



User Manual

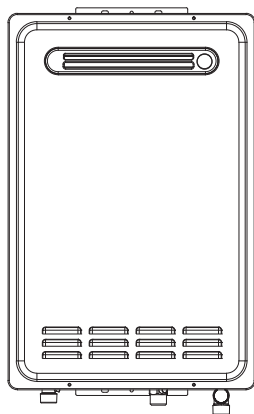
Outdoor Tankless Water Heater

Products:

HS120



CSA/ANSI Z21.10.3:19-CSA4.3:19



WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **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 from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a licensed professional.

4 Operation

4.1 Safe Operation

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. **BEFORE OPERATING** smell all around the appliance area for 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 electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to turn the gas shutoff valve. Never use tools. If the valve 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 appliance if any part has been under water. Immediately contact a qualified installer or service agency to replace a flooded water heater. Do not attempt to repair the unit! It must be replaced!

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. Do not attempt to light the burner by hand.
5. Turn the gas shutoff valve located on the outside of the unit to the closed position.
6. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
7. Turn the gas shutoff valve located on the outside of the unit to the open position.
8. Turn on all electrical power to the appliance.
9. Set thermostat to desired setting.
10. If the appliance will not operate, follow the instructions in "To Turn Off Gas to Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Turn the gas shutoff valve located on the outside of the unit to the closed position.



WARNING

It is absolutely forbidden to use this water heater without installing a smoke exhaust pipe.



DANGER

Steam from flammable liquids can explode and catch fire, causing death or severe burns.

Do not use or store flammable products such as benzene, solvents or adhesives in the same room or area near the water heater.

Read and follow the water heater warnings and instructions. If the user manual is missing, contact your retailer or manufacturer.

Save flammable products:

1. Keep away from the heater.
2. In an approved container.
3. Closed, children are not in contact.
4. The water heater has a main burner that can be turned on at any time and ignites flammable vapors.

Steam:

1. Can't see.
2. It is heavier than air.
3. Take a long road on the floor.
4. Can be transported from other rooms to the main burner by air flow.



DANGER

1. Water temperature above 125 °F (52 °C) will immediately cause severe burns or burns.
2. Children, the disabled and the elderly are at the highest risk of being burned.
3. Test the water temperature before bathing or showering.
4. The outlet temperature of the water heater is set to 107 °F (42 °C). If the water temperature you need is lower than this setting, please follow the instruction manual.

5. Use this heater at your own risk. Test the water temperature before showering. Do not leave children or infirm unattended. For available temperature limit valves, please consult your local water supply company [pipeline retailer].



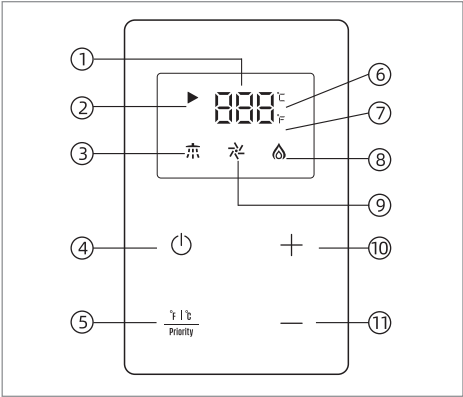
DANGER

Pressure relief valve hot water supply system unit complying with safety valve and automatic shut-off gas standard, ANSI Z 21.22-csa 4.4, should be installed at the manufacturer's designated position during installation.

Pressure relief device for safe operation of water heaters. Do not disassemble or block the safety valve. No valves shall be provided between the safety valve and the water heater. The relief valve should be placed in a position where it will not cause damage. Also, no other reducer fittings or other restrictions may be placed on the drain line to limit flow. For installation and maintenance of pressure relief valves, see the installation manual heading "Relief Valves" Valve Discharge Lines and other safety precautions.

4.2 Wired Controller

The wired controller is able to adjust the output temperature in the range of 95 °F (35 °C) to 158 °F (70 °C) in one degree increments.



- 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

 Switch button:

Turn the water heater on or off.

 Heat up button:

Increase the water heater temperature.

 Heat down button:

Reduce the water heater temperature.

 Fahrenheit/Celsius Priority button:

1. Press toggle degrees Celsius Fahrenheit.
2. When using multiple remote controls, press and hold to enable or disable priority.



WARNING

There is a hot water scald potential if the thermostat is set too high. Should overheating occur or the gas supply fails to shut off, turn off the manual gas control valve to the appliance.



CAUTION

- While any hot water is being provided, the temperature setting can only be adjusted between 95 °F (35 °C) and 158 °F (70 °C).
- There may be a variation between the temperature displayed on the temperature controller and the temperature at the tap due to weather conditions or the length of pipe to the water heater.

■ Controller Thermometer

°F	95	96	98	100	102	104	105	107	109
°C	35	36	37	38	39	40	41	42	43
°F	111	113	114	116	118	120	122	123	125
°C	44	45	46	47	48	49	50	51	52
°F	127	129	131	132	134	136	138	140	141
°C	53	54	55	56	57	58	59	60	61
°F	143	145	147	149	150	152	154	156	158
°C	62	63	64	65	66	67	68	69	70

* Factory setting (default): 107 °F (42 °C).

■ How to use the mixing valve:

1. Turn on the cold water tap.

2. Mix hot and cold water to get the proper water temperature.

3. When the use is over, close the water valve.

°F	°C	Time to produce serious burn
120	49	More than 5 minute
125	52	One and a half to two
130	54	About 30 seconds
135	57	About 10 seconds
140	60	Less than 5 seconds
145	63	Less than 3 seconds
150	66	About 1.5 seconds
155	68	About 1 seconds



WARNING

Minors are not allowed to operate the water heater themselves unless accompanied by a guardian.

- If the temperature is set too high, it may cause hot water burns.
- If overheating occurs or the gas supply cannot be turned off, turn off the manual switch gas control valve to the unit.



WARNING

Temperatures above 125 °F (52 °C) can cause severe burns or burns. The risk of injury to children, the disabled and the elderly is high.

5 Troubleshooting

5.1 Diagnostic Codes and Remedies

Before You Call For Service Troubleshooting Tips Save time and money! Review the charts on the following pages first and you may not need to call for service.

This water heater incorporates a variety of shut off devices that prevents the operation of the water heater down if undesirable combustion conditions occur. Such as the presence of a blockage of the combustion air vent insufficient gas or pressure which can impact the safe operation of the water heater. Please contact a Qualified Service Technician if this occurs. When the water heater fails, the display shows the fault code, and a buzzer sounds continuously. Please follow the table below.

Error Code	Possible Cause	Fault Handling
When the system is turned on or working, the wired controller displays code "E0" , and the buzzer alarms the fault.	1. The outlet water temperature sensor connector is loose or has poor contact. 2. The outlet water temperature sensor is damaged (open circuit, short circuit or metal parts).	1. Clamp the outlet water temperature sensor terminal. 2. Replace the water temperature sensor.
When the system is turned on the working or the working, the displays code "E1" and the buzzer alarms the fault.	1. The gas valve is not open. 2. The gas supply pressure or gas composition is abnormal, causing accidental flameout. 3. The igniter, ignition needle is damaged or the line is faulty. 4. Damage to the flame induction needle or wire failure. 5. The combustion system (burner, nozzle, air control panel, proportional valve, sectional valve) is damaged, the specifications are inconsistent or the wiring is wrong, resulting in abnormal combustion. 6. The control program or parameter settings are incorrect, resulting in unstable combustion. 7. The fan speed is abnormal, resulting in unstable combustion.	1. Open the gas valve to ensure that the water heater can get normal gas supply. 2. Confirm that the gas type and pressure meet the requirements of the water heater. 3. Check if the igniter, ignition pin and circuit are damaged, and replace the damaged parts. 4. Check if the flame induction needle is damaged and replace the damaged parts. 5. Check if the combustion system is damaged, if the wiring is wrong, and replace the damaged parts. 6. Check whether the program and parameters meet the values in the parameter table. 7. The wind speed of the fan is abnormal. Check whether the program and parameters meet the values in the parameter table.
When the system is turned on, the wired controller displays code "E2" and the buzzer alarms the fault.	1. The feedback pin is bent and in contact with other metal parts. 2. The feedback pin plug-in terminal is loose and hits the metal part. 3. Feedback pin wire is broken.	1. Replace the ignition feedback needle assembly. 2. Plug the feedback pin terminal correctly and firmly into the feedback pin. 3. Check if the wire is disconnected and replace the wire.

Error Code	Possible Cause	Fault Handling
When the system is turned on or working, the wired controller displays code "E3" and the buzzer alarms the fault.	1. The thermostat opens or the wire is faulty. 2. The gas supply pressure or gas composition does not match, causing abnormal combustion. 3. The control program or parameter settings are incorrect, resulting in abnormal requirements combustion. 4. The combustion system is damaged or the specifications are inconsistent, resulting in abnormal combustion.	1. Check the temperature controller or circuit and replace the damaged parts. 2. Confirm that the gas type and pressure meet the requirements of the water heater. 3. Check whether the program and parameters meet the values of the parameter table. 4. Check the combustion system for damage and replace damaged parts.
When the system is turned on or working, the wired controller displays code "E4" and the buzzer alarms the fault.	1. The inlet water temperature sensor connector is loose or has poor contact. 2. The inlet water temperature sensor is damaged (open circuit, short circuit or metal parts).	1. Clamp the water temperature sensor terminal. 2. Replace the water temperature sensor.
When the system is turned on or working, the wired controller displays code "E5" and the buzzer alarms the fault.	1. The fan signal is not detected or the speed is too low in the system startup 5S. 2. During operation, the fan speed is not detected for 2S consecutively, or the speed is too low. 3. The power supply voltage is too low, causing the fan speed to slow down.	1. The fan assembly, controller damage or line failure, causing the fan not to run or the speed is too low, check the fan, the main controller is damaged, the wiring is damaged, loose, replace the damaged parts. 2. Confirm whether the power supply and fan voltage meet the design requirements.
During the system working process, the wired controller displays code "E6" and the buzzer alarms the fault.	1. The gas supply pressure or gas composition does not match, causing abnormal combustion. 2. The control program or parameter settings are incorrect, resulting in abnormal combustion. 3. The water temperature sensor specifications do not match, the display temperature is much higher than the actual temperature. 4. The combustion system is damaged or the specifications are inconsistent, resulting in abnormal combustion. 5. The heat exchanger fins of the heat exchanger are poorly welded, and the heat transfer is slow. After the water valve is closed, the water in the tube is continuously heated.	1. Confirm that the gas type and pressure meet the requirements of the water heater. 2. Check whether the program and parameters meet the values of the parameter table. 3. Test whether the actual water outlet temperature and the wired controller display temperature are close($\pm 3^{\circ}\text{C}$), and replace the wrong outlet water temperature sensor. 4. Check the combustion system for damage and replace damaged parts. 5. Detect if the heat exchanger fins are poorly welded and replace the damaged parts.
When the system is turned on or working, the wired controller displays "E7" and the buzzer alarms the fault.	1. The valve connector is loose or has poor contact. 2. The valve is short-circuited.	1. Clamp the water temperature sensor terminal. 2. Check if the valve coil is short- circuited and replace the damaged parts.

Error Code	Possible Cause	Fault Handling
When the system is turned on or working, the wired controller displays code "E8" and the buzzer alarms the fault.	1. During operation, the fan speed continuously exceeds the set value of 5S speed. 2. The outdoor wind pressure is too high, and the fan speed exceeds the upper limit of the speed. 3. A large amount of carbon in the heat exchange fins (when the gas source is used incorrectly), causing blocked, and the fan speed increase exceeds the upper limit of the speed.	1. Check if the exhaust passage is blocked. 2. Stop starting, and start after no strong wind in the outdoor. 3. Remove the heat exchanger, use a brush to gently clean the carbon on the fins, and ensure that the type and pressure of the gas used subsequently meet the requirements of the water heater.
During the system working process, the wired controller displays "En" and the buzzer alarms the fault.	In order to prevent oxygen deficiency, some models have timing protection. Please turn off the tap and use it after a while.	1. Set the appropriate time according to the usage habits, and the timed shutdown time can be set to 20, 30, 40, 50, 60 minutes. 2. It is not necessary to set "OFF" to turn off the timing function.
Fault alarm release and reset method: If the above code appears, please check the waterway, the gas path is normal, press "Switch button" to turn off or turn off the power to restart. The water heater is restored to normal use. If the above operations cannot be resumed, please notify the after-sales service personnel.		

5.2 Non-defect when the following conditions occur:

Error Code	Possible Cause
White smoke at the exhaust	When the outdoor temperature is too low, the discharged smoke encounters outdoor cold air and condenses into a white mist.
Water is not hot	If the water flow is too low, the water will get cold. The minimum water flow rate is required to be 0.6 gallons per minute. Make sure the water heater is running smoothly.
The water heater suddenly shuts down	When the water heater is timed, the water heater will automatically shut down. Please wait for a while before using it.
Close the hot water valve, but the fan cannot stop immediately	This is a function to delay the fan off, so that the exhaust of the water is finished. Fully drained heaters that ensure user safety.
After the water heater starts, it does not	There is a distance from the water heater to the hot water tap, because the water pipe.
Can have hot water right away	It still takes some time to use the cold water in the cold water. Water and hot water. The longer the pipeline, the more time it takes.
After the water heater is powered on, the controller does not respond.	There is no power input, please check the circuit.

6 Maintenance

The water heater should be checked at least once a year or as necessary by a licensed technician. If repairs are needed, any repairs should be done by a licensed technician. The water heater's lifetime may be extended by regular maintenance.



WARNING

- Turn off the electrical power supply and close the manual gas control valve and the manual water control valve before servicing.
- Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.
- Verify proper operation after servicing.
- Should overheating occur or the gas supply fails to shut off, turn off the manual gas control valve to the appliance.

6.1 Vent System

- Be sure that all openings for combustion air are not blocked. If blocked, remove obstruction.
- Check that the opening for exhaust is not blocked. If blocked, shutoff the water heater's combustion. And then after a while, remove obstruction.
- DO NOT touch while unit operating, otherwise you might get burnt due to high temperature.
- Check the gas pressure.
- Keep the area around the water heater clear. Remove any combustible materials, gasoline or any flammable vapors and liquids.
- Not obstructing the flow of combustion and ventilation air.

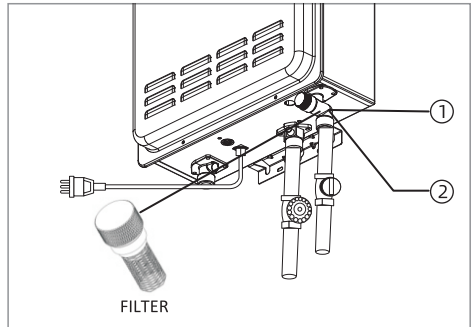
6.2 Unit Draining and Filter Cleaning

- Close the manual gas shut off valve.
- Turn off the power supply to the water heater.
- Close the manual water shut off valve.
- Open all hot water taps in the house (Bathroom, kitchen, laundry, etc.). When the residual water flow has ceased, close all hot water taps.

- Have a bucket or container to catch the water from the unit's drain plugs. Unscrew the drain plugs to drain all the water out of the unit.
- Wait a few minutes to ensure all water has completely drained from unit.

Clean the filter:

- Check the water filter located within the cold inlet. With a tiny brush, clean the water filter of any debris which may have accumulated and reinsert the filter back into the cold water inlet.
- Securely screw the drain plugs back into place. Hand-tighten only.



- ① Remove by turning counter clockwise and then clean and replace.
- ② 1. Turn off the water inlet supply valve.
2. Open a hot water tap to release the line pressure.

6.3 Clean Burners

It is imperative that control compartments, burners, and circulating air passageways of the appliance be kept clean.

Clean as follows:

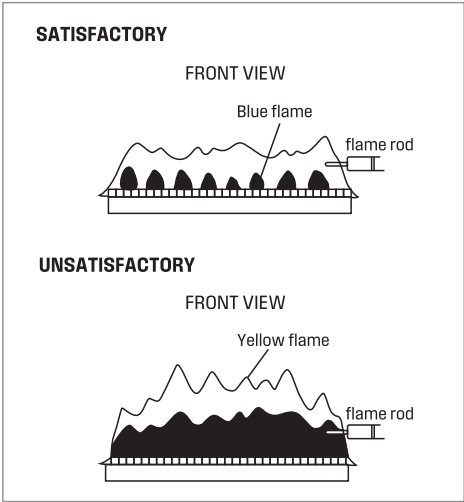
1. Turn off and disconnect electrical power. Allow to cool.
2. Close the water shut off valves. Remove and clean the water inlet filter.
3. Remove the front panel by removing 4 screws.
4. Use pressurized air to remove dust from the main burner, heat exchanger, and fan blades. Do not use a wet cloth or spray cleaners on the burner.

Do not use volatile substances such as benzene and thinners. They may ignite or fade the paint.
5. Use soft dry cloth to wipe cabinet.

6.4 Visual Inspection of Flame

Verify proper operation after servicing.

The burner must flame evenly over the entire surface when operating correctly. The flame must burn with a clear, blue, stable flame. See the parts breakdown of the burner for the location of the view ports. The flame pattern should be as shown in the figures below.



6.5 Pressure Relief Valve Maintenance



WARNING

Testing the pressure relief valve should only be performed by a licensed professional. Water discharged from the pressure relief valve could cause severe burns instantly or death from scalds.



WARNING

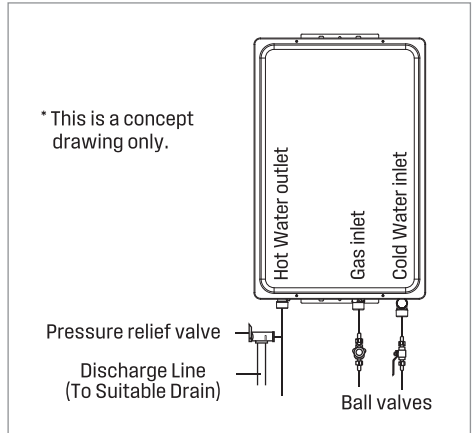
Before manually operating the pressure reducing valve, check that the hot water is discharged in a safe place. If water cannot escape from the end of the drain, turn off the air supply and turn off the power and call a qualified person to determine the cause. See the manufacturer of the pressure relief valve for inspection and maintenance requirements.



WARNING

Do not check the safety valve when the water heater is in normal operation to avoid hot water burns.

- The dirt will directly affect the normal function of the safety valve function. It requires hot water system maintenance of anti-fouling and anti-scaling cleaning.
- The user must check the relief valve at least once a year. When checking, turn off the water heater's power supply and gas. Turn on the water inlet switch to create pressure in the water system. Then gently open relief valve handle until there is water out and then gently close, if there is no water out, indicating that the valve is invalid, this time should immediately turn off the water heater water switch and ask the service personnel to deal with. Before operating the handle, check the discharge line connecting the valve to ensure that the water drained from the valve can be drained to a suitable place.



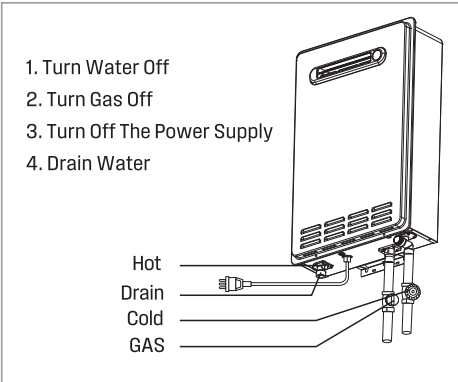
6.6 Freeze Prevention



WARNING

If freezing conditions are expected, turn off water and gas and drain all water from the appliance. If power and the automatic frost protection are connected freezing will be prevented.

- Only the pipes and heat exchanger inside the water heater will be protected.
- Any hot or cold water pipes located outside of the unit will not be protected.
- Proper protection and insulation of these pipes will be required to ensure these are protected from freezing.



Antifreeze Tips

- When the temperature is below 46.4 °F (8 °C) while above 37.4 °F (3 °C), keep your water heater staying plugged in a 120V 60HZ power supply, the anti-freeze system will automatically heat up to prevent the water heater from damages. No manual work is needed.
- 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 gas shut-off valve.
 2. Power off the 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 house, to release the water and pressure in the pipes.
 5. Screw out the drain screw on the hot water outlet.
 6. Remove the inlet water filter from the cold water inlet and it's valve by turning counterclockwise.
 7. Use a bucket to collect the residual water while draining. It may take more than 10 minutes to drain out the water thoroughly.

8. Securely screw the drain screw back in place; and screw the inlet water filter back in place.
9. Before you use the water heater next time, plug it into a 120 V 60 Hz power supply, and power on the water heater, and then open the water supply valve, hot water outlet valve, and the gas valve.



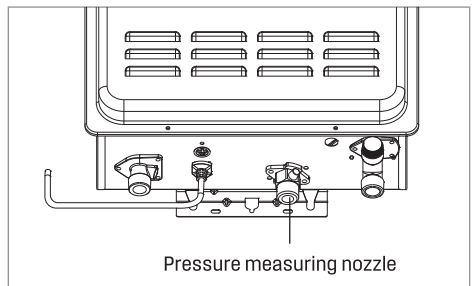
CAUTION

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

6.7 Minimum Load Adjustment Method

Set the temperature on the controller to 35 °C and increase the inlet water temperature so that the outlet temperature is above 35 °C. It then proves that the water heater is operating at its minimum heat load.

6.8 Gas Pressure Test Position



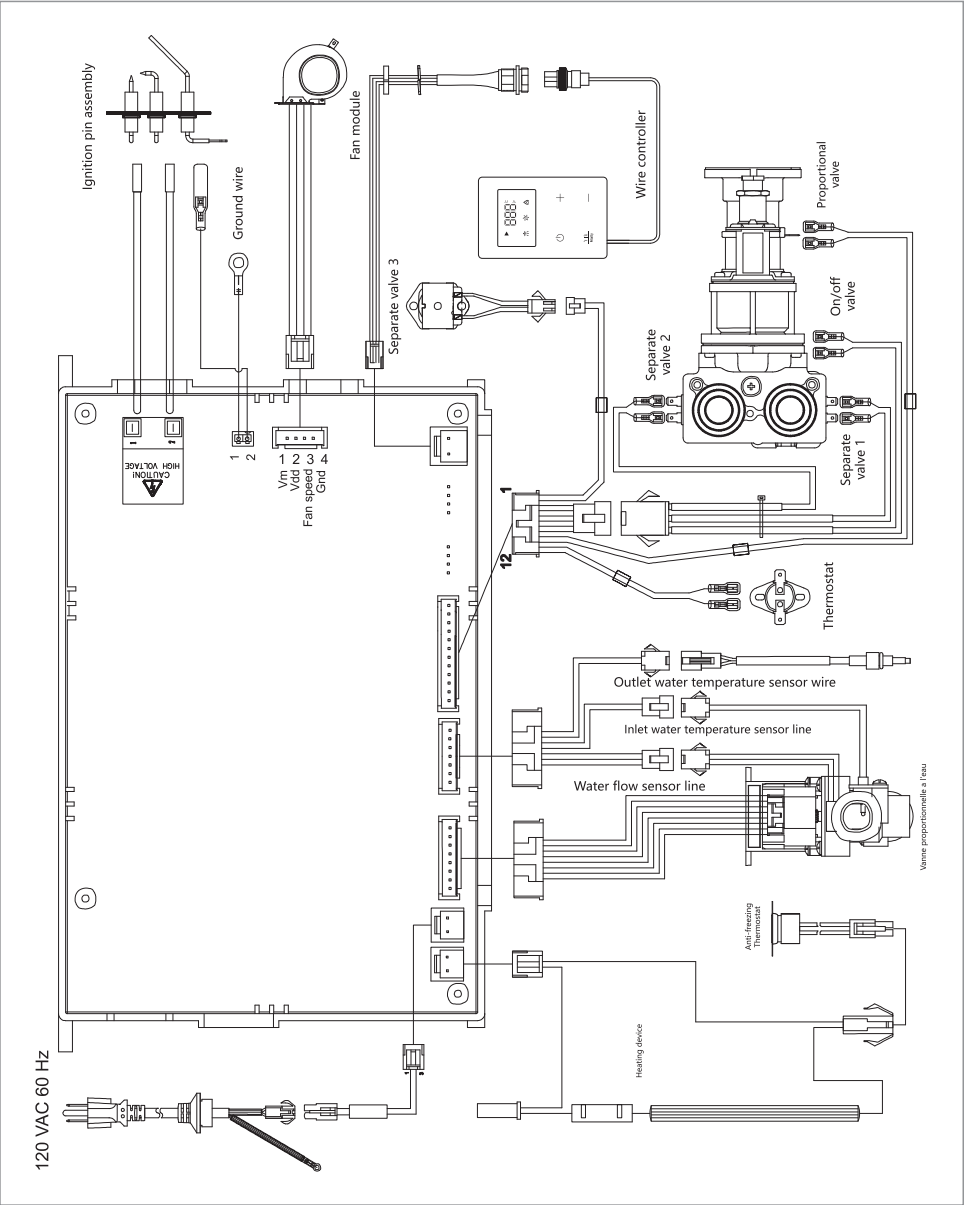
The gas inlet has a pressure measuring nozzle. The inlet gas pressure can be measured by unscrewing the screw.



CAUTION

- Please close the gas valve before connecting the measuring instrument. Avoid accidents such as fires.

7 Wiring Diagram



CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



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