



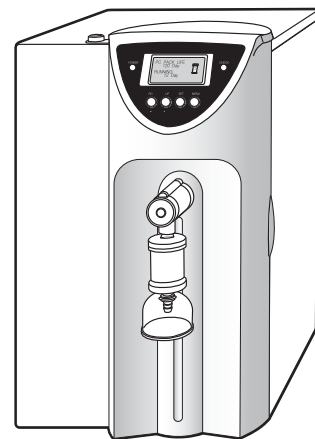
Puris[®]

Puris is a trademark of MIRAE ST Co. Ltd.

Puris, Expe-CB Water System

(Model : Expe-CB Series)

OPERATIONAL MANUAL

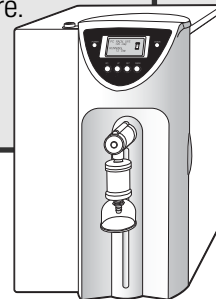


Foreword

This manual is provided to serve as the installation, operation and maintenance guide for the Expe Series LAB Water system models.

The manual should be read before attempting any cycle of installation, operation and maintenance. If the instructions in this manual are not followed, the performance of this product or the safety of the user may be compromised.

If the problem cannot be solved with using this manual, please call your distributor or the manufacture.



Special Features of Puris Expe-CB Ele Water System.

- **Easy Setting**

One-Touch Tubing system is installed for easy use.

- **Easy Filter Change:**

Introduced for the first time, using this cutting edge Quick Connector will make the Pack replacing easier and eliminates The leakage while replacing it from the instrument.

- **Low Operating Noise**

The Expe-CB Series's low level noise pump provides the user with a comfortable and quiet environment.

- **Microprocessor Control System**

Microprocessor Control System program checks condition of all systems, including the filter changing, water quality, sterilization, etc.

- **Measuring Cell**

Cell constant is 0.01cm-1, and excellent in resistivity precision by using sensor with temperature compensation.






- **Function**

Equipped with ultrapure integrated volume recovery system and automatic water purity sensor that complies with GMP provision.

Water purity control data can be easily read by connecting exclusive printer.

Symbol Explanation

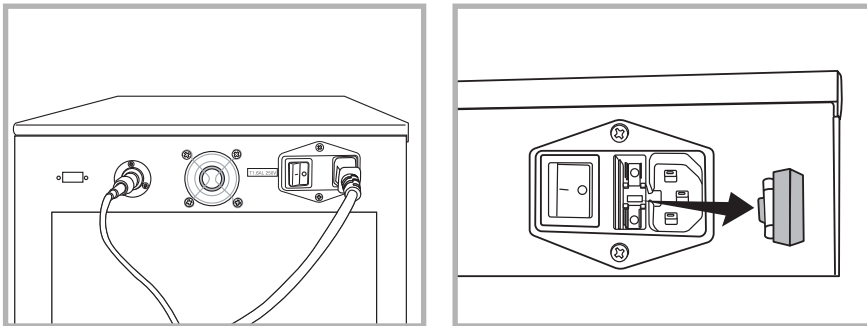
The following symbols are used for the product:

	AC(Analternating Current)
	An Earth
	On
	Off
	FUSE

Maintenance

● Changing Fuse

- Turn off the main power, then pull out the power cord.
- Check the power cord unit on the back of the instrument.
- Unscrew the area where fuse sign is indicated in the middle of the instrument.
- Pull out the Fuse Box which contains two fuses. One is a spare.
- 200-240V or 110-120V areas: T1.6A(T : Time lag fuse)



● Cleaning

Follow the following procedures to remove the dust and foreign substances:

1. Turn off the main power and pull out the power cord.
2. Remove the dust and other objects with a soft wet cloth.
 - Be extra careful when cleaning a Microprocessor Control Panel (upper part of the instrument).
 - It is highly recommended that you use a soft dry cloth.
 - Do not use a substance such as alcohol, benzene, benzol etc which could cause damage to the instrument.
3. Use a dry cloth to remove the vapor, water, steam.



Turn off the power before cleaning

Caution

● Power Supply

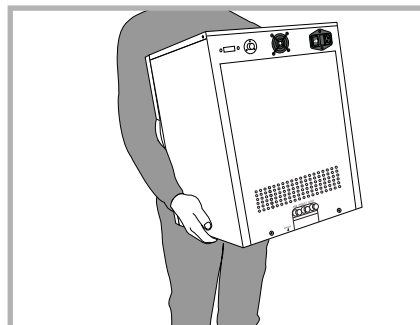
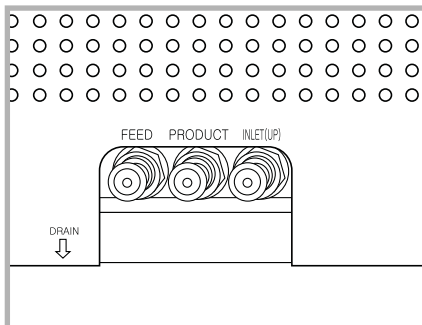
- Make sure to connect the power cord to the instrument properly.
- Make sure that the power conditions are 230V, 60Hz.
- Do not open the PCB box and disconnect anything from the main PCB.
- Never touch the lines connected to Main PCB and Sensor.
- It can cause damage to the program and the sensor.

● Location

- Set the instrument on a table or strong flat surface.
- Always keep the instrument at the clean area otherwise it could affect the system's operation.

● Moving

- Be sure to turn off the water tap before moving the instrument.
- Disconnect the tubing connected to the water faucet and all other tubing connected at the back of the instrument.
- Move the instrument after detaching both the Expe-PC Pack and Expe-CI Pack from the instrument.
- Failing to do this can cause damage to the Quick Connector.



● Normal Cautions

- Do not leave the alcohol or inflammable liquids near the instrument.
(Any contact between electrical units and inflammable liquids could create an electric shock or flame)
- Do not leave anything on the top of the instrument, for this is the area where sensitive electrical units located.
- It is also recommended that the instrument be kept away from the direct sunlight.
- The instrument must be kept at the normal indoor temperature.
- Especially during the cold winter and hot summer, the filter and PCB can be affected.

System Specification

● **Inlet water condition**

RO	UP
<ul style="list-style-type: none"> - Feed Water : <250 μS/cm - Temperature : 5 - 40°C - Pressure : 0.07 - 6Bar - Free Chlorine : \leq3ppm - Fouling Index (SDI) : \leq12 - Inlet water capacity : 20L/hr or 40L/hr 	<ul style="list-style-type: none"> - Reverse Osmosis Water : <250 μS/cm - DI(Deionization) Water : >1 MΩ.cm - Distilled Water - Chlorine : \leq0.0799ppm - TOC : \leq50ppb - Silica : \leq50ppb - Temperature : 5 - 40°C - Pressure : 0.9Bar - Inlet water capacity : 100L/hr

● **Dimension**

- width : 330mm
- length : 490mm
- height : 510mm

● **Weight**

- CB Ele10 : 25 kg
- CB Ele20 : 25.5 kg

● **Connecting**

- Inlet connection : 1/4 inch
- Drain connection : 1/4 inch
- Product connection :1/4 inch
- Tank overflow connection :3/8 inch
- UP Inlet connection :1/4 inch

● **Environment**

- Indoor USE Only
- Altitude UP to 2000M
- OVERVOLTAGE CATEGORY II
- POLLUTION DEGREE2

● **Power**

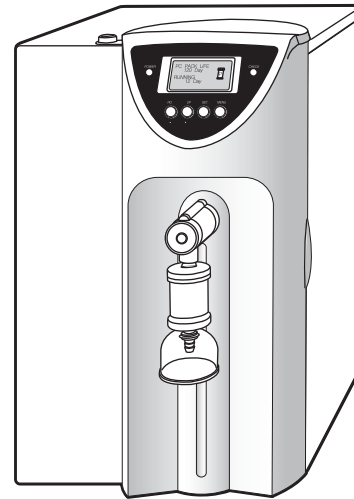
- Power : 220-240V, 50-60Hz or 110-120V, 50-60Hz
- Fuse : T1.6A \times 2

● **Display**

- Wide Graphic LCD
- 128 \times 64 Digits

● System function

- Setting Resistivity
- Setting inlet water temperature
- Indicating Service Life of CI Pack
- Indicating Service Life of Final Filter
- Circulating function at Stand By
- Setting Conductivity
- Setting the tank overflow
- Drain function at Stand By
- Indicating Service Life of PC Pack
- Indicating Service Life of RO Membrane
- Setting key button alarm
- Data Printing function
- Password setup



● System requirement and technical specification

		Expe-CB Ele10		Expe-CB Ele20	
Flow Rate		10L/Hr	1.5L/min	20L/Hr	1.5L/min
RO	UP				
Conductivity		1-25 $\mu\text{s/cm}$		1-25 $\mu\text{s/cm}$	
Resistivity		18.2 $\text{M}\Omega \cdot \text{cm}$		18.2 $\text{M}\Omega \cdot \text{cm}$	
TOC		< 20ppb		< 20ppb	
Particulates		< 1ea/ $\text{m}\ell$		< 1ea/ $\text{m}\ell$	
Bacteria		< 1cfu/ $\text{m}\ell$		< 1cfu/ $\text{m}\ell$	
Inorganics		< 0.1ppb		< 0.1ppb	

Puris, Expe-CB Water System

INSTALLATION INSTRUCTIONS

- After unpacking the instrument, please don't connect the tubing kit to the system as yet.
- First, check all the contents and then attach the Packs.
- Use the instrument in a good condition. Leave the instrument at a safe location.

Contents checking

Puris, Expe-CB Ele Water System Unit : 1 SET

● Filter Cartridge

- Attached filter : Expe RO Pack (CB Ele10 Model):1ea
(CB Ele10 Model):2ea
- Detached filter : Expe-PC Pack : 1pk
Expe-CI Pack : 1pk
Final Filter, 0.2 μ m : 1ea

● Electric cord : 1ea

● Tubing

- 1/4" Tubing : 1 Line (Feed)
- 1/4" Tubing : 1 Line (Drain)
- 1/4" Tubing : 1 Line (Product)
- 1/4" Tubing : 1 Line (UP Inlet)
- 3/8" Tubing : 1 Line (Tank Over Flow)

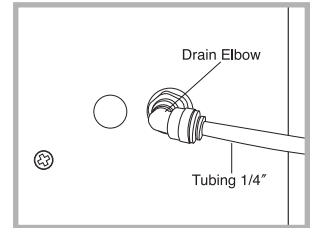
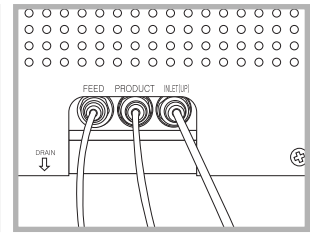
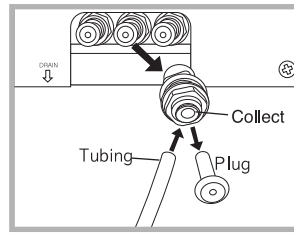
● Cable Tie : 1kit

● Operation manual : 1ea

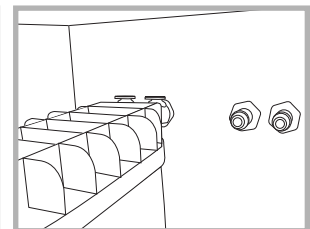
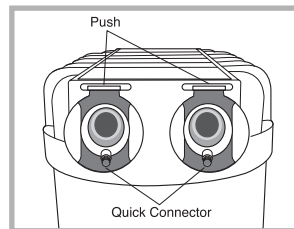
Installing instrument


- After all the contents have been checked, take the instrument to the location where you want to have it set up then follow the following instructions:
- The instrument should be set up where the water faucet and the drainage is available.

- To connect the tubing on the back of the instrument, first remove the plug.
- To remove the plug press the "collect" area hard with your hand and then pull the plug.
- After the plug has been pull out, connect all the 1/4" tubing and then connect the FEED line to the water faucet.
- Put the drain line located at the bottom of the instrument in the drainage hole.
- Connect the PRODUCT LINE and the UP INLET line to the tank.
- Link the 3/8" line to the TANK then leave it at the drainage hole. (OVER FLOW)



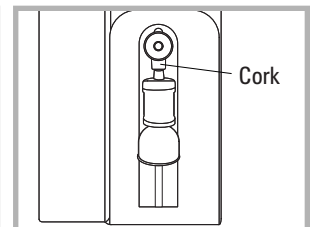
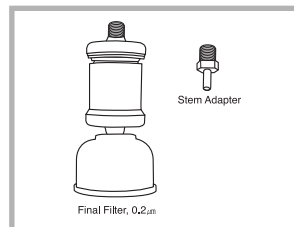
- Open the instrument door and connect the Expe-PC Pack and Expe-CI Pack to the Quick Connector. (Press the button on the Quick Connector before attaching the pack)



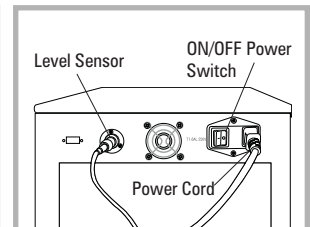
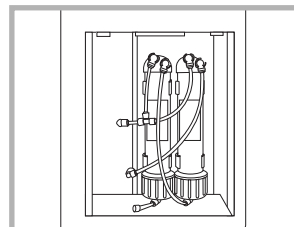


Caution: If a part of the Quick Connector is to stick out above the instrument, a connected part of the O-Ring can be damaged.

- Attach the Micro Filter, 0.2 μm to the Cork which produces the ultrapure water. (Remove the Stem Adapter first which is on the part where ultrapure water flows)

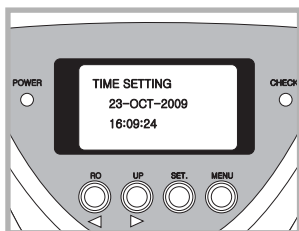


- You can see the Expe-RO Membrane when you open the left side of the door with a screwdriver (Replacing the RO Membrane should be done by an engineer)



- Connect both the power cord and level sensor to the power socket located on the back of the instrument.

Setting functions



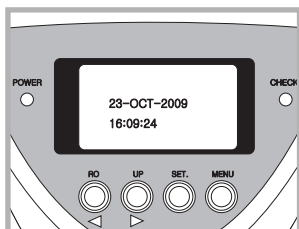
● Time Setting

Turn on the Main Power on the back of the instrument.

TIME SETTING
23-OCT-2009
16:09:24

Setting-screen for the time and date.

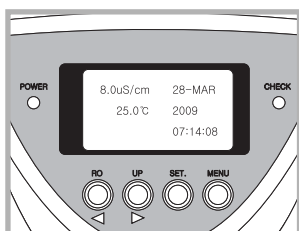
- Set the correct time and date when the number blinks, by pressing the ◀(Increase)or ▶(Decrease) key.
- Moving on to the next can be done by pressing the SET key .
- Finish the set up by pressing the MENU key.



● Initial screen

23-OCT-2009
16:09:24

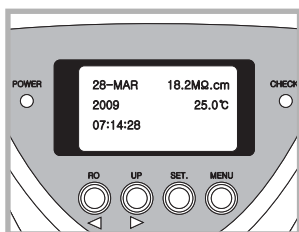
- The time and date will be displayed on the screen.



● Operation screen for RO

8.0 μ S/cm 28-MAR
25.0 °C 2009
07:14:08

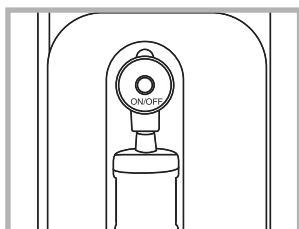
- Press the RO key to produce pure water.
- Here the temperature and conductivity are displayed.



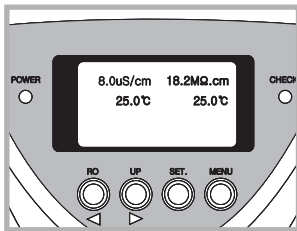
● Operating screen for UP

28-MAR 18.2 M Ω .cm
2009 25.0 °C
07:14:28

- Press the UP key to operate the system.
- The temperature and the resistivity can ben seen on the display.
- Press the UP on/off key in front to produce ultrapure water.



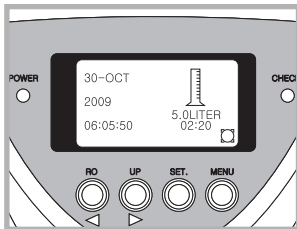
Setting functions



● Operating screen of RO/UP

8.0 $\mu\text{S}/\text{cm}$	18.2 $\text{M}\Omega.\text{cm}$
25.0 $^{\circ}\text{C}$	25.0 $^{\circ}\text{C}$

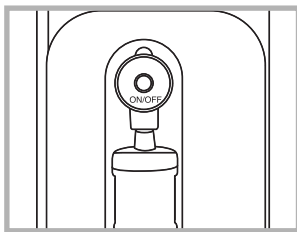
- Keep in mind that the pure water value will range from 1~25 $\mu\text{m}/\text{cm}$. on the other hand the Ultrapure is above 15 $\text{M}\Omega.\text{cm}$.



● Setting screen for water quantity

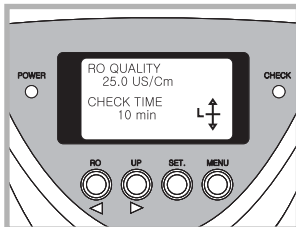
30-OCT	
2009	0.5LITER
06:05:50	02:20

- Press the UP ON/OFF key for 5 seconds.
- Adjust the amount of water you want it to produce by pressing the ◀(Increase) or ▶(Decrease) key. (Range: 0.5L min. ~ 60L max.)
- Press the UP ON/OFF key again to produce an estimated amount of water.
- Press the MENU key to stop working.



Menu Setting

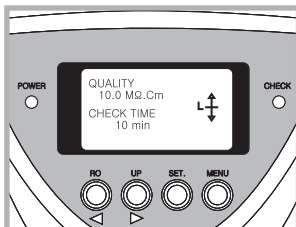
- Turn on the Main Power on the back of the instrument.



● Conductivity setting

RO QUALITY
25.0 $\mu\text{S}/\text{cm}$
CHECK TIME
10 min

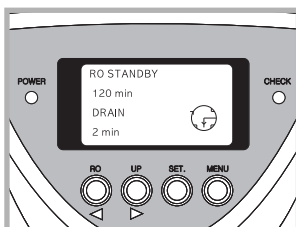
- Press the SET key and set up the RO quality & check time.
- Adjusting the numerical value can be set up by pressing the ◀(Increase)or ▶(Decrease)key. (safety standards : 25 $\mu\text{m}/\text{cm}$)



● Resistivity setting

UP QUALITY
10.0 M Ω .cm
CHECK TIME
10 min

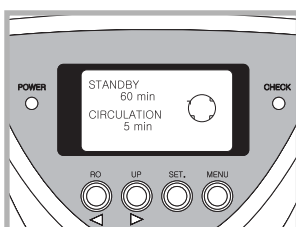
- Press the SET key and set up the UP quality & check time.
- Adjusting the numerical value can be set up by pressing the ◀(Increase)or ▶(Decrease)key.



● RO Membrane automatic washing time

RO STANDBY
120 min
DRAIN
2 min

- This shows that RO Membrane is washing regularly.
- Press the SET key until you find this section.
- Adjusting the numerical value can be set up by pressing the ◀(Increase)or ▶(Decrease)key. (safety standards: RO Standby 120 min, Drain 2 min)

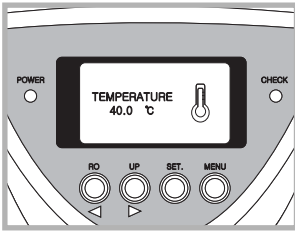


● Automatic circulation time setting for UP system

UP STANDBY
60 min
CIRCULATION
5 min

- This circulates ultrapure water for an estimated period of time.
- Press the SET key until you find this section.
- Adjusting the numerical value can be set up by pressing the ◀(Increase)or ▶(Decrease) key. (safety standards: UP Standby 60 min, Circulation 5 min)

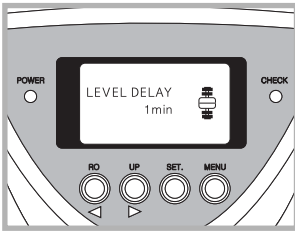
Menu Setting



● Inlet water temperature setting

TEMPERATURE
40.0 °C

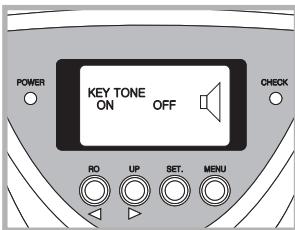
- When the inlet water temperature exceeds safety standards, the operation of unit stops automatically
- Adjusting the temperature can be set up by pressing the ◀(Increase) or ▶ (Decrease) key.
- (safety standards: 40°C)



● The water level sensor setting

LEVEL DELAY
1 min

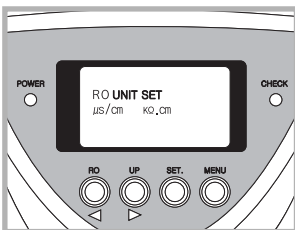
- The operating systems can be set up again at a full tank.
- Adjusting the Level Delay can be set up by pressing the ◀(Increase) or ▶(Decrease) key.



● Key tone setting

KEY TONE
ON OFF

- Leaving the Key tone in ON or OFF mode can be set up by pressing the ◀(Increase) or ▶ (Decrease)key.

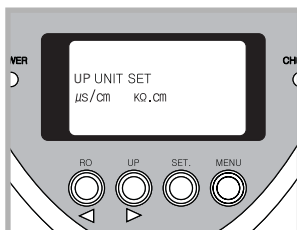


● Setting a purity level

RO UNIT SET
μS/cm MΩ·cm

- Select the symbol of RO Unit Set by pressing the ◀(Increase) or ▶(Decrease) key if needed.

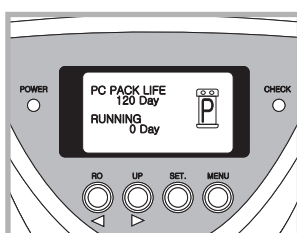
Menu Setting



● Ultrapure level setting

UP UNIT SET
 $\mu\text{s/cm}$ $\text{M}\Omega\cdot\text{cm}$

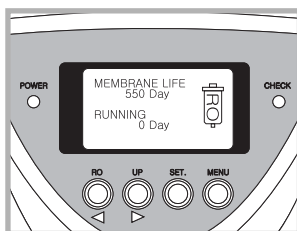
- Select the symbol of UP Unit Set by pressing the ◀(Increase) or ▶(Decrease)key if needed.



● PC Pack Normal Life Time

PC PACK LIFE
 120 Day
 RUNNING
 0 Day

- Safety standards : 120 Day



● RO Membrane Normal Life Time

MEMBRANE LIFE
 550 Day
 RUNNING
 0 Day

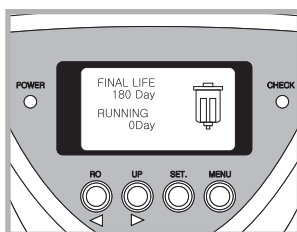
- Safety standards : 550 Day



● CI Pack Normal Life Time

CI PACK LIFE
 180 Day
 RUNNING
 0 Day

- Safety standards: 180 Day

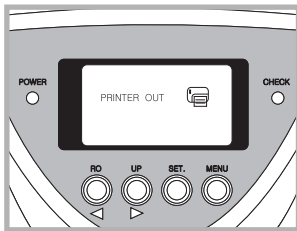


● Final filter, 0.2 μm Normal Life Time

FILTER LIFE
 180 Day
 RUNNING
 0 Day

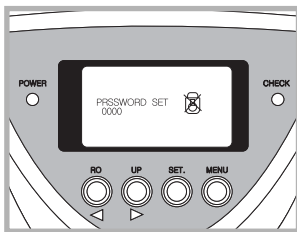
- Safety standards: 180 Day

Menu Setting



● **Printing function(Optional)**

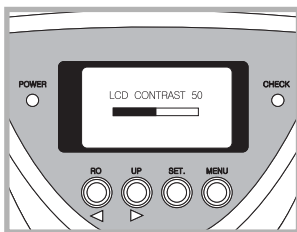
PRINTER OUT



● **Setting the password**

PASSWORD SET
0000

- Change the password by pressing the ◀(Increase) or ▶(Decrease)key if needed.

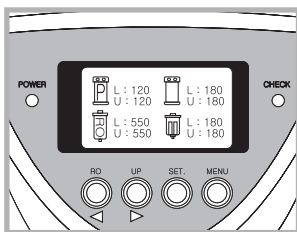


● **LCD brightness setting**

LCD CONTRAST 50

- Adjust the LCD Contrast figure by pressing the ◀(Increase) or ▶(Decrease) key if needed.

FILTER Normal Life Time



● **Please check with the SET key**

① L: 000	② L: 000
U: 000	U: 000
③ L: 000	④ L: 000
U: 000	U: 000

① PC Pack Normal Life Time ② CI Pack Normal Life Time
③ RO Membrane Normal Life Time ④ Micro Filter Normal Life Time
- It can be seen by pressing the SET key on the initial screen.

Setting

● Date Input

- Press the MENU.
- Move to the "Print Out"
- Press the button to following order
(SET) - (RO) - (UP)
- Input the new date.

● Cancel the Password

- Press the MENU key.
- The display will show the number "5000".
- Change the number to 0000 by pressing the SET key.
- Press the ◀(Increase) key to reset the number to "0001".
- Look at the password section by pressing the MENU key.
- Reset the old password to "0000" by pressing the ◀(Increase) or ▶(Decrease) key.
(The symbol of the padlock is shown with unlocked)
- Back to the initial screen by pressing the MENU key.

● Setting the program after replacing the filter

- Move to the filter replaced section by pressing the menu after replacing the filter.
- The replaced filter's service life and the figure of running time are displayed on the screen.
- Press the MENU and SET keys simultaneously.
- The running day and life day are indicated.
- Press the SET key that will display the Running day to "0"
- Press the MENU key to move to the initial screen.



Changing the figure of an estimated life day will affect the quality of water and could not be guaranteed the best quality of water.

Replacing the Filter

It is recommended that the work should be done after gaining the full of understanding about this product. otherwise the performance of this product may be compromised.



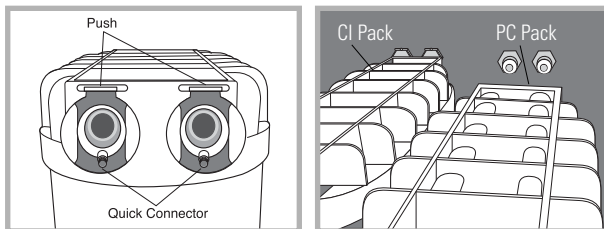
Always check that the Electrical power cord and Feed water supply are switched off before attempting to change any consumables.

● Replacing the PC Pack

- Open the front door.
- Remove the upper part of the Quick Connector which is a main connector to the PC Pack by pressing it.
- Press the button on the Quick Connector before attaching the PC Pack.

● Replacing the CI Pack

- Open the front door.
- Remove the upper part of the Quick Connector which is a main connector to the CI Pack by pressing it.
- Press the button on the Quick Connector before attaching the CI Pack.



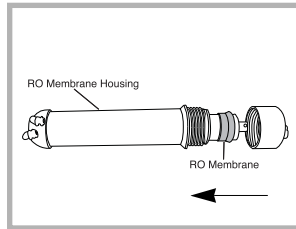
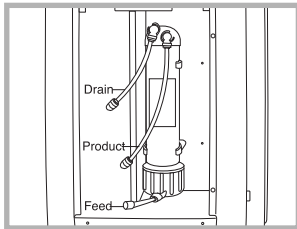
If a part of the Quick Connector is to stick out above the instrument, a connected part of the O-Ring can be damaged.

※ Reset the program after replacing the pack.(P17)

Replacing the Filter

● Replacing the RO Membrane

- Open the left side of the door with a screwdriver.
- Detach the RO Membrane housing from the unit.
- Replace the old RO Membrane with the new one.
- Connect the tubing around the RO Membrane in a proper position.
- Remove the tubing connected around the RO Membrane.
- Rotate the Membrane Housing cover counterclockwise to open.
- Attach the new RO Membrane to where it has been.
- Set up the program after replacing it.



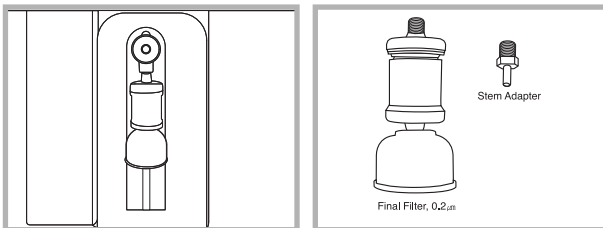
Make sure the RO Membrane is inserted in a proper way.

※ Reset the program after replacing the pack.(P17)

Replacing the Filter

● Replacing the Final Filter, 0.2 μ m

- Rotate the Final Filter to right to remove.
- Attach the New Final Filter by rotating it clockwise
- Set the program after replacing it



Rotate the Final Filter gently otherwise it can be damaged.

※ Set the program after replacing it.(P17)

Consumables and Service Life

• Normal Service Life

Item	P/N	Service Life	Remark
· Expe-PC Pack	FXPC265M	4months	
· Expe-RO Membrane	FXRM075M	18 months	Ele10
· Expe-RO Membrane	FXRM275M	18 months	Ele20
· Expe-CI Pack	FXCI265M	6 months	
· Final Filter, 0.2 μ m	ASMF02-BM	6 months	
· Printer Kit	FXPD801M		
· Validation Kit	FXVAK951M		
· IQ/IQ Handbook	FXIOR910M		






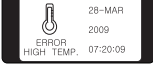


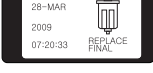



Service life is an estimate only, and will depend on the feed water quality.

Trouble Shooting

● **After confirming the Error Message, please observe the following process**
















- Confirm the Error Message.
- Switch off the Power then unplug the power cord.
(Power Switch can be off regardless of Error Message being displayed on the screen)
- Confirm the inlet water temperature or Change the filter according to the Error Message on the screen.

Error Message	Trouble Shooting	
DRAIN 120:00		Clean the RO Membrane after some periods of time .
TANK FULL		Adjust the Tank Level.
8.0µs/cm 00:00		The operation stops automatically if the resistivity rate is above 25 µm/cm
REPLACE PC PACK		Replace the PC Pack.
REPLACE RO MEMBRANE		Replace the RO Membrane.
ERROR HIGH TEMP.		Confirm the inlet Water temperature.
CIRCULA. 00:00		Circulate the unit after some periods of time.
18.2MΩ·cm 00:00		The operation stops automatically if the conductivity rate is below 15 MΩ
REPLACE FINAL FILTER		Replace the Final Filter.
REPLACE CI PACK		Replace the CI Pack



Please ask for the advice from our engineer if you can't solve the problem

ICONS

 8.0uS/cm 00:00	Limit (RO)
 18.2MΩ.cm 00:00	Limit (UP)
 DRAIN 120:00	Drain (RO)
 CIRCULA 60:00	Circulation (UP)
	Temperature
 TANK FULL 120:00	Level
	Key Tone
	PC Pack
	RO Membrane
	CI Pack
	Final Filter
	Printer
	Password
	Level Delay
	Water Quantity

We strive to guarantee our customers the complete satisfaction.

MIRAE ST CO. LTD not only makes high quality products but we do our best to provide the best after service to our customers.

We are always glad to receive feedbacks or any opinions from our customers. If you have any inconvenience or something that we can be of help, please don't hesitate to contact us.

Thank you!!



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