



Water Purifier

CHP-6310L

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1. Product characteristics and specifications

1-1 Product characteristics

■ Convenient quantitative dispensing for hot, cold and ambient water.

This convenient feature automatically extracts the exact amount of water (ambient, cold or hot) you wish through a single faucet.



■ Cold water plus feature

With this feature, a more abundant supply of cold water can be provided as this model uses separate cold and ambient water tanks.



■ Energy saving light sensor

When in power save mode, the device automatically reduces the frequency of motor and heater operation to reduce power consumption.



■ Slim size and a refined design

This device can be conveniently installed and used in any kitchen, no matter how small, with its slim size and elegant design.



1-1-1 Features and specifications of main parts

Part name	Feed valve/ NOS valve (for safety blocking)
Usage	Tap water input and safety blocking
Operating principle	When the water low/top level sensor and the overflow sensor detect the water top level signal, it opens or closes the flow path to provide dual blocking of tap water.
Part name	Water low/top level sensor (water level sensor)
Usage	Water level detection in the ambient water tank
Operating principle	The ambient water tank's water level is detected in two steps to control the water purification function with the feed valve.
Part name	Overflow sensor (water level sensor)
Usage	Water level detection in the ambient water tank
Operating principle	When the water overflow level sensor detects the water level in the ambient water tank, the NOS valve is operated to stop the water purification operation.
Part name	Bi-metal (manual)
Usage	Overheating prevention
Operating principle	A strip made of two metals with different thermal expansion coefficients will automatically cut off the power to the heater in case of overheating.
Part name	Drain control valve
Usage	The water volume of the membrane filter is automatically adjusted according to the tap water pressure.
Operating principle	The water volume is automatically adjusted by spring tension according to the tap water pressure. Flushing is performed for 30 seconds to clean the membrane filter according to the water purification time.

■ Main parts and their specifications

Part name	Specifications	Remarks
Feed valve / NOS valve	Volts : DC 24 V / AMPS : 210 mA	
Compressor	220 V - 240 V~ / 50 Hz	
Heater	220 V - 240 V~ / 300 W	
Bi-metal	OFF : 91 °C / ON : Manual return type	

1-2 Major specifications

■ Technical specifications

Product name		Coway water purifier/electric water cooler (and hot water heater)
Model name		CHP-6310L
Filtration method		Reverse osmosis
Collection rate		50 % (343 kPa, 25 °C, NaCl 200 ppm)
Rated voltage		220 V - 240 V~ / 50 Hz
Rated input		Cold water : 0.5 A, hot water : 300 W
Display information		Water temperature display, locking feature
Main functions		Ambient water, cold water, hot water, overheating/overcooling prevention, set quantity dispensing, continuous dispensing
Water tank capacity	Ambient water	2.5 L
	Cold water	2.5 L
	Hot water(CHP-6310L)	1.0 L
	Total	6.0 L
Filter material	Neo-sense filter (Carbon block pre-filter)	Block activated carbon
	Membrane filter (RO)	Reverse osmosis filter
	Plus inno-sense filter (Carbon block post-filter)	Block activated carbon, non-woven fabric
Product size		260 mm (width) x 483 mm (depth) x 510 mm (height)
Operating temperature		5 °C - 35 °C
Operating temperature		5 °C - 35 °C
Effective water capacity		680 L (for VOC, reduction of substances certified to NSF/ANSI 401) 11 000 L (for Aesthetic chlorine)
Operating pressure (tap water)		1.4 MPa - 0.83 MPa
Net weight		17.3 kg

- * The water tank capacity may differ slightly from the quantity of obtainable water due to the size of the water tank.
- * Product design and specifications are regulated by law and are subject to change without notice to improve the product or its quality.
- * Collection rate refers to the amount of water that comes out compared to the amount that goes in.
- * May differ depending on the installation location water pressure, water temperature, and water quality.

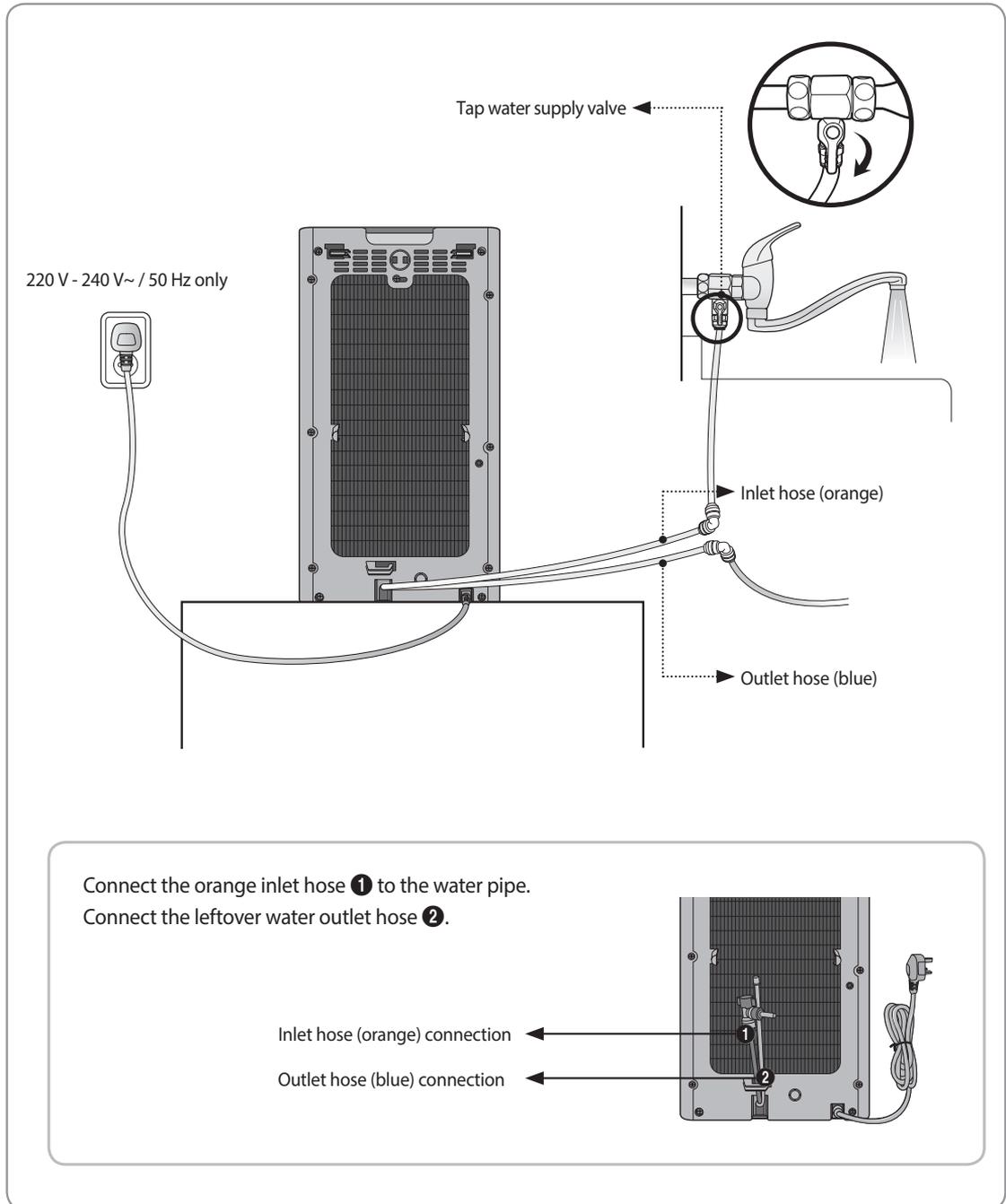
2. Product installation

2-1 Installation method

2-1-1 Installation precautions

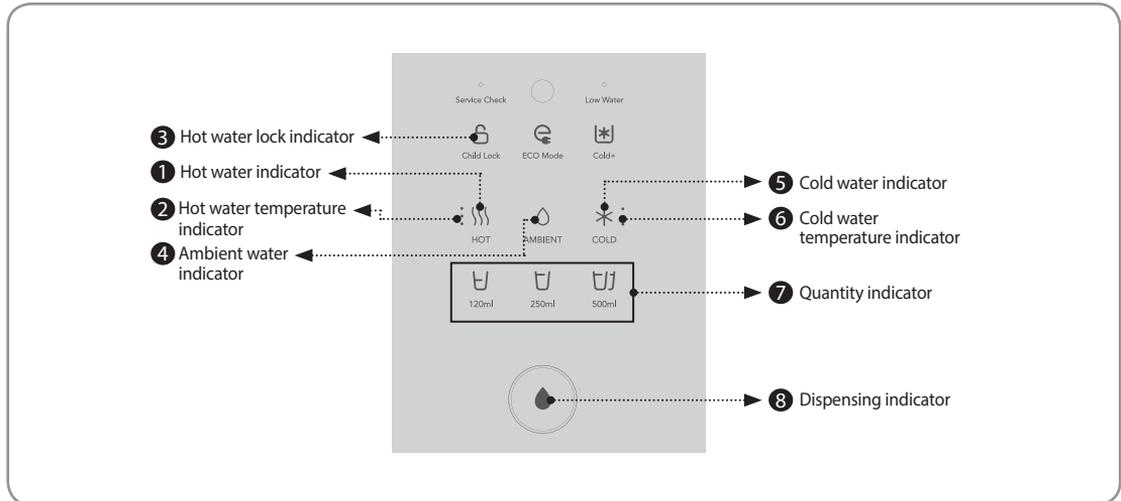
<p>Precautions</p>	<ul style="list-style-type: none"> • Tank volume of the water purifier is designed for household use. • Install it on a firm and flat surface. • Avoid installing it in a place with direct sunlight, a place where the temperature goes below zero, or a place with too much humidity. • If you want to install it newly or move the installation location, then make sure that you read the product manual once more in advance. • The product uses the electricity of 220 V - 240 V~ / 50 Hz. Check the voltage before connecting the power cord. • The tap water input hose must be connected to the cold water tubing. <ul style="list-style-type: none"> - If you connect the hose to the hot water pipe of above 40 °C, it can cause filter damage. • Immediately after product installation, make sure to discard the stored water in the storage tank water at the water top level at least twice before use.
<p>Installation water pressure</p>	<ul style="list-style-type: none"> • Make sure that the tap water pressure is above 138 kPa to ensure the correct amount of ambient water and proper operation of the water purification system.
<p>Installation distance</p>	<ul style="list-style-type: none"> • Install the product with the water pressure below 137 kPa, within 3 M in height and 5 M in distance. • Install the product with the water pressure below 138 kPa, within 3 M in height and 25 M in distance.

2-1-2 Installation guide



2-2 Using the product after installation

■ Buttons and indicators (■ button / ● indicator)



1 Hot water indicator
The indicator lights up when hot water is on.



2 Hot water temperature indicator
The indicator lights up according to the temperature of the hot water. The more lights are illuminated, the hotter the water.



3 Hot water lock indicator
The indicator lights up when hot water lock is on.



4 Ambient water indicator
The indicator lights up when ambient water is on.



5 Cold water indicator
The indicator lights up when cold water is on.



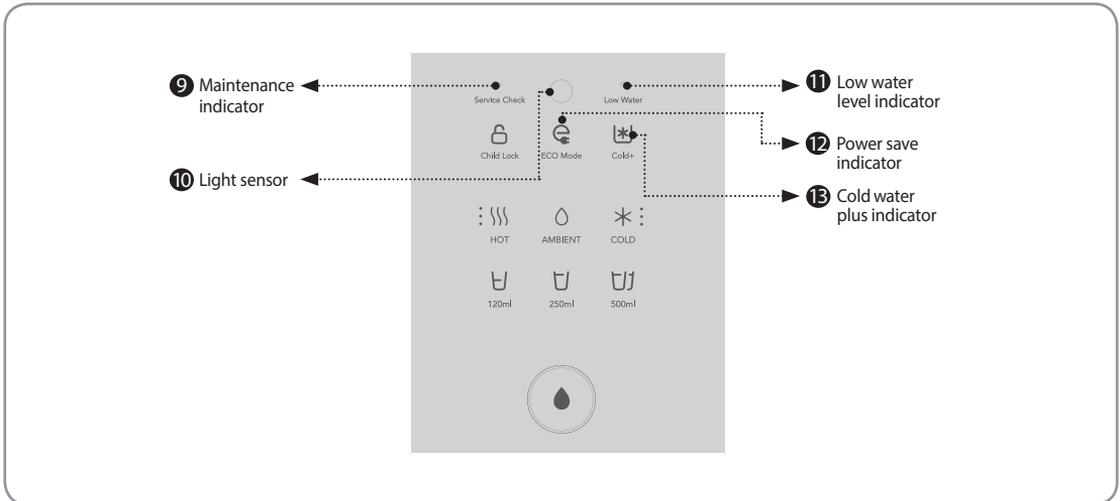
6 Cold water temperature indicator
The indicator lights up according to the temperature of the cold water. The more lights are illuminated, the colder the water.



7 Quantity indicator
Shows how much water is selected to dispense.
 ☐ (Half cup-about 120 ml) :
 A good amount of water to use for coffee or tea
 ☐ (One cup-about 250 m) :
 A perfect amount of water to drink
 ☐☐ (Two cups-about 500 ml) :
 A good amount of water to use to cook ramen, etc



8 Dispensing indicator
This indicator lights up when water is being dispensed.



9 Maintenance indicator
This indicator lights up when maintenance service is required.



10 Light sensor
This sensor detects light around the device to discern whether it is day or night.



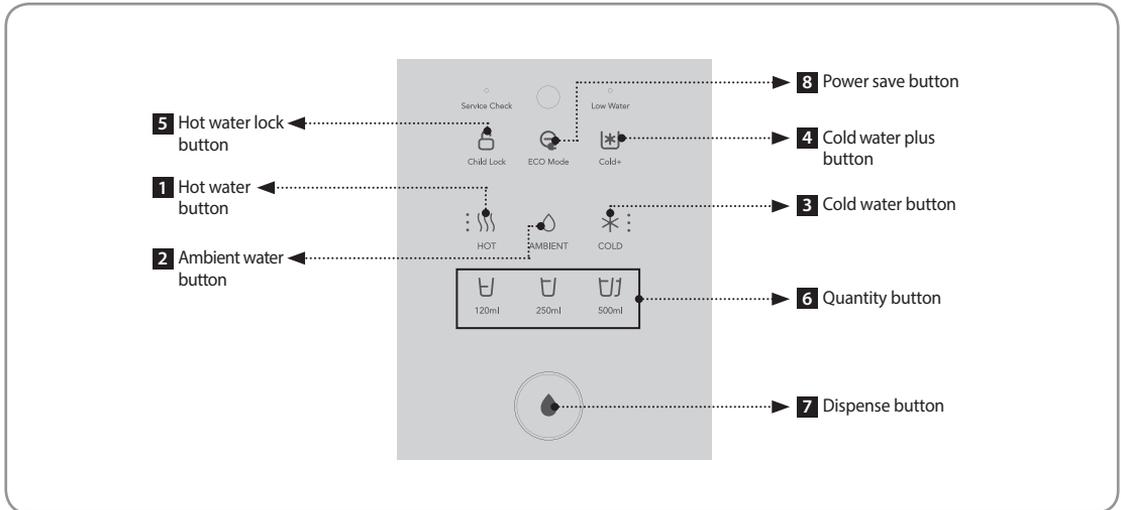
11 Low water level indicator
The indicator lights up when the water level in the tank is less than low.



12 Power save indicator
The indicator lights up when the power save feature is on.



13 Cold water plus indicator
The indicator lights up when the cold water plus feature is on.



1 Hot water button
Use when you want to get hot water.



2 Ambient water button
Use when you want to get ambient water.



3 Cold water button
Use when you want to get cold water.



4 Cold water plus button
Use when you want to turn on the cold water plus feature.



5 Hot water lock button
Use when turning on hot water lock. Hold for about 2 seconds to turn hot water lock on/off. (You cannot select/dispense hot water while hot water lock is active.)



6 Quantity button
Use when selecting how much you want to dispense.



7 Dispense button
Use when you want to get water.

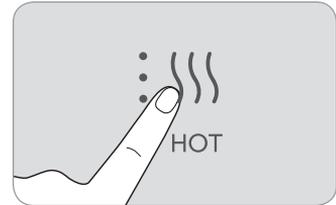


8 Power save button
Use when you want to turn power save mode on.

■ To use the hot water

Press the hot water button for at least 2 seconds and check to see whether the display shows the hot water feature on and whether the hot water temperature indicator is lit. To turn off hot water, press and hold the hot water button again for at least 5 seconds.

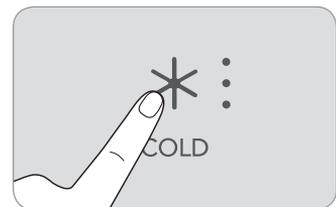
* You can get hot water about 30 minutes after you turn on the hot water feature.



■ To use the cold water

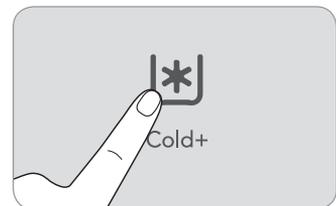
Press the cold water button for at least 2 seconds and check to see whether the display shows the cold water feature on and whether the cold water temperature indicator is lit. To turn off cold water, press and hold the cold water button again for at least 5 seconds.

* You can get cold water starting about two hours after you turn on the cold water feature.



■ To use the cold water plus

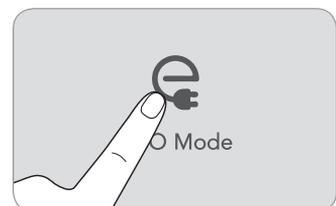
Press the cold water plus button for at least 2 seconds and check to see whether the display shows the cold water plus feature on and whether the cold water plus indicator is lit. To turn off cold water plus, press and hold the cold water plus button again for at least 2 seconds.



■ To use the power save

Press and hold the power save button for at least 2 seconds to turn power save on. The power save indicator blinks when the product recognizes night.

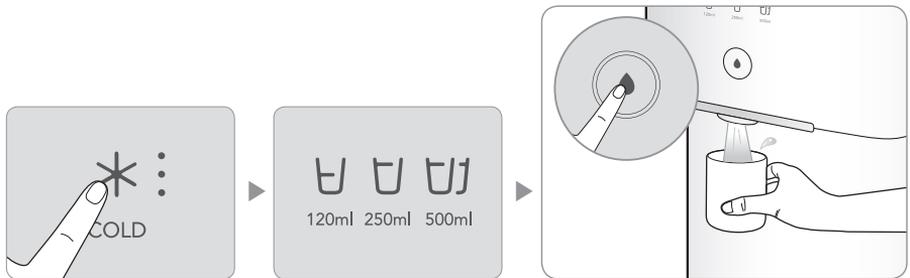
* If the power save indicator is on, the cold water temperature is kept relatively high when the area around is dark.



- If the filtration device does not dispense cold water, check to see whether the cold water indicator is lit.
- When the level of ambient water inside the water tank is low, you may not be able to get as much water as usual.
- When the power cord is reconnected or there is a blackout, the last settings used are kept.
- This product has a power save feature when not in use. If not used for a long time (approximately 9 hours), the hot water (CHP-6310L) temperature is automatically decreased and the cold water temperature kept higher to help save on electricity costs. When power save is on due to non-use, the hot water (CHP-6310L) may be less hot and the cold water may be somewhat less cold.

■ How to get cold water

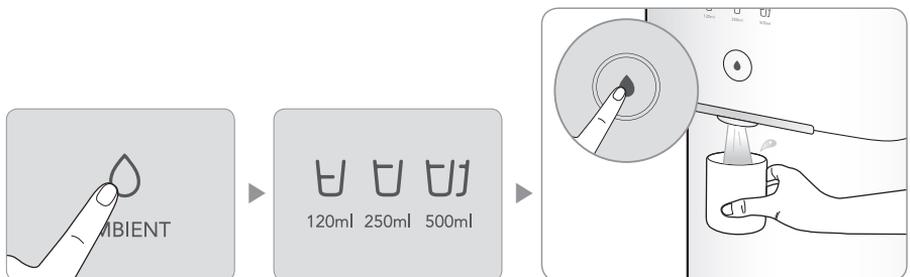
Check the cold water temperature indicator and press the cold water button, and then touch the quantity button to set the amount of water you want. Press the dispense button to get your selected amount of cold water. Press the dispense button again while dispensing to stop the water. To continuously get cold water, press and hold for at least 3 seconds. You will get a stream of cold water for about 3 minutes. Press the dispense button again while dispensing to stop the water.



- If cold water is not dispensed from the water filtration device, check that the cold water indicator is lit up on the display.
- If water is not dispensed from the water filtration device, check whether the low water level indicator is lit up on the display.

■ How to get ambient water

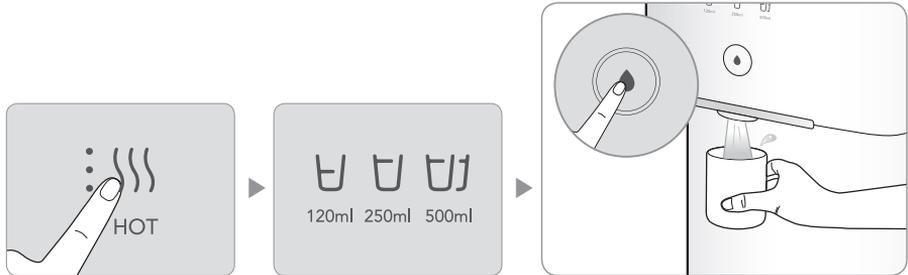
Press the ambient water button, and then Press the quantity button to set the amount of water you want. Press the dispense button to get your selected amount of ambient water. Press the dispense button again while dispensing to stop the water. To continuously get ambient water, press and hold for at least 3 seconds. You will get a stream of water for about 3 minutes. Press the dispense button again while dispensing to stop the water.



- If ambient water is not dispensed from the water filtration device, check whether the low water level indicator is lit up on the display.

■ How to get hot water

Press the hot water button, and then touch the quantity button to set the amount of water you want. Press the dispense button to get your selected amount of hot water. Press the dispense button again while dispensing to stop the water. To continuously get hot water, press and hold for at least 3 seconds. You will get a stream of water for about 3 minutes. Press the dispense button again while dispensing to stop the water.



- If water is not dispensed from the water filtration device, check whether the low water level indicator is lit up on the display.
- Be careful not to get burned when using hot water.

3. Disassembling and refitting

3-1 Disassembling and refitting information

3-1-1 Disassembling and refitting information



- During disassembly, make sure to prevent damage or deformation to all parts.
- Assembly is done in the reverse order of disassembly.

■ Before disassembling the product

- Block main water by closing the main water supply valve.
- Completely drain water from the water tank. Water splashes during service may reduce insulation efficiency and cause danger.
- To prevent electric shocks, remove the power plug.
- If you disassemble or assemble the product with it laid down on its back, make sure that you do it on a blanket. Otherwise, it can cause scratches to the rear of the product.

■ Safety checking after the service

- Check that screws, parts, and lead wires are in their original positions.
- Check if coverings of the lead wires are not damaged.
- After assembling, check that the water purification works.
- Check the tubing for water leakage.
- Check that all switches operate normally.
- After the service, assemble the product in its original state.

3-1-2 Necessary tools

Tools	Tool name
	Cross-head '+' screwdriver
	Flat-bladed '-' screwdriver
	Long nose

3-2 Disassembling and reassembling the product

3-2-1 Disassembling the cover-top assy

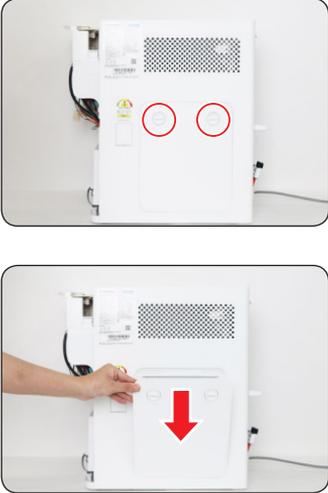
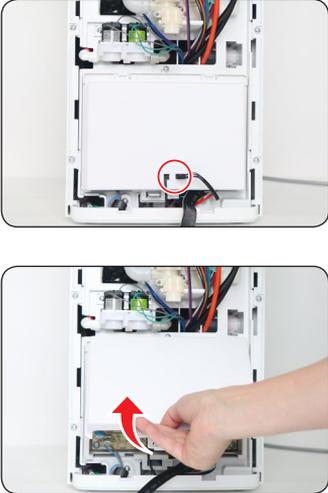
Category	Part name	Description	Photo
1	Tray assy	1) Detach the tray assy in the direction of the arrow.	 
2	Cover-top assy	1) Detach the cover-top assy in the direction of arrow.	
3	Cap-main tank assy	1) Detach the 6 clip-main tank sealing elbows. 2) Detach the cap-main tank assy in the direction of arrow.	 

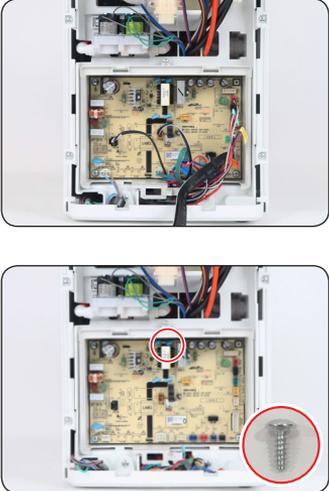
Category	Part name	Description	Photo
4	Separator-main assy	1) Detach the separator-main assy in the direction of the arrow.	

3-2-2 Disassembling the cover-front assy

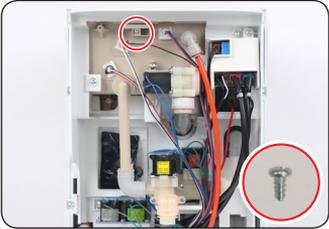
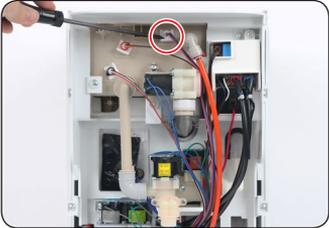
Category	Part name	Description	Photo
1	Cover-front CHP assy	<ol style="list-style-type: none"> 1) Remove the screw from the cover-front CHP assy. : 2-THT 4X12 2) Remove the cover-front CHP assy by pulling it in the direction of arrow. 3) Remove a connector connected to the PBA-front CHP assy to detach the cover-front CHP assy. 	
2	PBA-front CHP Assy	<ol style="list-style-type: none"> 1) Remove the four screws to detach the PBA-front CHP assy. : 4-THT 4X12 	
3	Faucet cover	<ol style="list-style-type: none"> 1) Detach the faucet cover in the direction of the arrow. 	

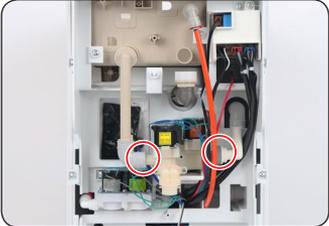
3-2-3 Disassembling the PBA-main assy

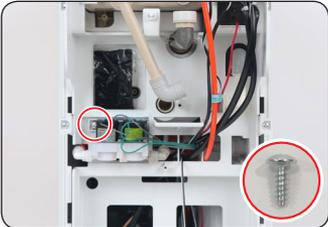
Category	Part name	Description	Photo
1	Door-side R assy	<ol style="list-style-type: none"> 1) Turn the handle of the door-side R assy to open it. 2) Detach the door-side R assy in the direction of the arrow. 	
2	Filter	<ol style="list-style-type: none"> 1) Detach the filter by lifting the filter holder in the direction of the arrow. 	
3	PBA-main CHP	<ol style="list-style-type: none"> 1) Remove the two connectors connected to the cover-main PBA. 2) Detach the cover-main PBA in the direction of arrow. 	

Category	Part name	Description	Photo
		<p>3) Remove all the connectors connected to the PBA-main CHP</p> <p>4) Remove one screw to detach the PBA-main CHP. : 1-THT 4X12</p>	

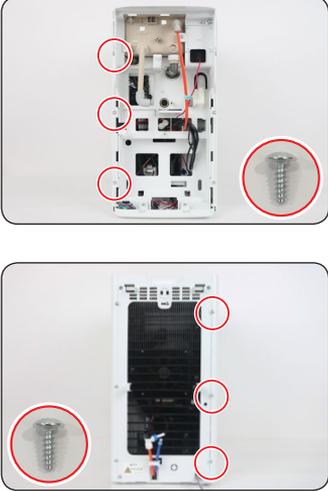
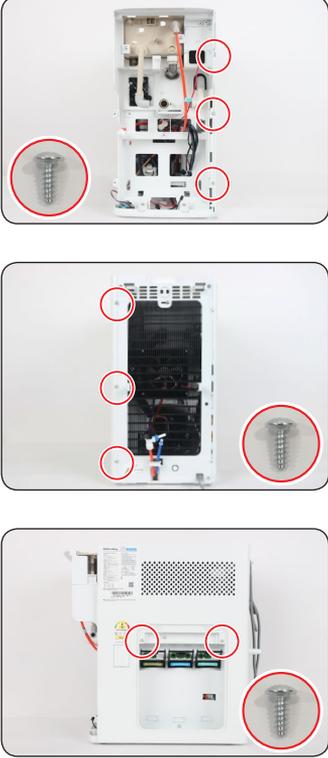
3-2-4 Disassembling the valve assy

Category	Part name	Description	Photo
1	Switch-reed	1) Remove one screw to detach the switch-reed. : 1-PHT 3X6	
2	Sensor-water overflow assy	1) Remove the clips to detach the sensor-water overflow level assy.	
3	Sensor-water top level assy	1) Remove the clips to detach the sensor-water top level assy.	
4	Sensor-water low level assy	1) Remove the clips to detach the sensor-water low level assy.	
5	Valve-cold inlet	1) Remove one screw from the valve-cold inlet. : 1-THT 4X12	

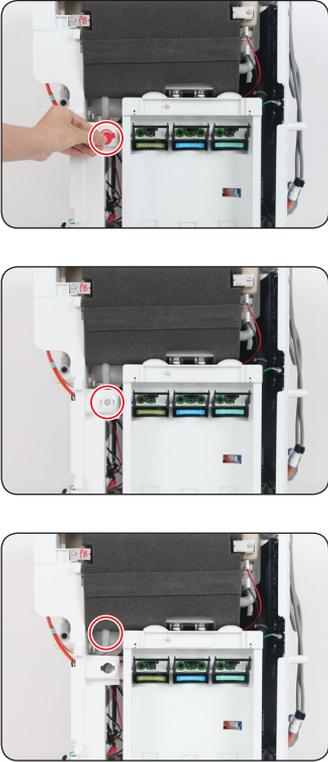
Category	Part name	Description	Photo
		2) Remove one hose to detach the valve-cold inlet.	
6	Valve-3 way assy	1) Remove one screw from the valve-3 way assy. : 1-THT 4X12 2) Remove the two hoses to detach the valve-3 way assy.	  
7	Sensor-cold water temperature assy	1) Detach the seal-press in the direction of arrow. 2) Remove one screw to detach the sensor-cold water temperature assy. : 1-THT 4X12	 

Category	Part name	Description	Photo
8	Sensor-cold water level	1) Remove the two screws to detach the sensor-cold water level assy. : 2-THT 4X12	
9	Valve-feed nose	1) Remove one screw to detach the valve-feed nose. : 1-THT 4X12 2) Remove the two screws to detach the valve-feed nose.	 
10	PBA-relay CHP assy	1) Remove all connectors connected to the PBA-relay CHP assy. 2) Remove one screw to detach the PBA-relay CHP assy. : 1-THT 4X12	 

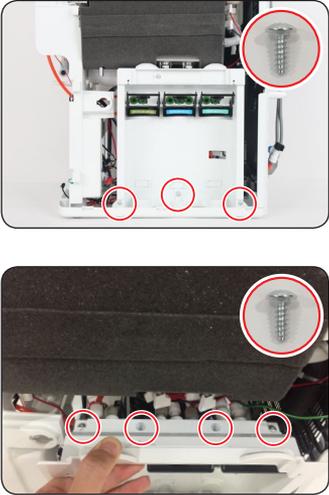
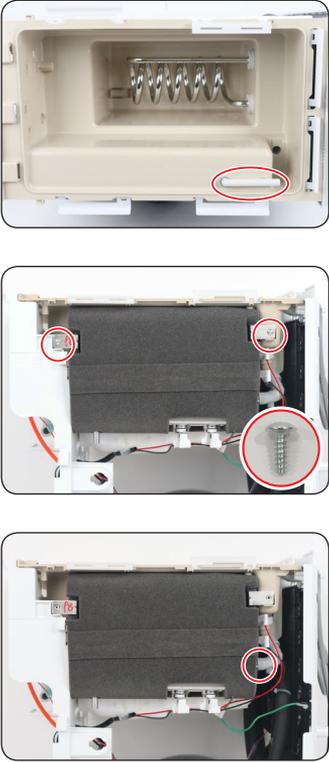
3-2-5 Disassembling the cover-side assy

Category	Part name	Description	Photo
1	Cover-side L	1) Remove the six screws to detach the cover-side L. : 6-THT 4X12	
2	Cover-side R	1) Remove the eight screws to detach the cover-side R. : 8-THT 4X12	

3-2-6 Disassembling the connector-drain assy

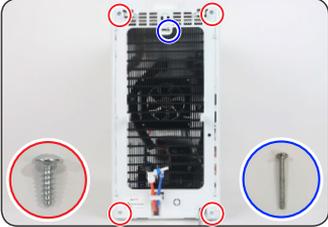
Category	Part name	Description	Photo
1	Connector-drain assy	<ol style="list-style-type: none"> 1) Detach the connector-drain cap 2) Turn the connector-drain to remove. 3) Remove one hose to detach the connector-drain completely 	

3-2-7 Disassembling the tank-heating tank assy

Category	Part name	Description	Photo
1	Frame-filter assy	1) Detach the three screws from the frame-filter assy. : 3-THT 4X12 2) Remove the four screws and all the hoses connected to the frame-filter assy and then detach the frame-filter assy. : 4-THT 4X12	
2	Tank-heating tank assy	1) Detach the connector-over heating 2) Detach the two screws from the tank-heating tank assy : 2-THT 4X12 3) Detach one hose connected to the tank-heating tank assy	

Category	Part name	Description	Photo
		4) Remove one ground wire by detaching one screw and detach the tank-heating tank assy. : 1-PHT 3X8	

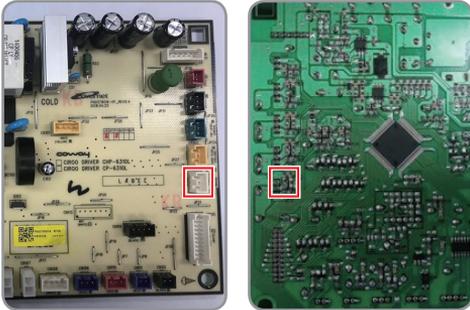
3-2-8 Disassembling the cover-rear assy

Category	Part name	Description	Photo
1	Cover-rear assy	1) Remove the five screws to detach the cover-rear assy. : 4-THT(4X12) (O) : 1-THT(4X36) (O)	
2	Power cord	1) Remove one screw and detach one ground wire. : 1-PHT 3X8 2) Detach the power cord in the direction of arrow.	

4. Fault diagnosis

4-1 Checking faults by symptoms (error mode)

4-1-1 Cold water low level sensor error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure				
Symptom	<p>[Error condition]</p> <table border="1"> <tr> <th>Cold water low level</th> <th>Ambient water low level</th> </tr> <tr> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </table> <p>1. When the cold water low level sensor is not detected for more than 2 minutes while the ambient water low level sensor is detected</p> <p>2. An error occurs if it detects once</p>	Cold water low level	Ambient water low level	Undetected (Off)	Detected (On)	<p>[Operation condition]</p> <ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Cooling stopped Cold water plus LED blinks Error is canceled if the power is on again 	<p>[Display condition]</p>  <p>Cold water+</p> <p>Blinking</p>	
Cold water low level	Ambient water low level							
Undetected (Off)	Detected (On)							
1. Cold water low level sensor	<p>1) Check if it is connected to the PBA-MAIN Also, check the connector condition [CN105, WHITE]</p> 	HIGH is output when the water is detected	<p>If it is not engaged, it is a failure</p> <p>If LOW is output when the water level is detected, it is a failure</p>	<p>Engage the connectors</p> <p>Replace the sensor</p>				
2. PBA-MAIN	<p>1) Check for incomplete CN105 [WHITE] soldering or short circuit</p> <p>2) Check for incomplete R120, R121, C115, C116 soldering and short circuit</p> 	<p>Visual inspection</p> <p>Tester</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the part is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>				

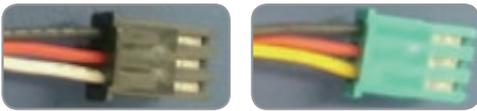
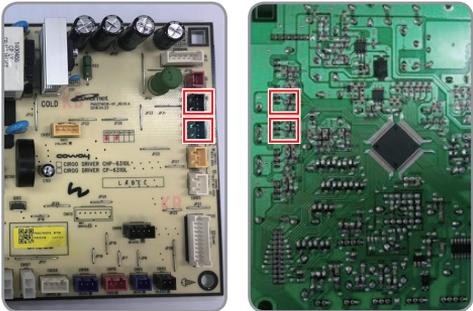
4-1-2 Ambient water low level sensor error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure						
Symptom	<p>[Error condition]</p> <table border="1"> <thead> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Undetected (Off)</td> <td>Detected (On)</td> <td>-</td> </tr> </tbody> </table> <ul style="list-style-type: none"> An error occurs if it detects once 	Water low level	Water top level	Water overflow	Undetected (Off)	Detected (On)	-	[Operation condition]	[Display condition]	
Water low level	Water top level	Water overflow								
Undetected (Off)	Detected (On)	-								
		<ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Heating and cooling stopped The bottom LEDs of the cold water temperature displays and the hot water temperature displays are blinking Error is automatically canceled if the water low level is detected Error is canceled if the power is on again 								
1. Ambient water low level sensor	<ol style="list-style-type: none"> Check if it is connected to the PBA-MAIN Also, check the connector condition [CN102, BLACK] 	HIGH is output when the water is detected	<p>If it is not engaged, it is a failure</p> <p>If LOW is output when the water level is detected, it is a failure</p>	<p>Engage the connectors</p> <p>Replace the sensor</p>						
2. PBA-MAIN	<ol style="list-style-type: none"> Check for incomplete CN102 [BLACK] soldering or short circuit Check for incomplete R114, R115, C109, C110 soldering and short circuit 	<p>Visual inspection</p> <p>Tester</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the part is damaged, it is a failure</p>	PBA Repair/ Replace						

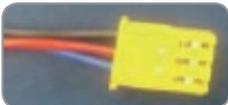
4-1-3 Ambient water full level sensor error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure									
Symptom	<table border="1"> <thead> <tr> <th colspan="3">[Error condition]</th> </tr> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Detected (On)</td> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </tbody> </table> <p>1. An error occurs if it detects 3 consecutive times</p> <p>2. Error count reset if the normal condition is detected (water top level detection)</p>	[Error condition]			Water low level	Water top level	Water overflow	Detected (On)	Undetected (Off)	Detected (On)	<p>[Operation condition]</p> <ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Heating and cooling stopped The top LEDs of the cold water temperature displays and the hot water temperature displays are blinking Auto canceled if normal condition is detected (full water level detection) Error is canceled if the power is on again 	<p>[Display condition]</p>	
[Error condition]													
Water low level	Water top level	Water overflow											
Detected (On)	Undetected (Off)	Detected (On)											
1. Ambient water full level sensor	<p>1) Check if it is connected to the PBA-MAIN Also, check the connector condition [CN103, GREEN]</p>	HIGH is output when the water is detected	<p>If it is not engaged, it is a failure</p> <p>If LOW is output when the water level is detected, it is a failure</p>	<p>Engage the connectors</p> <p>Replace the sensor</p>									
2. PBA-MAIN	<p>1) Check for incomplete CN103 [GREEN] soldering or short circuit</p> <p>2) Check for incomplete R116, R117, C111, C112 soldering and short circuit</p>	<p>Visual inspection</p> <p>Tester</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the part is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>									

4-1-4 Water level sensor error [ambient water composite censor error]

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure									
Symptom	<table border="1"> <thead> <tr> <th colspan="3">[Error condition]</th> </tr> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Undetected (Off)</td> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </tbody> </table> <p>1. An error occurs if it detects 3 consecutive times</p> <p>2. Error count reset if the normal condition is detected</p>	[Error condition]			Water low level	Water top level	Water overflow	Undetected (Off)	Undetected (Off)	Detected (On)	<p>[Operation condition]</p> <ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Heating and cooling stopped The mid LEDs of the cold water temperature displays and the hot water temperature displays are blinking Error is canceled if the power is on again 	<p>[Display condition]</p> <p>● ● ● ● ● ●</p> <p>Blinking</p>	
[Error condition]													
Water low level	Water top level	Water overflow											
Undetected (Off)	Undetected (Off)	Detected (On)											
1. Ambient water low/top level sensor	<p>1) Check if it is connected to the PBA-MAIN Also, check the connector condition [CN103, GREEN]</p> 	HIGH is output when the water is detected	<p>If it is not engaged, it is a failure</p> <p>If LOW is output when the water level is detected, it is a failure</p>	<p>Engage the connectors</p> <p>Replace the sensor</p>									
2. PBA-MAIN	<p>1) Check for incomplete CN102 [BLACK], CN103 [GREEN] soldering or short circuit</p> <p>2) Check for incomplete R114, R115, C109, C110, R116, R117, C111, C112 soldering or short circuit</p> 	<p>Visual inspection</p> <p>Tester</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the part is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>									

4-1-5 Feed valve error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure						
Symptom	<p>[Error condition]</p> <table border="1"> <thead> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Detected (On)</td> <td>Detected (On)</td> <td>Detected (On)</td> </tr> </tbody> </table> <p>1. Detection error occurs 3 consecutive times 2. Error count reset if the low water level is undetected</p>	Water low level	Water top level	Water overflow	Detected (On)	Detected (On)	Detected (On)	<p>[Operation condition]</p> <ol style="list-style-type: none"> The feed valve is closed if it occurs once The NOS valve is closed if it occurs once Cold water inlet valve closed if an error occurs If the water overflow sensor or the full water level sensor fails, the closed valve is opened again and it returns to the normal state again and if it occurs a total of three times, the error is confirmed All the cold water temperature indicator LEDs and the hot water temperature indicator LEDs blink Heating and cooling operation stop when an error occurs After an error occurs, power on again to cancel it 	<p>[Display condition]</p> <p>● ● ● ● ● ●</p> <p>Blinking</p>	
Water low level	Water top level	Water overflow								
Detected (On)	Detected (On)	Detected (On)								
1. Feed valve	<p>1) Check if the valve is closed when the water level is full 2) Check if the valve power is turned off when the water level is full</p> 	Water supply test	If the water is still supplied to the tank after removing the connector, it means a valve failure	Replace the valve						
2. PBA-MAIN	<p>1) Check for incomplete CN108 [WHITE] soldering or short circuit 2) Check if the valve power is turned off when the full water level is detected (voltage across gray line)</p>   	Visual inspection Tester Valve power 0Vdc	In the case of incomplete soldering or short circuit, it is a failure When exceeding 0Vdc of valve power even after full water detection, it is a failure	PBA Repair/ Replace						
3. Water overflow sensor	<p>1) Check if it is connected to the PBA-MAIN Also, check the connector condition [CN103, GREEN]</p> 	HIGH is output when the water is detected	If it is not engaged, it is a failure If LOW is output when the water level is detected, it is a failure	Engage the connectors Replace the sensor						

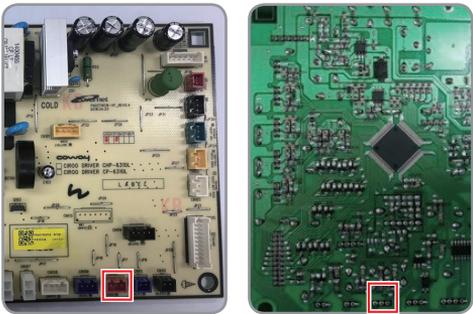
4-1-6 Leakage detection error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure
Symptom	<p>[Error condition]</p> <p>When the leakage sensor is SHORT</p>	<p>[Operation condition]</p> <ol style="list-style-type: none"> 1. Cold water inlet valve closed 2. Feed valve closed 3. NOS valve closed 4. Heating and cooling operation stop when an error occurs 5. 2 LEDs on the bottom of the cold water temperature display and 2 LEDs on the bottom of the hot water temperature display blink 6. After one minute following detection of the normal condition, the error is automatically released Valve is not opened if the error is not released 7. Error is canceled if the power is on again 	<p>[Display condition]</p> <p>Blinking</p>	
1. Feed valve	<ol style="list-style-type: none"> 1) Check the connector status to see if it is connected to PBA-MAIN 2) Check the connector status for the TEST 	<p>Visual inspection</p> <p>Tester</p>	<p>If it is not engaged, it is a failure</p> <p>In the case of short circuit, it is a failure</p>	<p>Engage the connectors</p> <p>Replace the sensor</p>
2. PBA-MAIN	<ol style="list-style-type: none"> 1) Check for incomplete CN112 [BLACK] soldering or short circuit 2) Check for incomplete R136, R137, Q106 soldering or short circuit 	<p>Visual inspection</p> <p>Tester</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the part is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>



- When analyzing an error, you are advised to check whether the power and tap water are in good condition first (220 Vac, 5 Vdc, 24 Vdc, tap water supply status)

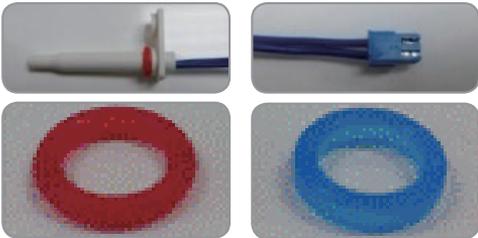
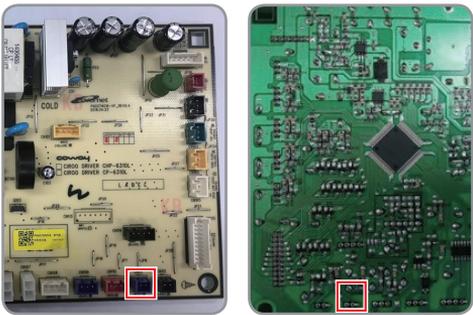
4-1-7 Hot water temperature sensor error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure
Symptom	<p>[Error condition]</p> <ul style="list-style-type: none"> If the input voltage corresponding to the temperature for the temperature sensor is below 20 deg or above 130 deg, then an error occurs * The hot water temperature sensor error is checked and displayed only when the hot water function is ON 	<p>[Operation condition]</p> <ol style="list-style-type: none"> Hot water temperature display LEDs are all blinking Heater operation stopped It is auto canceled when normal condition is detected after an error occurs Error is canceled if the power is on again 	<p>[Display condition]</p> <p>● ● ●</p>	Blinking
1. Hot water temperature sensor	<p>1) At the room temperature, measure the resistance value of both ends of the hot water temperature sensor</p> 	<p>20 ~ 30°C = 340k~179kΩ</p>	<p>At the room temperature, measure the resistance with a tester. If the measured value is higher than several MΩ or less than several hundred Ω, then it is a failure</p>	<p>Replace the temperature sensor</p>
2. PBA-MAIN	<p>1) Check for incomplete CN110 [RED] soldering or short circuit</p> <p>2) Check for incomplete R130, R131, C122 soldering or short circuit</p> 	<p>Visual inspection</p> <p>Tester measurement</p>	<p>In the case of incomplete soldering or short circuit,</p> <p>If the resistor is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>
3. Hot water TH sensor	<p>1) Check connector status to see if it is connected to CN110 [RED] PBA-MAIN</p>	<p>Visual inspection</p>	<p>If it is not engaged, it is a failure</p>	<p>Engage the connectors</p>



• When analyzing an error, you are advised to check whether the power and tap water are in good condition first (220 Vac, 5 Vdc, 24 Vdc, tap water supply status)

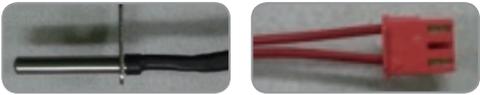
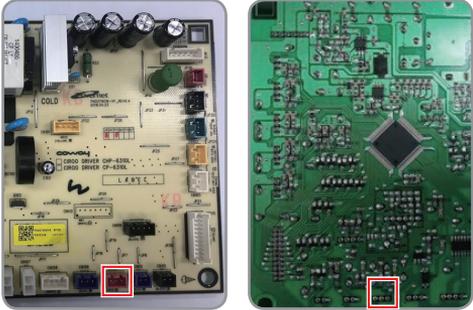
4-1-8 Cold water temperature sensor error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure
Symptom	<p>[Error condition]</p> <ul style="list-style-type: none"> If the input voltage corresponding to the temperature for the temperature sensor is below 20 deg or above 130 deg, then an error occurs * The cold water temperature sensor error is checked and displayed only when the cold water function is ON 	<p>[Operation condition]</p> <ol style="list-style-type: none"> Cold water temperature display LEDs are all blinking Cooling operation stopped It is auto canceled when normal condition is detected after an error occurs Error is canceled if the power is on again 	<p>[Display condition]</p> <ul style="list-style-type: none"> ● ● ● <p>Blinking</p>	
1. Cold water temperature sensor	<p>1) At the room temperature, measure the resistance value of both ends of the cold water temperature sensor</p>  <p>Current O-Ring New Square-Ring</p>	<p>20 ~ 30°C = 64k~38kΩ</p>	<p>At the room temperature, measure the resistance with a tester. If the measured value is higher than several MΩ or less than several hundred Ω, then it is a failure.</p>	<p>Replace the temperature sensor</p>
2. PBA-MAIN	<p>1) Check for incomplete CN111 [BLUE] soldering or short circuit</p> <p>2) Check for incomplete R132~R135, C123 soldering or short circuit</p> 	<p>Visual inspection</p> <p>Tester measurement</p>	<p>In the case of incomplete soldering or short circuit, if the resistor is damaged, it is a failure.</p>	<p>PBA Repair/ Replace</p>
3. Cold water TH sensor	<p>1) Check connector status to see if it is connected to CN111 [BLUE] PBA-MAIN</p>	<p>Visual inspection</p>	<p>If it is not engaged, it is a failure.</p>	<p>Engage the connectors</p>



• When analyzing an error, you are advised to check whether the power and tap water are in good condition first (220 Vac, 5 Vdc, 24 Vdc, tap water supply status)

4-1-9 Overheating error

Checkpoints	Inspection method	Normal value	Judgment	Countermeasure
Symptom	<p>[Error condition]</p> <ul style="list-style-type: none"> If the input voltage to the hot water temperature sensor corresponding to temperature is above 98 deg for more than 3 minutes 	<p>[Operation condition]</p> <ol style="list-style-type: none"> All the hot water temperature display LEDs and the hot water LED blink Heater operation stopped If the input temperature to the hot water temperature sensor is below 98 deg, then the error is automatically released Error is canceled if the power is on again 	<p>[Display condition]</p>  <p>Blinking Hot water</p>	
1. Hot water temperature sensor	<p>1) At the room temperature, measure the resistance value of both ends of the hot water temperature sensor</p> 	<p>20 ~ 30°C = 340k~179kΩ</p>	<p>At the room temperature, measure the resistance with a tester. If the measured value is higher than several MΩ or less than several hundred Ω, then it is a failure</p>	<p>Replace the temperature sensor</p>
2. PBA-MAIN	<p>1) Check for incomplete CN110 [RED] soldering or short circuit</p> <p>2) Check for incomplete R130, R131, C122 soldering or short circuit</p> 	<p>Visual inspection</p> <p>Tester measurement</p>	<p>In the case of incomplete soldering or short circuit, it is a failure</p> <p>If the resistor is damaged, it is a failure</p>	<p>PBA Repair/ Replace</p>
3. Hot water TH sensor	<p>1) Check connector status to see if it is connected to CN110 [RED] PBA-MAIN</p>	<p>Visual inspection</p>	<p>If it is not engaged, it is a failure</p>	<p>Engage the connectors</p>

4-2 Control specifications

■ Load and default state

Category	Load	Function	Default status output (Display)
Valve	Cold water feed valve	Operates when cold water is extracted	CLOSE
	Hot water outlet valve	Operates when hot water is extracted	CLOSE
	Ambient water outlet valve	Operates when ambient water is extracted	CLOSE
	Cold water inlet valve	It operates when the cold water tank is supplied with water	CLOSE
	Feed water valve	Operates when the ambient water tank is supplied with water	OPEN
	NOS valve	It operates when the tap water supply is blocked (error occurs)	OPEN
Sensor	Cold water temperature sensor	Used to check the temperature of the cold water tank and control the compressor	Measure
	Hot water temperature sensor	Used to check the temperature of the hot water tank and control the heater	Measure
	Water tank's water level (low, top, overflow) sensor	Check the water level of the ambient water tank	Measure
	Water low level in the cold water tank	Check the water low level in the cold water tank	Measure
	Leakage sensor	Used to detect leakages	Measure
	Light sensor	Used to detect the surrounding brightness	Measure
Heater	Heater	Used to make hot water	OFF
Cooler	Compressor	Used to make cold water	OFF
Buzzer	PWM for buzzer power/Hz.	Produces the button and buzzer sound	An alarm sound is produced when the power plug is connected
Reed Switch	Water tank opening detection Reed switch	It is used to detect the opening of the water tank and reset the service elapsed time	Measure
FAN	FAN	Operates during cooling operation	OFF

■ Cold water function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Cold water function	Cooling setting	<ul style="list-style-type: none"> While the cooling is canceled, press the cold water button for more than 3 seconds 	<ol style="list-style-type: none"> Cold water temperature LED turns on <ul style="list-style-type: none"> One bottom cold water temperature bar is lit The current cold water temperature is indicated by temperature bars Cold water setting buzzer sound heard The cooler operates under the conditions specified in Table-1
	Cooling canceled	<ul style="list-style-type: none"> While the cooling is set, press the cold water button for more than 5 seconds 	<ol style="list-style-type: none"> Cold water temperature LED are all off Cold water cancellation buzzer sound heard When cold water is deactivated, the cold water plus function is also deactivated at the same time
	Cold water selection	<ul style="list-style-type: none"> Press the cold water button 	<ol style="list-style-type: none"> The cold water icon LED turns on Button input buzzer sound heard
	Cold water deselected	<ul style="list-style-type: none"> If 7 seconds pass without pressing any button while the cold water is selected, 	<ul style="list-style-type: none"> Change to the last selected water type, either ambient water or cold water Please note that ambient water is selected when the cold water function is deactivated
Cooling function	Cooling movement (Table-1)	<ul style="list-style-type: none"> Cold water temperature 	<ul style="list-style-type: none"> Operation specifications
		<ul style="list-style-type: none"> Compressor operation starts after the first detection of low water level or after five minutes following the Initial power on 	
		<ul style="list-style-type: none"> Higher than 6.8°C 	<ul style="list-style-type: none"> Comp ON
		<ul style="list-style-type: none"> Between 6.8 °C and 5.0 °C 	<ul style="list-style-type: none"> Continues to operate (If comp is on, then it is on, if off, then it is off)
		<ul style="list-style-type: none"> 5.0°C or below 	<ul style="list-style-type: none"> Cold water plus - 20 minutes of additional operation General operation - Compressor off 20 minutes after additional operation
		<ul style="list-style-type: none"> The max cooling operation time is 150 minutes 	

Function	Category	Detailed operation				
		Input (Condition)		Output (Display)		
Cold water temperature display LED (Table-2)	LED Operation condition					
	Cold water Temperature	Light on	Cooling function selected	8°C or below	5.5°C or below	
		OFF	Cooling function deselected	Higher than 10°C	Higher than 8°C	
Cold water sensor failure detection	Detected State	FND	Buzzer sounds	Comp	Remarks	
	OPEN	<ul style="list-style-type: none"> See the sections of "Error display" 	Error sound None	Stop	<ol style="list-style-type: none"> The average obtained from 50 sets of AD values are detected 10 times as the detection condition Auto return when the error status is canceled Can extract cold water even if the sensor is defective 	
	Short					
Cold water Extraction Method	Extraction Operation Sequence	<ul style="list-style-type: none"> (After selecting cold water), press the extraction button 		<ul style="list-style-type: none"> You will hear the buzzer sound The cold water extraction starting steps display LED displays the current step accordingly 		
		<ul style="list-style-type: none"> After extracting a fixed quantity 		<ul style="list-style-type: none"> Buzzer sounds heard 		
		<ul style="list-style-type: none"> If you press the extraction button during extraction 		<ul style="list-style-type: none"> Extraction stoppage Cold water selection status is maintained Please note that ambient water is selected when a cooling function is deactivated 		
		<ul style="list-style-type: none"> (After selecting cold water) Press the extraction button for more than 2 seconds 		<ul style="list-style-type: none"> Buzzer sounds heard Continuous extraction (3-minute extraction) operates The extraction phase display LED rotates clockwise to indicate that continuous extraction is in progress 		

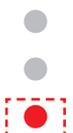
Function	Category	Detailed operation			
		Input (Condition)		Output (Display)	
Cold water level control	Cold water level control	<ul style="list-style-type: none"> Refer to “Water level detection” 		<ul style="list-style-type: none"> Refer to “Water level detection” 	
Fan	Cooling fan operation	<ul style="list-style-type: none"> When the compressor operates, the cooling fan also operates 		<ul style="list-style-type: none"> If the compressor is on, the fan operates If the compressor is off, the fan stops 	
Cooling stopped	Function deactivation	<ul style="list-style-type: none"> When the cooling function is canceled 		<ul style="list-style-type: none"> Operation delays by 5 minutes after the cooling function is stopped * Even if you set the cooling function again within 5 minutes, it will start cooling after a delay of 5 minutes 	
	Delays in recooling	<ol style="list-style-type: none"> Initial power on Recooling according to the temperature condition 		<ul style="list-style-type: none"> After five minutes of delays, cooling operation restarts 	
	Cooling restrictions	<ul style="list-style-type: none"> If the cooling operation lasts for 150 minutes without pause 		<ul style="list-style-type: none"> The cooling is stopped After five minutes of delays, cooling operation restarts 	
	Temperature Error	<ul style="list-style-type: none"> If the cold water temperature sensor has an error 		<ul style="list-style-type: none"> The cooling is stopped But if the sensor's temperature returns to the normal range, the error is automatically canceled and cooling operation continues normally Even in this case, it restarts after a delay of 5 minutes 	
Cold water extraction time	Extraction time for each target water quantity	Target fluid quantity	Water top level	Water low level	Extraction time (s)
		120cc	Detected	Detected	4.4
			Undetected	Detected	4.5
			Undetected	Undetected	4.6
		250cc	Detected	Detected	9.4
			Undetected	Detected	9.8
			Undetected	Undetected	10.2
		500cc	Detected	Detected	19.3
			Undetected	Detected	19.9
			Undetected	Undetected	20.7
Continuous	-	-	3 minutes		

■ Cold water plus function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Cold water plus function	Basic setting	<ul style="list-style-type: none"> When the cold water function is set and the cold water plus is turned off, input the cold water plus button for more than 2 seconds 	<ol style="list-style-type: none"> Cold water LED turns on Setting buzzer sound heard Cold water plus setting is not possible when the cold water function is off
	Function deactivation	<ol style="list-style-type: none"> When the cold water function is set and the cold water plus is turned on, input the cold water plus button for more than 2 seconds When the cold water function is canceled 	<ol style="list-style-type: none"> The cold water LED turns off Cancellation buzzer sound heard
	Cold water level control	<ul style="list-style-type: none"> Refer to "Water level detection" 	<ul style="list-style-type: none"> Refer to "Water level detection"
Cold water plus extraction time	Extraction time for each target water quantity	Target fluid quantity	Extraction time (s)
		120cc	4.6
		250cc	10.4
		500cc	20.8
		Continuous	3 minutes

■ Hot water function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Hot water function	Setting the heating function	<ul style="list-style-type: none"> Press the hot water button for more than 2 seconds with heating off (hot water function activation) 	<ol style="list-style-type: none"> Hot water temperature LED turns on <ul style="list-style-type: none"> One bottom hot water temperature bar is lit The current hot water temperature is indicated by temperature bars Setting buzzer sound heard The heater operates under the conditions specified in Table-3
	Canceling heating function	Press the hot water button for more than 5 seconds with heating on (hot water function deactivation)	<ol style="list-style-type: none"> Hot water temperature LED are all off Cancellation buzzer sound heard
	Setting the hot water lock	<ul style="list-style-type: none"> While the hot water lock is released, press the hot water lock button for more than 2 seconds 	<ol style="list-style-type: none"> Hot water locking LED on Setting buzzer sound heard When the hot water lock is set, then the hot water function cannot be selected
	Hot water lock released	<ul style="list-style-type: none"> While the hot water lock is on, press the hot water lock button for more than 2 seconds 	<ol style="list-style-type: none"> Hot water locking LED off Cancellation buzzer sound heard
	Hot water selection	<ul style="list-style-type: none"> Press the hot water button 	<ol style="list-style-type: none"> Hot water icon LED on Button input buzzer sound heard
	Hot water deselected	<ul style="list-style-type: none"> If 7 seconds pass without pressing any button while the hot water is selected 	<ul style="list-style-type: none"> Change to the last selected water type, either ambient water or cold water Please note that ambient water is selected when the cold water function is deactivated

Function	Category	Detailed operation					
		Input (Condition)		Output (Display)			
Heating function	Heating operation (Table-3)	Advanced mode	Hot water temperature		Operation specifications		
		Heater operation starts after the first detection by the ambient water full level sensor following power on					
		Advanced mode 1 (default)	85°C or below		Heater ON		
			Higher than 93°C		Heater OFF		
		Advanced mode 2	82°C or below		Heater ON		
			Higher than 88°C		Heater OFF		
		Advanced mode 3	79°C or below		Heater ON		
			Higher than 85°C		Heater OFF		
		Advanced mode 4	76°C or below		Heater ON		
			Higher than 82°C		Heater OFF		
Hot water temperature display LED (Table-4)	LED Operation condition						
		Hot water temperature	Light on	Heating function selected	Advanced mode 1	80°C or higher	Advanced mode 1
	Advanced mode 2				76°C or higher	Advanced mode 2	88°C or higher
	Advanced mode 3				72°C or higher	Advanced mode 3	85°C or higher
	Advanced mode 4				68°C or higher	Advanced mode 4	82°C or higher
	Hot water temperature	OFF	Canceling heating function	Advanced mode 1	Lower than 62°C	Advanced mode 1	Lower than 80°C
				Advanced mode 2	Lower than 58°C	Advanced mode 2	Lower than 76°C
				Advanced mode 3	Lower than 54°C	Advanced mode 3	Lower than 72°C
Advanced mode 4				Lower than 50°C	Advanced mode 4	Lower than 68°C	
Hot water sensor failures	Detection status	FND	Buzzer sounds	Heater	Remarks		
	OPEN	See the sections of "Error display"	No error sounds heard	Stop	1. The average obtained from 50 sets of AD values are detected 10 times as the detection condition 2. Auto return when the error status is canceled 3. When detecting sensor failures, it is possible to extract hot water		
	Short						

Function	Category	Detailed operation			
		Input (Condition)		Output (Display)	
Hot water extraction method	Extraction operation sequence	<ul style="list-style-type: none"> If (Hot water selection) extraction button is pressed 		<ul style="list-style-type: none"> Buzzer sounds heard Extraction starts extraction stops when the water low level in the ambient water tank is undetected 	
		<ul style="list-style-type: none"> After extracting a fixed quantity 		<ul style="list-style-type: none"> Buzzer sounds heard Extraction stoppage Switch to the last selected ambient water or cold water after 7 seconds, Please note that it will switch to the ambient water selection in the canceling heating function 	
		<ul style="list-style-type: none"> If you press the extraction button during extraction 			
		<ul style="list-style-type: none"> If (After selecting hot water) extraction button is pressed for more than 2 seconds 		<ul style="list-style-type: none"> Buzzer sounds heard Continuous extraction (3 minute extraction) operation starts The extraction stage LED rotates clockwise to display continuous extraction in progress 	
Heating stopped	Function deactivation	<ul style="list-style-type: none"> When the heating function is canceled 		<ul style="list-style-type: none"> Heating stopped 	
	Water level condition	<ul style="list-style-type: none"> When the water low level in the ambient water tank is undetected 		<ul style="list-style-type: none"> Heating stopped 	
	Delayed heating	<ul style="list-style-type: none"> If it simultaneously operates with the cooling compressor 		<ul style="list-style-type: none"> The cooling compressor operates first and after one second, heating operation starts 	
	Temperature error	<ul style="list-style-type: none"> When the hot water temperature sensor has an error 		<ul style="list-style-type: none"> Heating stopped But if the sensor's temperature returns to the normal range, the error is automatically canceled and heating operation continues normally 	
Hot water extraction time	Extraction time for each target water quantity	Target fluid quantity	Water top level	Water low level	Extraction time (s)
		120cc	Detected	Detected	4.2
			Undetected	Detected	4.3
			Undetected	Undetected	Cannot extract
		250cc	Detected	Detected	9.5
			Undetected	Detected	9.8
			Undetected	Undetected	Cannot extract
		500cc	Detected	Detected	19.8
			Undetected	Detected	20.2
			Undetected	Undetected	Cannot extract
Continuous	-	-	3 minutes		

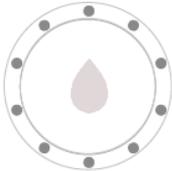
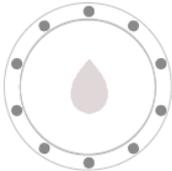
■ Ambient water function

Function	Category	Detailed operation			
		Input (Condition)		Output (Display)	
Ambient water function	Selection	<ul style="list-style-type: none"> Press the ambient water button 		<ol style="list-style-type: none"> Ambient water LED on Ambient water selection buzzer sound heard 	
	Deselect	<ul style="list-style-type: none"> If more than 7 seconds pass without button inputs while ambient water is selected 		<ul style="list-style-type: none"> Maintain the ambient water selection status which is final state for water selection 	
	Extraction sequence	<ul style="list-style-type: none"> If (Ambient water selection) extraction button is pressed 		<ul style="list-style-type: none"> Buzzer sounds heard Starts ambient water extraction The extraction starting steps display LED displays the current step accordingly 	
		<ul style="list-style-type: none"> After extracting a fixed quantity 		<ul style="list-style-type: none"> Buzzer sounds heard Extraction stoppage 	
		<ul style="list-style-type: none"> If you press the extraction button during extraction 			
Special extraction sequence	<ul style="list-style-type: none"> In the case that the water temperature in the cold water tank exceeds 10 deg when ambient water is extracted with cooling off 		<ul style="list-style-type: none"> Although the display shows the ambient water extraction operation, the cold water extraction operation is performed only when the water level in the cold water tank is higher than the water low level to prevent deterioration of the residual water in the cold water tank (cold water tank water extraction) 		
Ambient water extraction time	Extraction time for each target water quantity	Target fluid quantity	Water top level	Water low level	Extraction time (s)
		120cc	Detected	Detected	4.0
			Undetected	Detected	4.1
			Undetected	Undetected	4.2
		250cc	Detected	Detected	8.0
			Undetected	Detected	8.4
			Undetected	Undetected	8.9
		500cc	Detected	Detected	16.5
			Undetected	Detected	17.0
			Undetected	Undetected	17.4
Continuous	-	-	3 minutes		

■ Water quantity selection function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Water quantity selection function	Selection	<ul style="list-style-type: none"> Input 1/2 cup, 1 cup, or 2 cups button 	<ol style="list-style-type: none"> The corresponding LED turns on Selection buzzer sounds heard
	Default setting	<ul style="list-style-type: none"> When pressing 1/2 cup, 1 cup, or 2 cups button for more than 2 seconds 	<ul style="list-style-type: none"> The selected water quantity is selected as default quantity
	Deselect	<ul style="list-style-type: none"> If more than 7 seconds pass without inputs after selecting 1/2 cup, 1 cup, or 2 cups 	<ul style="list-style-type: none"> It is changed to default quantity
	Power saving compensation	<ul style="list-style-type: none"> When the power is on 	<ul style="list-style-type: none"> The default water quantity set is used as the current water quantity

■ Extraction operation displays

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Extraction operation displays	Operation displays	<ul style="list-style-type: none"> When extracting a fixed quantity 	 <ul style="list-style-type: none"> The extraction stage LEDs are filled clockwise by one step according to the extraction stage
		<ul style="list-style-type: none"> When extracting continuously 	 <ul style="list-style-type: none"> One extraction stage display LED rotates clockwise to indicate that continuous extraction is in progress
Extraction button LED light function in standby mode	Setting	<ul style="list-style-type: none"> If the ambient water button is pressed for more than 3 seconds when the extraction display LED is in standby mode (LED is turned off) 	<ul style="list-style-type: none"> The entire extraction display LED turns on in standby mode
	Deactivation	<ul style="list-style-type: none"> If the ambient water button is pressed for more than 5 seconds when the extraction display LED is in standby mode (LED is turned on) 	<ul style="list-style-type: none"> The entire extraction button LEDs turn off in standby mode

■ Water level detection

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Water level detection in the ambient water tank	How to detect	<ul style="list-style-type: none"> If the sensor signal change (detection/cancel) is maintained for 2 seconds 	<ul style="list-style-type: none"> Water level change and motion control
	Water shortage in the ambient water tank (water low level)	<ol style="list-style-type: none"> Water low level sensor failures (OFF) Water top level sensor failures (OFF) Overflow water sensor failures (OFF) 	<ol style="list-style-type: none"> When water low level occurs, hot water extraction is not possible, but ambient water extraction is possible Extraction ends when water low level occurs during hot water extraction Detects it as a water shortage Water low level LED on Immediate water supply to the water tank When extracting ambient water from a water low level, water low level LED blinking off indicates a water low level When extracting hot water from a water low level, the alarm sound and water low level LED blinking off indicate a water low level with no extraction
	Detects mid water level of the ambient water tank	<ol style="list-style-type: none"> Water low level sensor detection (ON) Water top level sensor failures (OFF) Overflow water sensor failures (OFF) 	<ol style="list-style-type: none"> Detects it as a mid water level Water supply to the water tank
	Detects a full water level of the ambient water tank	<ol style="list-style-type: none"> Water low level sensor detection (ON) Water top level sensor detection (ON) Overflow water sensor failures (OFF) 	<ol style="list-style-type: none"> Detects it as a water top level Water supply to the water tank stopped
	Detects an overflow in the ambient water tank	<ol style="list-style-type: none"> Water low level sensor detection (ON) Water top level sensor detection (ON) Water top level sensor detection (ON) 	<ol style="list-style-type: none"> Detects it as water overflows Water supply to the water tank stopped

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Cold water tank's water level detection	How to detect	<ul style="list-style-type: none"> If the sensor signal change (detection/cancel) is maintained for 2 seconds 	<ul style="list-style-type: none"> Water level change and motion control
	Filling cold water	<ul style="list-style-type: none"> When the power is on 	<ul style="list-style-type: none"> Basically, the cold water inlet valve is a NOS valve type and is always open without special control
	Filling cold water	<ul style="list-style-type: none"> During normal state and extraction operation 	<ul style="list-style-type: none"> There is no separate control of the cold water inlet valve In normal operation (Always maintain OPEN status)
	Cold water plus cold water filling	<ul style="list-style-type: none"> During normal state and extraction operation 	<ol style="list-style-type: none"> When cold water extraction starts, close the cold water inlet valve to prevent the inflow of ambient water The cold water inlet valve is not closed in the state where cold water is being obtained due to the non-detection of the cold water low level sensor The state value that cold water is being acquired due to the non-detection of the cold water low level sensor is cleared through the detection of the ambient water low level after 2 minutes following the cold water low level is detected When cold water extraction is completed, wait for 30 seconds after extraction is completed to check if cold water is re-extracted When re-extracting cold water during 30 second standby, the waiting time is reset to 30 seconds After 30 seconds, the cold water inlet valve is opened

■ **Advanced mode**

Function	Category	Detailed operation			
		Input (Condition)		Output (Display)	
Advanced mode	Entering the mode	<ul style="list-style-type: none"> While in waiting mode, press the hot water and power saving buttons at the same time for more than two seconds 		<ol style="list-style-type: none"> Advanced setting mode is entered Cannot extract once you are in advanced setting mode After entering advanced setting mode, the hot water LED blinks to notify of the fact that you are entering advanced setting mode 	
	Mode canceled	<ul style="list-style-type: none"> After entering advanced setting mode, if more than 10 seconds pass without pressing the hot water button 		<ul style="list-style-type: none"> Advanced setting mode is canceled 	
	Mode setting	<ol style="list-style-type: none"> After entering advanced setting mode If the hot water button is pressed 		<ol style="list-style-type: none"> It will repeat in the following order in each time of pressing the hot water button: Advanced mode 1, 2, 3 and then 4 After making a selection, if more than 10 seconds pass without a button press, then setting is complete and advanced setting mode is canceled <p>* For more about hot water temperature control in advanced modes, see the sections of "Hot water functions"</p>	
Advanced mode setting mode status display LED	LED operating status	● ● ●	● ● ●	● ● ●	● ● ●
	Mode selecting status	Advanced mode 1 (Default)	Advanced mode 2	Advanced mode 3	Advanced mode 4

■ Power saving control

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Power saving mode	Mode setting	<ul style="list-style-type: none"> While the power saving mode is off, press the power saving button for more than 2 seconds 	<ol style="list-style-type: none"> Power saving mode set Power saving mode LED on
	Mode canceled	<ul style="list-style-type: none"> While the power saving mode is on, press the power saving button for more than 2 seconds 	<ol style="list-style-type: none"> Power saving mode deactivation Power saving mode LED off
	Power saving operation starts	<ul style="list-style-type: none"> If it detects the light sensor inputs of lower than 1 Lux while in power saving mode <ul style="list-style-type: none"> - Light is detected continuously for 10 minutes to determine the status value 	<ol style="list-style-type: none"> The starting temperature for cooling the cold water is changed to 10°C. The starting temperature for heating the hot water is changed to 70°C. <ul style="list-style-type: none"> - Regardless of advanced mode settings
	Power saving mode operation stopped	<ol style="list-style-type: none"> If it detects light sensor inputs of higher than 3 Lux while in power saving mode <ul style="list-style-type: none"> - Light is detected continuously for 10 minutes to determine the status value If the button is pressed 	<ol style="list-style-type: none"> The starting temperature for cooling the cold water is changed to the general setting The starting temperature for heating the hot water is changed to the general setting If the dormancy power saving mode operates at the same time, then it stops operating at the same time when the power saving mode stops operating
Dormancy power saving mode	Entering the mode	<ul style="list-style-type: none"> While in waiting mode, press the ambient water and power saving buttons at the same time for more than two seconds 	<ol style="list-style-type: none"> Dormancy power saving setting mode entered It indicates the dormancy power saving mode with blinking of the ambient water LED Cannot extract while in dormancy power saving mode
	Mode setting	<ul style="list-style-type: none"> Press the power saving button while in dormancy power saving setting mode 	<ul style="list-style-type: none"> Each time the power saving button is pressed, the dormancy power saving mode is set/canceled If the power saving mode is set, then the power saving LED is lit and if canceled, then the power saving LED is off
	Mode canceled	<ul style="list-style-type: none"> If more than 10 seconds pass without pressing the power saving button in dormancy power saving setting mode 	<ul style="list-style-type: none"> Dormancy power saving setting mode is canceled
	Power saving operation starts	<ul style="list-style-type: none"> If 9 hours pass without extraction after the last extraction * If dormancy power saving operation is stopped due to a button press, 9 hours need to pass before dormancy power saving operation is resumed even if no extraction is performed 	<ol style="list-style-type: none"> The starting temperature for cooling the cold water is changed to 10°C. The starting temperature for heating the hot water is changed to 60°C. <ul style="list-style-type: none"> - Regardless of advanced mode settings <ol style="list-style-type: none"> If power saving mode and power saving mode due to no activity are triggered at the same time, power saving mode due to no activity is prioritized

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
	Power saving mode operation stopped	<ol style="list-style-type: none"> If it detects light sensor inputs of higher than 3 Lux <ul style="list-style-type: none"> - Light is detected continuously for 10 minutes to determine the status value If a button is pressed 	<ol style="list-style-type: none"> The starting temperature for cooling the cold water is changed to the general setting The starting temperature for heating the hot water is changed to the general setting

■ Service Inspection Function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Service inspection date	Starting the calculation	<ul style="list-style-type: none"> Reed switch signal on the lid of the water tank is detected 	<ul style="list-style-type: none"> When the water tank lid is detected to be open through the reed switch signal, the service is considered to have been inspected and calculates the service inspection date from the first day of the month.
	How to calculate	<ul style="list-style-type: none"> Counts the time from the moment the power is on and accumulates 1 day every 24 hours 	<ol style="list-style-type: none"> When the power is on again, counting 24 hours starts again from the moment of power on again The elapsed days are accumulated up to 255 days
	Displaying the inspection date	<ul style="list-style-type: none"> If the accumulated number of service dates has exceeded 90 days (from day 91) 	<ol style="list-style-type: none"> The service inspection date LED turns on If the service inspection date is reset to day 1, the LED turns off

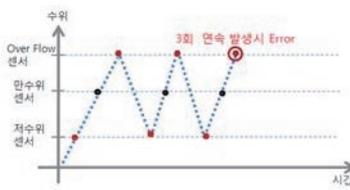
■ Blackout compensation function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Blackout compensation function	Initial power on	<ul style="list-style-type: none"> • The product is powered on for the first time - Product initial state 	<ol style="list-style-type: none"> 1. Cold water ON 2. Hot water ON 3. Hot water lock released 4. Cold water plus deselected 5. (Select Ambient water) 6. 1/2 cup selected 7. Buzzer sound mute canceled 8. All locking released 9. Day 1 of service inspection date 10. Extraction button LED light on in standby mode 11. Advanced mode 1 selected 12. Power saving mode set 13. Dormancy power saving mode set
	Functions to which blackout compensation can be applied	<ol style="list-style-type: none"> 1. Cold water function ON/OFF 2. Hot water function ON/OFF 3. Hot water locking on/off 4. Cold water plus function set/deselected 5. Last selected amount of water and status of cold or ambient water selection 6. Buzzer sound mute on/off 7. All locking set/released 8. Service inspection date 9. Extraction button LED light on/off in standby mode 10. Advanced mode selected 11. Power saving mode set/released 12. Dormancy power saving mode set/released 	

■ Lock, mute function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Hot water lock function	Selection	<ul style="list-style-type: none"> If the hot water locking button is pressed for more than 2 seconds 	<ol style="list-style-type: none"> Buzzer sounds heard Hot water locking LED on
	Operation	<ul style="list-style-type: none"> If the hot water button is pressed while hot water is locked 	<ol style="list-style-type: none"> Hot water deselected - Hot water heating operation is irrelevant Hot water locking LED blinks for 3 seconds Buzzer sounds heard
	Deactivation	<ul style="list-style-type: none"> If the hot water locking button is pressed for more than 2 seconds 	<ol style="list-style-type: none"> Hot water locking LED off Buzzer sounds heard
All Lock function	Selection	<ol style="list-style-type: none"> In the case of CHP model, press the ambient water and hot water locking buttons at the same time for more than 5 seconds In the case of CP model, press the all locking button for more than 5 seconds 	<ol style="list-style-type: none"> Buzzer sounds heard In the case of CHP model, all LEDs but the hot water locking LED and the extraction step LED are off In the case of CP model, all LEDs but the all locking LED and the extraction step LED are off Heating and cooling operation stopped
	Operation	<ul style="list-style-type: none"> If the button is pressed while all are locked 	<ol style="list-style-type: none"> Cannot select all the functions All locking LED and the extraction step LEDs blink for 3 seconds to notify that all are locked Warning buzzer sound heard
	Deactivation	<ol style="list-style-type: none"> In the case of CHP model, press the hot water locking button for more than 2 seconds In the case of CP model, press the all locking button for more than 2 seconds 	<ol style="list-style-type: none"> Return to the state previous to all locking Buzzer sounds heard Heating and cooling operations are started, but cooling operation is restarted only after 5 minutes of pause
Mute function	Basic setting	<ul style="list-style-type: none"> Press the cold water plus and 2 cups buttons at the same time for more than 5 seconds 	<ul style="list-style-type: none"> All the buzzer sounds off
	Function deactivation	<ul style="list-style-type: none"> Press the cold water plus and 2 cups buttons at the same time for more than 5 seconds 	<ul style="list-style-type: none"> Buzzer sound returns to the normal output state

■ Error displays

Function	Category	Detailed operation							
		Input (Condition)		Output (Display)					
Water level sensor error	Cold water low level sensor error	<table border="1"> <tr> <th>Cold water low level</th> <th>Ambient water low level</th> </tr> <tr> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </table> <ol style="list-style-type: none"> When the cold water low level sensor is not detected for more than 2 minutes while the ambient water low level sensor is detected An error occurs if it detects once 	Cold water low level	Ambient water low level	Undetected (Off)	Detected (On)		<ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Cooling stopped Cold water plus LED blinks Error is canceled if the power is on again 	
	Cold water low level	Ambient water low level							
	Undetected (Off)	Detected (On)							
Ambient water low level sensor error	<table border="1"> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> <tr> <td>Undetected (Off)</td> <td>Detected (On)</td> <td>-</td> </tr> </table> <ul style="list-style-type: none"> An error occurs if it detects once 	Water low level	Water top level	Water overflow	Undetected (Off)	Detected (On)	-		<ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Heating and cooling stopped The bottom LEDs of the cold water temperature displays and the hot water temperature displays are blinking Error is automatically canceled if the water low level is detected Error is canceled if the power is on again
Water low level	Water top level	Water overflow							
Undetected (Off)	Detected (On)	-							
Ambient water full level sensor error	<table border="1"> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> <tr> <td>Detected (On)</td> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </table> <ol style="list-style-type: none"> An error occurs if it detects 3 consecutive times Error count reset if the normal condition is detected (water top level detection) 	Water low level	Water top level	Water overflow	Detected (On)	Undetected (Off)	Detected (On)		<ol style="list-style-type: none"> Cold water inlet valve closed Feed valve closed NOS valve closed Heating and cooling stopped The top LEDs of the cold water temperature displays and the hot water temperature displays are blinking Auto canceled if normal condition is detected (full water level detection) Error is canceled if the power is on again
Water low level	Water top level	Water overflow							
Detected (On)	Undetected (Off)	Detected (On)							

Function	Category	Detailed operation								
		Input (Condition)			Output (Display)					
Water level sensor error	Ambient water composite sensor error	<table border="1"> <thead> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Undetected (Off)</td> <td>Undetected (Off)</td> <td>Detected (On)</td> </tr> </tbody> </table>	Water low level	Water top level	Water overflow	Undetected (Off)	Undetected (Off)	Detected (On)	<ol style="list-style-type: none"> 1. Cold water inlet valve closed 2. Feed valve closed 3. NOS valve closed 4. Heating and cooling stopped 5. The mid LEDs of the cold water temperature displays and the hot water temperature displays are blinking 6. Error is canceled if the power is on again 	
		Water low level	Water top level	Water overflow						
Undetected (Off)	Undetected (Off)	Detected (On)								
<ol style="list-style-type: none"> 1. An error occurs if it detects 3 consecutive times 2. Error count reset if the normal condition is detected 										
Feed valve error	Feed valve error	<table border="1"> <thead> <tr> <th>Water low level</th> <th>Water top level</th> <th>Water overflow</th> </tr> </thead> <tbody> <tr> <td>Detected (On)</td> <td>Detected (On)</td> <td>Detected (On)</td> </tr> </tbody> </table>	Water low level	Water top level	Water overflow	Detected (On)	Detected (On)	Detected (On)	<ol style="list-style-type: none"> 1. The feed valve is closed if it occurs once 2. The NOS valve is closed if it occurs once 3. Cold water inlet valve closed if an error occurs 4. If the water overflow sensor or the full water level sensor fails, the closed valve is opened again and it returns to the normal state again and if it occurs a total of three times, the error is confirmed 5. All the cold water temperature indicator LEDs and the hot water temperature indicator LEDs blink 6. Heating and cooling operation stop when an error occurs 7. After an error occurs, power on again to cancel it 	
		Water low level	Water top level	Water overflow						
Detected (On)	Detected (On)	Detected (On)								
<ol style="list-style-type: none"> 1. An error occurs if it detects 3 consecutive times 2. Error count reset if the low water level is undetected 										
Water leakage detection error	Water leakage detection error	<ul style="list-style-type: none"> • If the average of AD inputs to the leakage sensor obtained from 50 sets is above the limit 		<ol style="list-style-type: none"> 1. Cold water inlet valve closed 2. Feed valve closed 3. NOS valve closed 4. Heating and cooling operation stop when an error occurs 5. 2 LEDs on the bottom of the cold water temperature display and 2 LEDs on the bottom of the hot water temperature display blink 6. After one minute following detection of the normal condition, the error is automatically released Valve is not opened if the error is not released 7. Error is canceled if the power is on again 						

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Temperature sensor error	Hot water temperature sensor error	<ul style="list-style-type: none"> • If the input voltage corresponding to the temperature for the temperature sensor is below -20 deg or above 130 deg, then an error occurs * The hot water temperature sensor error is checked and displayed only when the hot water function is ON 	<ol style="list-style-type: none"> 1. Hot water temperature display LEDs are all blinking 2. Heater operation stopped 3. It is auto canceled when normal condition is detected after an error occurs 4. Error is canceled if the power is on again
	Cold water temperature sensor error	<ul style="list-style-type: none"> • If the input voltage corresponding to the temperature for the temperature sensor is below -20 deg or above 90 deg, then an error occurs * The cold water temperature sensor error is checked and displayed only when the cold water function is ON 	<ol style="list-style-type: none"> 1. Cold water temperature display LEDs are all blinking 2. Cooling operation stopped 3. It is auto canceled when normal condition is detected after an error occurs 4. Error is canceled if the power is on again
Overheating error	Overheating error	<ul style="list-style-type: none"> • If the input voltage to the hot water temperature sensor corresponding to temperature is above 98 deg for more than 3 minutes 	<ol style="list-style-type: none"> 1. No separate overheating error display 2. Heater operation stopped 3. If the input temperature to the hot water temperature sensor is below 98 deg, then the error is automatically released 4. Error is canceled if the power is on again

Category	Error displays	Detailed operation
Cold water low level sensor error	 Cold water+ Blinking	1. Auto canceled if the cold water low level is detected normally 2. Error is canceled if the power is on again
Ambient water low level sensor error	 Blinking	1. Auto canceled if the ambient water low level is detected normally 2. Error is canceled if the power is on again
Ambient water full level sensor error	 Blinking	1. Auto canceled if normal condition is detected (full water level detection) 2. Error is canceled if the power is on again
Composite sensor error	 Blinking	<ul style="list-style-type: none"> Power on again to manually cancel the error
Feed valve error	 Blinking	<ul style="list-style-type: none"> Power on again to manually cancel the error
Water leakage detection error	 Blinking	1. After one minute following detection of the normal condition, the error is automatically released 2. Error is canceled if the power is on again
Hot water temperature sensor error	 Blinking	1. Auto canceled if the normal condition is detected 2. Error is canceled if the power is on again
Cold water temperature sensor error	 Blinking	1. Auto canceled if the normal condition is detected 2. Error is canceled if the power is on again
Overheating error	No separate display	1. If the input temperature to the hot water temperature sensor is below 98 deg, then the error is automatically released 2. Error is canceled if the power is on again

■ Memento function

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Memento function	Entering the mode	<ul style="list-style-type: none"> If the cold water plus and 1 cup buttons are pressed simultaneously for more than 2 seconds in the product general test mode 	<ul style="list-style-type: none"> memento mode is entered * Refer to "Product General Test Mode" for how to enter the product general test mode
	Mode canceled	<ul style="list-style-type: none"> The power cord is pulled out 	<ul style="list-style-type: none"> Power off to cancel
	Mode operation	<ol style="list-style-type: none"> After entering the mode, all the LEDs blink for 2 seconds If there is a history of errors, the error display LED is on for 1 second Off for one second after displaying an error When displaying an error, the buzzer sound is heard Based on the number of these buzzer sounds, the error history number is displayed Error history 1 to 5 which are saved are displayed in the order of 2 to 4 Repeat from step 1. If there has not been a single error, then as in step 1, all the LEDs keep blinking The errors are saved and displayed in the order of occurrence starting with the most recent one <ul style="list-style-type: none"> * If the same error occurs again, then it is saved only once 	
	Memento reset	<ul style="list-style-type: none"> While in memento mode, press the ambient water button for more than 2 seconds 	<ul style="list-style-type: none"> All the history of errors saved in the memory function are reset

■ Factory automation test mode

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Factory automation test mode	How to enter	<ul style="list-style-type: none"> • Within 30 seconds after power on (booting), receive the command to enter the test mode from the automated tester 	<ol style="list-style-type: none"> 1. The test mode is entered But if the command is not received within 30 seconds, then test mode cannot be entered 2. Send the model code in an ACK <p>✳ The automated test mode is a load test mode only for product testing and it is completely separate from basic product operation</p>
	Mode operation restriction time	<ol style="list-style-type: none"> 1. Complete the automated test 2. Power on again 3. Receive the test end command from automated checker 	<ul style="list-style-type: none"> • No limitation on test mode time
	Water leakage sensor inspection	<ul style="list-style-type: none"> • When a leakage sensor test jig is used to detect the leakage signal in the leakage sensor 	<ul style="list-style-type: none"> • You can proceed to the next step only if the leakage sensor detects it
	Product connection (pairing)	<ul style="list-style-type: none"> • Receive the product connection command from the inspector 	<ul style="list-style-type: none"> • Send an ACK to reply to the connection request <p>But, it is not possible to connect if the leakage sensor test is not completed</p>
	Test the target settings	<ul style="list-style-type: none"> • Receive the value setting command from the inspector 	<ul style="list-style-type: none"> • Reply to the product setting in an ACK
	Test the temperature sensor	<ul style="list-style-type: none"> • Receive the temperature sensor inspection command from the inspector 	<ul style="list-style-type: none"> • Reply to the product's temperature setting in an ACK <p>✳ When determining OPEN/SHORT, the temperature sensor value is transmitted as 0xFF</p>

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
	Water level sensor and reed switch inspection	<ul style="list-style-type: none"> Receive the water level sensor inspection command from the inspector 	<ul style="list-style-type: none"> Reply to the input status of the water level sensor and the reed switch in an ACK
	Test the current	<ul style="list-style-type: none"> Receive the control inspection command for each load from the inspector 	<ul style="list-style-type: none"> The load is ON when receiving each control command is received <p>Please note that in the case of a heater, it is possible to test the operation only once in a maximum of 5 seconds</p>
	Test the vacuum.	<ul style="list-style-type: none"> Even the current tests are finished 	<ul style="list-style-type: none"> Control the valve of the fluid passage for vacuum tests
	Test the nitrogen level	<ul style="list-style-type: none"> Receive the nitrogen test command from the inspector 	<ul style="list-style-type: none"> Control the valve of the fluid passage for nitrogen tests
	Test cooling operation	<ul style="list-style-type: none"> Receive the cooling test command from the inspector 	<ul style="list-style-type: none"> Comp & fan operate

■ Factory front test mode

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Factory front test mode	How to enter	<ol style="list-style-type: none"> 1. Within 30 seconds after power on (booting), press the hot water locking (all locking) and 2 cups buttons at the same time for more than 2 seconds 2. In the case of CHP model, press the hot water locking and 2 cups buttons at the same time for more than 2 seconds 3. In the case of CP model, press the all locking and 1/2 cup buttons at the same time for more than 2 seconds 	<ol style="list-style-type: none"> 1. Enter the factory front test mode 2. See the version display “Product General Test Mode” upon entering, after then only the service inspection and low water level LEDs will blink <p>✳ The automated test mode is a test mode only for the front LED and buttons of the product and it is completely separate from basic product operation</p>
	Mode operation restriction time	<ul style="list-style-type: none"> • Power on again 	<ul style="list-style-type: none"> • No limitation on test mode time
	Model category display	<ul style="list-style-type: none"> • A state where program version is displayed after entering the factory front test mode ✳ When the power is on with CHP Front connected, it boots to CHP, and when CP Front is connected and the power is on, it boots to CP ✳ If the front is connected after power is on, the model cannot be properly classified 	<ol style="list-style-type: none"> 1. In case of CHP model, hot water is turned on 2. In case of CP model, cold water is turned on
	LED and button input test	<ul style="list-style-type: none"> • Press each button ✳ After entering, the model display continues by blinking the hot water or cold water LED until the hot water and cold water buttons are pressed Not an error display 	<ul style="list-style-type: none"> • If the button is pressed, the corresponding LED is lit In the case of hot and cold water buttons, the temperature bar LED is also on
	Light sensor test	<ul style="list-style-type: none"> • If the reading of the light sensor is measured to be below 1 Lux, it forces it to enter power saving mode 	<ul style="list-style-type: none"> • Power saving LED blinks

■ Product general test mode

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Product general test mode	How to enter	<ul style="list-style-type: none"> • Within 30 seconds after power on (booting), press the cold water plus and 1 cup buttons at the same time for more than 2 seconds 	<ul style="list-style-type: none"> • Product general test mode
	Mode operation restriction time	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Auto reboot one hour after reapplying the power or after 2 hours pass
	Displayed when entering the mode	<ul style="list-style-type: none"> • Lock LED blinks twice 	<ol style="list-style-type: none"> 1. When entering the mode, the entire LED blinks twice and displays the current program version for 1 second 2. After entering is complete, the all locking (hot water locking) and extraction display LED (White) all blink
	Detection time of water overflow and water level sensor	<ol style="list-style-type: none"> 1. Detection: continuously for 2 seconds 2. Release: continuously for 2 seconds 	<ol style="list-style-type: none"> 1. Detection: Immediately 2. Release: Immediately
	Cold water function	<ol style="list-style-type: none"> 1. On: Cold water for 3 seconds 2. Off: Cold water for 5 seconds 	<ul style="list-style-type: none"> • Cooling off state when entering the mode
	Hot water function	<ul style="list-style-type: none"> • On/Off: Hot water locking for 2 seconds 	<ul style="list-style-type: none"> • Heating off when entering the mode
	Program version is displayed when entering the mode	<ol style="list-style-type: none"> 1. Model display <ul style="list-style-type: none"> - CHP: Hot water LED turns on - CP: Cold water LED turns on 2. Development/Mass production version display <ul style="list-style-type: none"> - Development: No separate display - Mass production: Water low level LED turns on 3. Version display <ul style="list-style-type: none"> - 8 for ambient water LED, 4 for 1/2 cup LED, 2 for 1 cup LED, 1 for 2 cups LED - The version is displayed by the sum of the numbers of each LED turned on 	

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
	Cooling operation	<ul style="list-style-type: none"> When power is delayed for 5 minutes and detects low water level after the power is on, operation starts 	<ul style="list-style-type: none"> After entering the test mode, press the cold water plus button and control starts according to the control logic. Please note that there is no cooling delay time (pause for five minutes) in the test mode
	Heater operation	<ul style="list-style-type: none"> When the power is on and detects low water level, operation starts 	<ul style="list-style-type: none"> After entering the test mode, press the hot water plus button and control starts according to the control logic. Please note that heater operates only if the water purification tank is above the low water level
	Temperature sensor test	<ul style="list-style-type: none"> It always detects regardless of test mode operation 	<ol style="list-style-type: none"> See the sections of "Error display" Sensor error is automatically canceled when detecting the normal sensor signal
	Water leakage detection test	<ul style="list-style-type: none"> When detecting the water leakage signal 	<ol style="list-style-type: none"> It operates in the same way as the water leakage detection error Sensor error is automatically canceled when detecting the normal sensor signal
	Water level sensor test	<ol style="list-style-type: none"> Water low level sensor detection Water top level sensor detection Low water level error occurs when only full water level sensor is detected 	<ul style="list-style-type: none"> During normal detection time <ul style="list-style-type: none"> NOS Valve Open Feed Valve Close Water low level off
		<ul style="list-style-type: none"> Cold water low level sensor undetected 	<ul style="list-style-type: none"> Cold water inlet valve opens while the sensor is undetected Cold water inlet valve closes if the sensor is detected
	Water overflow sensor test	<ol style="list-style-type: none"> Water overflow sensor detection Water low level sensor undetected Water top level sensor undetected 	<ol style="list-style-type: none"> During the overflow signal detection operation <ul style="list-style-type: none"> NOS Valve Close Feed Valve Open It operates in the same way as the composite water level sensor error operation (heater, cooling OFF) Error is automatically canceled if the normal sensor signal is detected

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
	Water tank reed switch detection test	<ul style="list-style-type: none"> • Detect signals by closing the lid of the water tank and placing the magnet on the reed switch 	<ul style="list-style-type: none"> • When the reed switch signal is detected normally, the user inspection LED is turned on while the signal is being detected
	Ambient water extraction test	<ul style="list-style-type: none"> • Select ambient water and input extraction button 	<ul style="list-style-type: none"> • Ambient water extraction operates during extraction time (independent of water level)
	Hot water extraction test	<ul style="list-style-type: none"> • Select hot water and input extraction button 	<ul style="list-style-type: none"> • Hot water extraction operates during extraction time (independent of water level)
	Cold water extraction test	<ul style="list-style-type: none"> • Select cold water and input extraction button 	<ul style="list-style-type: none"> • Cold water extraction operates during extraction time (independent of water level)
	light sensor test	<ul style="list-style-type: none"> • If the reading of the light sensor is measured to be below 1 Lux, it forces it to enter power saving mode 	<ul style="list-style-type: none"> • Power saving LED turns on
	EEPROM data initialization	<ul style="list-style-type: none"> • Input sleep, 1/2 cup, and 2 cups buttons at the same time for more than 3 seconds 	<ul style="list-style-type: none"> • EEPROM is initialized and power is automatically rebooted

■ Part test mode

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Part test mode	How to enter	<ul style="list-style-type: none"> • Within 30 seconds after power on (booting), press the cold water plus and 1/2 cup buttons at the same time for more than 2 seconds 	<ol style="list-style-type: none"> 1. All the LEDs on for 2 seconds and off again 2. After turning off all the LEDs, the current program version is displayed for 1 second and all the LEDs are off <p>* The part test mode is a test mode only for PCB assys and it is completely separate from basic product operation</p>
	Version display	<ol style="list-style-type: none"> 1. Model display <ul style="list-style-type: none"> - CHP: Hot water LED turns on - CP: Cold water LED turns on 2. Development/mass production version display <ul style="list-style-type: none"> - Development: No separate display - Mass production: Water low level LED turns on 3. Version display <ul style="list-style-type: none"> - 8 for ambient water LED, 4 for 1/2 cup LED, 2 for 1 cup LED, 1 for 2 cups LED - The version is displayed by the sum of the numbers of each LED turned on 	
	Displayed when entering the mode	<ul style="list-style-type: none"> • After displaying the program version 	<ul style="list-style-type: none"> • Bottom of the hot water temperature bar, cold water temperature All lights off but the bottom LED
	Entry canceled	<ol style="list-style-type: none"> 1. Power on again 2. One hour after entering part test mode 	<ul style="list-style-type: none"> • Auto reboot one hour after entering the mode
	EEPROM connection (soldering) status check	<ul style="list-style-type: none"> • After entering part test mode, check communication status of EEPROM 	<ul style="list-style-type: none"> • If a communication problem is found, then the ambient water LED will blink to notify that there is a communication problem with EEPROM
	Test pin (UART) check	<ul style="list-style-type: none"> • Check the status of the test pin (UART) 4pin - When the TX and RX signal lines are short 	<ul style="list-style-type: none"> • If there is a signal and it is detected again, then the low water level LED blinks

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
Temperature sensor detection test		<ul style="list-style-type: none"> The hot water temperature sensor's reading is lower than the resistance of 50.762kΩ (62 deg or higher) 	<ol style="list-style-type: none"> The bottom LED of the hot water temperature displays is on at all times Mid LED of the hot water temperature displays is on
		<ul style="list-style-type: none"> The hot water temperature sensor's reading is lower than the resistance of 26.203kΩ (80 deg or higher) 	<ol style="list-style-type: none"> The bottom LED of the hot water temperature displays is on at all times The top/mid LEDs of the hot water temperature displays are lit
		<ul style="list-style-type: none"> The cold water temperature sensor's reading is greater than the resistance of 115.07kΩ (7 deg or lower) 	<ol style="list-style-type: none"> The bottom LED of the cold water temperature displays is on at all times Mid LED of the cold water temperature displays is on
		<ul style="list-style-type: none"> The cold water temperature sensor's reading is greater than the resistance of 127.04kΩ (5 deg or lower) 	<ol style="list-style-type: none"> The bottom LED of the cold water temperature displays is on at all times The mid LEDs of the cold water temperature displays and top LEDs of the hot water temperature displays are lit
Cold water level detection		<ul style="list-style-type: none"> If the cold water sensor detects a signal 	<ul style="list-style-type: none"> Cold water plus LED blinks
Water overflow sensor detection		<ul style="list-style-type: none"> If the overflow sensor detects a signal 	<ul style="list-style-type: none"> 2 cups LED blinks
Water top level sensor detection		<ul style="list-style-type: none"> If the full water level sensor detects a signal 	<ul style="list-style-type: none"> 1 cup LED blinks
Water low level sensor detection		<ul style="list-style-type: none"> If the low water level sensor detects a signal 	<ul style="list-style-type: none"> 1/2 cup LED blinks
Hot water load test		<ul style="list-style-type: none"> Press the hot water button 	<ol style="list-style-type: none"> If the hot water button is pressed once, the hot water LED is lit and all the loads related to the hot water (hot water extraction valve, heater, hot water extraction voltage control) are powered up If the hot water button is pressed again, all the applied loads are canceled and the hot water LED is off Repeats each time the hot water button is pressed

Function	Category	Detailed operation	
		Input (Condition)	Output (Display)
	Cold water load test	<ul style="list-style-type: none"> Press the cold water button 	<ol style="list-style-type: none"> If the cold water button is pressed once, the cold water LED is lit and all the loads related to the cold water (cold water extraction valve, cold water inlet valve, cooling comp power, fan) are powered up If the cold water button is pressed again, all the applied loads are canceled and the cold water LED is off Repeats each time the cold water button is pressed
	Ambient water load test	<ul style="list-style-type: none"> Press the ambient water button 	<ol style="list-style-type: none"> If the ambient water button is pressed once, the ambient water LED is lit and all the loads related to the ambient water (ambient water extraction valve, water inlet feed valve) are powered up If the ambient water button is pressed again, all the applied loads are canceled and the ambient water LED is off Repeats each time the ambient water button is pressed
	NOS valve test	<ul style="list-style-type: none"> If the extraction button is pressed 	<ol style="list-style-type: none"> When the extraction button is pressed once, the NOS valve power is on and the extraction stage display LED rotates to be displayed When the extraction button is pressed again, the NOS valve power stops and all the extraction stage LEDs are off Repeats each time the extraction button is pressed
	Reed switch test	<ul style="list-style-type: none"> When detecting the reset switch of the water tank 	<ul style="list-style-type: none"> Service inspection LED blinks
	Water leakage sensor test	<ul style="list-style-type: none"> When the leakage sensor detects the signal 	<ul style="list-style-type: none"> All the LEDs displaying extraction steps blink
	Light sensor test	<ul style="list-style-type: none"> If a certain (darkness detection) voltage is inputted to the light sensor 	<ul style="list-style-type: none"> Power saving LED blinks
	Other button test	<ul style="list-style-type: none"> When inputting the hot water locking, sleep mode, cold water plus, 1/2 cup, 1 cup, or 2 cups buttons 	<ol style="list-style-type: none"> If a button is pressed, then the corresponding LED is lit <ul style="list-style-type: none"> Even if it overlaps with the test function, it is preferred to be powered on when the button is pressed If the button is pressed again, the button LED is off

4-3 Temperature table

■ Cold water temperature sensor R/T table

Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
-20	489.25	5	140	3.89	796.2
-19	461.57	5	140	3.84	785.7
-18	435.63	5	140	3.78	775
-17	411.3	5	140	3.73	764
-16	388.47	5	140	3.68	752.7
-15	367.05	5	140	3.62	741.3
-14	346.94	5	140	3.56	729.6
-13	328.05	5	140	3.5	717.7
-12	310.3	5	140	3.45	705.6
-11	293.62	5	140	3.39	693.4
-9	277.93	5	140	3.33	681
-9	263.18	5	140	3.26	668.4
-8	249.29	5	140	3.2	655.7
-7	236.22	5	140	3.14	642.9
-6	223.91	5	140	3.08	630.1
-5	212.32	5	140	3.01	617.1
-4	201.39	5	140	2.95	604.1
-3	191.09	5	140	2.89	591
-2	181.38	5	140	2.82	577.9
-1	172.22	5	140	2.76	564.8
0	163.57	5	140	2.69	551.8
1	155.41	5	140	2.63	538.7
2	147.7	5	140	2.57	525.7
3	140.42	5	140	2.5	512.8
4	133.54	5	140	2.44	499.9
5	127.04	5	140	2.38	487.2
6	120.89	5	140	2.32	474.5
7	115.07	5	140	2.26	462
8	109.57	5	140	2.2	449.6
9	104.36	5	140	2.14	437.3
10	99.427	5	140	2.08	425.2
11	94.757	5	140	2.02	413.3

Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
12	90.332	5	140	1.96	401.6
13	86.139	5	140	1.9	390.1
14	82.164	5	140	1.85	378.7
15	78.395	5	140	1.79	367.6
16	74.82	5	140	1.74	356.7
17	71.428	5	140	1.69	345.9
18	68.209	5	140	1.64	335.5
19	65.153	5	140	1.59	325.2
20	62.251	5	140	1.54	315.2
21	59.494	5	140	1.49	305.4
22	56.875	5	140	1.44	295.8
23	54.385	5	140	1.4	286.5
24	52.018	5	140	1.35	277.4
25	49.767	5	140	1.31	268.5
26	47.626	5	140	1.27	259.9
27	45.589	5	140	1.23	251.5
28	43.65	5.25	140	1.25	255.6
29	41.804	5.25	140	1.21	247.2
30	40.046	5.25	140	1.17	239.1
31	38.372	5.25	140	1.13	231.3
32	36.777	5.25	140	1.09	223.7
33	35.256	5.25	140	1.06	216.3
34	33.807	5.25	140	1.02	209.1
35	32.425	5.25	140	0.99	202.2
36	31.107	5.25	140	0.95	195.5
37	29.85	5.25	140	0.92	189
38	28.65	5.25	140	0.89	182.7
39	27.505	5.25	140	0.86	176.6
40	26.412	5.25	140	0.83	170.6

■ Hot water temperature sensor R/T table

Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
-20	2756	5	68	4.88	999.3
-19	2592.3	5	68	4.87	997.8
-18	2439.3	5	68	4.86	996.2
-17	2296.1	5	68	4.86	994.5
-16	2162.2	5	68	4.85	992.8
-15	2036.9	5	68	4.84	990.9
-14	1919.5	5	68	4.83	989
-13	1809.5	5	68	4.82	986.9
-12	1706.5	5	68	4.81	984.8
-11	1609.9	5	68	4.8	982.5
-10	1519.3	5	68	4.79	980.1
-9	1434.3	5	68	4.77	977.6
-8	1354.5	5	68	4.76	975
-7	1279.6	5	68	4.75	972.3
-6	1209.3	5	68	4.73	969.5
-5	1143.2	5	68	4.72	966.5
-4	1081.1	5	68	4.7	963.4
-3	1022.7	5	68	4.69	960.2
-2	967.81	5	68	4.67	956.8
-1	916.15	5	68	4.65	953.2
0	867.53	5	68	4.64	949.6
1	821.76	5	68	4.62	945.7
2	778.65	5	68	4.6	941.8
3	738.04	5	68	4.58	937.6
4	699.77	5	68	4.56	933.3
5	663.69	5	68	4.54	928.8
6	629.67	5	68	4.51	924.2
7	597.57	5	68	4.49	919.4
8	567.29	5	68	4.46	914.4
9	538.7	5	68	4.44	909.2
10	511.71	5	68	4.41	903.9
11	486.22	5	68	4.39	898.4
12	462.13	5	68	4.36	892.7
13	439.37	5	68	4.33	886.8
14	417.85	5	68	4.3	880.7
15	397.5	5	68	4.27	874.4
16	378.25	5	68	4.24	868
17	360.03	5	68	4.21	861.3

Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
18	342.79	5	68	4.17	854.5
19	326.46	5	68	4.14	847.5
20	311	5	68	4.1	840.3
21	296.36	5	68	4.07	832.9
22	282.48	5	68	4.03	825.3
23	269.32	5	68	3.99	817.6
24	256.85	5	68	3.95	809.6
25	245.02	5	68	3.91	801.5
26	233.79	5	68	3.87	793.3
27	223.14	5	68	3.83	784.8
28	213.03	5	68	3.79	776.2
29	203.43	5	68	3.75	767.5
30	194.32	5	68	3.7	758.6
31	185.65	5	68	3.66	749.5
32	177.43	5	68	3.61	740.3
33	169.6	5	68	3.57	730.9
34	162.17	5	68	3.52	721.5
35	155.09	5	68	3.48	711.9
36	148.37	5	68	3.43	702.2
37	141.97	5	68	3.38	692.4
38	135.87	5	68	3.33	682.4
39	130.07	5	68	3.28	672.4
40	124.55	5	68	3.23	662.4
41	119.29	5	68	3.18	652.2
42	114.28	5	68	3.13	642
43	109.51	5	68	3.08	631.7
44	104.96	5	68	3.03	621.4
45	100.62	5	68	2.98	611
46	96.481	5	68	2.93	600.7
47	92.535	5	68	2.88	590.3
48	88.77	5	68	2.83	579.8
49	85.177	5	68	2.78	569.4
50	81.748	5	68	2.73	559
51	78.474	5	68	2.68	548.6
52	75.347	5	68	2.63	538.2
53	72.361	5	68	2.58	527.9
54	69.508	5	68	2.53	517.6
55	66.781	5	68	2.48	507.4

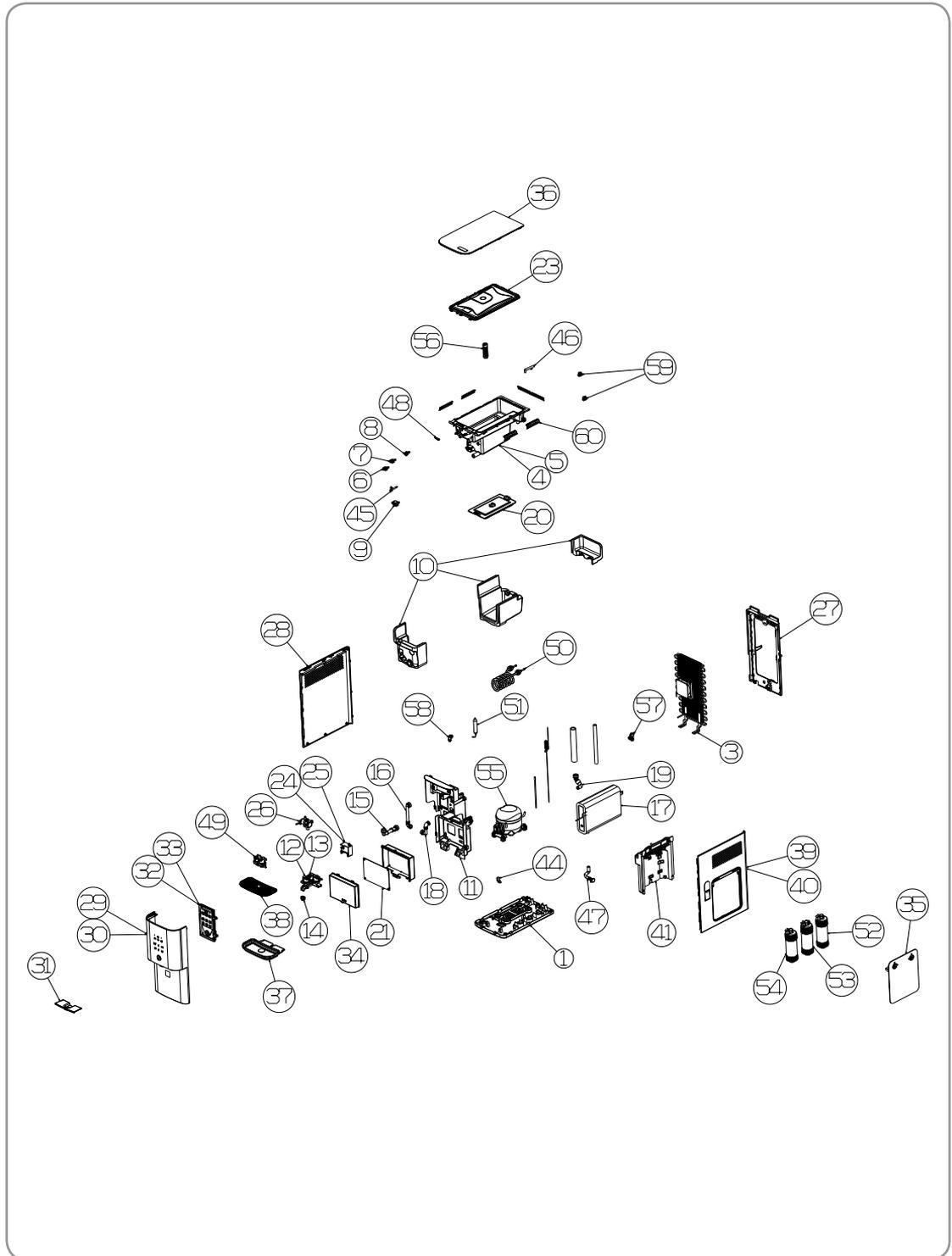
Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
56	64.175	5	68	2.43	497.2
57	61.684	5	68	2.38	487.1
58	59.302	5	68	2.33	477
59	57.024	5	68	2.28	467.1
60	54.844	5	68	2.23	457.2
61	52.758	5	68	2.18	447.4
62	50.762	5	68	2.14	437.7
63	48.852	5	68	2.09	428.1
64	47.022	5	68	2.04	418.6
65	45.27	5	68	2	409.3
66	43.592	5	68	1.95	400
67	41.984	5	68	1.91	390.9
68	40.444	5	68	1.86	381.9
69	38.967	5	68	1.82	373
70	37.552	5	68	1.78	364.3
71	36.194	5	68	1.74	355.7
72	34.893	5	68	1.7	347.3
73	33.644	5	68	1.65	338.9
74	32.446	5	68	1.62	330.8
75	31.297	5	68	1.58	322.8
76	30.193	5	68	1.54	314.9
77	29.134	5	68	1.5	307.1
78	28.117	5	68	1.46	299.5
79	27.141	5	68	1.43	292.1
80	26.203	5	68	1.39	284.8
81	25.302	5	68	1.36	277.7
82	24.436	5	68	1.32	270.7
83	23.604	5	68	1.29	263.9
84	22.804	5	68	1.26	257.2
85	22.035	5	68	1.22	250.6
86	21.295	5	68	1.19	244.2
87	20.584	5	68	1.16	237.9
88	19.9	5	68	1.13	231.8
89	19.242	5	68	1.1	225.9
90	18.609	5	68	1.07	220
91	17.999	5	68	1.05	214.3
92	17.413	5	68	1.02	208.8
93	16.848	5	68	0.99	203.3

Temperature (°C)	Resistance value (kΩ)	Voltage (V)	STD resistance (kΩ)	MCU voltage (V)	AD value
94	16.304	5	68	0.97	198
95	15.78	5	68	0.94	192.9
96	15.275	5	68	0.92	187.8
97	14.789	5	68	0.89	182.9
98	14.321	5	68	0.87	178.1
99	13.869	5	68	0.85	173.5
100	13.434	5	68	0.82	168.9
101	13.01	5	68	0.8	164.5
102	12.61	5	68	0.78	160.2
103	12.22	5	68	0.76	156
104	11.84	5	68	0.74	151.9
105	11.48	5	68	0.72	147.9
106	11.13	5	68	0.7	144
107	10.79	5	68	0.68	140.2
108	10.47	5	68	0.67	136.6
109	10.15	5	68	0.65	133
110	9.848	5	68	0.63	129.5
111	9.555	5	68	0.62	126.2
112	9.271	5	68	0.6	122.9
113	8.998	5	68	0.58	119.7
114	8.733	5	68	0.57	116.5
115	8.478	5	68	0.55	113.5
116	8.231	5	68	0.54	110.6
117	7.992	5	68	0.53	107.7
118	7.762	5	68	0.51	104.9
119	7.539	5	68	0.5	102.2
120	7.323	5	68	0.49	99.6
121	7.115	5	68	0.47	97
122	6.913	5	68	0.46	94.5
123	6.718	5	68	0.45	92.1
124	6.529	5	68	0.44	89.7
125	6.347	5	68	0.43	87.4
126	6.17	5	68	0.42	85.2
127	5.999	5	68	0.41	83
128	5.834	5	68	0.4	80.9
129	5.674	5	68	0.39	78.9
130	5.519	5	68	0.38	76.9

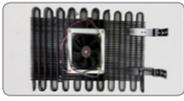
5. Exploded view and parts list

5-1 Exploded view and parts list

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■ AS Parts list

No.	AS Code	Photo	Part name	Quantity	Remarks
1	3104699		Cover-base assy	1	CHP/CP-6310L, Korea
2	3104700		Power cord	1	CHP/CP-6310L, Korea
3	3104701		Condenser-wire assy	1	CHP/CP-6310L, Korea
4	3104702		Tank-main CHP assy	1	CHP-6310L, Korea
5	3104703		Tank-main CP assy	1	CHP-6310L, Korea
6	3104737		Sensor-water low level	1	CHP/CP-6310L, Korea
7	3104738		Sensor-water top level	1	CHP/CP-6310L, Korea
8	3104739		Sensor-water overflow level	1	CHP/CP-6310L, Korea
9	3104740		Sensor-cold water level	1	CHP/CP-6310L, Korea
10	3104704		Insulation-main tank front Insulation-main tank middle Insulation-main tank rear	1	CHP/CP-6310L, Korea
11	3104705		Frame-main	1	CHP/CP-6310L, Korea

No.	AS Code	Photo	Part name	Quantity	Remarks
12	3104706		Valve-3 way assy	1	CHP-6310L, Korea
13	3104707		Valve-2 way assy	1	CP-6310L, Korea
14	3104708		Tip-extraction connector	1	CHP/CP-6310L, Korea
15	3104709		Pipe-cold inlet assy	1	CHP/CP-6310L, Korea
16	3104710		Pipe-MT_faucet assy	1	CHP/CP-6310L, Korea
17	3104711		Tank-heating tank assy	1	CHP-6310L, Korea
18	3104712		Pipe-HT_faucet assy	1	CHP-6310L, Korea
19	3104713		Pipe-MT_HT assy	1	CHP-6310L, Korea
20	3104714		Separator-main assy	1	CHP/CP-6310L, Korea
21	3104715		PBA-main CHP	1	CHP-6310L, Korea

No.	AS Code	Photo	Part name	Quantity	Remarks
22	3104716		PBA-Main CP	1	CP-6310L, Korea
23	3104717		Cap-main tank assy	1	CHP/CP-6310L, Korea
26	3104720		Valve-cold inlet	1	CHP/CP-6310L, Korea
27	3104721		Cover-rear assy	1	CHP/CP-6310L, Korea
28	3104722		Cover-side L	1	CHP/CP-6310L, Korea
29	3104723		Cover-front CHP assy	1	CHP-6310L, Korea
30	3104724		Cover-front CP assy	1	CP-6310L, Korea
31	3104725		Faucet cover	1	CHP/CP-6310L, Korea
32	3104726		PBA-front CHP assy	1	CHP-6310L, Korea
33	3104727		PBA-front CP assy	1	CP-6310L, Korea

No.	AS Code	Photo	Part name	Quantity	Remarks
34	3104728		Cover-main PBA	1	CHP/CP-6310L, Korea
35	3104729		Door-side R Assy	1	CHP/CP-6310L, Korea
36	3104730		Cover-top Assy	1	CHP/CP-6310L, Korea
37	3104731		Tray	1	CHP/CP-6310L, Korea
38	3104732		Grille	1	CHP/CP-6310L, Korea
39	3104733		Cover-side R_CHP Assy	1	CHP-6310L, Korea
40			Cover-side R_CP Assy	1	CP-6310L, Korea
41	3104734		Frame-filter Assy	1	CHP/CP-6310L, Korea

No.	AS Code	Photo	Part name	Quantity	Remarks
42	3104735		Faucet-special service (CHP-6310L)	1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	Shared use
				1	CHP-6310L, Korea
				1	CHP-6310L, Korea
				1	CHP-6310L, Korea

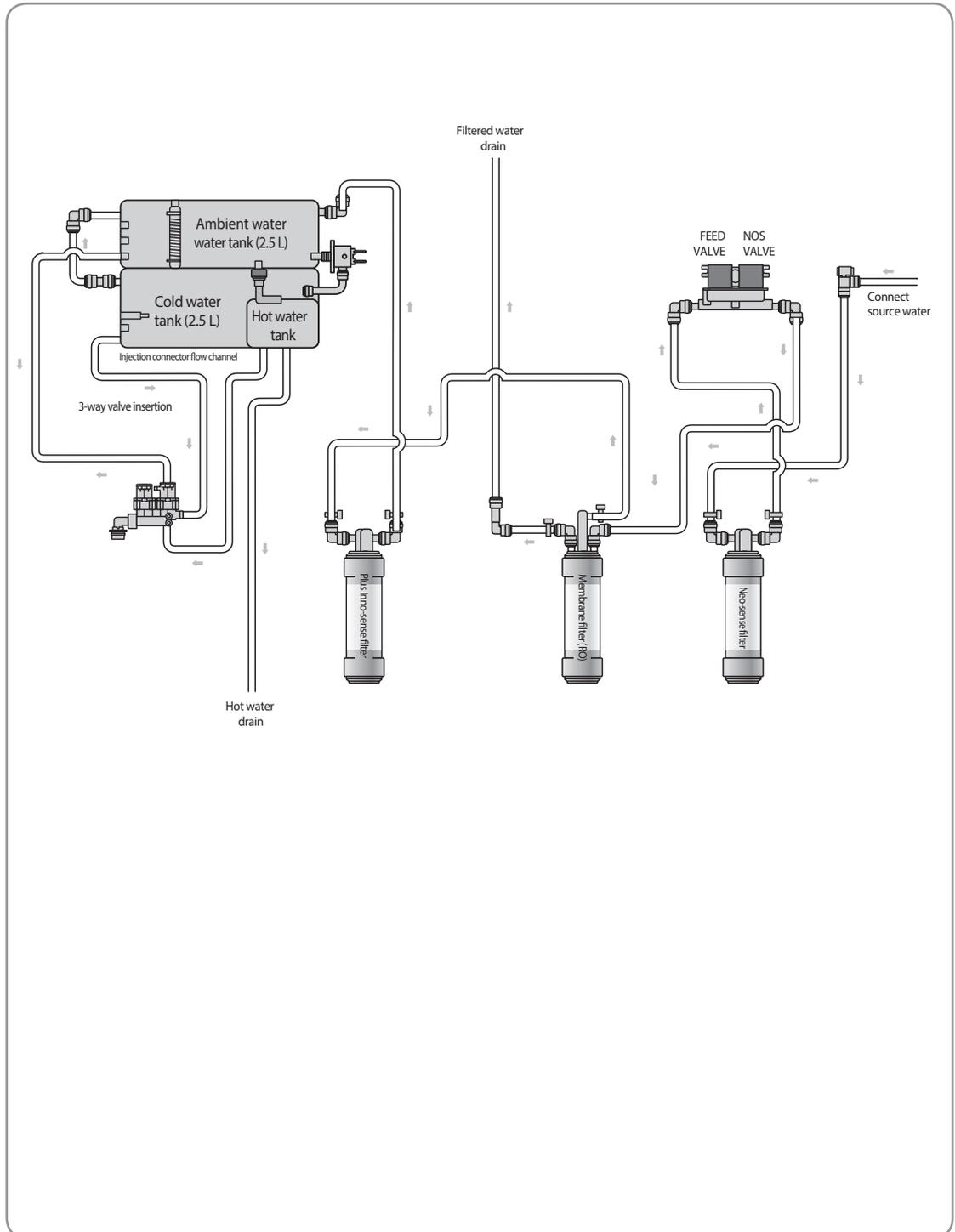
No.	AS Code	Photo	Part name	Quantity	Remarks
43	3104736		Faucet-special service (CP-6310L)	1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
				1	CHP/CP-6310L, Korea
44	3103062		Sensor-leak detect	1	Shared use
45	3121338		Sensor-cold water temperature assy	1	Shared use
46	3114027		Connector-over heating	1	Shared use
47	3122557		Connector-drain assy	1	Shared use
48	3108211		Switch-reed	1	Shared use
49	3121233		Valve-feed nose	1	Shared use

No.	AS Code	Photo	Part name	Quantity	Remarks
50	3119788		Cooling coil-single pipe assy	1	Shared use
51	3103154		Filter dryer	1	Shared use
52	110358		Neosense filter-8inch(S)	1	Shared use
53	110369		Membrane filter-RO 8inch(S)	1	Shared use
54	111693		Innosense filter-plus 8inch(S)	1	Shared use
55	3103681		Compressor assy	1	Shared use
56	3002402		Antibacterial filter	1	Shared use
57	3107842		Valve-hand elbow	1	Shared use
58	3115403		Valve-drain control II elbow	1	Shared use
59	3100640		Mesh-screen	1	Shared use
60	3100329		Clip-main tank sealing elbow	1	Shared use

6. Parts location diagrams

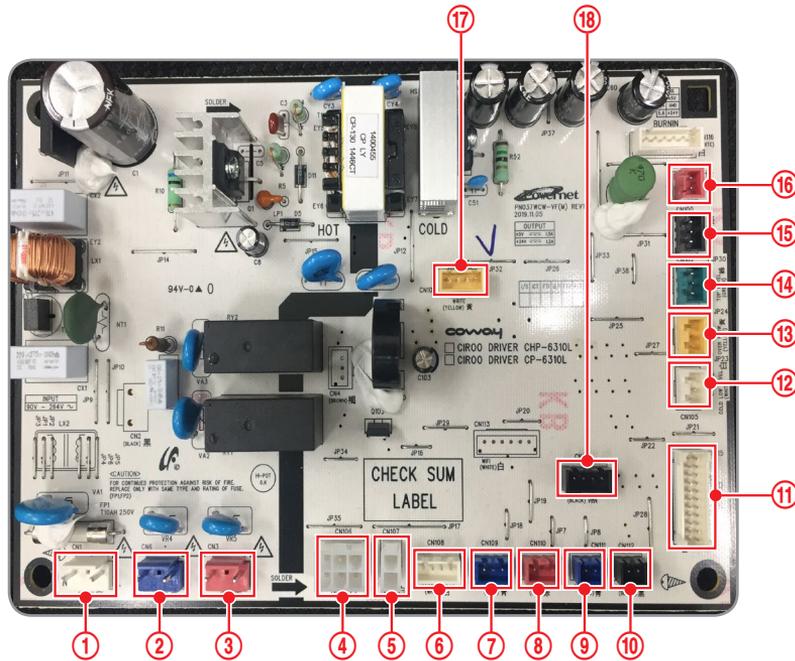
6-1 Water piping diagram

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6-2 PBA location diagram

6-2-1 MAIN PBA & SMPS



① CN1 (POWER CODE)

Pin no.	Function
1	AC 220 V - 240 V
2	N.C
3	AC 220 V - 240 V

② CN6 (COMPRESSOR)

Pin no.	Function
1	AC 220 V - 240 V
2	N.C
3	AC 220 V - 240 V

③ CN3 (HEATER)

Pin no.	Function
1	AC 220 V - 240 V
2	N.C
3	AC 220 V - 240 V

④ CN106 (EXTRACTION V/V)

Pin no.	Function
1	Hot water extraction V/V
2	24V
3	Cold water extraction V/V
4	24V
5	Ambient water extraction V/V
6	24V

⑤ CN107 (COOLING FAN)

Pin no.	Function
1	24V
2	COOLING FAN

⑥ CN108 (FEED&NOS V/V)

Pin no.	Function
1	FEED V/V
2	24V
3	NOS V/V
4	24V

⑦ CN109 (COLD WATER INLET V/V)

Pin no.	Function
1	24V
2	N.C
3	Cold water inlet V/V

⑩ CN112 (LEAK WATER SENSOR)

Pin no.	Function
1	Leak detection ON/OFF
2	Leak detection SIGNAL

⑬ CN104 (WATER OVERFLOW SENSOR)

Pin no.	Function
1	SIGNAL
2	5V
3	GND

⑭ CN103 (WATER TOP LEVEL SENSOR)

Pin no.	Function
1	SIGNAL
2	5V
3	GND

⑮ CN102 (WATER LOW LEVEL SENSOR)

Pin no.	Function
1	SIGNAL
2	5V
3	GND

⑯ CN100 (REED SWITCH)

Pin no.	Function
1	SIGNAL
2	GND

⑧ CN110 (HOT WATER TEMPERATURE SENSOR)

Pin no.	Function
1	SIGNAL
2	N.C
3	GND

⑪ CN115 (FRONT PBA)

Pin no.	Function
1	GND
2	GND
3	Light sensor AD
4	CHP/CP MODE
5	SCAN5
6	KEY3
7	SCAN4
8	KEY2
9	SCAN3
10	KEY1
11	SCAN2
12	SINK1
13	SCAN1
14	SINK2
15	SINK8
16	SINK3
17	SINK7
18	SINK4
19	SINK6
20	SINK5
21	+5V
22	+5V

⑨ CN111 (COLD WATER TEMPERATURE SENSOR)

Pin no.	Function
1	SIGNAL
2	GND

⑫ CN105 (COLD WATER LEVEL SENSOR)

Pin no.	Function
1	SIGNAL
2	5V
3	GND

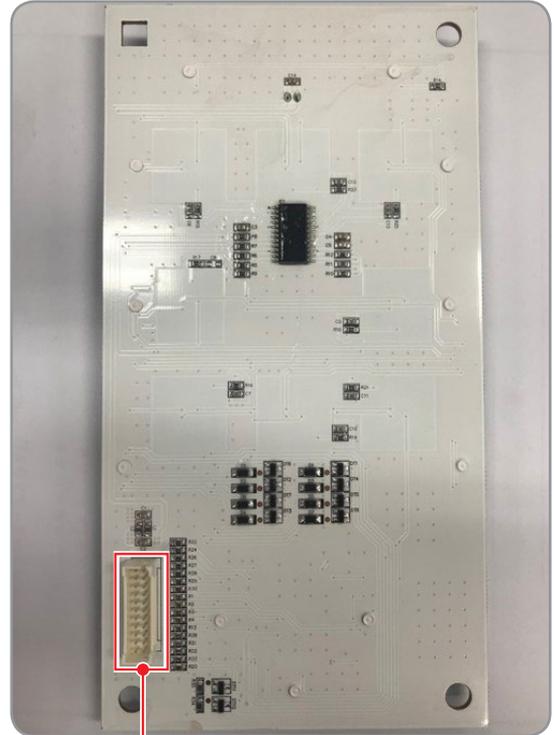
⑰ CN101 (SW WRITE)

Pin no.	Function
1	VCC
2	TOOL
3	RESET
4	GS

⑱ CN114 (UART)

Pin no.	Function
1	5V
2	SIGNAL
3	SIGNAL
4	GND

6-2-2 FRONT PBA



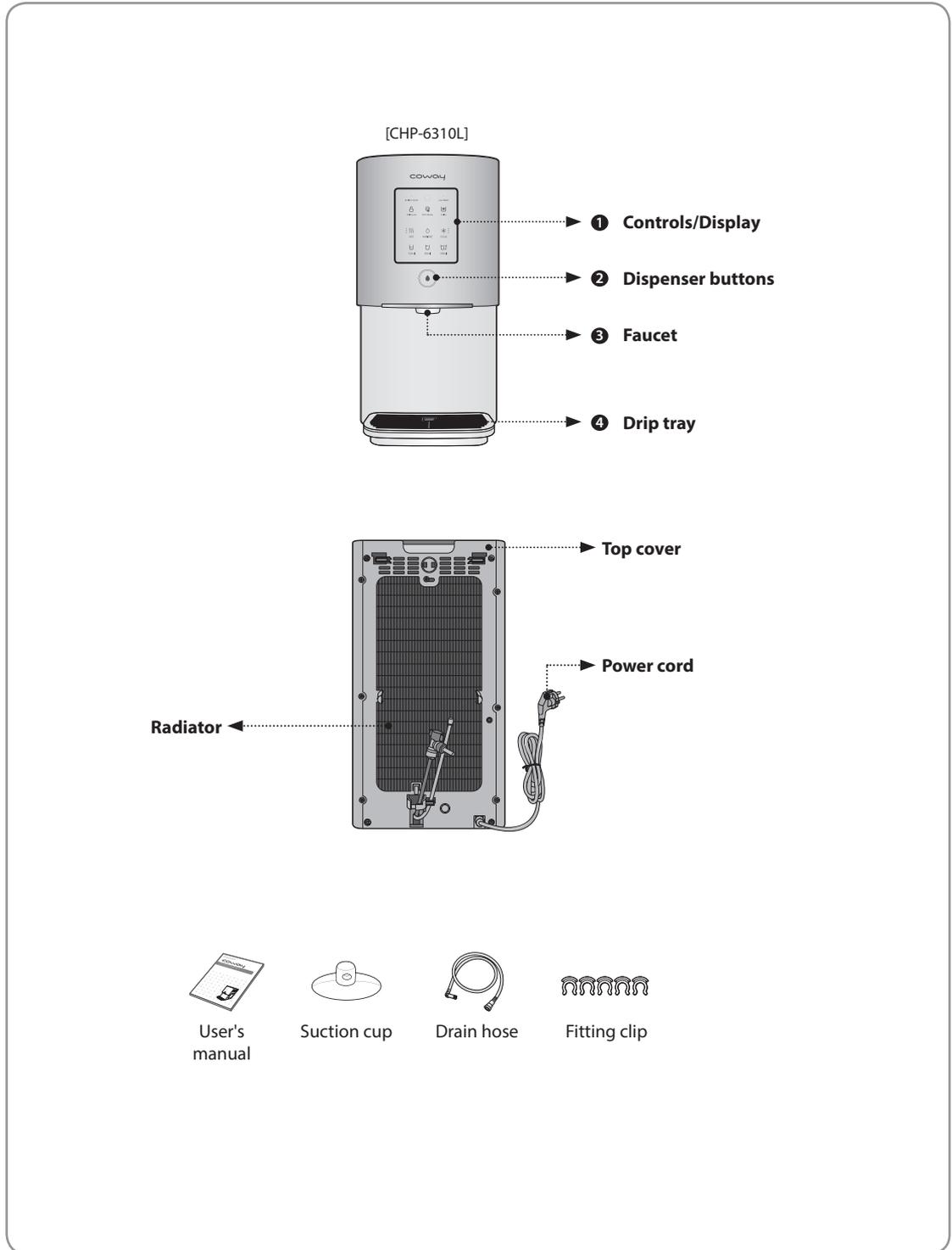
① CN1 (MAIN PBA)

Pin no.	Function	Pin no.	Function
1	5V	11	SINK1
2	5V	12	SCNA2
3	SINK5	13	KEY1
4	SINK6	14	SCAN3
5	SINK4	15	KEY2
6	SINK7	16	SCAN4
7	SINK3	17	KEY3
8	SINK8	18	SCAN5
9	SINK2	19	CHP/CP MODE
10	SCAN1	20	Light sensor AD
		21	GND
		22	GND

7. Reference information

7-1 Names of each part

■ Front / Rear / Accessory



7-2 Functions and reference information

7-2-1 Types and functions of filters

Filter name	Neo-sense filter
Material	Polyethylene + activated carbon
Function	The neo-sense filter removes pollutants in the feed water such as particles, dissolved pollutants, chloride, and volatile organic compounds (VOC's) and so on.
Filter name	Membrane filter (RO)
Material	Polysulfon + Poly amide
Function	Membrane filter (RO) removes heavy metal, organic substances, microorganisms, ionic materials and other pollutants. Water containing toxic materials is drained through the residential water drain hose.
Filter name	Plus inno-sense filter
Material	Polyethylene + activated carbon, non-woven fabric
Function	Plus inno-sense filter removes odor-causing substances to improve the taste of water.

7-2-2 4-step purification system

■ Step 1, 2: Neo-Sense filter

This Neo-Sense filter has the function of removing particulates, dissolved organic and inorganic impurities. It also has another function to remove chlorine, volatile organic compounds (VOC's).

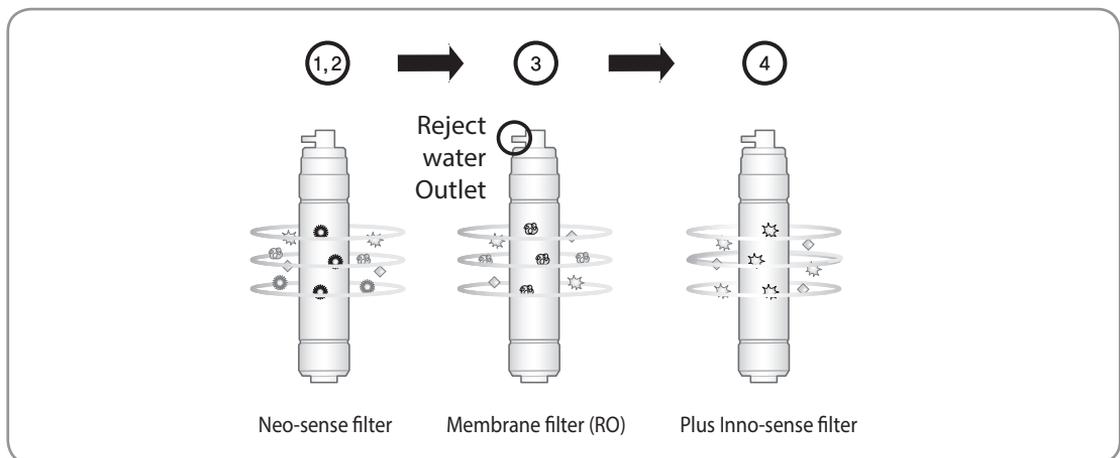
■ Step 3: Membrane filter (RO)

RO Membrane filter has a function to remove water contaminants such as heavy metals, waterborne microorganisms and harmful organic chemicals etc.

The water which contains harmful materials is eliminated through the reject water hose as disposed water.

■ Step 4: Plus Inno-Sense filter

This Plus Inno-Sense filter has functions to remove smell inducing material and to improve taste of water.



► Uses of reject water

- Reject water can be used for cleaning the bathroom, cleaning the house, washing clothes, or purposes other than drinking.
- Never use the reject water for drinking or cooking.

7-2-3 Filter replacement

■ Filter

The life of a water filtration device is its filters. If filters are not authorized or if authorized filters are used for too long, their performance may decrease and the device may not work properly.

Replace with authorized filters according to the replacement cycle.

A Coway cody will visit to replace the filters.

■ Filter replacement cycle

If you do not regularly replace filters, the quality of water from the device will decrease.

Predicted filter replacement cycles may vary depending on source water quality and amount of water used.

Filter name	Expected replacement cycle
Neo-sense filter	6 months
Membrane filter (RO)	24 months
Plus inno-sense filter	18 months

■ About the filter replacement cycle

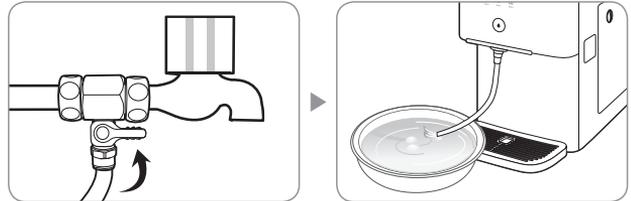
Each filter's recommended replacement cycle is calculated based on water supply quality.

For reference, the effective water capacity means the minimum treatment capacity for which contaminants can be effectively removed without cleaning, recycling, or replacing the inner filters, and recommended replacement cycles for individual filters may differ.

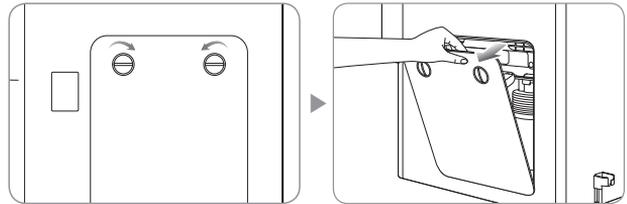
7-2-4 How to replace the filter

■ Replace the filter

1. Lock the water supply valve and completely drain all water from inside the filtration device.

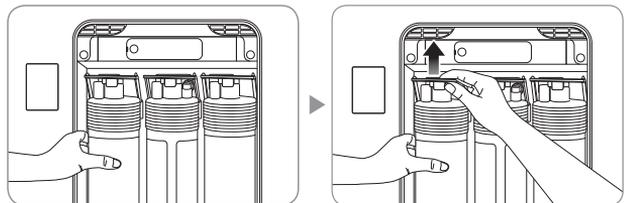


2. Turn the door handle of the right top cover to remove the side cover.



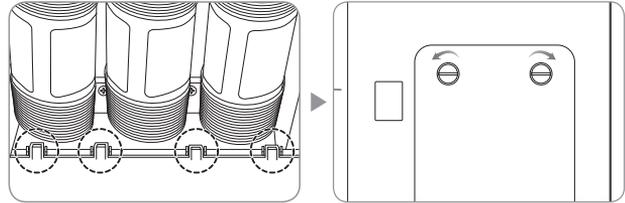
- After replacing the filter, connect fittings and hoses precisely and check that there are no leaks. Be sure to first drain purified water.

3. Hold the bottom of the filter you want to replace with one hand and raise the lock lever upward to replace the filter.



- Check that the filter is securely installed and that the lever is supporting it well, then turn on the source water to check that there are no leaks.

4. Close the cover and turn the lever located to the right of the cover toward the outside to lock it, then insert the side door into the slot. (If you do not turn the lever to close the door, it will not be closed.)

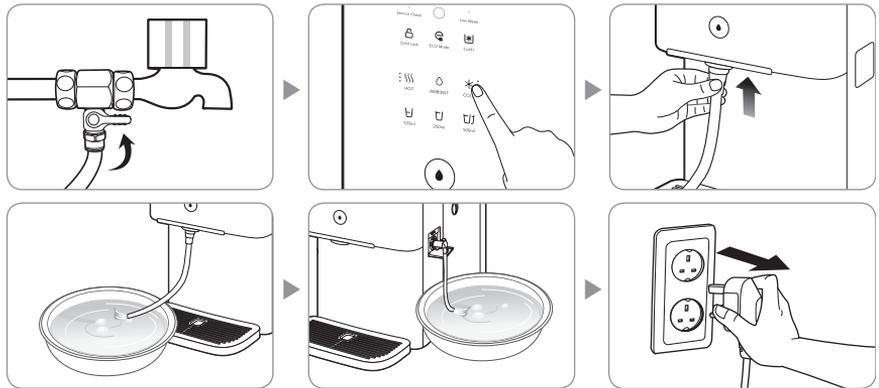


- Use new filters only after washing them.
 - Neo-sense filter : Install after washing with tap water for about 1 minute.
 - Plus inno-sense filter : Install with no separate flushing.
 - Membrane filter (RO) : Install the leftover water valve and install the filter after washing with tap water for about 5 minutes.
- We will replace fittings, tubings, and faucets after 5 years of use if you contact our customer service center (this may incur a cost).

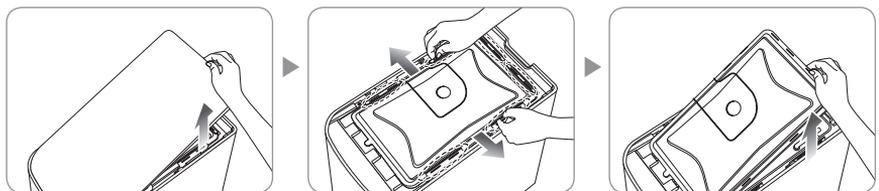
7-2-5 How to clean

■ How to clean inside water tank

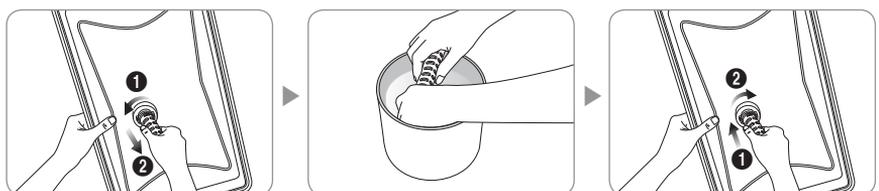
1. Close the connection valve, then use the drain hose to completely drain all water from inside the water filtration device. When drainage is complete, unplug the power.
 - * Use the drain hose and cold/ambient water dispensing faucet to completely drain all water from inside the water filtration device.
 - * Drain water in the cold/ambient water tanks through the cold/ambient water faucets and water in the hot water tank (CHP-6310L) through the side drain.



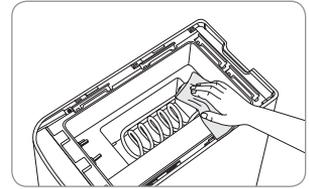
2. Push the top cover of the purifier upward to open.
Open the 6 clips affixing the interior storage tank and then open the internal water tank cover.



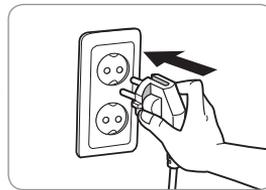
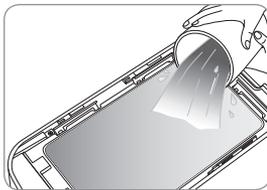
3. Detach the antibacterial filter from the water tank cover and shake in purified water to clean, then reinstall. Replace with a new part every 12 months.



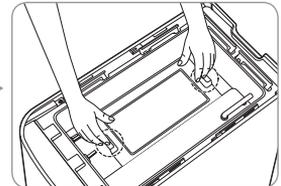
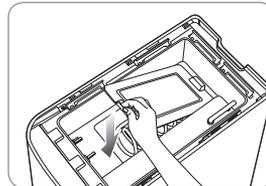
4. Wipe the water tank surfaces with a soft cloth.



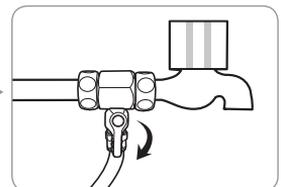
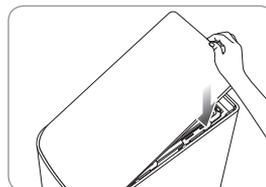
5. Rinse the internal water tank clean with water from the filtration device, then plug in the power again and completely drain it using the continuous dispensing button. Empty newly purified water once more before use.



6. Install the separator, then press firmly at both ends so it stays in place.



7. Close the top cover and open the water supply valve, then restart the water filtration device.

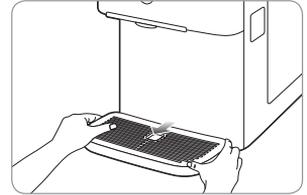


- Completely close the water tank cover. Otherwise, insects or dirt may enter.
- Do not use chemicals or detergent when cleaning the water tank. If chemicals or detergent are not completely washed away, they may be hazardous to your health.
- Always keep the surrounding environment clean, and clean the water tank about once every two months.

■ How to clean the drip tray

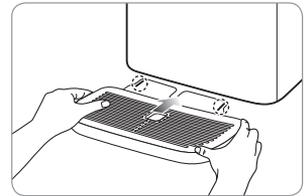
1. Detaching the drip tray

Pull the front of the drip tray to easily remove it.



2. Reattaching the drip tray

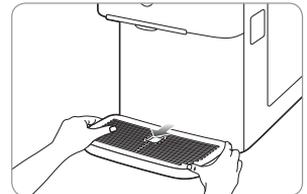
Attach the drip tray hooks to the device, then gently push.



■ How to clean the filtration device

Wipe with a soft, dry cloth.

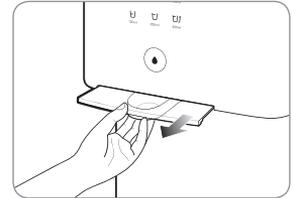
* If there is severe contamination, use a slightly damp cloth (do not use abrasives).



- Do not immerse the product in water to clean it.
- Do not clean using thinners, benzene, rough cloths, or detergent containing abrasives.

■ How to clean the transparent faucet cover

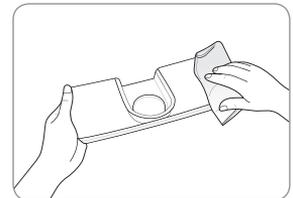
1. Pull the transparent faucet cover outward to remove it.



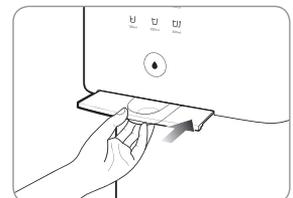
2. Wash the detached faucet cover in running water.



3. Remove moisture from the faucet cover with a soft, dry cloth.



4. After cleaning is finished, push the transparent faucet cover inward to reinstall it.



- Never clean using cotton balls. Foreign matter such as cotton may be left behind.

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