
- (4).Avoid air bubble when get pure water to reduce air pollution.



■ ATTENTION:

The microbe's reproducing will reduce the life of cartridge, when the machine does not work for long time. So the machine's work every 7-10days is necessary.

7. Microcomputer Controller

7.1 Specification at the beginning of working process



Picture 1

When system is powered on, the boot screen (Picture 1) will appear for about 5 seconds.



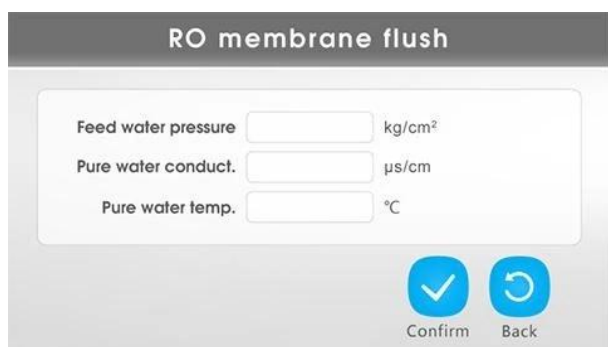
Picture 2

Touch anywhere of the display, system will detect the status of feed water automatically. No feed water or low pressure of feed water, the system will alarm instantly (Picture 2). If the status of feed water is normal, system will implement the following program.



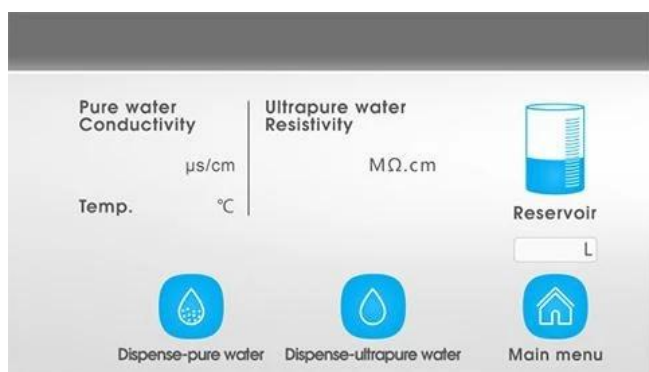
Picture 3

Detect the usage amount and cartridges' life, judge whether any value is over range. If so, system will alarm instantly to remind cartridges' replacement (Picture 3). Touch the icon "Stop alarm" to ignore the alarm. If not, system will switch to the status of flushing RO membrane directly.



Picture 4

System starts to flush RO membrane automatically. Flushing duration time: 1 minute. (Picture 4)



Picture 5

After finishing RO membrane's flushing, system will switch to main interface (Also, touch the icon "Back" to switch to main interface). (Picture 5)



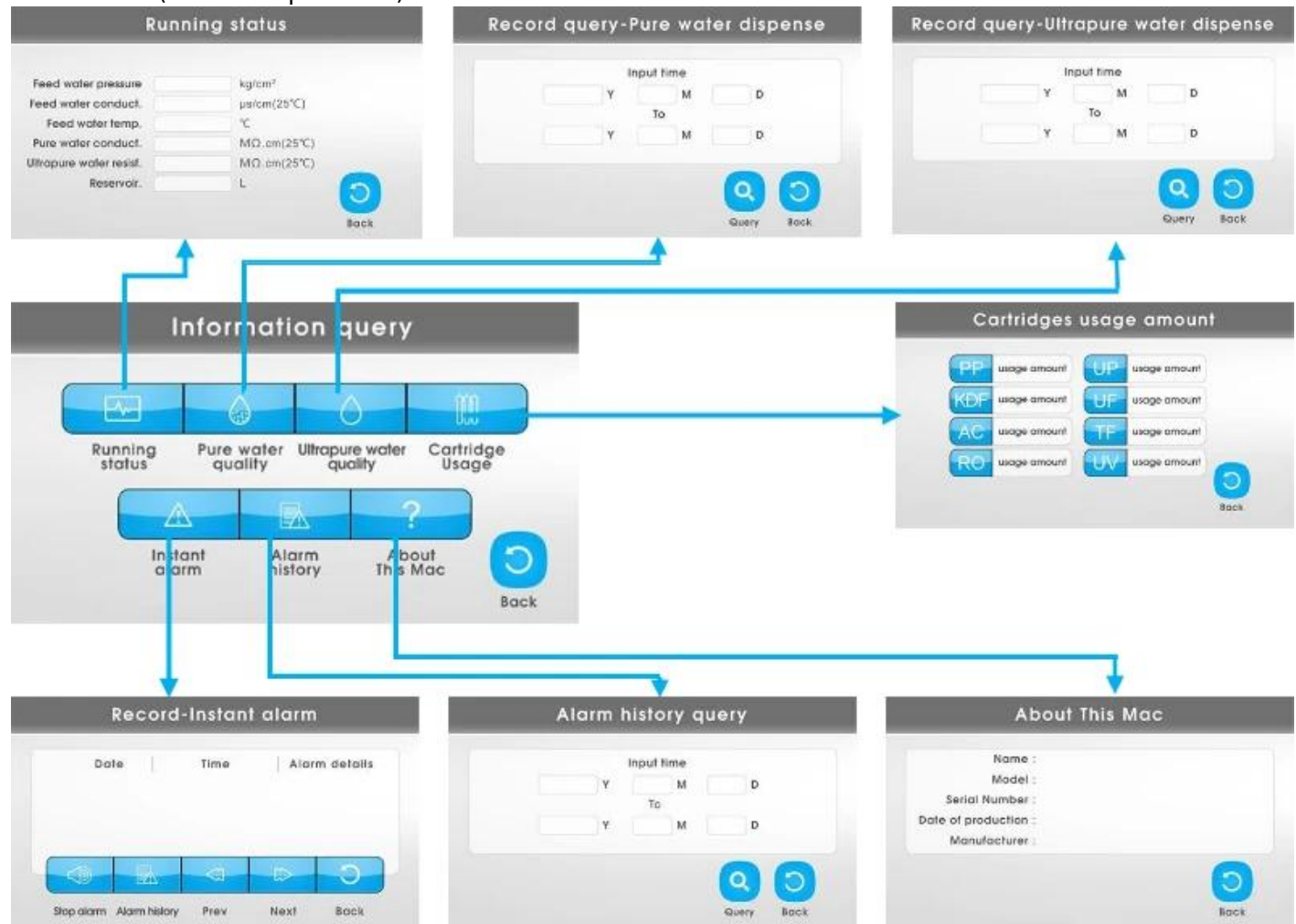
Picture 6

In the main interface, touch the icon "Main menu" to switch to the interface of Main menu. (Picture 6)

7.2 Specification of the main menu interface

(1). Information

Touch the icon of sub-menu item of "Information query" to switch to the corresponding interface of sub-menu item. (Details in picture 7)



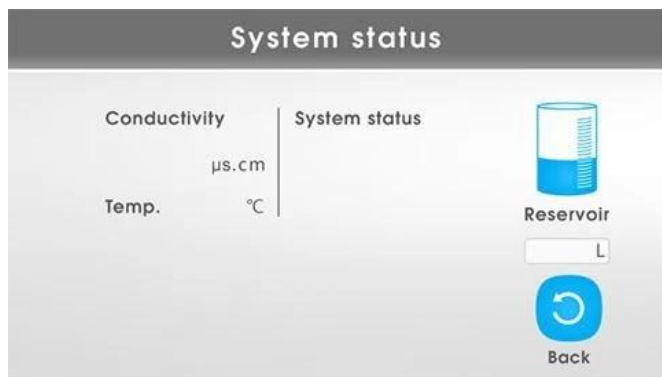
Picture 7

"Information query" includes the following sub-menu items:

- Running status: Feed/pure/ultrapure water's temperature, water quality etc.
- Pure water quality: Record query of pure water dispense
- Ultrapure water quality: Record query of ultrapure water dispense
- Cartridge usage: Record query of each cartridge usage amount
- Instant alarm: Record query of every instant alarm
- Alarm history: Record query of every alarm history
- About this mac: Information of this mac

(2). Status

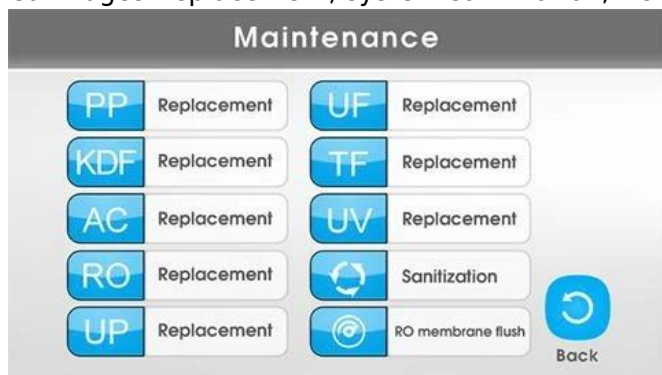
System status (details in picture 8)



Picture 8

(3). Maintenance

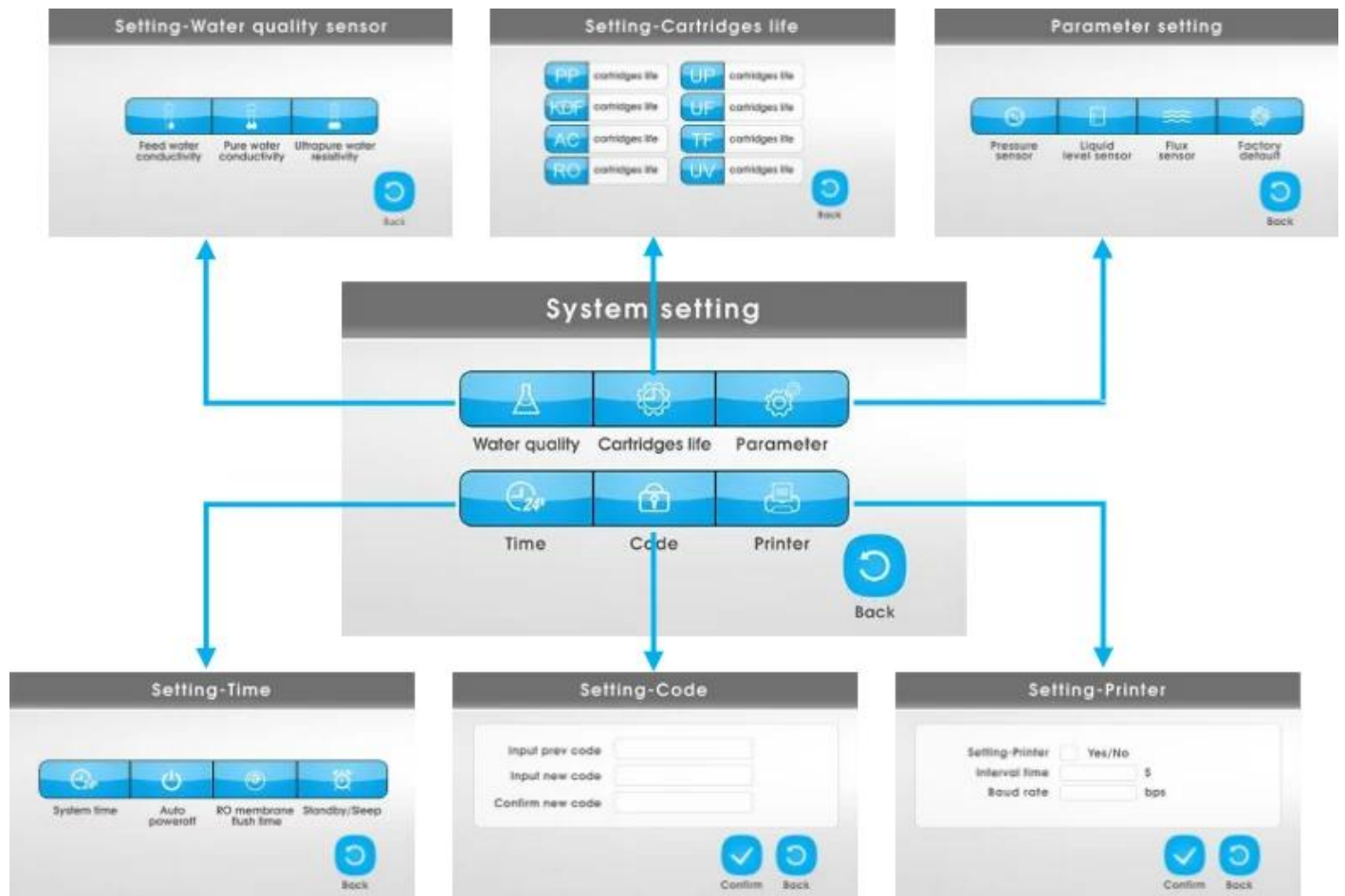
Cartridges' replacement, system sanitization, RO membrane flushing. (Details in picture 9)



Picture 9

(4). Setting

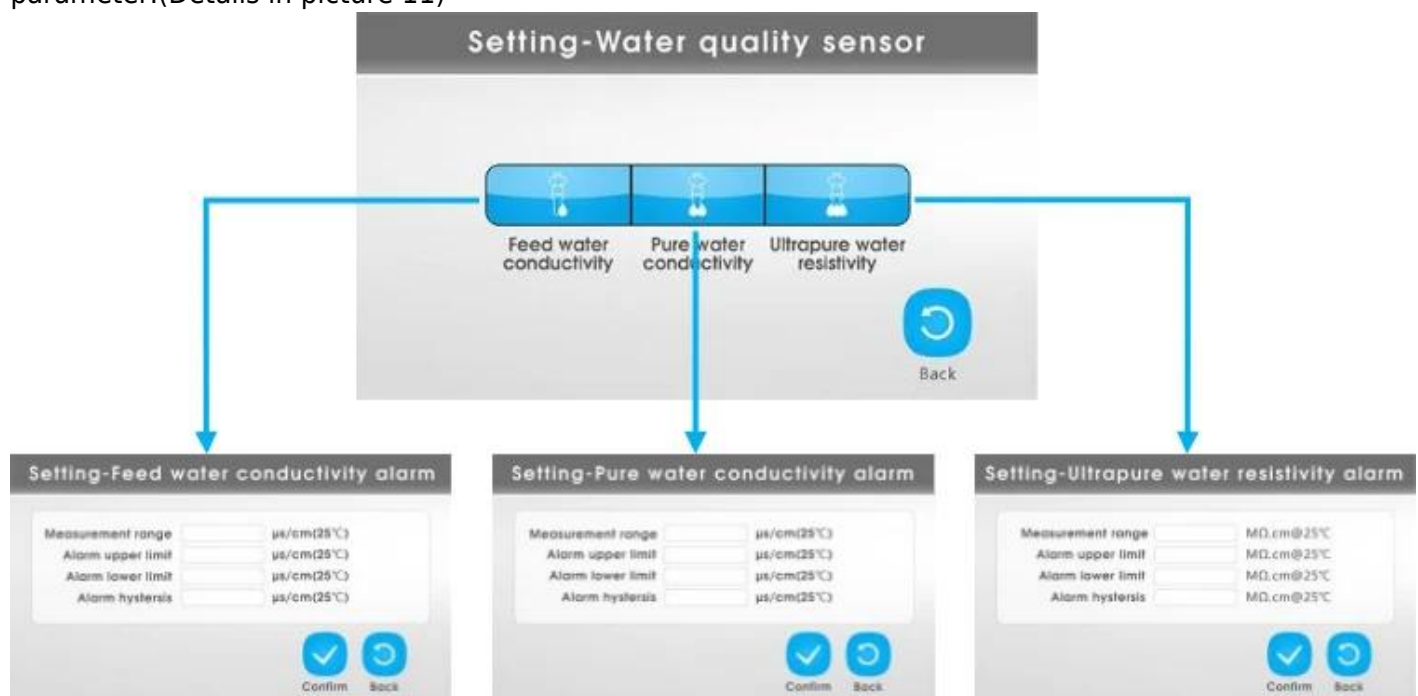
Touch the icon of sub-menu item of "System setting" to switch to the corresponding interface of sub-menu item. (Details in picture 10)



Picture 10

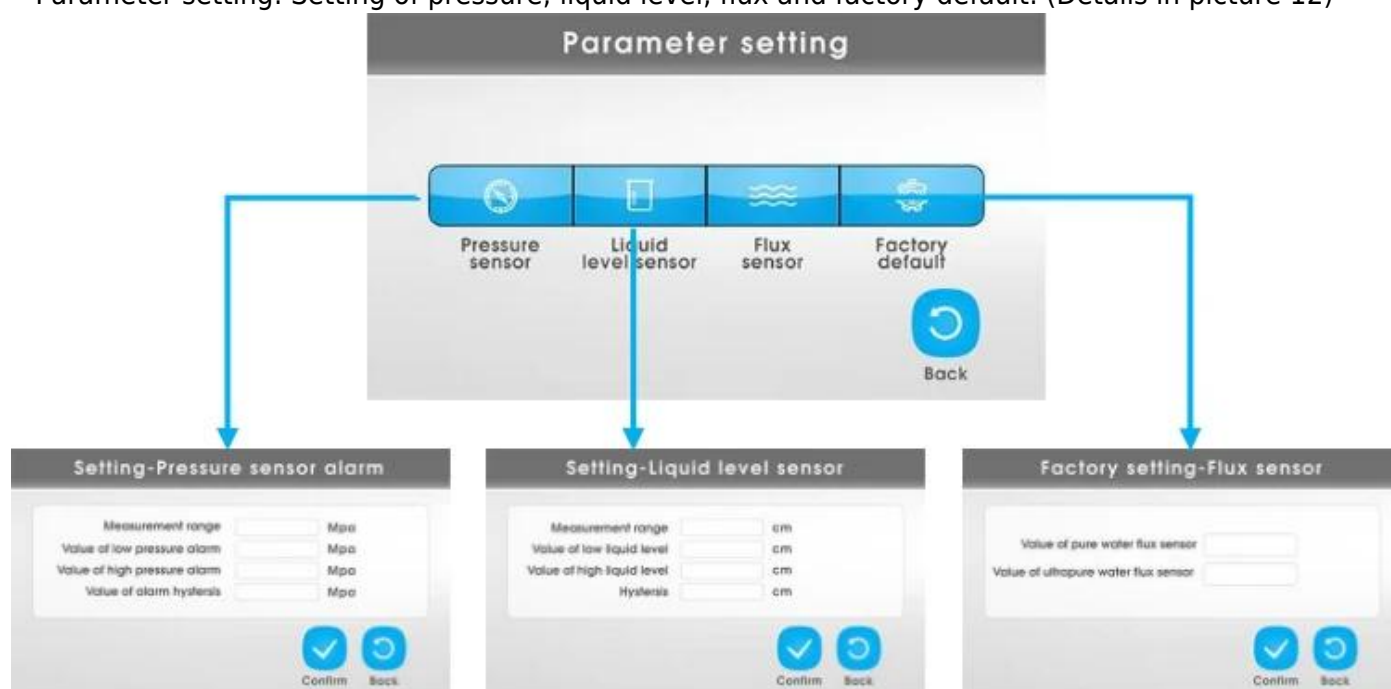
"Setting" includes the following sub-menu items:

Setting-water quality sensor: Setting of feed/pure/ultrapure water's measurement range and alarm parameter. (Details in picture 11)



Picture 11

- Setting-cartridges life: Setting of each cartridge's service life
- Parameter setting: Setting of pressure, liquid level, flux and factory default. (Details in picture 12)



Picture 12

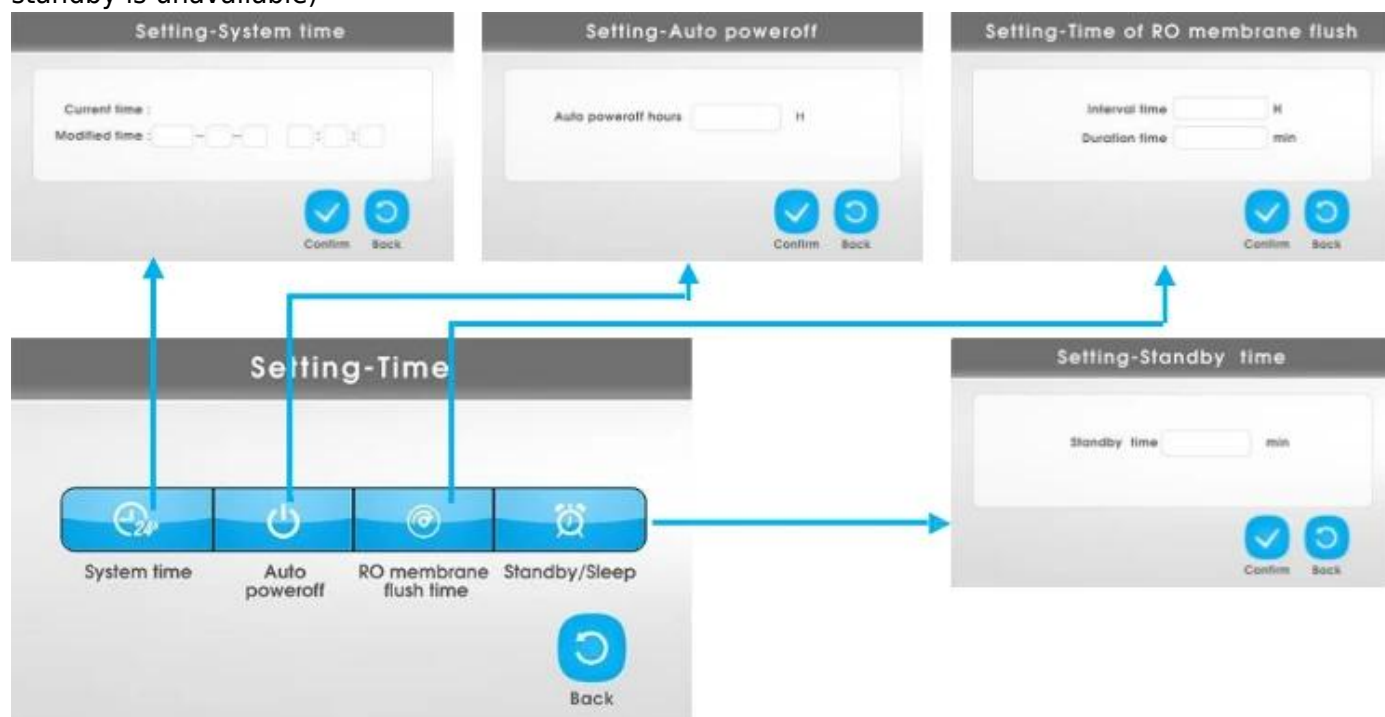
- Setting-Time: Setting of system time, auto power-off, RO membrane flush time, standby/sleep time. (Details in picture 13)

System time: Setting of system time

Auto power-off: Setting of auto power-off time (Time range:0-24 hours, "0" hour means that auto power-off is unavailable)

Time of RO membrane flush: Setting of RO membrane flushing's interval and duration time. (Interval time range:1-10 hours,duration time range: 1-60 minutes)

Standby time: Setting of standby or sleep time.(Time range:0-60 minutes. "0" minutes means that standby is unavailable)



Picture 13

- Setting-Code: Setting of code modification
- Setting-Printer: Not available at present

7.3 Record query and data export of water dispense and alarm history

System can query record of pure/ultrapure water dispense and alarm history. And all the data can be exported into USB flash cards through the Interface of USB. Operation details are as follows:

(1). Record query and data export of pure/ultrapure water dispense

Record query of pure/ultrapure water dispenseAs shown in Picture 7, in the interface of "Record query-Pure/Ultrapure water dispense"(Pictures as shown below), input starting and ending time's value of year, month and day.(No time's inputting will show all the records)

Then touch the icon "query" to switch to the interface of picture14 (as shown below).

Picture 14

In the above interface of "Record-Pure/Ultrapure water dispense", the water dispense information, such as date, time, conductivity/resistivity, amount (liters) and temperature, will be shown.

◦ Dataexportof pure/ultrapure water dispense

If date exporting is necessary, just input starting and ending time's value in the interface of picture15 (as shown below), and touch the icon "Export", then the data can be exported into external USB flash cards through the Interface of USB.



Picture 15



■ ATTENTION:

Make sure that USB interface has been connected with external USB flash cards before exporting.

(2). Record query and data export of alarm history

◦ Recordqueryof alarm history

As shown in Picture 7, in the interface of "Alarm history query"(Pictures as shown below), input starting and ending time's value of year, month and day.(No time's inputting will show all the records)



Then touch the icon "query" to switch to the interface of picture16 (as shown below).



Picture 16

In the above interface of "Record-Alarm history", the alarm details will be shown.

◦ Dataexportof alarm history

If date exporting is necessary, just input starting and ending time's value in the interface of picture17 (as shown below), and touch the icon "Export", then the alarm data can be exported into external USB flash cards through the Interface of USB.



Picture 17



■ ATTENTION:

Make sure that USB interface has been connected with external USB flash cards before exporting.

7.4 Sanitization and cartridges replacement

(1). Sanitization

System has optional manual sanitization function.

In the main menu interface, touch the icon "Maintenance" to switch to maintenance interface (As shown in Picture 9), then touch the icon "sanitization" to switch to the sanitization interface of picture18 (as shown below).



Picture 18

There are 2 kinds of disinfection model: Circulating disinfection and Pure water outlet disinfection, 2 kinds of auxiliary function, and 1 stop button.



■ ATTENTION:

During the whole sanitization process, RO membrane flushing and water dispensing function is unavailable;

Touching the icon "Stop" can end all the sanitization process;

For more information about sanitization, please contact our support engineer.

(2). Cartridges replacement

When service life of cartridges are over, system will show the reminder interface of cartridges replacement.

After replacing new cartridges, please switch to the interface of maintenance (as shown in Picture 19) through main menu interface. Touch the corresponding icon (such as: PP) to switch to the interface of replace, at last input the cartridge's code.

All the interface of cartridges are as follows:



Picture 19

8. Water Quality Test

The system has 3 monitor sensors of water quality measuring.

The first, monitors feed water's quality (tap water, inlet water).

Measure unit: us/cm (conductivity)

The second, monitors reverse osmosis water's quality (RO water).

Measure unit: us/cm (conductivity)

The third, Resist, monitors ultrapure water's quality (Ultrapure water).

Measure unit: Resistivity (MΩ.cm)

REMARKS:

Under normal conditions, new RO membrane's desalination rate is above 95%. It means that TDS of RO water should be less than TDS of inlet tap waterx5%.

If TDS of RO water > TDS of inlet tap waterx10%, it means that RO membrane's desalination can't meet the minimum requirements. RO membrane should be replaced at once.

Conversion relations between TDS and conductivity rate(μs/cm): If TDS<50ppm, conductivity rate (μs/cm) ≈TDSx2

If TDS>200ppm, conductivity rate (μs/cm) ≈TDSx(1.5~1.7).

9. Consumables

Item No.	Specification	Suggested replacement term
D-PP	Pretreatment cartridge	About 2-6 months
D-AK	Kinetic Degradation Fluxation cartridge	About 12 months
D-AC2	Active carbon block cartridge	About 4-6 months
D-RO-200	Reverse osmosis membrane	About 12-24months
D-RO-150	Reverse osmosis membrane	About 12-24months

D-RO-100	Reverse osmosis membrane	About 12-24months
D-RO-50	Reverse osmosis membrane	About 12-24months
D-Pocart4	Ultrapure polishing resin cartridge	About 5000 liters pure water
D-Tefit	(0.45+0.2) μ m terminal filter	--

Table 2

REMARKS:

Worse inlet feed water quality or big dosage will reduce cartridge life.

10. Normal Trouble Diagnosis

Normal trouble	Cause	Diagnosis
No power	-No plug in -Power adapter broken	-Check the power connecting -Replace new adapter
No pure water goes out or a little amount of pure water	-Valve of pure water outlet broken -Pump broken -Cartridges or filters' life ends	-Replace new valve -Replace new pump -Replace new cartridges or filters
Cartridges' life warns	-Cartridges' life ends	-Replace new cartridges
Water leakage	-Adapter or something broken	-Check, insert and drag out again, replace
Water quality deteriorate	-Cartridges or filters' life ends -Water quality sensor broken	-Replace new cartridges or filters -Replace new water quality sensor

Table 3

All other matters not mentioned herein, please contact us directly.

11. Warranty & Repair Regulation

The products enjoy repair service since the day of purchase. In one year from the purchasing day, we are obliged to replace

components for customers free of charge, due to non-human-behavior factors, except for:

- (1). All the consumables;
- (2). Damage caused by maloperation or use in abnormal situations;
- (3). Disassembly any part of the machine or human-behavior damage;
- (4). Not repaired by our serviceman.

Specification can be changed without any prior notice for development.



Biolab Scientific Ltd.

Trillium Executive Center, East Tower, 675 Cochrane Dr, Markham, Ontario L3R 0B8, Canada
Email: info@biolabscientific.com | Website: www.biolabscientific.com