Kalstein

YR59

Water Purification System

Instruction Manual

Thank you very much for purchasing our Water Purification System YR59

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

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Notice

If it is the first time for you to use our product, please carefully read this operating and maintenancemanual which will give you a lot of help. We take responsibility for regular maintenance and repair work instead of consequences caused by improper operation.

The content of the publication is subject to change and/or updating without notice. The content of this manual is only for reference use. The manufactory and the distributors shall not be responsible for losses caused by incorrect description or misuse of this manual. The graphics contained in the manual are as general representative which may have some errors compared to entity. But the description is definitely match the function.

Safety information

The content of the manual can lead users to installation, operation and maintenance of the system.

You must use the safety norms according to this manual before using the system, especially water and power supply. It is necessary to refer to this manual when you install or operate the system. Unqualified using environment will endanger the normal operation, or even damage the whole system.

The installation, commissioning and maintenance of the equipment can only be completed by Heal Force or its authorized agents. Heal Force did not responsible for duties and responsibilities if the equipment is disassembled by unauthorized dealer or service personnel.

System operating environment

- Indoor use and avoid direct sunlight.
- Between 0-2000 meters altitude.
- Ambient temperature: 4-45℃.
- Operating Voltage: AC 220V 50 Hz OR 110V 60Hz.
- Inlet pressure: 0.1-0.4MPA.
- The fluctuation range of the main power supply can be 10% of the normal voltage.
- Transient over-voltage power supply is grade 2.
- There is a drain around the equipment (1 meters).
- Adequate indoor ventilation.
- Mounting surface must be fixed, level, and not burning.
- No heat source next to the equipment.
- Be away from strong magnetic field.

warnings signal

Note alert you to pertinent facts and conditions, please read this operation andservice manual carefully before you operate the main system.

Caution: Caution alert you to the possibility of damage to the equipment, andwater in pipe may spill out when the cartridge is installed OR replaced.

Danger: Danger alert to a possibility of personal injury.

Power supply must be firmly grounded.

Contents

Preface

Thank you for using the water purification system designed and manufactured by Shanghai CanrexAnalytic Instrument Co, Ltd.

If you have any good suggestion, please contact us, we will improve our products and after saleservice continuously.

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Chapter 1 General

1.1 System principle

Smart YR Series is an advanced essential laboratory equipment, widely used in trace analysis, diagnostics, toxicology, precision optics laboratories, as well as in hospital, research institute and other water quality monitor department. The device adopted advanced modular design, CPU auto-control technology, highly integrated water treatment equipment. It is the new generation of intelligent water purification system with intellectual property.

The feed water of YR system is ordinary tap water. The feed water is passing through the multi-channel process of pretreatment cartridge, reverse osmosis cartridge, silicon removal cartridge, sterile filter.

1.2 Technical features

- Product line is abundant, as many as a hundred variety, to meet individual needs.
- Disposable integrated cartridge simplifies operation. It takes less time to replace any component
- Modular design concept, including pretreatment cartridge, reverse osmosis, Self-diagnostic microprocessor control system monitors major parameters and alarm to ensuring the main system at optimize operation status.
- Advanced CPU self-controlled technology can determine the configuration. The system will shut downautomatically when the feed water is shortage and auto flush when the main system re-stared. Doublechannel design for pure water and ultrapure water.
- Interactive LCD display affords user optimum convenience, with indication on conductivity, resistivity, temperature, operate mode, water tank level, volume dispense products water.
- 2-channel resistivity sensors, equipped with temperature compensation function, comprehensively monitor system operation and water quality variation.
- Leakage protection sensor (optional). The main unit cut off the inlet water and send an alarm signal if water leakage occurs.
- A special connection process is applied for the YR system, eliminating the risk of RO membranes seepage when the main unit is in standby mode, ensuring the qualified water into the water tank.
- 350L storage tank with 5 level sensor, with optional air filter and UV sterilizer for water tank, which provides flexible solutions for different water usage.
- Adjustable level of water system start to making RO water, keep the RO water in the storage tank fresh according to the user demand.
- Volume dispense function (0.1-25L adjustable) or water producing amount according to your needs.
- PIN-coded access to software set points prevent unauthorized changes to operation or system settings.

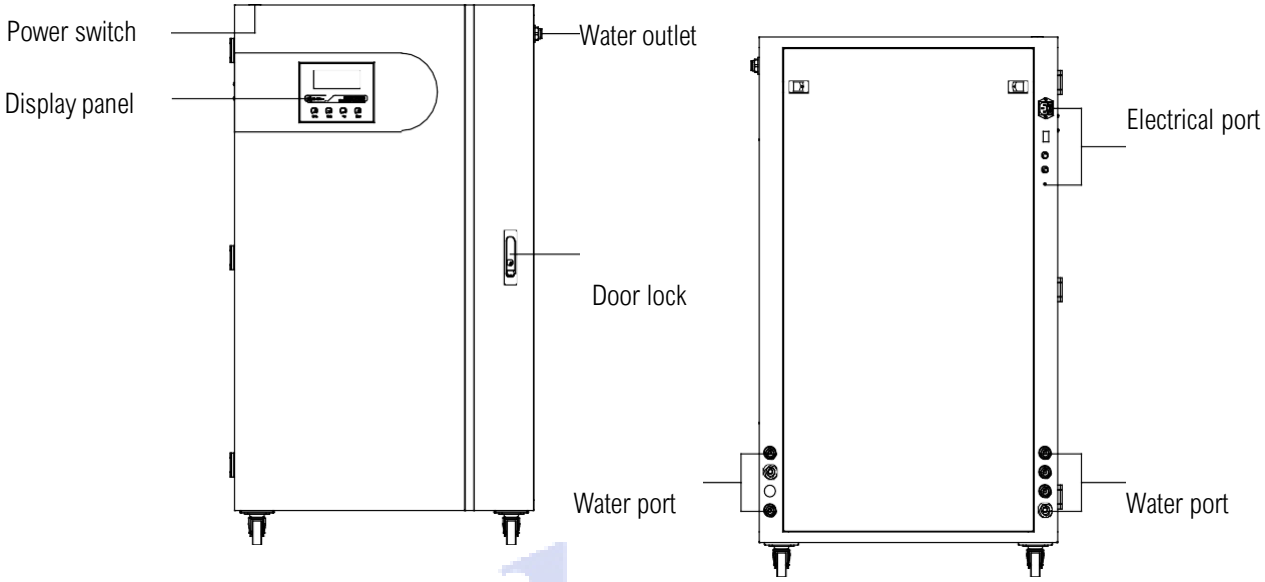
1.3 Specifications for the system

YR		100	200
Feed water	Conductivity(μs/cm)	＜400	
	Pressure(MPa)	0.1～0.4	
	Temperature(℃)	5～40	
Pure water	Salt rejection(%)	＞95	
	Bacteria remove(%)	＞99	
	Make rate(L/H@25℃)	90～110	180～220
Others	Dispensing flow(L/H)	＞150	＞300
	Power Consumption(W)	200	300
	Weight(kg)	80	100
	Storage tank(L)	60	350
	Main unit dimension(mm)	660*650*1130	
	Tank dimension(mm)	Built-in	495*635*1700

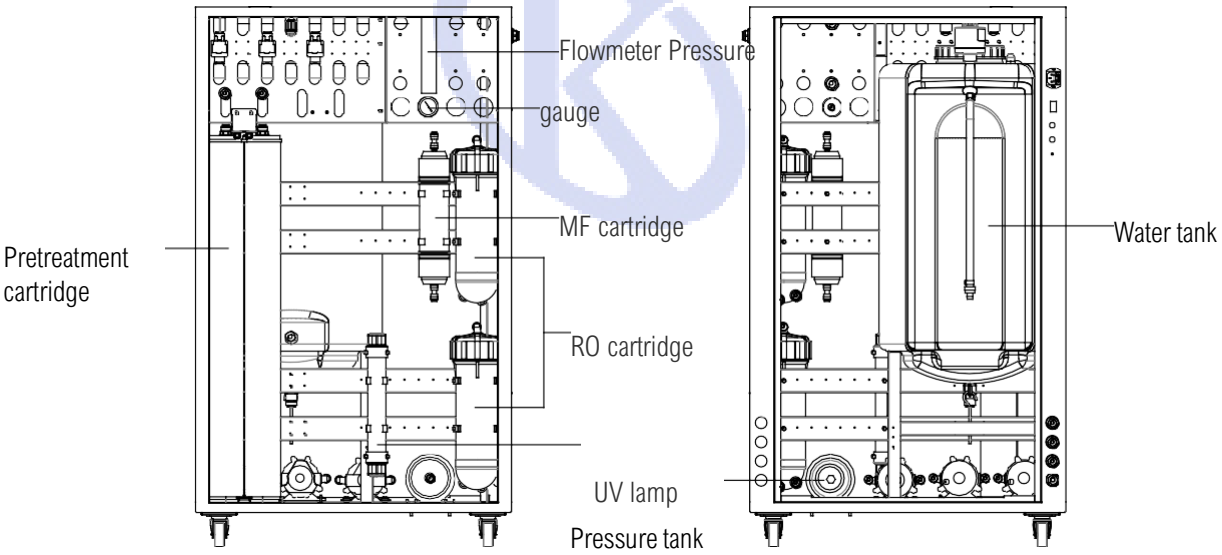
Chapter 2 System Introduction

2.1 Units outside the system

The display panel is on the front of the main system. The power switch is at the top of the front door.The high pure water temporary outlet is on the right side of the main system。 The power interface is onthe upper right side of the back of the host，and the lower part is feed, drain1, drain2, pressure water supply port.



2.2 Units inside the system



Note: The number of pretreatment cartridge and reverse osmosis cartridge is different for different models, the installation position of microfiltration cartridge is different, and the water tank is built-in or external.

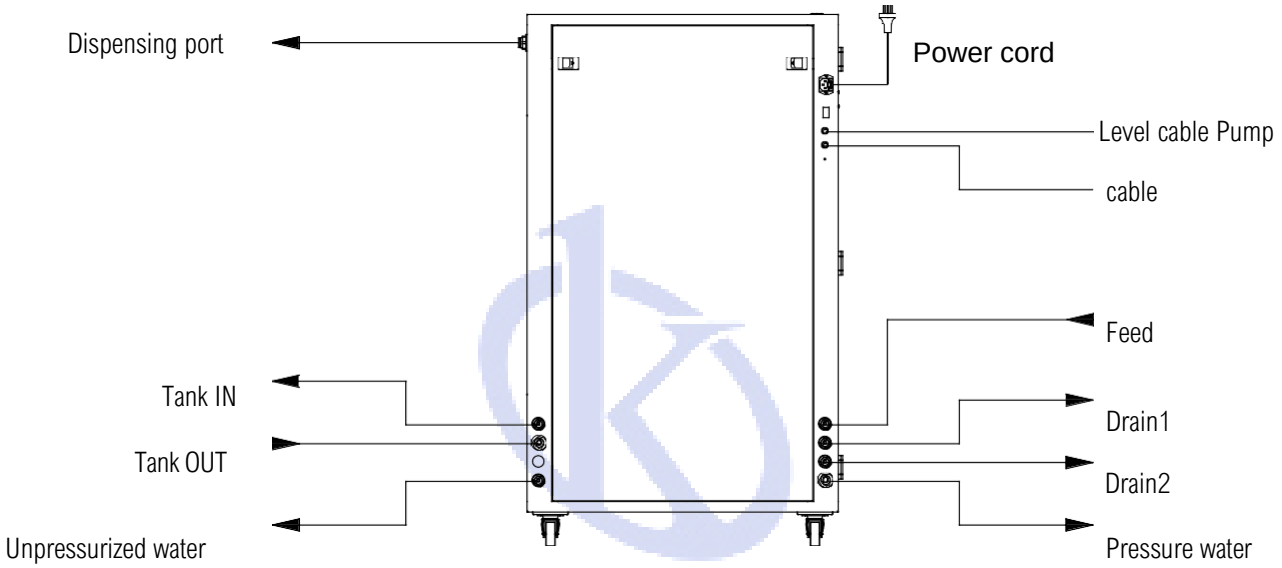
Chapter 3 Installation

3.1 Check before installation

Users please ensure whether the product you received is your purchase before installation.You had batter check all items according the packing list.

- Whether the power site is close to the system.
- Whether the feed water meets the requirements.
- Whether the feed water pressure is normal.
- Whether the feed water supply is nonstop.
- Whether the feed water pipe has1/2″NPTF whorl connector.
- Whether the system's height can clearly observe both LCD screen and keypad operations oncontrol panel.
- Whether there is adequate space to substitute supplies and connecting pipe as well aroundand behind the system.
- Whether you have installed more than 1/2″ drains, not more than one meter far away from thesystem, intended for discharging waste-water and water overflowing.
- Whether the installment circumstances are consistent with the regulations.

3.2 Connections



1. From the system package, take out 1/2" internal wired quick fitting to connect with thewater supply pipeline.
2. Cut pipe and the pre-filter. Cut the pipe. Connect one end to the 1/2" internal wired quickfitting and the other end to the FEED port at the back of the system.
3. Cut two pipes. Connect the ends of the pipes to the DRAIN1 port and DRAIN2 port atthe back of the system, and place the other ends in the drainer.

Note: When equipped with external water tank, there is no DRAIN2 port.

4. Cut a pipe. Connect one end to the PRODUCT1 port and the other end to the water useequipment. (You can use PRODUCT2 port, if the water user needs pressure-free water.)

Note: When equipped with external water tank, the PRODUCT2 port is on the back of thewater tank base.

5. Cut a pipe. Connect to the temporary outlet on the right side of the main unit.
6. Get the air-filter and screw to the 1/2" NPTF outlet on the top of the storage tank.

Note: When the water tank is built-in, you need open the door on the top of the main unit toinstall the air filter.

7. Take out the power cord. Connect it to the power socket at the back of the system. When equipped with external water tank, you also need to complete the following step.
8. Cut a pipe. Connect one end to the main unit IN and the other end to the water tankOUT.
9. Cut a pipe. Connect one end to the main unit OUT and the other end to the water tankIN.
10. Connect the level cable of the water tank to the main system.
11. Connect the corresponding sockets of the main unit and water tank with customizedthree-core cable.

12. Connect the power cord to the power socket of the water tank.

Chapter 4 Parameter setting and operation

4.1 Control panel area

symbols and graphics for LCD display

FEED	Feed water conductivity	RO	Pure water conductivity
PF	Pretreatment cartridge	DS	RO deionization rate

	Without feed water		System leakage	 FE	Feed water low quality	 PF	Pretreatment failure
 RO	RO failure	 DS	RO failure		Water tank level		water producing

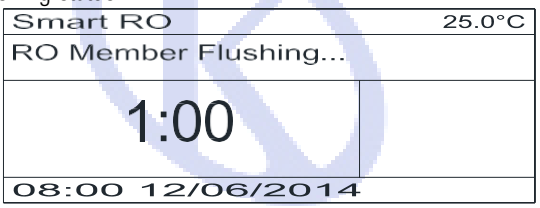
Function Keypad

Disp./▲	Dispense product water key at the operation. It will be become adjusting key at themenu mode.
Flush/▼	RO cartridge flush key at the operation. It will be become adjusting key at the menumode.
Stop/□	Stopping water dispensing or RO flushing at the operation. It will be become confirmkey at the menu mode.
Menu	Parameter setting key. It will be become return key at the menu mode.

4.2 Operation

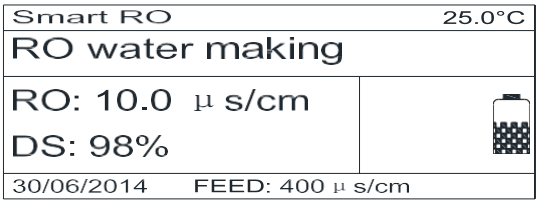
Turn on feed water supply. Ensure that all the pipe connecting parts have no leaking. Switch on thepower supply at the back of the main unit.

After the main unit is powered on, LCD will display a welcome message, which is followed by thecurrent state of the system. The system will remain in flushing status.

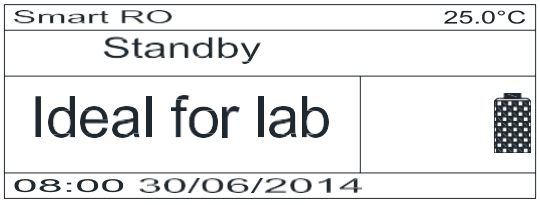


The lack of water warning will show in the right of display area when the pressure of feed water is too low or no feed water. The main unit will stop to standby status. The main unit will re-start to flush automatically when the water comes again.

When the flushing process of main unit is finished, the system will automatically enter the waterproducing state. The system also shows water conductivity and RO deionization rate.



When the storage tank of YR system is full , the system will enter the standby modeautomatically.



Press "Disp./▲" keypad you can take the pure water from the side outlet.

Ensure that the pure water at least 20% of the YR water tank (water level 1).

Press "Stop/□" keypad to stop taking product water.

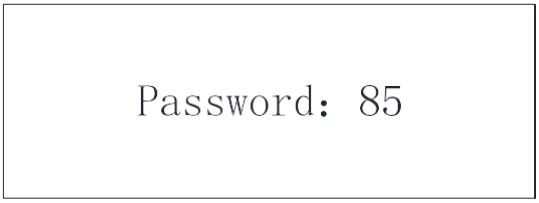
YR has manual flush function for RO membrane cartridge, press the "Flush /▼" key to flushRO membrane cartridge manually.

Press the "Stop / □"key to stop flushing operation.

4.3 Parameters setting

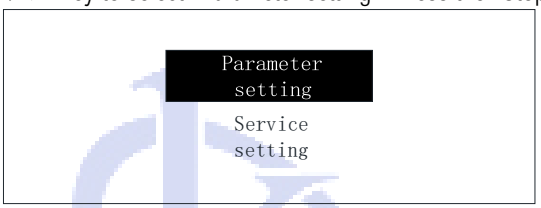
Press "Menu" key to enter the menu, language selection:

Press "Disp. /▲" or "Flush /▼" key to select "ENGLISH". Press the "Stop /□" key to confirm thesetting:



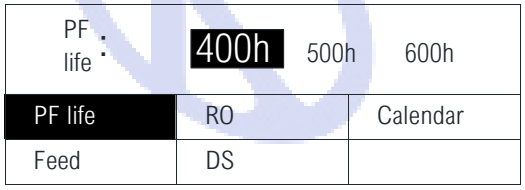
Press or hold down the "Disp. /▲" or "Flush /▼" key to enter the correct password. The default password is 85. Press the "Stop /□" key to confirm the entry. If the password input is error, the systemwill be directly reset.

Press the "DISP. /▲" or "Flush /▼" key to select "Parameter setting". Press the "Stop / □" key toenter the parameter



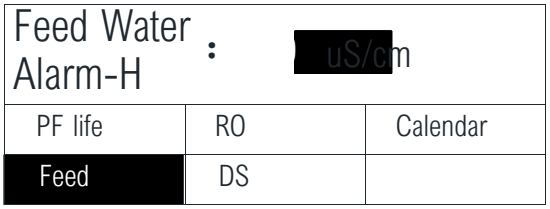
setting level

Alarm time setting for pretreatment failure



In this menu level the maintenance interval for the pre-treatment cartridge ,it must be reset after exchanged ,the manufacture setting is 400 hour, the user can press “Disp./▲”or“Flush/▼” key to select one of the 400,500,600hour according to the tap water quality. Press the “Stop/□” key to confirms the setting.

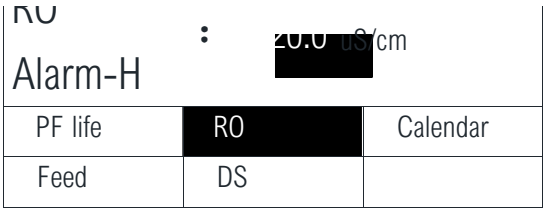
Feed water quality alarm setting



The limit of the feed tap water conductivity can be adjusted by the user. If the adjusted limit will be overstepped it will decrease the life time of Pre-treatment cartridge and RO membrane. the manufacturesetting is 400us/cm, the user can press “Disp./▲” or “Flush/▼” key to adjusting according to the user desire. Press the “Stop/□” key to confirms the setting.

When setting the value, please refer to the actual water quality. Only to eliminate the alarm forfeed water. If the feed water quality is poor, the overall performance and lifetime of each module will be affected.

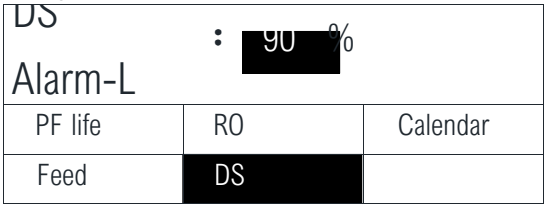
Pure water quality alarm settings



The limit of the RO water conductivity can be adjusted by the user. if the adjusted limit will be overstepped it will decrease the life time of purification cartridge. the manufacture setting is 20us/cm, theuser can press “Disp./▲” or “Flush/▼” key to adjusting according to the user desire. Press the “Stop/□” key to confirms the setting.

If this value is set too large, then the performance and lifetime of the ultrapure waterpurification cartridge will be affected.

Alarm settings for reverse osmosis desalting rate

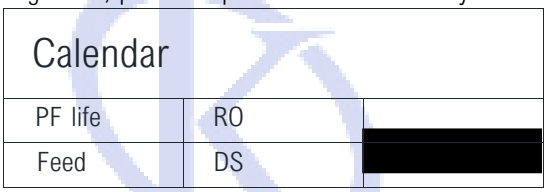


The limit of the desalting rate of the RO membrane can be adjusted by the user. The display of the system shows the alarm message if the adjusted limit will be overstepped (manufacture’s setting is 90%). Press “Disp./▲” or “Flush/▼” key to increases or decreases the value, press the “Stop/□” key to confirm the setting.

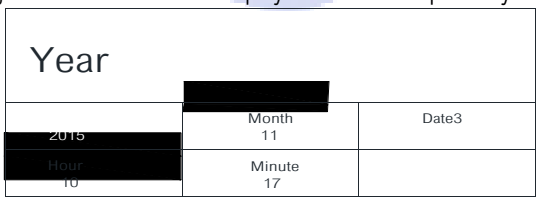
This value should not be set too low, otherwise the pure water quality will be affected. If the qualityof inlet water is too poor, please set high value for higher pure water requirement.

Calendar setting

After entering the parameter setting menu, press “Disp./▲” or “Flush/▼” key to select the"Calendar" function.



In this menu level the user wants to change the timer in maim system, you can be press the “Disp./▲” or “Flush/▼” key to set the correct date and time according to the mention of the display. Pressthe “Stop/□” key to confirms the setting.



Chapter 5 Maintenance

5.1 Routine maintenance

Maintenance of the ultra-pure water system is simple and convenient despite its integration of sophisticated equipment which combines water process, computer-control and precision instruments to monitor.

- Keep feed water going smoothly.
- Please stop main unit when feed water is cut off so that you can avoid large numbers of impurities in the water flowing into the apparatus, it will decrease the life time of pre-treatment cartridge.
- Constantly pay attention to water quality of the feed water. you had better stop the main unit immediately When feed water is of poor quality (yellow, high turbidity, conductivity than 400us/cm, with the smell). If necessary, you can purchase another enhanced pre-treatment. (Recommend that you can purchase TDS pen to measure water quality regularly)
- This main unit is controlled by computer and monitored by precision instruments, an equipmentof high-precision, so if the local voltage is not very stable, please install one 500W manostat and with good ground connection.
- Keep both indoor environment and the instrument surface clean.
- If you need to stop main unit for a period, please keep in mind that firstly you should press “Flush” key to flush the YR system, then have the inlet valve closed and power off.
- Regularly disinfect and clean the water tank. If there are some special requirements, please install UV disinfector and air filter.

5.2 Periodic maintenance

Please refer to the following maintenance periodic table. Timely maintain this YR system to enable it to keep in good condition.

Components	Operation	Time
Pre-treatment	replace	The amount of water is reduced / a mention of
RO	replace	Make pure water rate decrease / a mention of PF RO or DS

5.3 Maintenance works and service works

Be sure to enter the service setting by press” menu” to clear the consume time of cartridgesused.

into the maintenance settings

Make sure that the system is in standby or automatic making water state. If it is in flushing ordispense state, please press “Stop/□” key to stop it.

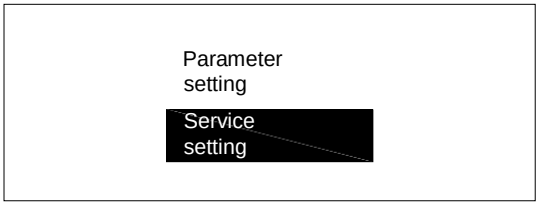
Press “Menu” key to enter the menu model, first of which is the language option.

Press “Disp./▲” or “Flush/▼” key to choose “ENGLISH”, then press “Stop/□” key to confirm.

Press or hold down “Disp./▲” or “Flush/▼” key, and then input the correct password. The defaultpassword is 85, press “Stop/□” key to confirm:

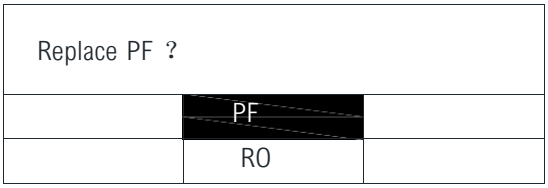
If the password is error, the system will restart.

Press “Disp./▲” or “Flush/▼” key to choose “Service setting”. Then press “Stop/□” key to confirm.

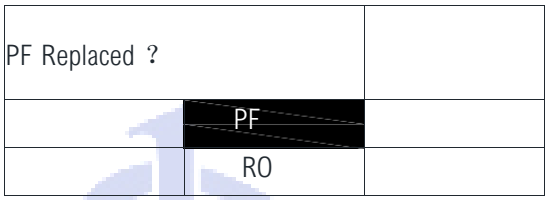


Pre-treatment replacement

After entering maintenance settings, press “Disp./▲” or “Flush/▼” key to choose “Cartridge replace”,then press “Stop/□” key to confirm.

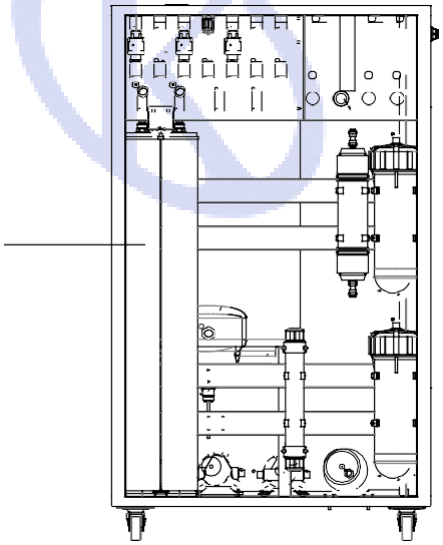


Press “Disp./▲” or “Flush/▼” key to choose “PF”. Then press “Stop/□” key to confirm.



Open the front door.

Pre-treatment cartridge



Remove the pressure plate for the pretreatment cartridge. Remove the connecting pipe from the pretreatment cartridge.Take out the pretreatment cartridge.

Install the new pretreatment cartridge. And insert the connecting pipes into the correspondingconnectors of the pretreatment cartridge.

Install the pressure plate for the pretreatment cartridge.Close the front door.

Press the “Stop/□” key to confirm it to been replaced.

RO membrane replacement

After you enter the maintenance settings, press “Disp./▲” or “Flush/▼” key to choose “Cartridgereplace”. Then press “Stop/□” key to confirm.

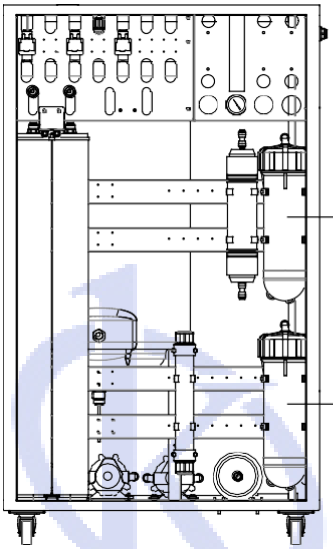
Press “Disp./▲” or “Flush/▼” key to choose “RO”.

Replace RO？		
	PF	
	RO	

Press “Stop/□” key to confirm.

RO Replaced ？		
	PF	
	RO	

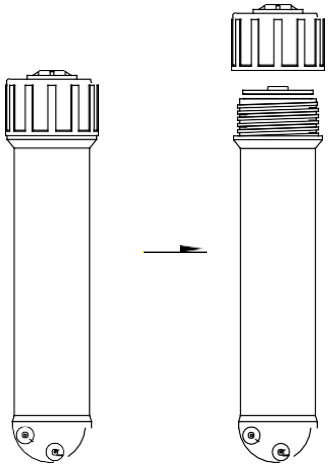
Open the front door.



RO cartridge

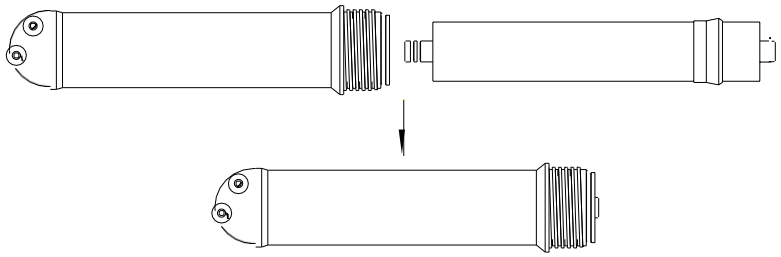
Remove the connecting pipe from the RO cartridge.

Take out the RO cartridge. unscrew the housing cover. A special wrench can be used to unscrew thelid. There is an O-ring in the upper crust. Please take care of the ring after unscrewing the RO cartridge.



A plier can be used to pull out the reverse osmosis which is exhausted. Grip the center of reverseosmosis and pull out with force.

Remove the new reverse osmosis membranes, please check the model, and unpack the package.Push the RO membrane end with double rings into the membrane shell.



Screw lid, and tighten. Confirm the seal ring is on the upper the upper shell.Insert the tube into the corresponding connectors of the RO cartridge.
Install the RO module back on the rack of chamber.Close the front door.
Back to the control panel operation, press the "Stop/□" key to confirm the replacement.

⚠ The new reverse osmosis membrane will contain a protective solution, which will make the conductivity of pure water high. After the replacement is done, press the "Flush/▼" key to flush the reverse osmosis membrane.

5.4 System status check

Refer to this chapter into the maintenance settings, press the “Disp./▲” or “Flush/▼” key to selectthe "System display". Press "Stop/□" key to confirm.

FEED：420μs/cmRO：15μs/cm DS：96.5%	T：25.4℃ PF：036h

Description:
FEED: the current feed water conductivity.RO: pure water conductivity.
DS: Desalination rate for reverse osmosis cartridge.T: the current system temperature.
PF: used time for pretreatment cartridge.
Press "Menu" key to return to the previous menu, or press "Menu" key continuously to exit themaintenance setting.

5.5 Obligate level setting

After entering maintenance settings, press “Disp./▲” or “Flush/▼” key to choose “Obligate level”. Then press “Stop/□” key to confirm.

Obligate level ： 60%	
Cartridge replace	Manufactory Setting
System display	Obligate level

press “Disp./▲” or “Flush/▼” key to choose the obligate level. Then press “Stop/□” key to confirm.

Press "Menu" key to return to the previous menu, or press "Menu" key continuously to exit themaintenance setting.

5.6 Restore factory settings

Refer this chapter into the maintenance settings. Press the “Disp./▲” or “Flush/▼” key to select"Manu. setting". Then press “Stop / □” key to confirm.

Load default ?	
Cartridge replace	Manufactory Setting
System display	Obligate level

Press the "Stop/□" key to confirm, the system restore the manufactory settings of the parametervalues.

Press "Menu" key to return to the previous menu, or press "Menu" keypad continuously to exit themaintenance setting, the system reboots.

When the restart of system is complete, each parameter value is automatically set back tomanufactory setting. Manufactory settings for all parameters are as follows:Pretreatment

cartridge alarm time: 400h

Feed water alarm conductivity: 400μS/cm Conductivity of

pure water alarm: 20.0μS/cm Reverse osmosis

desalination rate alarm: 90%Obligate level setting: 60%

Chapter 6 Troubleshooting

6.1 No display

Description	Solution
No power supply for power outlet	Confirm power outlet is normal
Electrical outlet loose	Change electrical outlet
System power cord is not properly installed	Make sure the power cord is plugged into theelectrical outlet of main unit
system power is turned off	Turn on the power switch on the back of themain unit
Power cord is damaged	Change the power cord
Fuse burned	Change fuse
Internal component failure	Contact Technical service

6.2 Making YR water is too low

Description	Solution
No feed water supply, warning for water shut off	confirm the patency of external water supply
Pre-filter blocked, warning for no water	Rinse the filter and replace it when necessary
Feed water pressure is too low, indicating nowater warning	Needs another pressure pump
water supply connection error, indicating no water warning	Make sure that feed water pipe connecting to the FEED connector of the main unit.
Pretreatment blocked	Replace the pretreatment module
There are impurities on the RO surface	Press “Flush/▼”button to flush RO
RO blocked	Replace the RO module
Pure water outlet connection error	Verify that the RO OUT of main unit connectedwith RO IN of water tank
Water temperature is too low	Add the preheat system
Internal component failure	Contact Technical service

6.3 The pure water conductivity of YR is too high

Description	solution
Feed water conductivity is high	Choose RO-2 module
RO exhausted, showing RO or DS alarm	Replace the RO membrane
New reverse osmosis membrane with remaining protection liquid.	Press “Flush/▼”button to rinse the membrane
Internal component failure	Contact Technical service

Chapter 7 Order information

7.1 Consumable

Description	specification	Order No.	Remark
Pretreatment cartridge	10um/5um PP and active carbon	CR-SP101L	
RO membrane	400G	CR-SP205	
Air filter		CR-SP412	

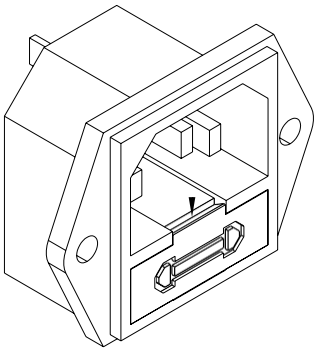
7.2 Option parts

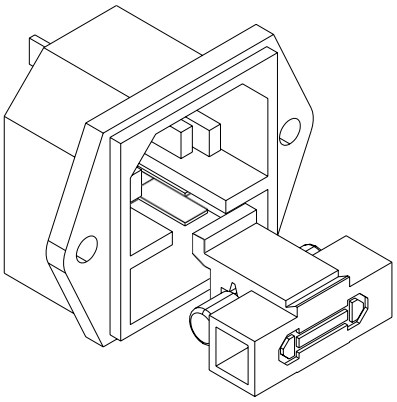
Description	specification	Order No.	Remark
Leakage protection sensor	Round water detect sensor	CR-SP846	
Enhanced pretreatment device	Pretreatment cartridges	CR-SP102	
Pretreatment filter	2sets 20"PP，AC,SR	CR-SP107	
Pressure reductor	5KG	CR-SP829	
UV lamp	254nm	CR-SP426	water tank
Sterilizer for water tank	CR-ACM-1	CR-SP426	water tank

Chapter 8 Appendix

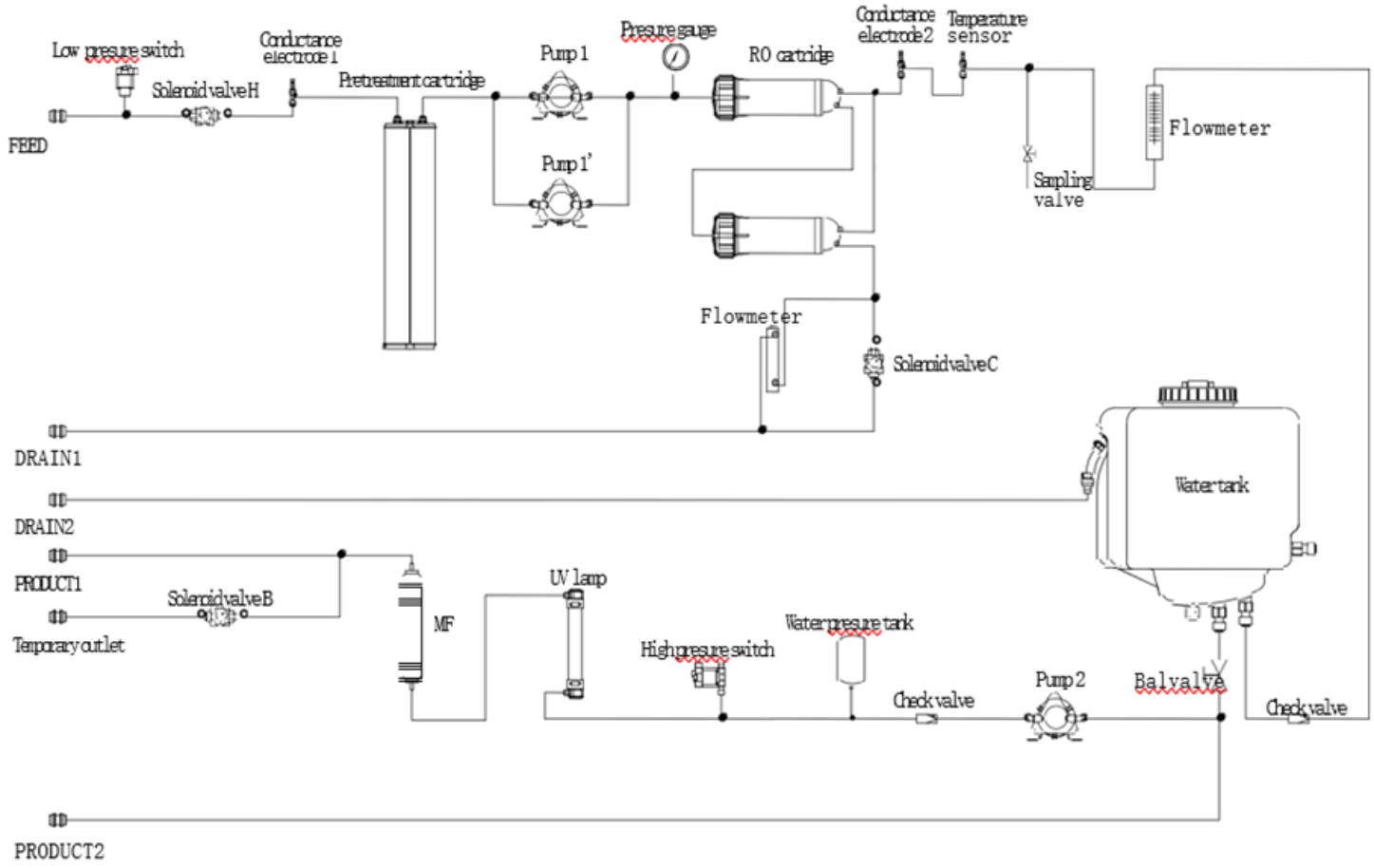
Appendix 1 Fuse replacement

The fuse used by the system is 1A/250V, which is installed in the power outlet at the back of themain unit.
Pull the power cord from the external power outlet.
Unplug the power cord from the main unit. You can see a fuse holder below the power socket.Use a screwdriver to pull the fuse holder from socket. As shown below

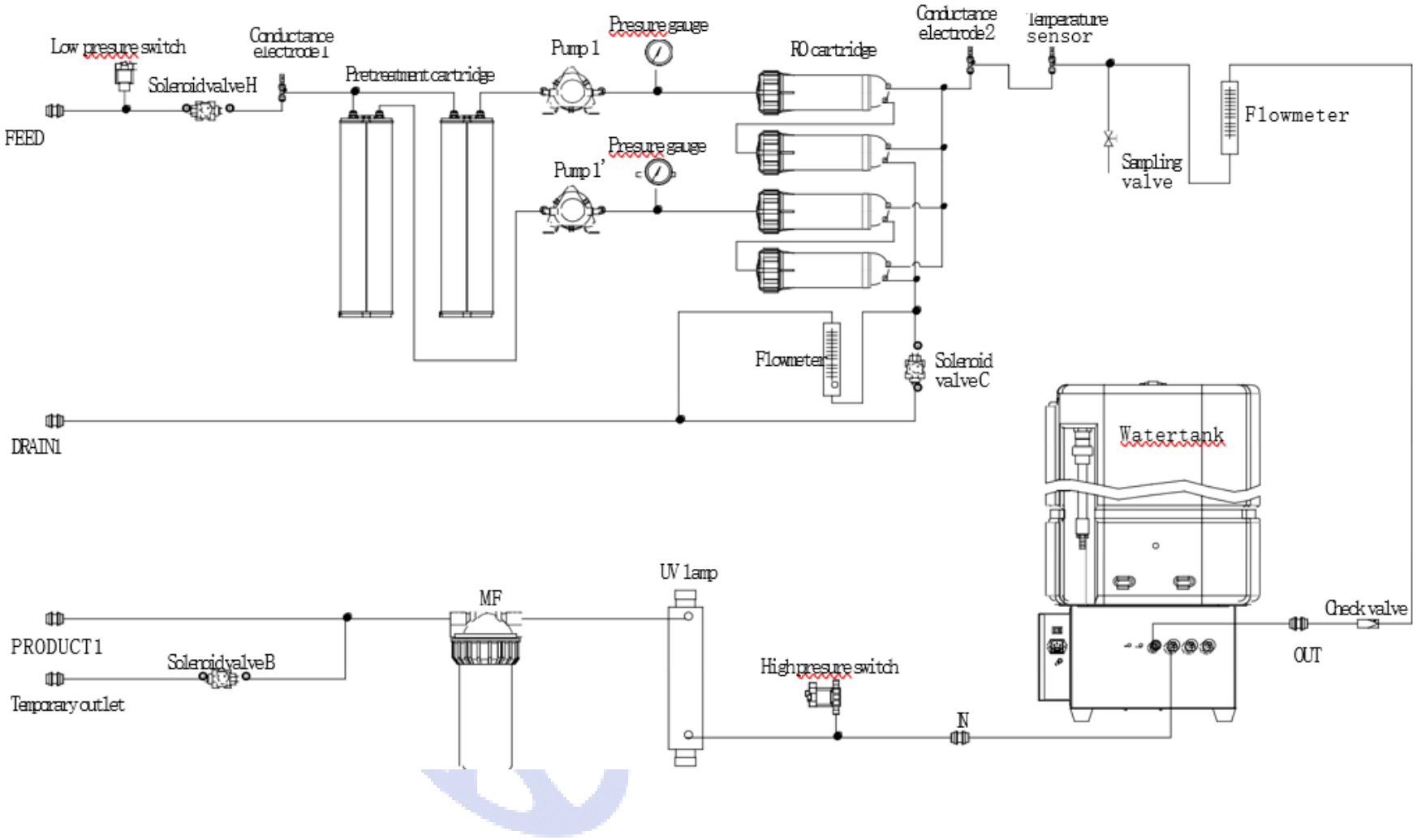




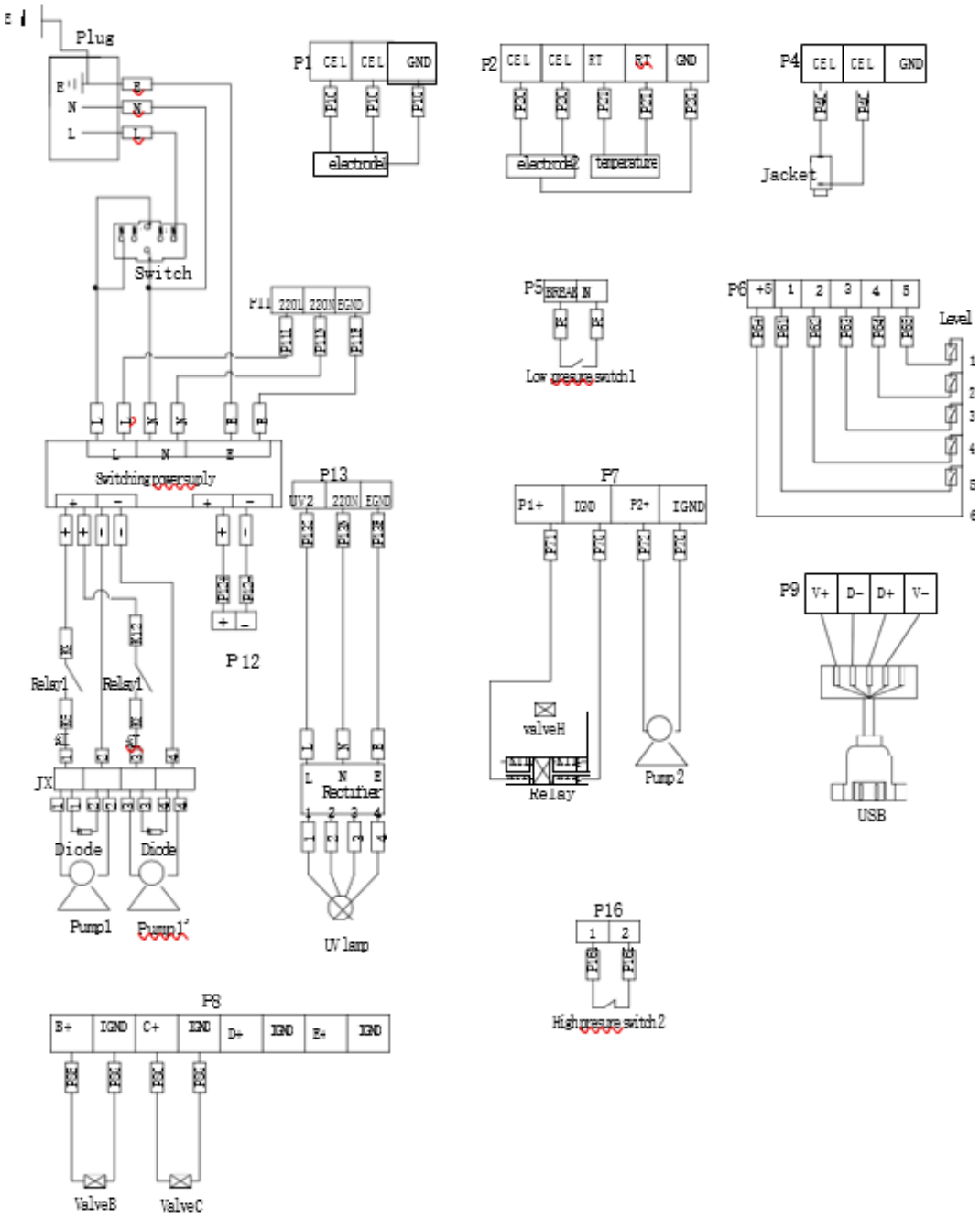
Take out the used fuse from the fuse holder, install new one into holder and push to the end.Push the fuse holder to the square hole which lies in the lower part of power socket.
Fuse replacement is complete, plug the power cord and connect to an external power supply.


Low pressure switch
Conductance electrode 1
Pump 1
Pressure gauge
RO cartridge
Conductance electrode2
Temperature sensor
Solenoid valve H
Pretreatment cartridge
FEED
Pump 1'
Flowmeter
Sampling valve
Flowmeter
Solenoid valve C
DRAIN1
DRAIN2
Water tank
PRODUCT1
Solenoid valve B
Temporary outlet
MF
UV lamp
High pressure switch
Water pressure tank
Check valve
Pump 2
Bal valve
Check valve
PRODUCT2

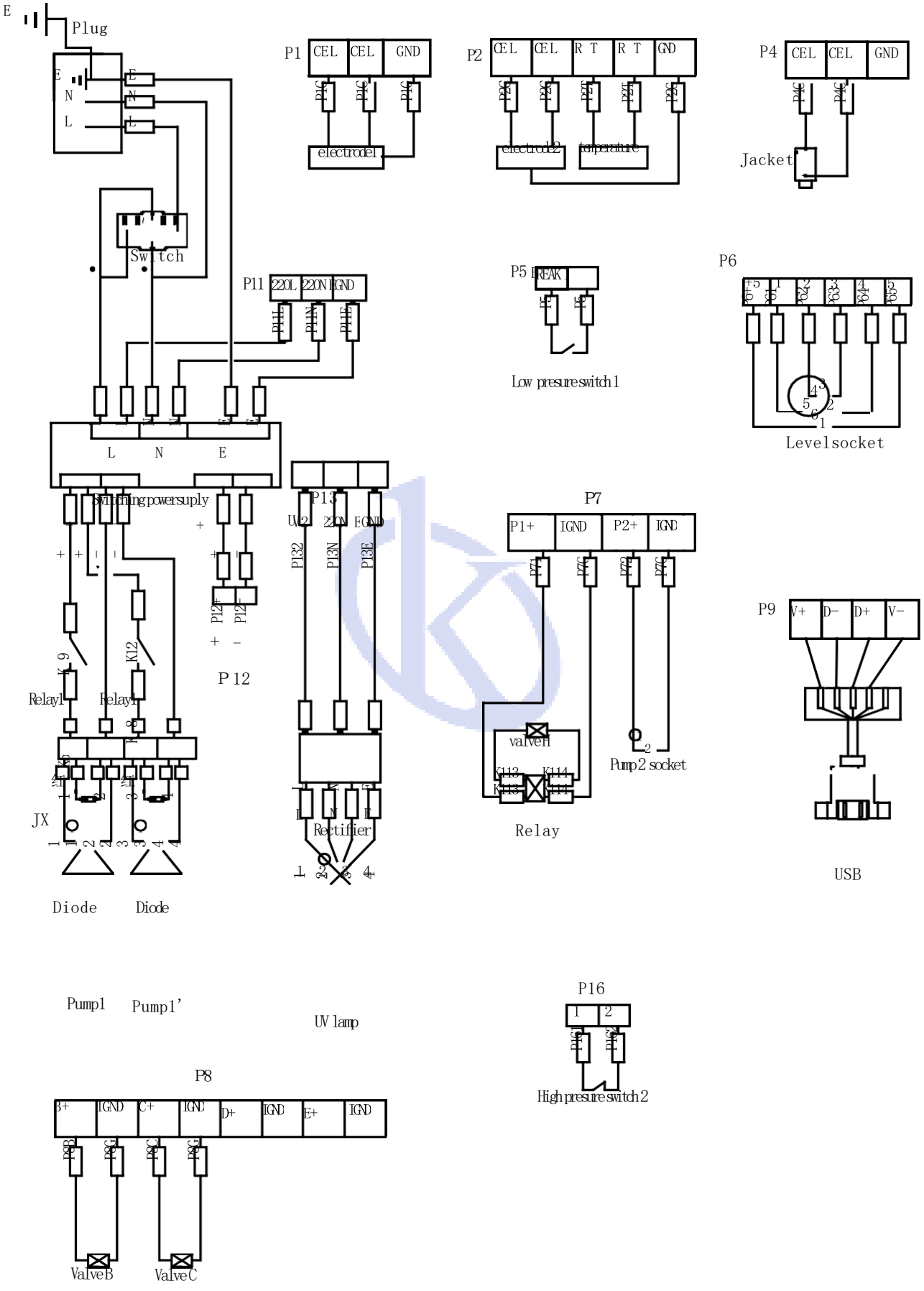
Appendix 3 Process diagram of YR59-1



Appendix 4 Electrical connection diagram of YR59



Appendix 5 Electrical connection diagram of YR59-1



Appendix 6 Quick connector installation diagram