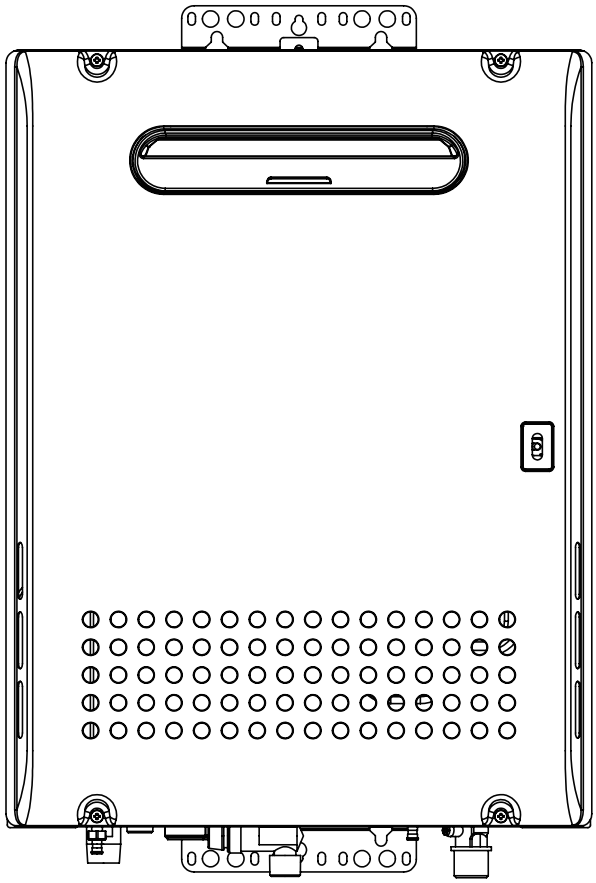
Owner's Guide



(e.g. 32ECS Series)

Condensing Models
50ECS Series
50FCS Series
32ECS Series
32FCS Series

Non Condensing Models
28ENS Series
28FNS Series

⚠ WARNING

FOR CONTINUED SAFETY OF THIS APPLIANCE IT MUST BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

Thank you for purchasing this Dux Commercial Gas Continuous Flow Water Heater.
Before using, please:
Read this manual completely for operating instructions.
Confirm warranty and proof of purchase.
Keep this manual where it can be found whenever necessary.
Installation must conform with Plumbing Code of Australia (PCA) and local codes, or in the absence of local codes, AS/NZS 5601, AS/NZS 3500.4, AS/NZS 3000 wiring regulations and all Local Building, Water and Gas fitting regulations.
Dux reserves the right to discontinue, or change at any time, the designs and/or specifications of its products without notice.

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* Note: This appliance requires a minimum flow rate to operate of 2.5 litres/min., water fixtures with a flow rate of 7.5 litres/min. or higher are recommended.
For optimum performance we recommend installation of Dux optional temperature controllers.
(For 50ECS and 50FCS Series, the temperature controller is supplied with appliance.)

SBB81FZ
Rev. 05/22

Important Safety Information

⚠ WARNING If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

- **Do not store or use petrol or other flammable vapours and liquids in the vicinity of this or any other appliance.**
- **WHAT TO DO IF YOU SMELL GAS**
  - **Do not try to light the appliance.**
  - **Do not touch any electrical switches; Do not use electrical appliances, including the phone" inside the building.**
  - **Immediately call your gas supplier, from a safe distance from the gas leak.**
- **DO NOT SPRAY AEROSOLS IN THE VICINITY OF THIS APPLIANCE WHILE IT IS IN OPERATION.**
- **DO NOT PLACE ARTICLES ON OR AGAINST THIS APPLIANCE.**
- **DO NOT MODIFY THIS APPLIANCE.**
- **This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **To prevent injury or death, do not allow small children to bathe or play in the bathroom unsupervised.**
- **This appliance is not suitable for use as a pool heater.**
- **DO NOT USE OR STORE FLAMMABLE MATERIALS IN OR NEAR THIS APPLIANCE.**
- **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

To prevent damage to property and injury to the user, the icons shown below will be used to warn of varying levels of danger.
Every indication is critical to the safe operation of the Water Heater and must be understood and observed.
Potential dangers from accidents during installation and use are divided into the following four categories.
Closely observe these warnings; they are critical to your safety.

Icons warning of risk level

This is the safety alert symbol. It is used to alert you to potential personal injury hazards.
Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

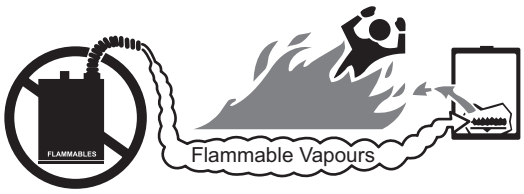
⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

NOTICE Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⚠ DANGER

Vapours from flammable liquids will explode and catch fire causing death or severe burns.
Do not use or store flammable products such as petrol, solvents or adhesives in the same room or area near the Water Heater.



Keep flammable products:
1. **Far away from the Water Heater.**
2. **In approved containers.**
3. **Tightly closed.**
4. **Out of children's reach.**

Vapours:
1. **Cannot be seen.**
2. **Vapours are heavier than air.**
3. **Go a long way on the floor.**
4. **Can be carried from other rooms to the main burner by air currents.**

Hot water temperatures over 50°C can cause severe burns instantly or death from scalding.
Children, disabled and elderly are at the highest risk of being scalded. Feel water temperature before bathing or showering. Temperature limiting valves are available, ask licensed installer.

[For 50FCS and 32FCS Series]
Do not use the Water Heater if the intake/ exhaust pipe is displaced, has holes, is clogged or is corroded.

[When supplying combustion air from the indoors]
Check whether or not the air intake grill is blocked with dust, trash, a towel, or the like.
Blocking the opening may result in incomplete combustion.

[For 50ECS, 32ECS and 28ENS Series]
Do Not Install Indoors.
This will cause carbon monoxide poisoning and a potential fire hazard.

[For 28FNS Series]
Do not use the Water Heater if the concentric pipe is displaced, has holes, is clogged or is corroded.

[For 50FCS and 32FCS Series]
After the Water Heater has been out of use for a long time make sure that you fill the condensate trap with water.
This is to prevent dangerous exhaust gases from entering the building.
Failure to fill the condensate trap could result in severe personal injury or death.
(Refer to page 31 for further instructions.)

⚠ WARNING

A. This Water Heater does not have a pilot. It is equipped with an ignition device that automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the Water Heater area for evidence of leaking gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier. Follow the gas supplier's instructions.**

C. Use only your hand to turn the gas valve knob. Never use tools. If the knob will not turn by hand, don't try to repair it. Call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this Water Heater if any part has been under water. Immediately call a qualified service technician to inspect the Water Heater and to replace any damaged parts.

⚠ WARNING

When a gas leak is noticed:
1. Stop use immediately.
2. Close the gas valve.
3. [For 50FCS, 32FCS and 28FNS Series] Open windows and doors.
4. Contact your gas supplier immediately.

If you detect abnormal combustion or abnormal odours, or during an earthquake, tornado or fire:
1. Turn off the hot water supply.
2. Turn off the power to the Water Heater.
3. Turn off gas and water supply valves.
4. Call Dux on 1300 365 115 (Australia) or 0800 729 389 (New Zealand).

Check the temperature of the running hot water before entering the shower.

Check the temperature before stepping into the bath.

Do not place the Water Heater (for outdoor installation) or the flue terminal (for indoor installation) in an indoor environment by means of adding walls and ceiling (Do not enclose using corrugated sheets, etc.).
Carbon monoxide poisoning or fire may occur as a result.

[For 50FCS, 32FCS and 28FNS Series]
Do not place outdoors.
Rain may enter the Water Heater or the burner fire may be blown by the wind, causing malfunction or fire as a result.

Do not install this Water Heater in a mobile home, recreational vehicle or on a boat as this may be a Carbon Monoxide Poisoning Hazard.

Do not place combustibles such as laundry, newspapers, oils etc. near the Water Heater or the flue terminal.

Do not use combustible chemicals such as oil, petrol, benzene etc. in the near the Water Heater or the exhaust vent.

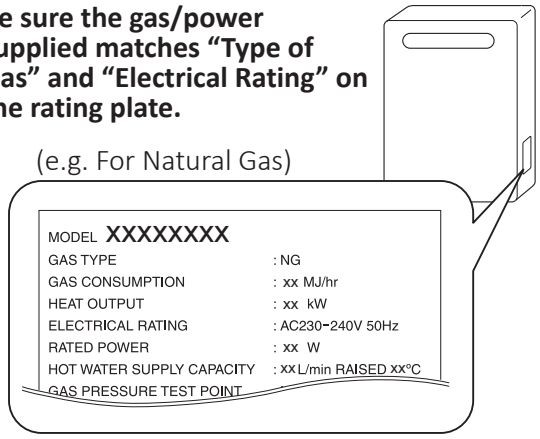
Do not store or use petrol or other flammable vapours and liquids in the vicinity of this or any other appliance.

Do not place or use a spray can near the Water Heater or the exhaust vent.

Do not use hair spray or spray detergent in the vicinity of the Water Heater.

Be sure the gas/power supplied matches "Type of Gas" and "Electrical Rating" on the rating plate.

(e.g. For Natural Gas)



If the appliance delivers water in excess of 50°C [models 50E/FCS, 32E/FCS and 28E/FNS Series (except for 50°C locked model)], the following warning must be adhered to:
THIS APPLIANCE MAY DELIVER WATER AT HIGH TEMPERATURE. REFER TO THE PLUMBING CODE OF AUSTRALIA (PCA), LOCAL REQUIREMENTS AND INSTALLATION INSTRUCTIONS TO DETERMINE IF ADDITIONAL DELIVERY TEMPERATURE CONTROL IS REQUIRED.

If the appliance is 50°C locked model (models 50E/FCSN/L-50 and 28FNSN/L-50), the following statement & warning must be adhered to:
THIS APPLIANCE DELIVERS WATER NOT EXCEEDING 50°C IN ACCORDANCE WITH AS 3498.
WARNING - THIS APPLIANCE MUST ONLY BE INSTALLED IN ACCORDANCE WITH THE ACCEPTABLE PLUMBING CONFIGURATIONS SPECIFIED IN THESE INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN CONDITIONS WHERE DELIVERY TEMPERATURE CONTROL IS INADEQUATE.

If the appliance is 50°C locked model (models 50E/FCSN/L-50 and 28FNSN/L-50) with recirculation system (both single and Multi-system), take sterilization measures (heating, chlorination, chlorine dioxide, UV, etc.) according to the standards of local code.

⚠ WARNING

Do not touch the power cord with wet hands.

To prevent injury or death, do not allow small children to bathe or play in the bathroom unsupervised.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Do not install in locations where excessive dust or debris will be in the air.

Contact a qualified service technician for any necessary repairs, service or maintenance.

Do not use parts other than those specified for this appliance.

To prevent burns or scalding, turn off the power button and wait until the appliance cools before performing maintenance.

⚠ CAUTION

Be sure to electrically earth the appliance.

Keep power cord free of dust.

Do not replace a remote controller cord without notice.

Do not use a broken or modified power cord. Do not bind, bend or stretch power cords. Do not scratch, modify, or subject them to impact or force. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Do not use the Water Heater for other than hot water supply, shower and bath.

Do not turn off the Water Heater while someone is bathing.

Do not cover the Water Heater and the flue terminal, store trash or debris near it, or in any way block the flow of fresh air to the appliance.

Do not use condensate, discharged from the condensate drain pipe, for drinking or for consumption by animals.

Do not touch the exhaust vent or the flue terminal and concentric pipe during or immediately after operation of the Water Heater.

NOTICE

Do not drink water that has been inside the appliance for an extended period of time.

Clean the filter on the water inlet as frequently as required. The quality of your local water will affect the frequency required.

Keep the area around the appliance clean.
If boxes, weeds, cobwebs, cockroaches etc. are in the vicinity of the appliance, damage or fire can result.

Treat hard, acidic or otherwise impure supply water with approved methods to ensure full warranty coverage.

Problems resulting from scale formation are not covered by the warranty.

NOTICE

Do not disassemble the Remote Controller.

Do not use chlorine-based, acidic, alkaline detergents, organic solvents such as benzine and thinner, or Melamine Sponge to clean the Remote Controller.
This may cause discolouration, deformation, scratches or cracks.

Do not get the Remote Controller wet.
It is not water resistant, water can cause damage.

Do not splash water on the Remote Controller.
Do not expose the Remote Controller to steam.
Do not locate the Remote Controller near stoves or ovens.
This may cause damage or failure.

Do not run water through the appliance when appliance is not on.
When discharging hot water, make sure the appliance is ON. If water is run through the appliance with the appliance OFF, water may condense inside the appliance and cause incomplete combustion or damage to the internal electrical components.

Preventing damage from freezing (See page 29)
- Damage can occur from frozen water within the appliance and pipes even in warm environments. Be sure to read below for appropriate measures.
- Repairs for damage caused by freezing are not covered by the warranty.

Power must be switched on at all times for antifrost protection to work.
If it is snowing, check the air inlet, exhaust gas vent and exhaust vent terminal for blockage.

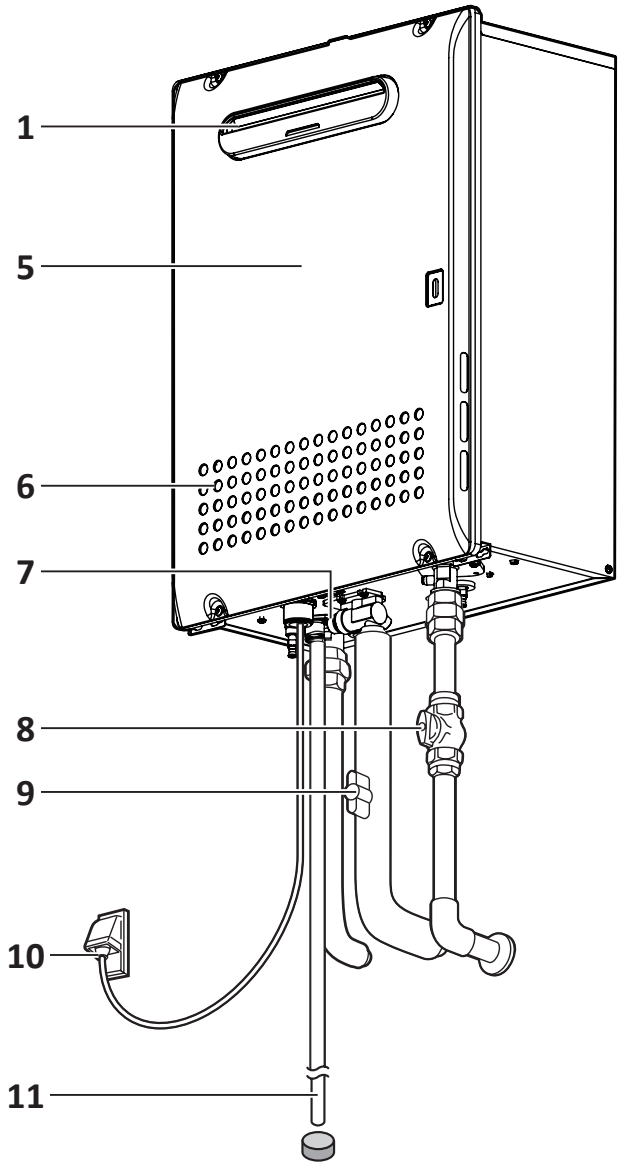
Contact Dux before using with a solar heater.

Contents

General

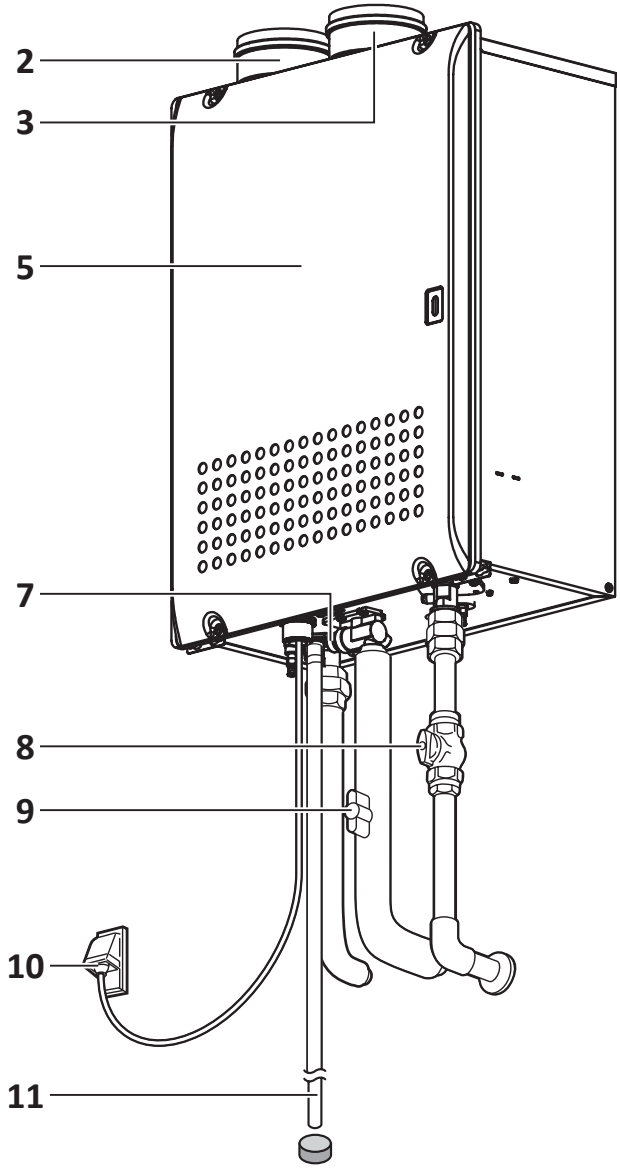
These illustration shows an example of installation.
The exact installation configuration may be slightly different.

50ECS, 32ECS and 28ENS Series:
Outdoor Wall Mounted, Power flue Model



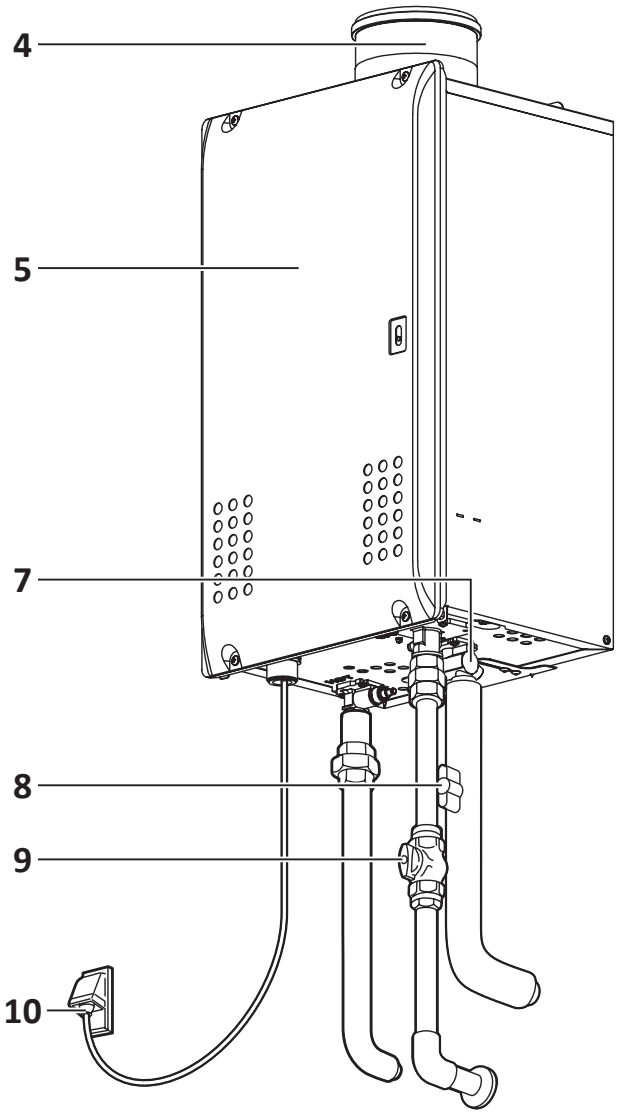
(e.g. 32ECS Series)

50FCS and 32FCS Series:
Indoor Wall Mounted, Power Vent/Sealed Model



(e.g. 32FCS Series)

28FNS Series:
Indoor Wall Mounted, Power Vent/Sealed Model

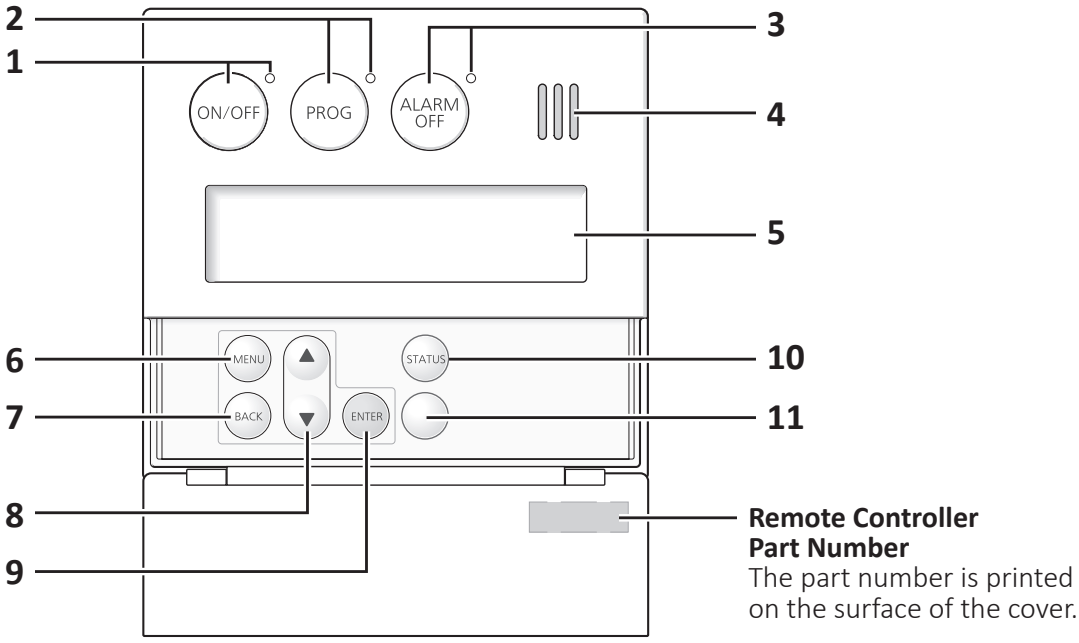


1. **Flue Exhaust**
2. **Intake Pipe**
3. **Exhaust Pipe**
4. **Concentric Pipe**
5. **Front Cover**
6. **Air Inlet**
7. **Inlet water filter**
   Inside Water Inlet (See page 33)
8. **Gas Supply Valve**
9. **Water Supply Valve**
10. **External Weatherproof Power Point**
11. **(Condensing Model only)**
    Condensate Drain Pipe
    Discharge the condensate.

Names and Functions of Controllers

Main Controller (RC-9018C) <Optional or Included>

The Remote Controller will emit a tone when a button is pressed.



Cover shown in the open position.

1. Power Button / Indicator (Green)
For turning the Water Heater ON/OFF.

2. PROG Button / Indicator (Red)
Activate the automatic Water Heater power ON/OFF setting as determined by the user selected schedule. (See page 16)

3. ALARM OFF Button / Indicator (Red)
Stop the tone that is emitted when an error occurs. (See page 37)

4. Speaker

5. Display Screen (See next page)

6. MENU Button
Use to change system settings or to return to the home screen.
If you press the MENU button and press the ▲ / ▼ buttons, "Sys monitor" is sometimes displayed, however, do not use this mode as it meant for installation or service technician only.

7. BACK Button
Return to the previous screen while making system settings or checking status.

8. ▲ / ▼ Buttons
For setting the hot water temperature (See page 14), the flow meter alarm, and other settings.

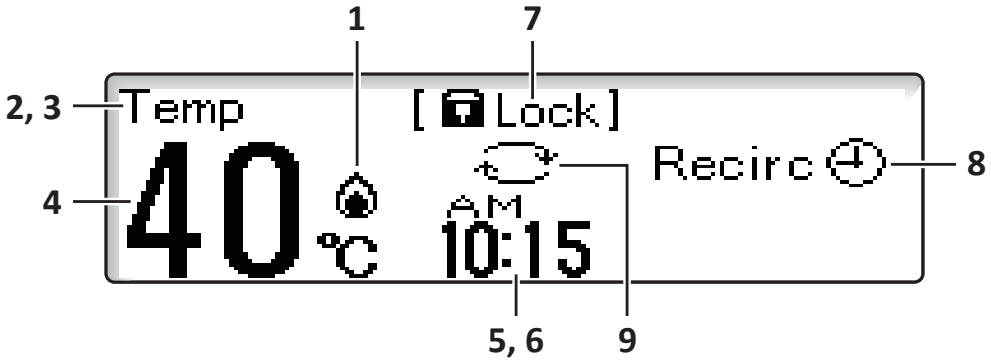
9. ENTER Button
Confirm changes made by the user.

10. STATUS Button
Check the status of the system or the number of installed the Water Heater. (See page 23)

11. Lock Button
Lock Remote Controller operation. (See page 18)

Display Screen

- The display screen shown below is for illustration purposes only.
  The actual display will vary depending on how the Water Heater is being used.
- After a button is pressed, the display will gradually become darker to prevent unnecessary power consumption by the Remote Controller.



1. Flame Indicator
The flame indicator is displayed during combustion when using hot water or recirculation functions.

2. Display for Temperature Setting
During normal operation, "Temp" is displayed.

3. Display for High Temperature "Hi temp"
Displays when the set temperature is 55°C or higher. (See page 15)

4. Temperature Setting (e.g. 40°C)

5. Clock Display (e.g. 10:15 am)
Normally the clock display is not shown when the Power button is OFF.
* This setting can be changed so that the clock is displayed even when the Power button is turned OFF. (See page 19)

6. Error Code
A number will flash if a failure occurs.

7. Locked Display
The lock symbol is displayed when the Remote Controller is locked. (See page 18)

8. Recirculation Timer
The clock symbol is displayed when the recirculation timer is activated. (See page 26)

9. Display for Recirculation Operation
- For systems that use recirculation operation, the symbol is displayed when the Power button is turned ON.
- It is displayed during the recirculation operation. (See page 14)

What is the home screen?

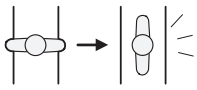
The home screen is displayed when the Power button is ON. Normally, the hot water temperature and the clock, etc. are displayed.

(Home Screen Example)

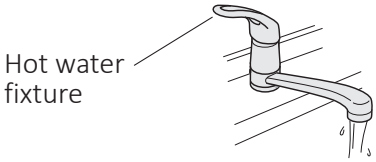
Initial Operation

Before start using for the first time, do the following:

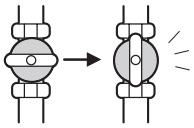
1. Open the water supply valve.



2. Open a hot water fixture to confirm that water is available, and then close the fixture again.



3. Open the gas supply valve.



4. Turn on the power.

⚠ WARNING

Do not touch the power cord with wet hands.

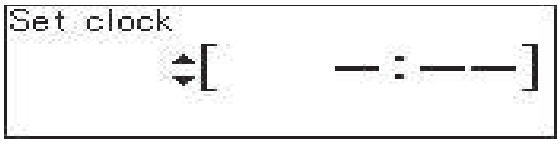
Clock Adjustment

Operation

1. Press the **MENU** button inside the cover.

- This adjustment can be made whether the **Power** button is ON/OFF.

2. Press the **ENTER** button.



3. Use the ▲ / ▼ buttons to reset the clock.

(e.g. 10:15 am)

- The time changes in 1 minute increments with each press of the button, and then in 10 minutes increments if the button is pressed and held.

4. Press the the **ENTER** button to complete the clock setting.

The screen returns to the previous screen.

- If the display is left untouched for approximately 20 seconds without pressing the **ENTER** button, the setting will be completed. When the **Power** button is turned ON, the home screen will be restored.

NOTE

- In the event of a power outage or after disconnecting power to the Water Heater, when power is restored, the clock on the display screen will show "- :-- " and the clock will need to be reset.
- By default, when the **Power** button is turned OFF, the clock display disappears, but it is possible to display the clock when the **Power** button is turned OFF by changing a setting. (See page 19)

Setting and Using the Water Heater

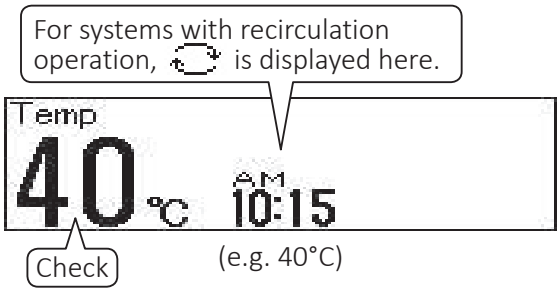
If "System [Tank]" is displayed, hot water will be discharged at the temperature of the storage tank. (See page 23)

⚠ DANGER

- **To prevent scalding:**
  Hot water temperatures over 50°C can cause severe burns instantly or death from scalding.
- Children, disabled and elderly are at the highest risk of being scalded. Feel water temperature before bathing or showering. Temperature limiting valves are available, ask licensed installer.
- When setting the Water Heater to 55°C or higher, "Hi temp" will blink for 10 seconds and emit a tone as a high temperature warning.
- Take caution when using the Water Heater again after setting to 50°C or higher. Always check the set temperature before use.

Operation

1. The **Power** button is ON.



(e.g. 40°C)

- The Power indicator is displayed.
- The previously set hot water supply temperature is shown.
- The setting temperature displayed may vary from the actual temperature at the fixture depending on conditions such as season or length of piping.

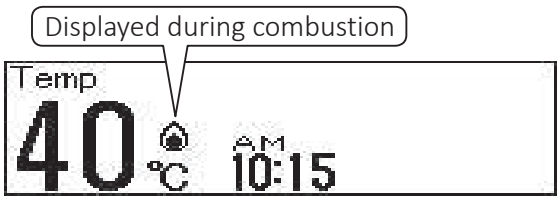
[For systems with recirculation operation]

- If you set the **Power** button to ON, recirculation operation is automatically started. (If "Synchro ON/OFF" was set to ON. (See page 24))

2. Set the temperature using the ▲ / ▼ buttons inside the cover.

(e.g. 42°C)

3. Turn on hot water.



- Turn off hot water, the symbol disappears.
- During recirculation, the symbol may be continuously displayed.

NOTE

- Hot water temperatures shown are approximate and may differ from the actual temperature at the fixture depending on external factors such as the season and length of piping in the system.
- When low temperatures are set (for washing dishes, etc.), if the incoming water temperature is already quite high, it may be difficult to ensure the outgoing water temperature is as per the setting.
- Check the temperature displayed before using any hot water. Be especially careful using hot water after the set temperature has been changed.
- When the hot water temperature is adjusted using thermostatic water mixing valves, set the temperature on the Remote Controller approximately 10°C higher than the required temperature to ensure the appropriate fixture temperature.

Temperature Setting Options

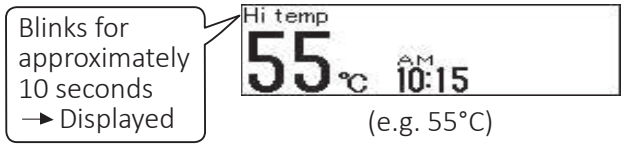
The temperature settings below are examples. The temperature setting necessary depends on the usage, the length of piping and the season.

(Default setting is 40°C)

37°C	Washing dishes, etc.
38°C	
39°C	Shower, hot water supply, etc.
40°C	
41°C	
42°C	
43°C	
44°C	Hot water supply, etc.
45°C	
46°C	
47°C	
48°C	
50°C	
55°C	High temperature*
60°C	
65°C	
70°C	
75°C	
80°C	

- While using hot water, the set temperature can be lowered to minimum of 37°C, for safety, it cannot be raised above 43°C until all hot water taps are closed. (For some products)
- Contact Dux to change the maximum temperature to 85°C.

* Display when high temperature is set



(e.g. 55°C)

NOTE
- If the set temperature requires frequent adjustment, locate the Remote Controller in an easily accessible location.
- Consult local codes for minimum operating temperatures.

Automatic Water Heater ON or OFF Operation

- If you set the time to turn ON or OFF the **Power** button, the **Power** button is automatically turned ON or OFF at the set time every day by just turning the **PROG** button ON.
- It is also possible to set only ON or OFF operation.
- For recirculation systems, circulation is started or stopped according to the **Power** button condition, ON or OFF.

Operation

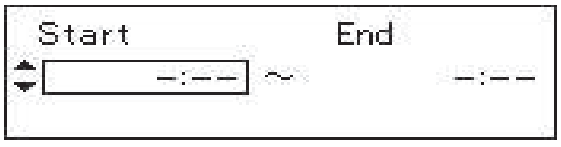
Set the time to turn ON or OFF the Power button automatically

This example describes setting the "ON time" and "OFF time" to 10:00 am and 8:00 pm, respectively.

1. Check that the current time is properly set. (Setting the time: See page 13)
2. Check the **PROG** button is set to OFF.
3. Press the **MENU** button inside the cover, Select "Set PROG" using the ▲ / ▼ buttons.

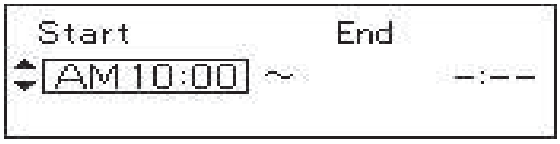
- This adjustment can be made whether the **Power** button is ON/OFF.

4. Press the **ENTER** button.



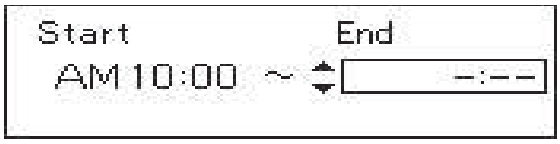
- The previously set "Start time"and "End time" are displayed.

5. Set the ON time to "AM 10:00" using the ▲ / ▼ buttons.

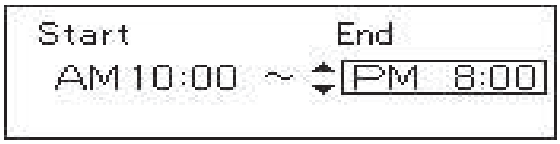


- The time changes in 10 minutes increments with each press of the button, and then in 1 hour increments if the button is pressed and held.
- If you do not want to set the "Start time", select "- :--" (located between AM 11:50 and PM 0:00 settings).

6. Press the **ENTER** button to complete the setting.



7. Set the OFF time to "PM 8:00" using the ▲ / ▼ buttons.



- Follow the same procedure from step 5.

8. Press the **ENTER** button to complete the setting.

9. Check "Set" is selected, and then press the **ENTER** button to confirm all settings.

- If the display is left untouched for approximately 20 seconds without pressing the **ENTER** button, the setting will be completed. When the **Power** button is turned ON, the home screen will be restored.
- If you want to change "ON/OFF time", select "Reset" and then press the **ENTER** button, return to step 5.

Activate Automatic Operation

The **PROG** button is ON.

(Display Example)

- You can activate automatic operation regardless if the **Power** button is ON or OFF.
- The PROG indicator is displayed when activated.
- "Start time" and "End time" will be displayed upon activation.
- If both the "Start time" and "End time" are set to "- :--", the alarm sounds and "Set PROG" will display.

Deactivate Automatic Operation

The **PROG** button is OFF.

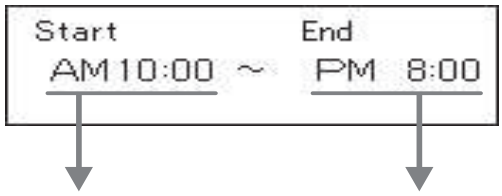
- The PROG indicator disappears.

NOTE
- If the **PROG** button is not set to OFF, the Water Heater will automatically turn ON or OFF at the set times.
- If there is a power failure or power is disconnected to the Water Heater, automatic operation will be deactivated.

Tips for operation

Following this procedure allows for automated control of Water Heater operation without user interaction.
(The setting time shown on the display of the Remote Controller is for example purposes only.)

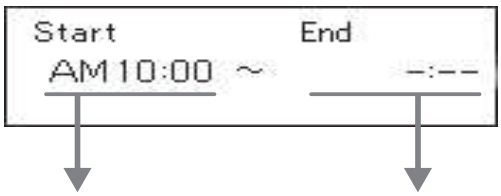
e.g. Both ON and OFF functions are automated.



The Power button is automatically turned ON at 10:00 am.

The Power button is automatically turned OFF at 8:00 pm.

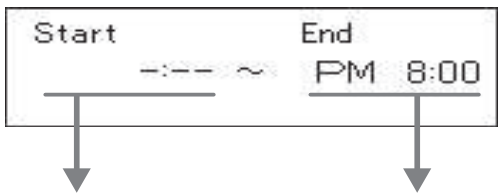
e.g. Only ON function is automated.



The Power button is automatically turned ON at 10:00 am.

Your desired time (Manually turned OFF)

e.g. Only OFF function is automated.



Your desired time (Manually turned ON)

The Power button is automatically turned OFF at 8:00 pm.

Locking the Remote Controller

By locking the Remote Controller, the settings cannot be changed if a button is pressed by mistake.

Operation

1. Press and hold **Lock** button for approximately 2 seconds to lock the Remote Controller.

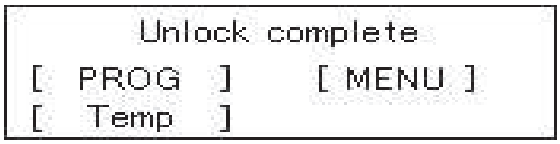
   - This adjustment can be made whether the **Power** button is ON/OFF.
   - The operations of **PROG** button, **MENU** button, and ▲ / ▼ buttons are locked.
   - Approximately 3 seconds after locking the Remote Controller, the display will return to the previous screen.

2. If you press **PROG** button, **MENU** button, and ▲ / ▼ buttons while the Remote Controller is locked, the "Locked" screen will appear.

   - Approximately 3 seconds after the "locked" screen appears, the display will return to the previous screen.

Unlock the Remote Controller

Press and hold **Lock** button for approximately 2 seconds to unlock the Remote Controller.



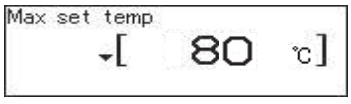
   - Approximately 3 seconds after unlocking the Remote Controller, the display will return to the previous screen.

Customizable Settings

Limiting the Maximum Output Temperature
The maximum output temperature can be limited to prevent discharging hot water at too high of a temperature.

Operation

1. The **Power** button is OFF.
2. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
3. Press the **ENTER** button.
   - The "Misc settings" screen appears.
4. Select "Max set temp" using the ▲ / ▼ buttons, and then press the **ENTER** button.
5. Change the setting using the ▲ / ▼ buttons. (Setting completed.)



(e.g. 80°C)

37- 48°C (In 1°C intervals),
50- 80°C (In 5°C intervals)

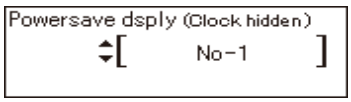
(Default setting = 80°C)

- To change other settings, select the option and press the **ENTER** button.
- To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

Display Screen Power Saving Mode [powersave dsply]
To conserve power consumption of the display, the screen can be turned off completely or set to only display the clock when the **Power** button is turned OFF.

Operation

1. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
2. Press the **ENTER** button.
   - The "Misc settings" screen appears.
3. Select "Powersave dsply" using the ▲ / ▼ buttons, and then press the **ENTER** button.
4. Change the setting using the ▲ / ▼ buttons. (Setting completed.)



(e.g. No-1)

Yes:
The display will turn off. The clock will not be displayed when the **Power** button is turned OFF.

No-1:
The display will not turn off. The clock will not be displayed when the **Power** button is turned OFF.

No-2:
The display will not turn off. The clock is displayed when the **Power** button is turned OFF.

(Default setting = No-1)

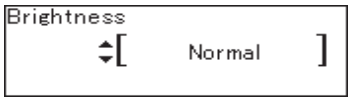
- To change other settings, select the option and press the **ENTER** button.
- To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

Continued on next page

Adjusting the brightness of the display screen when the Remote Controller is turned on
The display screen can be brightened, darkened, or the backlight can be turned off completely.

Operation

1. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
2. Press the **ENTER** button.
   - The "Misc settings" screen appears.
3. Select "Brightness" using the ▲ / ▼ buttons, and then press the **ENTER** button.
4. Change the setting using the ▲ / ▼ buttons. (Setting completed.)



(e.g. Normal)

Dark / Dim / Normal / Bright

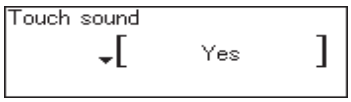
(Default setting = Normal)

- To change other settings, select the option and press the **ENTER** button.
- To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

Muting the Remote Controller
The Remote Controller can be muted so that it does not emit a tone when a button is pressed.

Operation

1. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
2. Press the **ENTER** button.
   - The "Misc settings" screen appears.
3. Select "Touch sound" using the ▲ / ▼ buttons, and then press the **ENTER** button.
4. Change the setting using the ▲ / ▼ buttons. (Setting completed.)



(e.g. Yes)

Yes / No

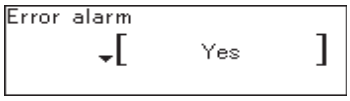
(Default setting = Yes)

- To change other settings, select the option and press the **ENTER** button.
- To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

Error Tone Settings
The Remote Controller can be muted so that it does not emit a tone when an error occurs.

Operation

1. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
2. Press the **ENTER** button.
   - The "Misc settings" screen appears.
3. Select "Error alarm" using the ▲ / ▼ buttons, and then press the **ENTER** button.
4. Change the setting using the ▲ / ▼ buttons. (Setting completed.)



(e.g. Yes)

Yes / No

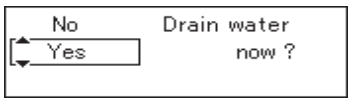
(Default setting = Yes)

- To change other settings, select the option and press the **ENTER** button.
- To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

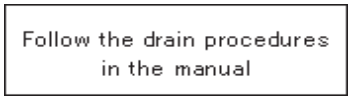
Draining the Water Heater
(Refer to page 30 for details.)

Operation

1. The **Power** button is OFF.
2. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
3. Press the **ENTER** button.
   - The "Misc settings" screen appears.
4. Select "Drain water" using the ▲ / ▼ buttons, and then press the **ENTER** button.
5. Select "Yes" using the ▲ / ▼ buttons.



6. Press the **ENTER** button.



   - Drain the Water Heater following the procedures described on page 30.

Stop draining water from the Water Heater

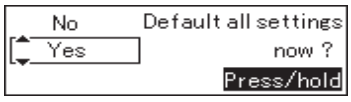
If you press the **ENTER** button again when "Drain water" and "Operating" are alternately displayed following step 6, the drain function will stop.

Restoring Default Settings
The following settings can be restored to the factory default conditions.

- Maximum output temperature
- Display screen power saving mode
- Brightness of the display screen
- Muting the Remote Controller
- Error tone settings

Operation

1. The **Power** button is OFF.
2. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons.
3. Press the **ENTER** button.
   - The "Misc settings" screen appears.
4. Select "Default all settings" using the ▲ / ▼ buttons, and then press the **ENTER** button.
5. Select "Yes" using the ▲ / ▼ buttons.



6. Press and hold the **ENTER** button for approximately 5 seconds.
   (Setting completed)
   - The "Reset complete" screen appears.
   - To change other settings, select the option and press the **ENTER** button.
   - To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.

Continued on next page

(Single Water Heater only)
Flow Meter Alarm
The flow meter alarm is being used to indicate when a tub is full.

Operation

1. The **Power** button is ON.
   - Check the current setting temperature.
2. Press the **MENU** button inside the cover, select "Flow meter" using the ▲ / ▼ buttons.
3. Press the **ENTER** button.
   - The "Flow meter" screen appears.
4. Change the volume using the ▲ / ▼ buttons, and then press the **ENTER** button.

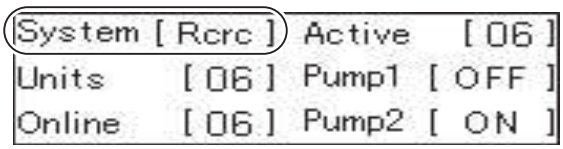
40- 260 L (In 20 L intervals), 260- 380 L (In 40 L intervals), Alarm off

   (Default setting = Alarm off)
   - To return to the home screen, press the **MENU** button or let it sit for approximately 20 seconds.
5. Turn on hot water.
   - When the tub fills with the preset volume of water, an alarm will sound alerting you to shut off the water.
6. Turn off the hot water when the alarm sounds to prevent overfilling.

NOTE
- The hot water filling temperature is same as the setting temperature.
- Although the temperature can be set to 50°C or higher, do not set the temperature to 50°C or higher as it can cause severe burns instantly or death from scalding.

System Check

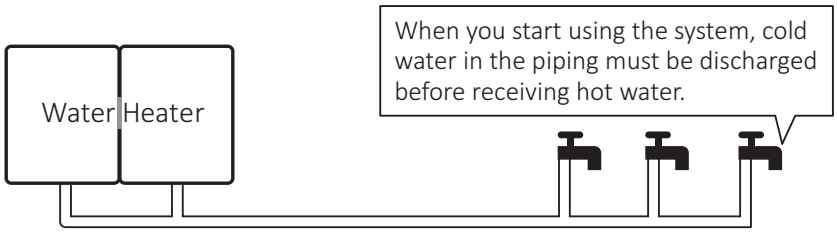
- Depending on the configuration of your system, not all functions may be used.
- If you press the STATUS button, you can check the status of the system. (See the picture to the right)
- The pictures below (the number of Water Heaters, fixtures, and pumps) will vary depending on the configuration of the hot water system.



(Display Example [System [Rcrc]])

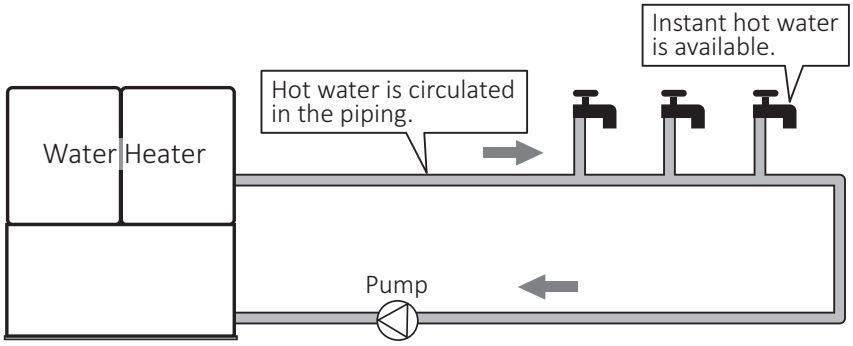
Display "System [Std]" on the Remote Controller

The Water Heater only operation.
(Functions other than those shown on pages 24 to 27 can be used.)



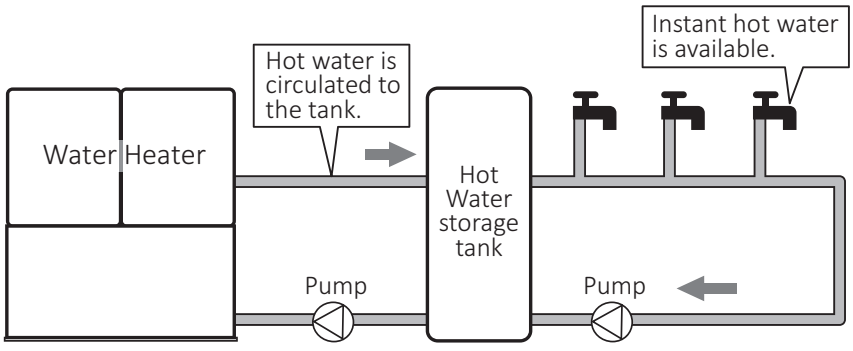
Display "System [Rcrc]" on the Remote Controller *(For Multi-System only)*

- The Water Heater and recirculation operation. (All functions can be used.)
- During recirculation operation, hot water is always circulated in the piping to provide instant hot water when a fixture is opened. (When setting the recirculation system operation timer, the recirculation system operates at the set times.)
- If you set the **Power** button to ON, ⟲ is displayed. (If "Synchro ON/OFF" is set to ON. (See page 24))



Display "System [Tank]" on the Remote Controller

- The Water Heater combined with a storage tank operation. (Functions other than those shown on pages 24 to 27 can be used.)
- If a recirculation system is also installed, hot water is always circulated in the piping to provide instant hot water when a fixture is opened.
- If you set the **Power** button to ON, ⟲ is displayed.



Enabling Automatic Recirculation Operation

(For "System [Rcrc]")

- To check system status, see page 23.
- When "Synchro ON/OFF" is set to Yes, recirculation can be activated automatically.
- To change "Synchro ON/OFF" from Yes to No, follow the same procedure as described below.

Operation

1. Press the **MENU** button inside the cover, select "Recirc menu" using the ▲ / ▼ buttons.

   - This adjustment can be made whether the **Power** button is ON/OFF.

2. Press the **ENTER** button.

3. Select "Synchro ON/OFF" using the ▲ / ▼ buttons, and then press the **ENTER** button.

4. Select "Yes" using the ▲ button.

5. Press the **ENTER** button.

The screen returns to the previous screen.

- If the display is left untouched for approximately 20 seconds without pressing the **ENTER** button, the setting will be completed. When the **Power** button is turned ON, the home screen will be restored.

Manually Starting Recirculation Operation

(For "System [Rcrc]" or Single Water Heater with recirculation pump)

Recirculation operation can be manually stopped or started using this procedure.

Operation

1. The **Power** button is ON.

(e.g. 40°C)

- The Power indicator is displayed.
- The previously set hot water supply temperature is shown.

2. Press the **MENU** button inside the cover, select "Recirc menu" using the ▲ / ▼ buttons.

3. Press the **ENTER** button.

4. Select "Recirc on/off" using the ▲ / ▼ buttons.

5. Press the **ENTER** button.

(Display when recirculation is set to ON)

▼

The screen returns to the previous screen.

- Display "Stopping recirc operation" when the recirculation is set to OFF.
- If the display is left untouched for approximately 20 seconds without pressing the **ENTER** button, the setting will be completed. The home screen will be restored.

Setting the Recirculation System Operation Timer

(For "System [Rcrc]")

- With the recirculation operation timer set, hot water will be automatically circulated in the hot water pipes.
  Even with this function activated, it may take several minutes for hot water to be completely circulated through the plumbing system. Set the timer to activate the recirculation system prior to the first use of hot water to ensure hot water is instantly available.
- Multiple recirculation time periods can be set.
- Until the timer is deactivated (See page 28), the recirculation system will operate daily at the set times.
- When the recirculation system is turned OFF by the timer, the Water Heater will still remain ON and can be used normally.

Operation

This example describes setting the recirculation system to operate between 5:00 am- 8:00 am.

1. Check that the current time is properly set. (Setting the time: See page 13)
2. Press the **MENU** button inside the cover, Select "Recirc menu" using the ▲ / ▼ buttons.

   - This adjustment can be made whether the **Power** button is ON/OFF.

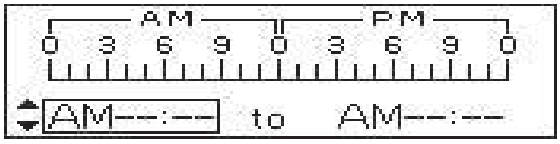
3. Press the **ENTER** button.

4. Select "Recirc timer" using the ▲ / ▼ buttons.

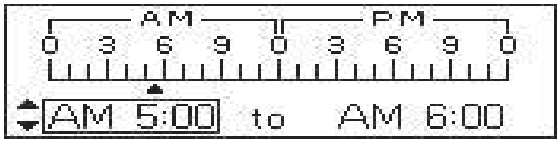
(Display Example)

   - The previous setting is displayed.

5. Press the **ENTER** button.

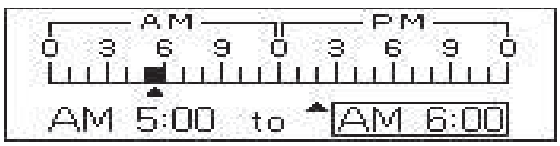


6. Select "AM 5:00" using the ▲ / ▼ buttons.

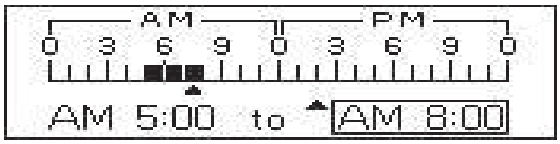


   - Every time when you press the button, the time changes by one hour.
   - [To add additional time periods to the current setting, or to cancel the previous setting]
     1) Press the **ENTER** button without setting "Start" time.
     2) Press the **ENTER** button without setting "End" time.
     3) Follow the procedures "Adding Additional Time Periods" or "Resetting All Time Periods" (See page 27).

7. Press the **ENTER** button to complete the "Start" time setting.

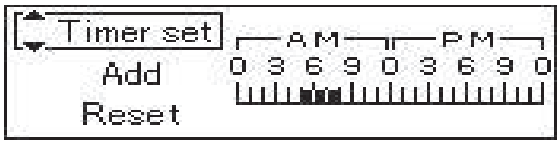


8. Select "AM 8:00" using the ▲/▼ buttons.



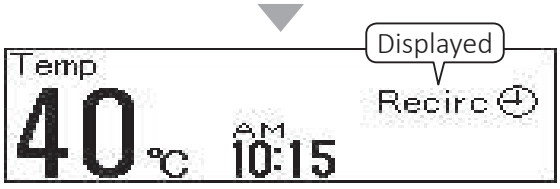
- Every time when you press the button, the time changes by one hour.

9. Press the **ENTER** button to complete the "End" time setting.



10. Press the **ENTER** button to complete the time setting.

"Recirc timer" and "Recirc timer on" are alternately displayed on the menu (approximately 10 seconds)

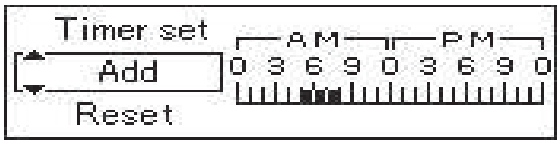


(Example of home screen when the **Power** button is turned ON)

- The timer will not activate without pressing the **ENTER** button.
- If the time is not set, the time setting screen is displayed (See page 13).
- Until the timer is deactivated, the recirculation system will operate daily at the set "Start" and "End" times.

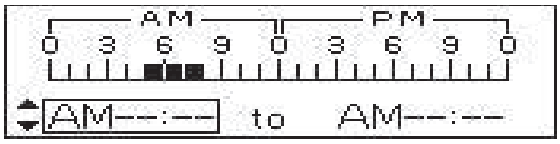
Add Additional Time Periods

1. After step 9 on page 27, select "Add" using the ▲/▼ buttons.



- You can set multiple operation time periods.

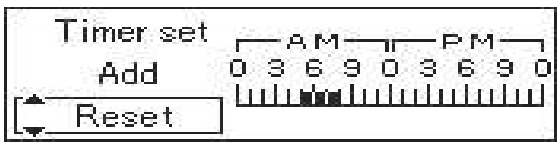
2. Press the **ENTER** button.



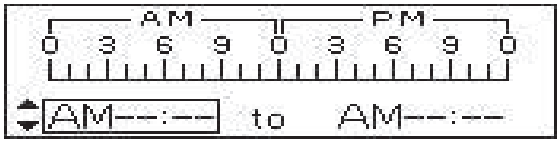
3. Select the time period following the procedures in steps 6 to 9 on page 26-27.

Reset All Time Periods

1. After step 9 on page 27, select "Reset" using the ▲/▼ buttons.



2. Press the **ENTER** button.



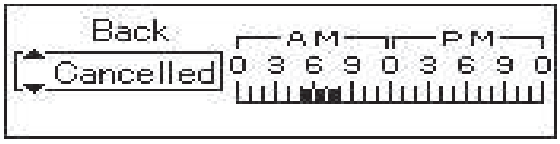
(All settings are cleared.)

3. Adjust the time period following the procedures in steps 6 to 9 on page 26-27.

Continued on next page

Cancel the Recirculation System Operation Timer

1. Carry out steps 1 to 5 on page 26.
2. Select "Cancelled"using the ▲ / ▼ buttons.



3. Press the **ENTER** button.

The screen returns to the "Recirc Menu".

- If the **Power** button is ON, the screen returns to the home screen in approximately 10 seconds.
- If the timer is deactivated during a recirculation time period, recirculation will continue until it is stopped using the procedure shown on page 25.

Frost Protection

NOTICE

- Damage can occur from frozen water within the appliance and pipes even in warm environments. Be sure to read below for appropriate measures.
- Repairs for damage caused by freezing are not covered by the warranty.

Freezing is prevented within the device automatically by the freeze prevention heater.

Freezing cannot be prevented when the power supply to the Water Heater is turned off or the power cord is unplugged. Do not remove the power plug from the wall outlet.
Freezing will be prevented regardless of whether the **Power** button on the Remote Controller is ON or OFF.

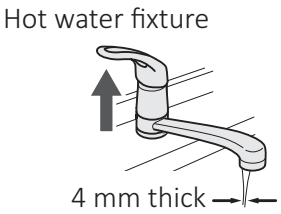
The freeze prevention heaters will not prevent the plumbing external to the Water Heater from freezing. Protect this plumbing with insulation, heat tape or electric heaters, solenoids, or pipe covers.

Take the measures below for extremely cold temperatures*.

* Outside temperature including wind chill factor less than-15°C.

This method can protect not only the Water Heater, but also the water supply, water piping and mixing valves.

1. Turn off the **Power** button.
2. Close the gas supply valve.
3. Open a hot water fixture, and keep a small stream of hot water running. (400 mL/minute or about 4 mm thick.)
   - If there is a mixing valve, set it to the highest level.



4. The flow may become unstable from time to time. Check the flow 30 minutes later.
   - In general, it is not advisable to run water through the Water Heater when it is OFF (See page 6), but in this case freeze prevention is more important.

If water will not flow due to freeze

1. Close the gas and water valves.
2. Turn off the **Power** button.
3. Open the water supply valve occasionally to check whether water is running.
4. When the water is flowing again, check for water leaks from the Water Heater and piping before using.

NOTE If the Water Heater or the piping is frozen, do not use the Water Heater or it may get damaged.

If the water heater will not be used for a long period of time, drain the water.

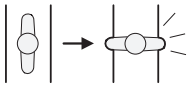
⚠ WARNING

- To prevent burns or scalding, turn off the **Power** button and wait until the appliance cools before draining the water
- Do not touch the power cord with wet hands.

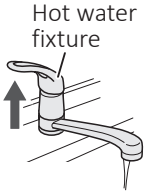
- To prevent damage from freezing, the Water Heater must be plugged into power at all times. If power is unplugged, drain the water completely from the Water Heater. Then use an air compressor to remove all water from inside the water piping of the Water Heater.
- It is recommended that Isolation Valves are installed on the Water Heater, otherwise the water connections will need to be removed to drain the Water Heater completely.
- Freeze damage due to not draining properly will not be covered under warranty.
- Drain water into a bucket to prevent water damage.

Drainage Using the Remote Controller

1. The **Power** button is OFF.
2. Press the **MENU** button inside the cover, select "Misc settings" using the ▲ / ▼ buttons, and then press the **ENTER** button.
   (The "Misc settings" screen appears.)
3. Select "Drain water" using the ▲ / ▼ buttons, and then press the **ENTER** button.
4. Select "YES" using the ▲ / ▼ buttons, and then press the **ENTER** button.
   (The "Follow the drain procedures in the manual" screen appears.)
5. Close the water supply valve.

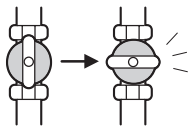


6. Fully open all hot water fixtures.



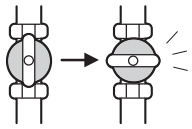
7. Open all drain plugs and drain the water out of the Water Heater.
8. When the water is completely drained, reattach all drain plugs and close the hot water fixtures.
9. Close the gas valve and disconnect the electrical power supplied to the Water Heater.

Do not touch with wet hands.

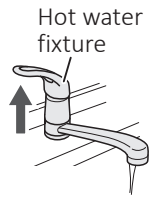


Manual Draining

1. Close the gas valve.

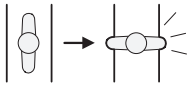


2. Turn the **Power** button ON.
3. Open the hot water fixtures for more than 2 minutes and close.
   * If multiple Water Heaters are being used, drain 2 minutes for each Water Heater.
   * An 11 Error Code may appear on the Remote Controller. This is not a malfunction of the Water Heater. Do not turn **Power** button OFF.

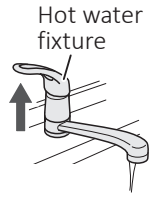


4. Close the water supply valve and disconnect the electrical power supplied to the Water Heater.

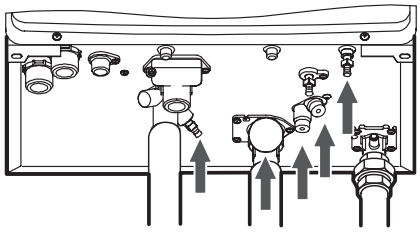
Do not touch with wet hands.



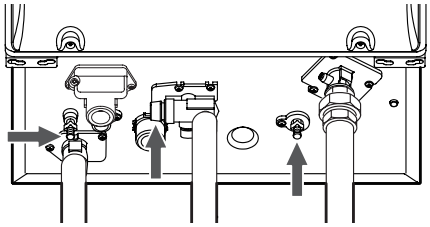
5. Fully open all hot water fixtures.



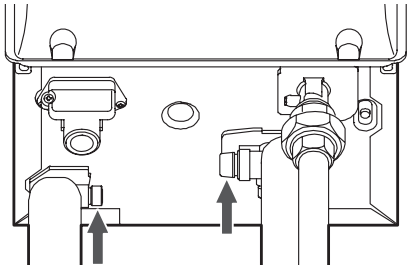
6. Open all drain plugs and drain the water out of the Water Heater.
7. When the water is completely drained, reattach all drain plugs and close the hot water fixtures.



(50E/FCS Series)



(32E/FCS Series)



(28E/FNS Series)

Each drain plug might not be visible if insulation is installed around the piping.

Turning the Unit Back On

⚠ DANGER

(Condensing Model only)
After the Water Heater has been out of use for a long time, make sure that you fill the condensate trap with water.
This is to prevent dangerous exhaust gases from entering the building.
Failure to fill the condensate trap could result in severe personal injury or death.
(By performing step 4 as described below, the condensate trap will automatically fill itself with water.)

⚠ WARNING

Do not touch the power cord with wet hands.

1. Check that all drain plugs are inserted.
2. Check that all hot water fixtures are closed.
3. Open the water supply valve.
4. Open a hot water fixtures to confirm that water is available, and then close the hot water fixtures again.
5. Open the gas supply valve.
6. Connect the electrical power.
   Do not touch with wet hands.
7. Make sure that the area around the appliance is well ventilated; open a window or a door if necessary. Then, operate the Water Heater and verify that condensate is coming out of the condensate drain pipe. (Condensing Model only) (During normal use of the Water Heater, condensate will begin to discharge from the condensate drain pipe within 15 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)

   NOTE If water does not appear at the end of the drain line, a qualified service technician must clean the condensate line.

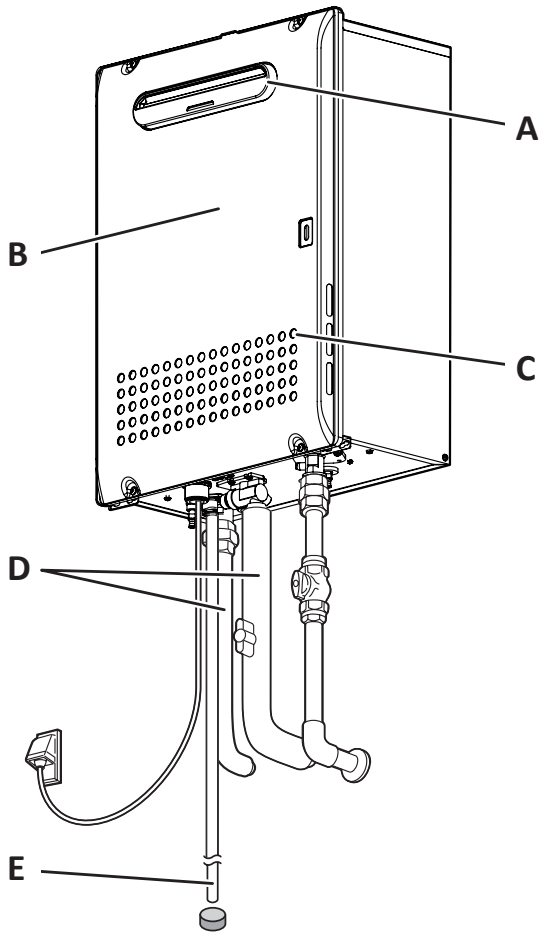
Regular Maintenance

Periodic Inspection

This Water Heater should be serviced by an authorised person at regular intervals not exceeding 2 years.

⚠ WARNING

To prevent burns or scalding, turn off the **Power** button and wait until the appliance cools before performing maintenance.



(e.g. 32ECS Series)

Check : A
For dust and soot in the flue exhaust.

Check : B
- For abnormal sounds during operation.
- For abnormalities in external appearance, discolouration or flaws.

Check : C
For dust or debris in the air inlet.

Check : D
For water leaks from the Water Heater and piping.

Check : E
(condensing model only)
For blockage at the condensate drain pipe discharge.

Check
For laundry, newspaper, timber, oil, spray cans and other combustible materials near the Water Heater.

Periodic Maintenance

Water Heater

Wipe the outside surface with a wet cloth, then dry the surface. Use a neutral detergent to clean any stains.

Remote Controller

Wipe the surface with a wet cloth.

NOTE
- Do not use chlorine-based, acidic, alkaline detergents, organic solvents such as benzine and thinner, or Melamine Sponge to clean the Remote Controller.; discolouration, deformation, scratches or cracks may occur.
- The Remote Controller is not water resistant.

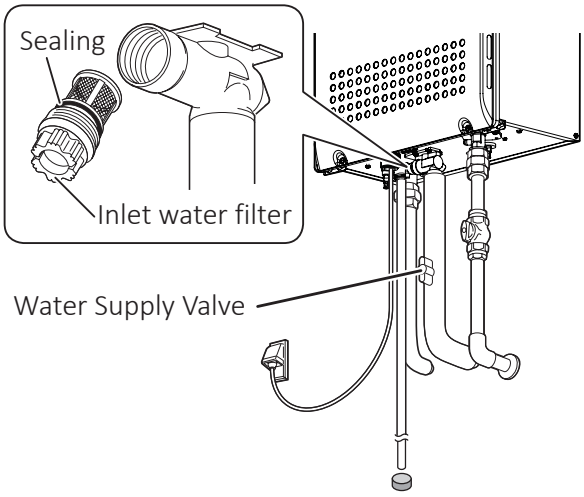
Inlet water filter

If the inlet water filter is covered with debris, the hot water may not run smoothly, or the Water Heater may put out cold water. Check and clean the filter as explained below.

⚠ WARNING

To prevent burns or scalding, turn off the **Power** button and wait until the appliance cools before draining the water.

1. Close the water supply valve.



(e.g. 32ECS Series)

2. Open all hot water fixtures.
3. With a bucket ready, remove the inlet water filter. (about 3.5 L: 50E/FCS Series, 1.7 L: 32E/FCS Series, 0.8L: 28E/FNS Series, will drain out)
4. Clean the inlet water filter with a brush under running water.
5. Reattach and close inlet water filter.

NOTE Do not lose the Sealing.

6. Close all hot water fixtures.
7. Open the water supply valve and check that water does not leak from the inlet water filter.

Troubleshooting

Initial Operation

The Water Heater does not attempt to ignite when water is running.
- Check for reversed plumbing or crossed pipes.
- Check the inlet water filter. (See page 33)

The Water Heater attempts to ignite but fails.
- Reset the Water Heater and try again. There may be air in the gas pipe.
- Check the gas supply pressure with a professional.

Remote Controller

The Power indicator does not light up.
- Has there been a power failure?
- Is the power connected properly?

The water temperature changes after a power failure or when the power is disconnected.
- The temperature setting and the flow meter alarm setting may both need to be reset after a power outage.

The clock display shows "- : - -".
- If the time is not displayed on the clock, either a power failure has occured or power was disconnected resulting in the display showing "- :--". (See page 13)

The flow meter alarm does not sound or it sounds before the tub has been filled to the set amount.
- The flow meter alarm is set to sound when hot water is continuously discharged for the set volume of water.
  If hot water is used for other fixtures while filling the tub, the alarm will sound before the tub is full.
- If mixing valves are used, or if cold water is mixed with hot water at the fixture, the tub will fill more than the setting of the flow meter alarm.

The setting cannot be changed when a button is pressed.
- The Remote Controller is locked. While the Remote Controller is locked these buttons the **PROG** button, the **MENU** button, and the ▲ / ▼ buttons cannot be used. (See page 18)

[For recirculation systems]
Flame Indicator lights up or goes out.
- During recirculation operation, the Water Heater will turn on and off to keep the hot water pipes up to temperature.

The plastic on the surface or buttons of the Remote Controller has torn, peeled, or air bubbles inside.
- The surface of the Remote Controller is affixed with a protective sheet (to prevent surface scratching, etc.) at time of shipment. This sheet can be removed or left as it is. When leaving the protective sheet on, areas frequently touched may tear or peel. However, the Remote Controller will not malfunction from water entering such torn or peeled areas. To restore the appearance of the Remote Controller surface, simply remove the protective sheet.

Temperature

No water is available when a fixture is opened.
- Is the water supply cut off?
- Is the Water Heater frozen?

Hot water is not available when a fixture is opened.
- Are the gas and water supply valves fully open?
- Is the water supply cut off?
- Is the hot water fixture sufficiently open?
- Is the gas being cut off by the gas meter? (Can other gas devices such as stoves be used?)
- (For ULPG) Is there enough gas in the tank? (Can other gas devices such as stoves be used?)
- Is the inlet water filter clogged? (See page 33)
- Is the Operation button turned ON?

The hot water is not the correct temperature.
- Is the hot water fixture sufficiently open?

The water filled in the tub is not the setting temperature.
- If there was water in the tub already when the tub fill begin, the temperature in the tub may be different from the temperature setting.

Water takes time to become hot when turning the hot water fixture.
- Have you allowed enough time for the cold water in the pipes to drain out?

The water is too hot.
- Are the gas and water supply valves fully open?
- Is the water temperature setting appropriate? (See page 14)
- If the water supply temperature is high, it is possible for the temperature to be higher than the temperature set on the Remote Controller.
- If only a small amount of hot water is demanded, it is possible for the temperature to be higher than the temperature set on the Remote Controller.

The water is not hot enough.
- Are the gas and water supply valves fully open?
- Is the water temperature setting appropriate? (See page 14)

The water is cold when only a single fixture is open.
- The unit will not heat the water if the flow rate is less than 2.0 L/min.
  Open the fixture more or open other fixtures so that a greater flow passes through the unit, and the unit should begin heating again.

Fluctuations in hot water temperatures.
- Set water temperature at 48°C to 50°C. This will allow you to use a higher flow of hot water thus meeting the minimum flow requirement of 2.0 L/min.
- Clean the inlet water filter of any debris (See page 33)

Setting temperature cannot rise.
- Is the maximum temperature setting appropriate? (See page 19)

Amount of Hot Water

The flow meter alarm does not sound even when filled to the set amount.
- The flow meter alarm is set to sound when hot water is continuously discharged for the set volume of water.
  If mixing valves are used, or if cold water is mixed with hot water at the fixture, the tub will fill more than the setting of the flow meter alarm.

Amount of hot water available has decreased over time.
- Is the inlet water filter clogged? (See page 33)

The amount of hot water at a certain fixture is not constant.
- The maximum flow available from 50E/FCS Series is 50 L/min, from 32E/FCS Series is 32 L/min, from 28E/FNS Series is 28 L/min at a 25˚C temperature rise.
- Pressure fluctuations and other plumbing conditions can cause the temperature and pressure at a fixture to be unstable, but it should stabilize after a short time.
- There are some types of hot water taps that discharges large volumes of hot water at first but stabilize after time.
- To keep the temperature stable, the Water Heater limits the amount of water that can flow through it to a small amount initially, but the amount increases over time.

The amount of hot water in the tub is less/more than the set amount.
- When hot water is used for other fixtures while filling the tub, the tub will not fill as much.
- If there is water in the tub already, or when filling is stopped and restarted, the tub will fill more.

Sounds

The fan can be heard after operation is stopped. A motor can be heard when turning the Water Heater on or off, when opening or closing a fixture, or after the Water Heater has been running for a while.
- These noises indicate the proper operation of devices which are designed to let the Water Heater reignite more quickly, and ensure the water temperature is stable.

The fan can be heard when it is very cold outside.
- The fan may run to prevent freezing.

Other

White smoke comes out of the flue exhaust on a cold day.
- This is normal. The white smoke is actually steam.

The Water Heater stops burning during operation.
- Are the gas and water supply valves fully open?
- Is the water supply cut off?
- Is the hot water fixture sufficiently open?
- Is the gas being cut off by the gas meter? (Can other gas devices such as stoves be used?)
- (For ULPG) Is there enough gas in the tank? (Can other gas devices such as stoves be used?)

The hot water is turbid.
- This is harmless. Small bubbles appear as the air in the water is heated and depressurized rapidly to atmospheric pressure.

The water appears blue.
The tub/wash-basin has turned blue.
- Colouration to a blue colour may be noticed from small traces of copper ion contained in the water and fat (furring). However, there are not problems concerning health. Colouration of the tub/wash-basin can be prevented by cleaning frequently.

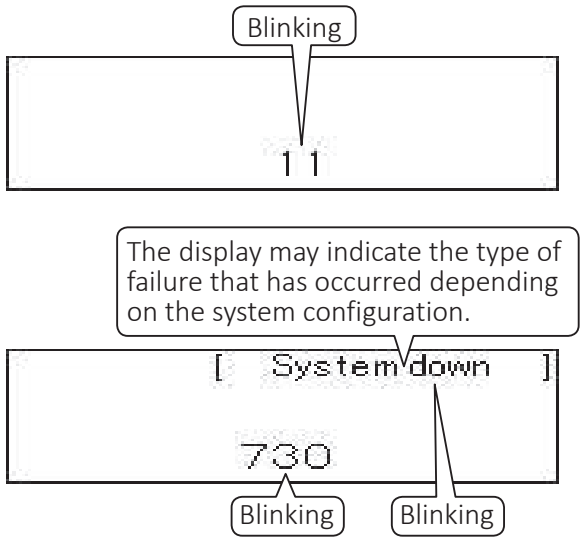
(Condensing model only)
Frequent water discharge from the condensate drain pipe.
- Condensation forms inside the Water Heater during operation and is discharged from the condensate drain pipe.

A small amount of water is discharged from the pressure relief valve.
- This is normal. When the Water Heater is under high pressure, a small amount of water may be discharged from the pressure relief valve.

Check for an Error Code

When a failure occurs, information relating to the error blinks on the display.
The error alarm may also continuously sound.
If this occurs, take appropriate measures as following list.

[Error Code Display Screen]



Error Code : 11

Cause : Ignition failure
Action : Check whether the gas valve is open.
Press the **Power** button to turn the Water Heater off, open a hot water fixture, and turn the Water Heater back on. In this error code, some products can clear the error code by turning the hot water fixture OFF to ON. If error code is not blinking, the problem is solved.

(Condensing model only)
Error Code : 29

Cause : Clogging of neutralizer
Action : Check to see if the condensate drain pipe is clogged or frozen. (See page 32)
Contact the installer or Dux Service Department for assistance.

Error Code : 90

Cause : Abnormal combustion, low gas supply pressure.
Action : Have a professional check the gas supply pressure. Contact Dux 1300 365 115 (Australia) or 0800 729 389 (New Zealand).

Error Code : 99

Cause : Abnormal combustion
Action : Contact the installer or Dux Service Department for assistance.

Contact Dux if:
- Any other error code appears.
- An error code is indicated again after the above actions were followed.
- There are any other questions.

Stop the Error Alarm

Press the **ALARM OFF** button (the indicator will turn off).

Follow-up Service

Requesting Service

First follow the instructions in the troubleshooting section. (See page 34-37)
If the error is not corrected, contact Dux Service Department at 1300 365 115 (Australia) or 0800 729 389 (New Zealand).

We will need to know:

- **The Model**
  Check the rating plate (See page 4 for the location of the label)
- **Date of purchase**
  See the warranty
- **Details of problem**
  Flashing error codes, etc., in much detail as possible
- **Your name, address, and telephone number**
- **Desired date of visit**

Warranty

For repairs after the warranty period, there will be a charge on any service, and service will only be performed if the unit is deemed repairable.
See warranty Document on page 44.

Period of Time for Stocking Repair Parts

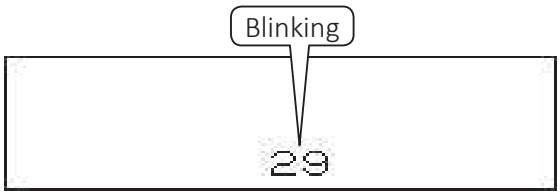
Dux will stock repair and maintenance parts for this unit within ten (10) years of the date of original manufacture.

Reinstallation

If you want to reinstall the appliance at a different location, confirm that the gas and power supply indicated on the rating plate are available at the new location. If you are not sure, consult the local utility company.

If you move to a region that uses a different type of gas, conversion and adjustment of the appliance will be necessary.

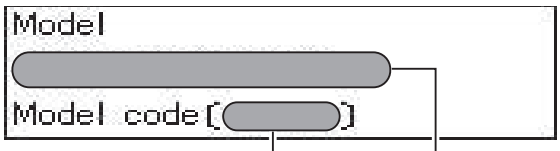
If an error code is displayed, the model name and code can be checked



(e.g. Error Code 29)

- If more than one Water Heater is installed, this procedure cannot be used.

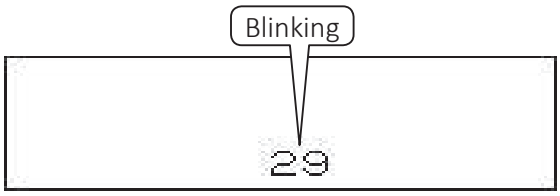
1. Press the **ENTER** button.



Model code

Product name of the Water Heater is displayed

2. Press the **ENTER** button. (Return to previous screen.)

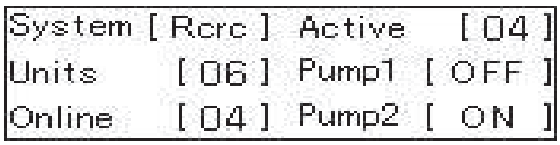


(Display Example)

- If the display is left untouched for approximately 60 seconds, it will return to the previous screen.

Check the status of the system

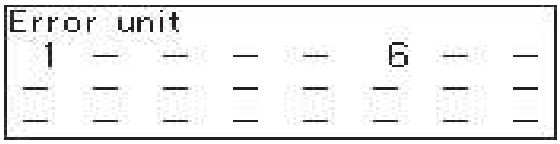
1. Press the **STATUS** button inside the cover.



(Display Example)

- Status can be checked regardless of whether the **Power** button is ON/OFF.
- If you press the **BACK** button or it is left untouched for approximately 10 minutes, it will return to the previous screen.

2. Press the **STATUS** button inside the cover again.



(Display Example)

- You can Identify units that require service. (system dependent)
- If you press the **BACK** button, the screen returns to STEP 1.
  If you press the **STATUS** button, the screen returns to the previous screen.

Specifications

- Specifications may be changed without prior notice.
- The capacity may differ slightly, depending on the water pressure, water supply, piping conditions, and water temperature.

Item			Specification	
Model Name			50ECS Series*	50FCS Series*
Type	Installation		Outdoor, Wall mounted	Indoor, Wall mounted
	Air Supply / Exhaust		Power Flue	
Operating Pressure			250-1,000 kPa	
Minimum Flow Rate			2.0 L/min	
Dimensions (Height) × (Width) × (Depth)			830 mm × 480 mm × 360 mm	
Weight			50 kg	55 kg
Water Holding Capacity			3.5 L	
Connection Sizes		Water Inlet	R 1 (25 mm)	
		Hot Water Outlet	R 1 (25 mm)	
		Gas Inlet	R 3/4 (20 mm)	
		Condensate Drain	R 1/2 (15 mm)	
Power Supply	Supply		230- 240 VAC (50 Hz)	
	Consumption	NG/ULPG	83.0 W / 77.0 W	123.6 W / 142.5 W
		Freeze Prevention	288 W	318 W
Burner Injector Size		NG	1.6 mm / 2.6 mm	
		ULPG	0.9 mm / 1.4 mm	
Accessories			Remote Controller, Remote Controller Cord, Anchoring Screws	

*50E/FCS-50 Series are 50°C limited models.

Item			Specification	
Model Name			32ECS Series	32FCS Series
Type	Installation		Outdoor, Wall mounted	Indoor, Wall mounted
	Air Supply / Exhaust		Power Flue	
Operating Pressure			200-1,000 kPa	
Minimum Flow Rate			2.0 L/min	
Dimensions (Height) × (Width) × (Depth)			615 mm × 464 mm × 240 mm	
Weight			32 kg	
Water Holding Capacity			2.0 L	
Connection Sizes		Water Inlet	R 3/4 (20 mm)	
		Hot Water Outlet	R 3/4 (20 mm)	
		Gas Inlet	R 3/4 (20 mm)	
		Condensate Drain	R 1/2 (15 mm)	
Power Supply	Supply		230- 240 VAC (50 Hz)	
	Consumption	NG/ULPG	75.9 W / 75.9 W	
		Freeze Prevention	223 W	
Burner Injector Size		NG/ULPG	2.4 mm / 1.7 mm	
Accessories			Anchoring Screws	

Item			Specification	
Model Name			28ENS Series	28FNS Series*
Type	Installation		Outdoor, Wall mounted	Indoor, Wall mounted
	Air Supply / Exhaust		Power Flue	
Operating Pressure			200-1,000 kPa	
Minimum Flow Rate			2.0 L/min	
Dimensions (Height) × (Width) × (Depth)			600 mm × 350 mm × 240 mm	600 mm × 350 mm × 280 mm
Weight			26 kg	28 kg
Water Holding Capacity			1.0 L	
Connection Sizes		Water Inlet	R 3/4 (20 mm)	
		Hot Water Outlet	R 3/4 (20 mm)	
		Gas Inlet	R 3/4 (20 mm)	
Power Supply	Supply		230- 240 VAC (50 Hz)	
	Consumption	NG/ULPG	75.9 W / 75.9 W	
		Freeze Prevention	193 W	
Burner Injector Size		NG/ULPG	2.4 mm / 1.5 mm	2.2 mm / 1.6 mm
Accessories			Anchoring Screws	

*28FNS-50 Series are 50°C limited models.

Performances

Item		Maximum Performance			
Model Name		50ECS Series* 50FCS Series*	32ECS Series 32FCS Series	28ENS Series	28FNS Series*
Gas Consumption	NG	328 MJ/hr	217 MJ/hr	220 MJ/hr	205 MJ/hr
	ULPG	328 MJ/hr	217 MJ/hr	220 MJ/hr	205 MJ/hr
Maximum Hot Water Capacity (25°C Rise)		50 L/min	32 L/min	28 L/min	

*50E/FCS-50 and 28FNS-50 Series are 50°C limited models.

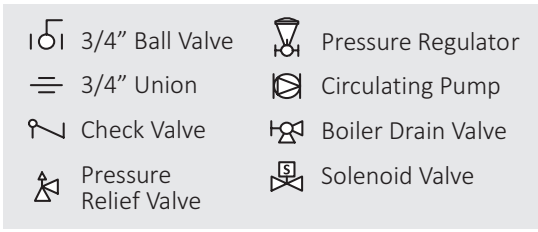
Maintenance

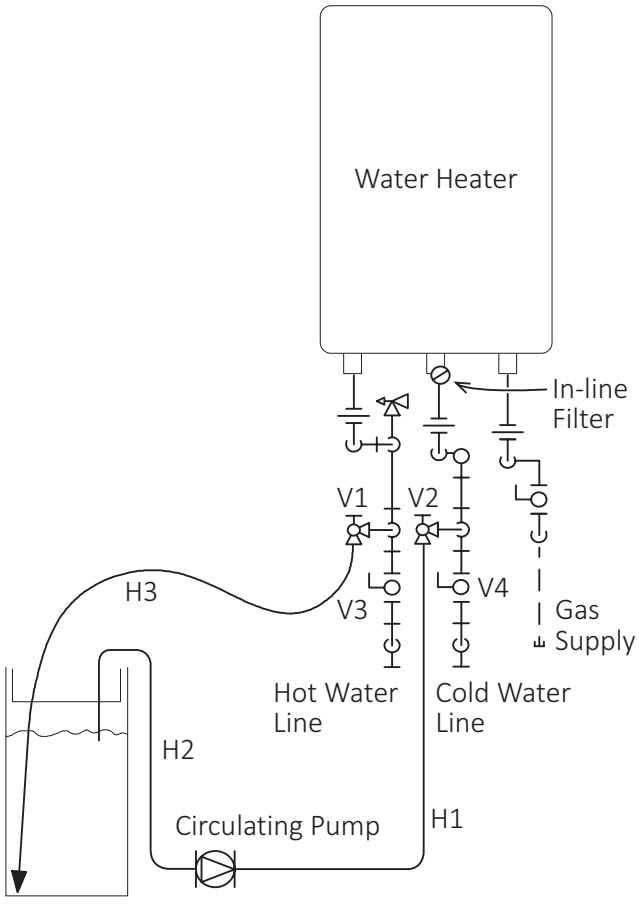
When water hardness is high, following maintenance (flushing the heat exchanger) is recommended.

1. **(For 50E/FCS-50 and 28FNS-50 Series only)**
   Open a hot water fixture and confirm that the Burner on indicator is displayed. Then close the hot water fixture.
   (For other than 50E/FCS-50 and 28FNS-50 Series only)
   When the Remote Controller is installed, turn **Power** button "ON" and set the temperature more than 65°C.
2. **(For 50E/FCS-50 and 28FNS-50 Series only)**
   Disconnect the electrical power to the Water Heater more than 6 minutes after the Burner on indicator disappears and close the gas supply valve.
   (For other than 50E/FCS-50 and 28FNS-50 Series only)
   Disconnect the electrical power to the Water Heater and close the gas supply valve.
3. Close the shutoff valves on both the hot water and cold water lines (V3 and V4).
4. Connect pump outlet hose (H1) to the cold water line at service valve (V2).
5. Connect drain hose (H3) to service valve (V1).
6. Pour chemical product used to flush heat exchanger into water (acid 8-10 % of water content like vinegar).
7. Place the drain hose (H3) and the hose (H2) to the pump inlet into the cleaning solution.
8. Open both service valves (V1 and V2) on the hot water and cold water lines.
9. Operate the pump and allow chemical product like vinegar to circulate through the Water Heater for at least 1 hour at a rate of 15 L/min.
10. Turn off the pump.
11. Rinse the chemical/water from the Water Heater as follows:
    a. Remove the free end of the drain hose (H3) from the pail. Place in sink or outside to drain.
    b. Close service valve (V2), and open shutoff valve (V4). Do not open shutoff valve (V3).
    c. Allow water to flow through the Water Heater for 5 minutes.
    d. Close shutoff valve (V4). When unit has finished draining remove the inline filter at the cold water inlet and clean out any residue. Place filter back into unit and open valve (V4).

NOTE When draining, be sure to open all drain plugs.

    e. Close service valve (V1), and open shutoff valve (V3).
12. Disconnect all hose.
13. Reconnect the electrical power to the Water Heater and open the gas supply valve.





WATER QUALITY

All Dux water heating appliances are constructed from high quality materials and components and all are certified for compliance with relevant parts of Australian and New Zealand gas, electrical and water standards.

Whilst Dux water heaters are warranted against defects, the warranty is conditional upon correct installation and use, in accordance with detailed instructions provided with the heater. In the case of the water supplied to the heater, it is important that the water quality be of acceptable standard.

The water quality limits/parameters listed in water quality table are considered acceptable and generally, Australian and New Zealand suburban water supplies fall within these limits/parameters.

In areas of Australia and New Zealand where water may be supplied, either fully or partly, from bores, artesian wells or similar, one or more of the important limits may will be exceeded and the heater could, therefore, be at risk of failure.

Where uncertainty exists concerning water quality, intending appliance users should seek a water analysis from the water supplying authority and in cases where it is established that the water supply does not meet the quality requirements of the water quality table, the Dux warranty would not apply.

WATER QUALITY TABLE

Maximum levels:

pH	6.5-8.5
Saturation Index (LSI) (langelier)	+0.4 to Minus 1.0 @65C
Total Hardness	200 mg/L
Hardness (as $CaCO_3$)	200 mg/L
Chlorides	250 mg/L
Sodium	150 mg/L
Iron	1 mg/L
Silicon Dioxide (SiO_2)	50 mg/L
TDS	600
Dissolved CO_2	25 mg/L
Magnesium	10 mg/L

Dux Manufacturing Ltd (Dux) Manufacturer's Warranty
(Applicable for purchases from 1 April 2016)

Dux continuous flow water heater Warranty:
- 5 years heat exchanger warranty.
- 2 year parts and labour.

The benefits provided to you by the warranty and replacement guarantee (collectively "Warranty") are in addition to the guarantees and other rights and remedies available to you under the Australian Consumer Law ("ACL").

If the Unit fails to conform to this Warranty during the applicable period, Dux will replace any failed component or where necessary, in the absolute discretion of Dux, replace the Unit free of charge including reasonable labour costs incurred in normal business working hours.

This Warranty only applies to defects which have arisen solely from faulty materials or workmanship in the Unit and does not apply to other defects which may have arisen as a result of, without limitation, the following: accidental damage, abuse, misuse, maltreatment, abnormal stress or strain, harsh or adverse water conditions including excessive water pressure or temperature, neglect of any kind or otherwise as a result of any use of the Unit contrary to the product manual or other instructions provided by Dux. Alterations or repair of the Unit other than by an accredited and licensed service agent or technician are not covered. Attachment of accessories or use of non-genuine replacement parts other than those manufactured or approved by Dux are not covered by this Warranty.

This Warranty applies only to the Unit and does not cover any ancillary plumbing or electrical parts supplied by the installer such as pressure limiting valve, tempering valve, line strainer, stop cocks, non-return valve, electrical switches, pumps or fuses, or faulty installation.

The Unit must be installed by a licensed tradesperson in accordance with information set out in the manual supplied with the Unit and/or any relevant statutory requirements. If the Unit is located in a position that does not comply with the installation instructions or relevant statutory requirements, then this Warranty does not cover major dismantling or removal of cupboards, doors, walls or special equipment and/ or excessive labour, at the determination of Dux, to make the Unit accessible for repair or replacement.

As required by legislation, including under the ACL, any claims for damage to furniture, carpets, walls, foundations or any other consequential loss either directly or indirectly due to defects of any kind in a Unit will only be met by Dux where the damage could be considered reasonably foreseeable and installed complying with the installation instructions and all relevant statutory requirements.

In addition to this Warranty, certain legislation (including the ACL) may give you rights which cannot be excluded, restricted or modified. This Warranty must be read subject to such legislation and nothing in this Warranty has the effect of excluding, restricting or modifying those rights.

If Dux fails to meet a guarantee under the ACL, your remedy for such failure may be limited to any one or more of the following:
- replacement of the Unit;
- repair of the Unit;
- refunding the cost of the Unit;
- payment of reasonable costs of having the Unit repaired;
- payment in respect of the reduced value of the Unit.

Warranty claims can be placed by completing the following steps:
Contact Dux on 1300 365 115 (Australia) or 0800 729 389 (New Zealand) and select the Service option followed by the Hot Water option.
- Provide the serial number and model number of the HWS located on the white compliance sticker.
- Provide full name, address and contact number.
- Provide proof of installation of the unit, for warranty to commence from the Date of Installation of the unit. If proof of installation or purchase cannot be provided, then Date of Manufacture of the unit will be used to determine warranty commencement date.

Contact Details:
Dux Manufacturing Limited
Lackey Road, Moss Vale, NSW, 2577, Australia

1300 365 115 (Australia)
0800 729 389 (New Zealand)
Email: duxaftersales@dux.com.au

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.