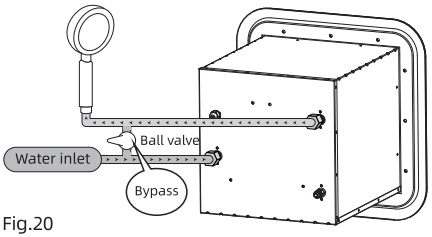


Fig.20

3.9 Wired Controller Installation

1. Choose a convenient location to place the wired controller base. The connection between the wire controller and the water heater should be reasonably arranged according to the specific environment. Fix the bottom controller holder with the two screws ST4x16 mm provided (Fig.21) and place the controller into the bracket.

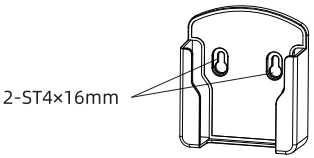


Fig.21

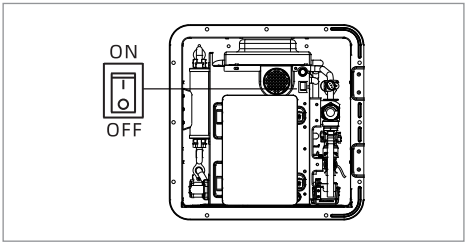
4 Operation

4.1 Operation Instructions

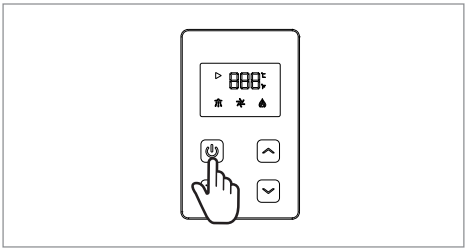
The user shall confirm whether the water heater is installed correctly before the initial use, carefully check that the connections are properly connected and leak free. After verifying, please follow the steps below:

To start the device

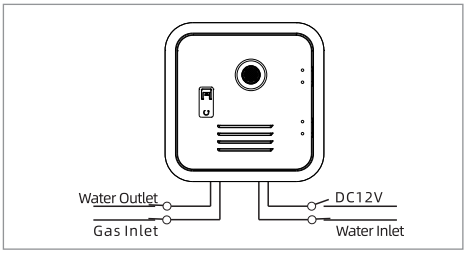
1. Confirm that the power switch to the water heater is turned on, turn the latch to close the door.



2. After confirming the power is on, press key " ⏻ " on the wire controller.



3. Turn on the water inlet valve and gas valve;
4. Turn on the water outlet valve (hot water tap), once the water heater is initiated, hot water will flow out.



WARNING
Minors are not recommended to use the machine alone unless with adults accompany .

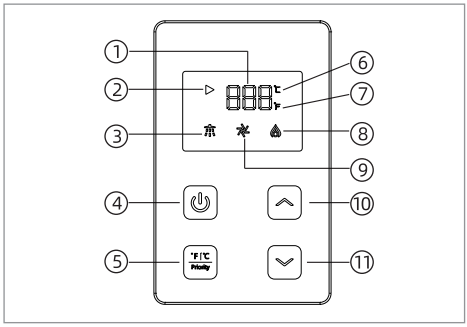
4.2 Wired Controller Instructions

1. The controller emits a buzzer sound "Beep" when the power is turned on. The display shows the gas source code, and this code will remain for 3 seconds before going off. The controller's indicator light is on and the back light of the power switch button is lighted.
2. After pressing the power button, the fan, shower, flame and water temperatures are displayed in real time according to the operating status.
3. Set the temperature to the temperature you required, the set temperature will flash for 5 times, then it will automatically switch to display the current water temperature.
4. Press " °F|°C Priority " to switch between Celsius and Fahrenheit (degree).
5. In the event of a fault alarm, the display will show the error code.
6. The buzzer sound "Beep" occurs when the system is powered on or is operating effectively. When fault occurs in the system, the buzzer sound "Beep, Beep, Beep" is sounded continuously for 10 times, with an interval of one second between each sound.
7. After using the water heater, please press " ⏻ " to turn off the heater (water and gas supply should be turned off at the same time).

4.3 Steps to Setting Water Temperature

1. The setting range of the outlet water temperature of this machine is 95 °F - 123 °F (35 °C - 51 °C); Outlet water temperature is designed not to exceed 123 °F (51 °C).
2. Each time you press the " ^ " key, the temperature will increase by 1 °C. See following Fahrenheit and Celsius comparison table for reference.
3. Each time you press the " ⌄ " key, the temperature will reduce by 1 °C. See following Fahrenheit and Celsius comparison table for reference.

   Celsius Degree and Fahrenheit Degree Comparison (Please refer to Table 1)



① Display setting temperature
Display fault code
Display water temperature
② Priority icon
③ Shower signal
④ Switch button
⑤ Fahrenheit/Celsius Priority
⑥ Celsius display
⑦ Fahrenheit display
⑧ Flame
⑨ Blower
⑩ Heat up button
⑪ Heat down button

°F	°C
95	35
96	36
98	37
100	38
102	39
104	40
105	41
107	42
109	43
111	44
113	45
114	46
116	47
118	48
120	49
122	50
123	51

(Table 1)

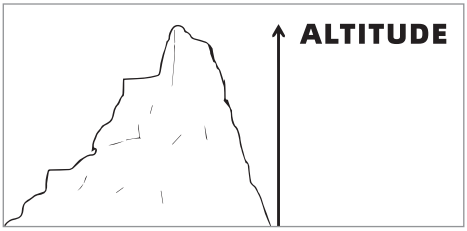
WARNING
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this and any other appliance.

4.4 High Altitude Use

For Canada: 0~4500 ft above sea level.

For US: 0~5000 ft above sea level.

If it exceeds 5000 ft, it shall comply with the requirements of Canadian installation regulations CSA B149.1 and American installation regulations ANSI Z223.1/NFPA54, and the input rate will decrease by 4% for every 1000ft increase in altitude.



5 Maintenance

For your comfort and safety, we recommend checking and maintaining the product monthly. Disconnect the power supply and allow the unit to cool down before performing maintenance. Do not disassemble gas passages and safety devices during maintenance. As the unit has some electronic components inside, do not open it to avoid contact with any type of liquid.

5.1 Routine Inspection

1. Check the air intake grille, exhaust vent for dust to avoid obstruction.
2. Check the unit for unusual appearance.
3. Check the unit for abnormal noise during operation.
4. Check for water and gas leakage.
5. Check whether the flame is burning normally every month. The flame should appear blue color through the observation window and the combustion is stable. No jitter, no lifted flame, no back draft, etc. If anything abnormal, please contact the service provider to repair it.
6. When carbon deposits are found, they should be promptly notified to the after-sales service provider for maintenance. The serviceman will remove the burner with the crater facing down, use a bristled brush to remove the carbon deposit, or replace the burner with a new one.

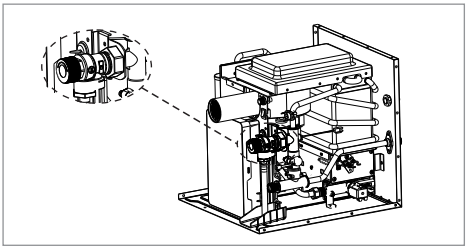
5.2 Maintenance Instruction

1. Clean the unit regularly. Do not use chemical lotion and volatile solvents to avoid discoloring of the outer shell.
2. Clean the air intake grille, dust filter and exhaust port regularly for better performance, without obstructing the flow of combustion and ventilation airflow open the panel, clean with water.
3. Turn off the water inlet, remove water inlet pipe, clean the filter, and reinstall.
4. Drain water from the RV regularly and flush the heat exchanger with an approved detergent. (Please refer to the RV vendor's instructions)

5. Wipe the display with a damp cloth. Do not use gasoline or grease detergents to avoid shape changes

- Keep the appliance area clean and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Pay attention to the preset temperature. Skin burn may occur when preset temperature is too high.
- Should overheating occur or the gas supply fails to shut off, turn off the manual gas control valve to the appliance.
- Caution: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Check for proper operation after servicing.

5.3 Pressure Relief Valve Notices and Maintenance



This water heater is provided with a pressure relief valve. For safe operation of the water heater, the relief valve(s) must not be removed from its designated point of installation or plugged.

WARNING

No valve is to be placed between the relief valve and water heater.

The discharge from pressure relief valves shall be conducted to a suitable place and that no reducing coupling or other restrictive instruments to be installed in the discharge line.

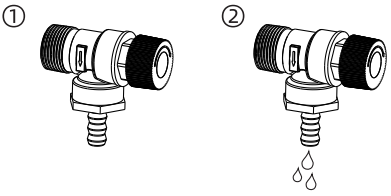
In addition, the discharge line installed is to allow complete drainage of both the valve and line.

WARNING

- Do not check the pressure relief valve when the water heater is in normal operation to avoid hot water burns!
- The pressure relief valve must conform to ANSI Z21.22 • CSA 4.4 and installation must follow local codes.

Model	Recommended pressure relief value / temperature
FS10B1S	150 PSI / 210 °F

- Dirt will directly affect the normal functioning of the safety valve. It requires hot water system maintenance of anti-foi ling and anti-scaling cleaning.
- The user must check the relief valve at least annually. During checking, turn off the water heater's power and gas supply. Turn on the water inlet switch to create pressure in the water system. Then gently open relief valve handle until there is water flowing out and then gently close it. If no water flowing out, the valve is invalid. Immediately turn off the water heater switch and ask the service personnel to deal with it. Before operating the handle, check the discharge line connecting the valve to ensure that the water draining from the valve can be discharge to a suitable place.

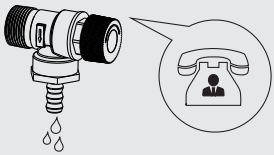


WARNING

Do not operate the relief valve when the water heater is in normal operation to avoid being scalded by hot water.

WARNING

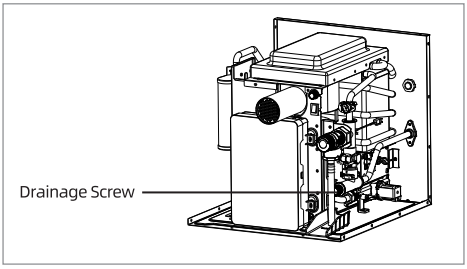
If a relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector to rectify the issue. Do not plug the relief valve.



5.4 Drainage and Storage Instruction

If the RV is to be stored during winter, water must be drained form the gas water. To prevent freezing damage to water heaters, please follow the steps below:

1. Close the cold water inlet valve of the water heater. Open the hot water faucet or shower connected to the hot water outlet to connect the water pipeline of the water heater to the atmosphere;
2. Remove the drain screw as shown in the figure, and the water in the water heater will drain; (see the figure below)
3. After the water in the water heater is drained, install the drain screw.



5.5 Antifreeze System

Water heaters must be protected before travel to a potential freezing environment. Frost damage is not covered by the warranty. The anti-freezing function operation method is:

1. Draining water from the water heater. Applicable when the unit is not in use for long period. (For specific operations, see "Drainage and Storage Instructions")
2. Add antifreeze recommended by the RV manufacturer.
3. Start the antifreeze function to prevent freezing. Turn on the power switch and the gas valve, turn off the water inlet. The water heater will be on antifreeze mode automatically (please ensure enough gas in the RV).

- When the water temperature in the water heater is lower than 43 °F ± 2 °F (6 ± 1 °C), the remote controller displays "FD", the machine starts the ignition and runs with a certain load. After the whole machine operates for 5 seconds or when the temperature of the water pipe reaches 90 °F ± 2 °F (32±1 °C) in 2 seconds, the water heater will automatically shut off. After shutting down for 3 minutes, the water heater will check whether the temperature is lower than 43 °F ± 2 °F(6±1 °C) or when the antifreeze thermostat contact closes to run the heater and this cycle continues.
- In the process of starting the antifreeze function, if a fault occurs, the corresponding fault is reported and the code is displayed. After 15 minutes, the system automatically clears the fault code. If the freeze protection start condition is still met, the antifreeze will start again.

■ Antifreeze Tips

- **Automatic heating and anti-freeze:** When the temperature is below 42.8 °F (6 °C), water heater will automatically activate the heating and anti-freeze function. Please make sure that the machine is connected electricity and gas to start this function.
- **Manual drainage to prevent freezing:** If the machine is not used for a long time, or if the ambient temperature is below 32 °F (0 °C) and the machine cannot be kept powered with electricity and gas, it is necessary to drain the water from the water heater to prevent damage due to freezing. And here is the process:

1. Turn off the LPG (liquid propane gas) shut-off valve.
2. Power off the RV tankless water heater and unplug the power supply to the machine.
3. Turn off the water supply shut-off valve.
4. Turn on hot water taps in the RV or camper, to release the water and pressure in the pipes.
5. Screw out the drain screw (inside the machine) to drain the water; use a bucket to collect the residual water while draining.
6. It may take more than 10 minutes to drain out the water. Please make sure that water is fully drained from the machine.
7. Securely screw the drain screw back in place and turn off hot water taps and hot water outlet valve.
8. Before you use the RV tankless water heater next time, plug it back in the 12V DC power supply, power on the machine, and then turn on the water supply shut-off valve, the hot water outlet valve, and the LPG (liquid propane gas) valve.

NOTICE
Please kindly note damages caused by freezing are NOT covered under the RV tankless water heater warranty as the industry standard. Please kindly make sure to take all the measures to protect your RV tankless water heater.

5.6 Setting Minimum Heat Load

■ Method#1

1. Plug in electricity, it will show "0-9" number program code.
2. Press " ⌄ " for 3 seconds, it will show "PP".
3. Press " ⏻ " to show FA;

   Press " ⏻ " to show specifications: set the value to be 00.

   Press " ⏻ " to exit.
4. Press " ⌃ " to show PH; Press " ⌃ " to show PL. Then turn on the gas and water. The water heater will run at minimum heat load.
5. After testing above, press " ⌃ " to switch specifications like PL, dH, FH, FL..... till it shows "qu", then press " ⏻ " to save and exit setting.

■ Method#2

Set the temperature on remote controller to be 95 °F (35 °C), if the water inlet temperature is high enough to make outlet water temperature higher than 95 °F (35 °C), it proves that the water heater is running at minimum heat load.