OMEGA

Endless Technology

Intelligent Energy

Installation Instructions for **Electric Boiler**



Model No.

BW05
BW07
BW09
BW11
BW13
BW14
BW316
BW320
BW323
BW326

Read and strictly follow the installation and operating instructions to ensure a long life and reliable boiler operation



Used product can’t be treated as general communal waste. Disassembled appliance has to be delivered to the collection point of electrical and electronic equipment for recycling. Appropriate utilization of used product prevents potential negative environmental influences that may occur as a result of inappropriate handling of waste. In order to get more detailed information about recycling this product you should contact the local government unit, waste management service or the shop where this product has been purchased.

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Important Safety Instruction

1、 This appliance is not intended for use by persons (include 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，Children should be supervised to ensure that they do not play with the appliance.

2、 This appliance can be used by children aged from 3 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision

3、 Boiler installation and all electrical and hydraulic work must be performed by a qualified professional installer. All installation work must be performed when the power and water supply is turned off.

4、 If this equipment and the surrounding environment was changed, whatever it takes to contact the authorized professional person, please don't decorate this equipment without authorization, please don't arbitrarily change, repair this device.

5、 To avoid malfunctions: Must pay attention to some things as follow;

A、Please do not intervene or operate on components of boiler or related equipment.

B、Please do not maintain or repair the boiler by yourself.

C、Shall not destroy or remove intact parts of the boiler, only allow approved professional manufacturer or service person to change the intact parts.

6、To avoid scald: Please note that spill hot water may be very hot.

7、Treatment of water leakage from hot water pipes:

A：If there is leakage between boiler and main water outlet, please turn off the cold water outlet valve. Then ask professional person to eliminate leakage.

8、To avoid boiler damage by low pressure

Please check heating equipment's pressure regularly, in order to make sure the boiler operate normally, please add water while the boiler keep cold state. While the pressure is over 3bar, pressure relief valve will relief pressure automatically.

9、Avoid freezing: If the power failure or the individual indoor temperature was set too low, the heating boiler may be damaged by freezing.

----In the period of frost, please make sure the heating equipment keep running and get enough heat whether there is people in or not.

----Please be sure to pay attention to the warning about frost protection.

10、Preventive action for power failure: Professionals have been connected this boiler to power grid while install this boiler, what if there is power failure, and you wish the boiler can continue to work through the standby generator, please make sure the standby generator's technical data (frequency, voltage, ground) must be the same with the technical date of the power grid.

WARNING: Do not switch on if there is a possibility that the water in the heater is frozen

The water inlet of this appliance shall not be connected to inlet water obtained from any other water heating system.

WARNING: This appliance is not to be used for a potable water supply.

Operation Requirement

1、Requirement to the installation environment
This electric boiler can be installed hanging on the wall、in basement、storeroom、Multi-function room、living room.

2、Maintenance
Improper maintenance can cause property damage!
Don't use any abrasive or detergent which may damage the metal with spray-painting.
Don't use any spry、solvent or detergent contain chlorine.
Please use wet duster cloth with litter liquid soap to clean the panel.

3、Recycling and waste treatment
The boiler & packing are made of recyclable materials, don't belongs to living garbage, please make sure the old equipment and accessories to get regular waste processing.

Energy-saving Technology

1、**In door temperature:** Please set the suitable in door temperature, then the temperature rise every 1°C means that energy consumption increases by about 6%. The temperature should be adjusted according to the intended use of the room, for example, no need to set the temperature to be 20°C for the rarely used room.

2、**Uniform heating:** Part of the space heating is a incorrect energy saving, a set of all rooms in the residence are evenly and according to the intended use to heat, it can get higher heating comfort and better working condition.

3、**Heat Control Valve and Indoor Temperature controller:**
Please install heat control valve for each radiator, they can keep the setting indoor temperature accurately.
Please turn on all the radiators valve in the room which installed indoor temperature controller. If not, the two control equipment may affect each other and affect the control quality.

4、Please don't use any furniture、window curtain or other object to cover the controller，controller should detect indoor circulating air without restriction.

5、During heating supply period, you can ventilate but do not open the windows. Ventilating in short time is more energy saving than keeping windows open. While you open the windows, please close all heat control valve. Or set the lowest temperature.

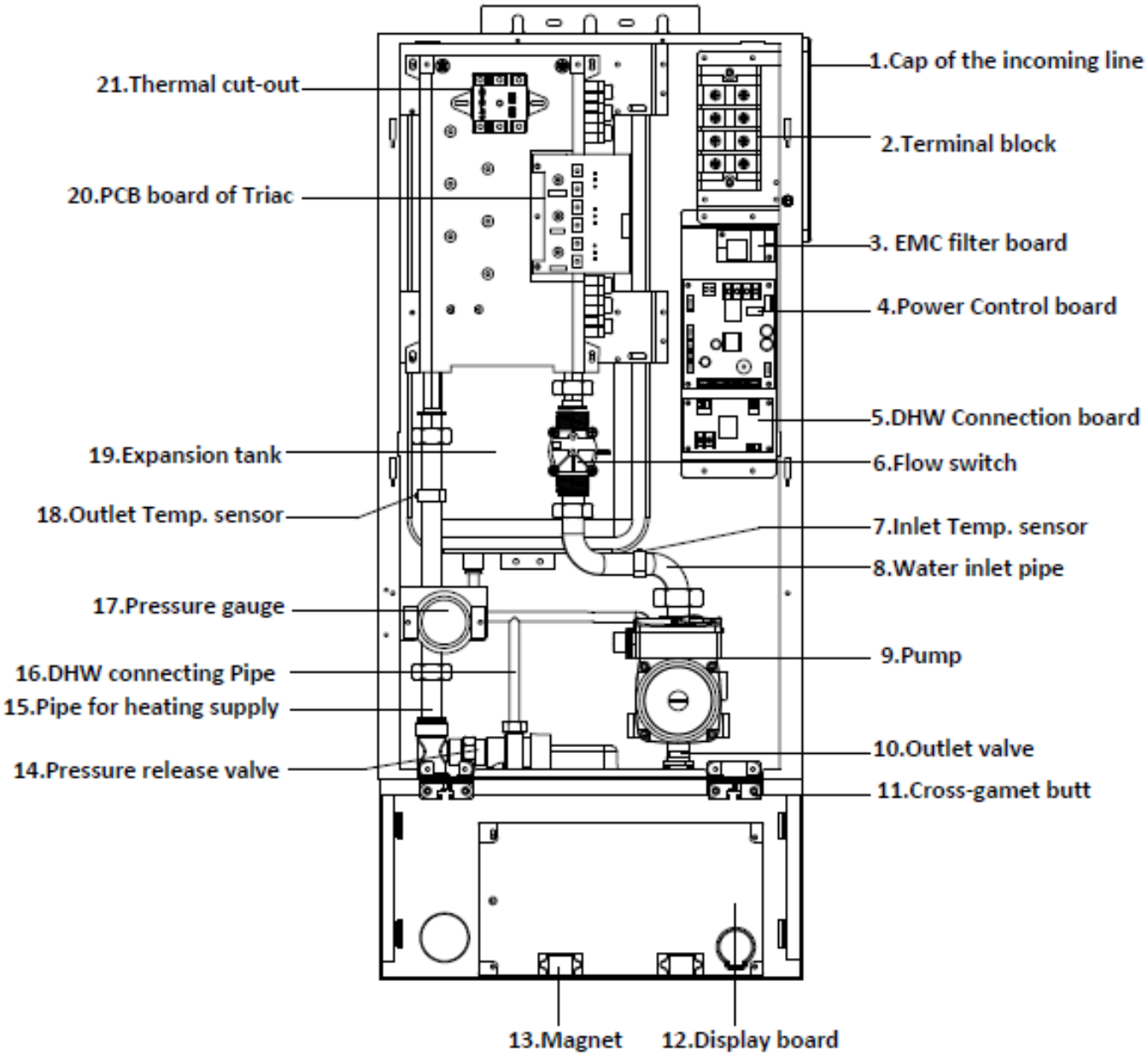
6、Boiler keep low temperature operational mode. During sleeping time or while no person at home, please set low temperature; while there is no person at home for long time, just keep the boiler operating at antifreeze mode.

7、Setting suitable operational mode in different environment and different season.

8、Set suitable water temperature.

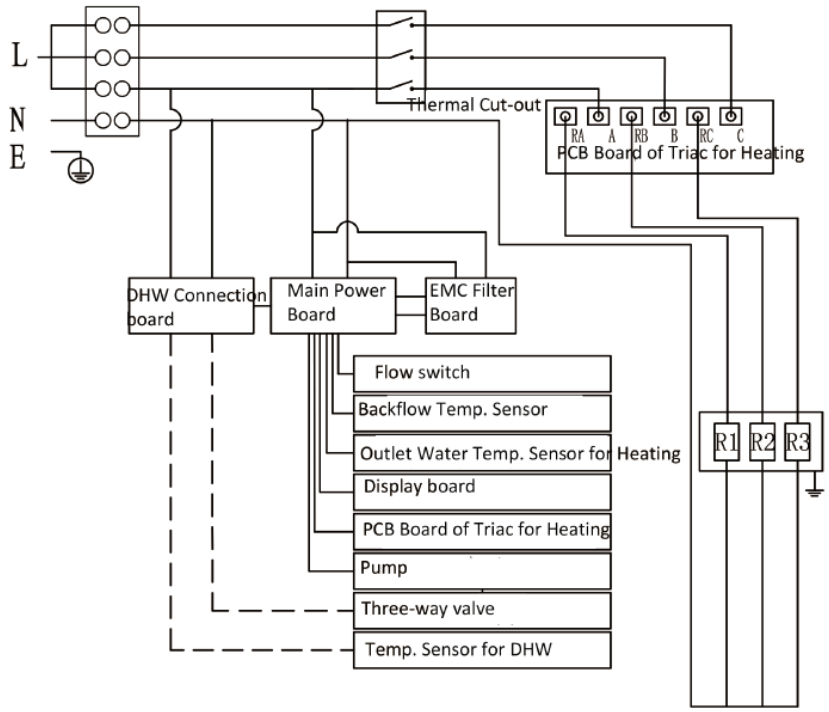
9、Consciously to save water.

Inner Structure

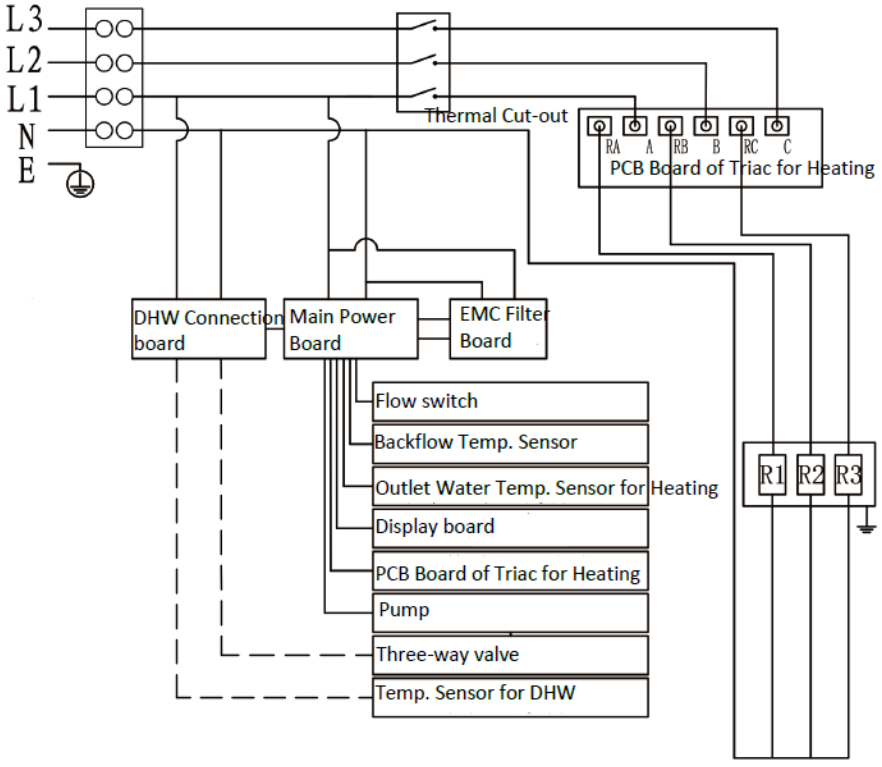


Circuit Diagram

230V/ 1 Phase Model



400V/ 3 Phase Model



Technology Data

Models	BW05		BW07		BW09	
Rated Power (kW)	5.5		7.5		9.5	
Phase	1	3	1	3	1	3
Voltage	230V	400V	230V	400V	230V	400V
Rated Current (A)	23.9	8.0	32.6	10.9	41.3	13.8
Wire Section mm^2	3*4	5*2.5	3*6	5*2.5	3*10	5*2.5
Working Temp. Range	30°C~80°C (in radiator mode)					
	30°C~60°C (in floor heating mode)					
Max. Water Temperature	80°C					
Temperature Difference Setting Range	5~30°C					
Antifreeze Start Temperature	<8°C					
Anti-freezing function stop temp.	⩾10°C					
Connect board of three-way valve	230Vac, 0.5A					
Output Voltage of Pump	230Vac, 0.5A					
Capacity of Expansion Tank	5L					
Inlet & Outlet Connection	G1/2”					
Backwater Inlet connection	G3/4”					
Product Size	665*358*218mm					

Models	BW11		BW13		BW14	
Rated Power (kW)	11		13		14.4	
Phase	1	3	1	3	1	3
Voltage	230V	400V	230V	400V	230V	400V
Rated Current (A)	47.8	16	56.5	18.8	62.6	20.9
Wire Section mm^2	3*10	5*2.5	3*10	5*2.5	3*16	5*4
Working Temp. Range	30°C~80°C (in radiator mode)					
	30°C~60°C (in floor heating mode)					
Max. Water Temperature	80°C					
Temperature Difference Setting Range	5~30°C					
Antifreeze Start Temperature	<8°C					
Anti-freezing function stop temp.	⩾10°C					
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Backwater Inlet connection	G3/4”					
Product Size	665*358*218mm					

Models	BW316	BW320	BW323	BW326
Phase	3			
Rated Power (kW)	16	20	23	26
Voltage	400V			
Rated Current (A)	23.2	28.4	33.3	38
Wire Section (mm^2)	5*4		5*6	
Working Temp. Range	30°C~80°C (in radiator mode)			
	30°C~60°C (in floor heating mode)			
Max. Water Temperature	80°C			
Temperature Difference Setting Range	5~30°C			
Antifreeze Start Temperature	<8°C			
Anti-freezing function stop temp.	⩾10°C			
Connect board of three-way valve	230Vac, 0.5A			
Output Voltage of Pump	230Vac, 0.5A			
Capacity of Expansion Tank	5L			
Inlet & Outlet Connection	G1/2”			
Backwater Inlet connection	G3/4”			
Product Size	665*358*218mm			

Installation Guidance

1, Hang the boiler up in a vertical position on fixing screws with inlet and outlet pipes to the bottom, maintaining clearances from the walls and the ceiling, Min. 300mm.

2, Connect the boiler to a central heating system equipped with cut-off valves.

3, Fill the central heating system with a treated water, that extends the life of the heating elements.

4, Vent the central heating system.

5, Connect a boiler to the electrical system.

6, Fix the room thermostat, in accordance with manual instruction.

7, Connect the room thermostat (by using two wires 2 x 0,35 mm^2) to the terminal of control panel (RP entry).

8, Once you have finished the above pro- cedures, you can start the boiler.

Mechanical Installation

Step One： User impact drill tool to drill 5 holes, upper 3 holes with the diameter of Φ8, the spacing distance between each 2 hole is 60mm; under 2 holes with diameter of Φ6, the distance between each 2 hole is 60mm, and then Drill in 3 expansion screw in the 3 Φ8 hole and 2 expansion screw in Φ6 hole as follow Fig 1 and Fig 2,

Fig1

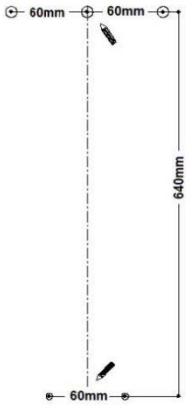
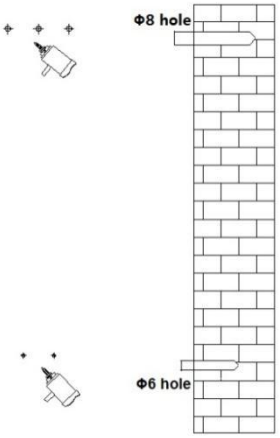
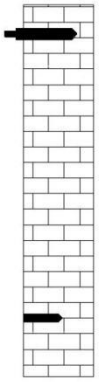


Fig2

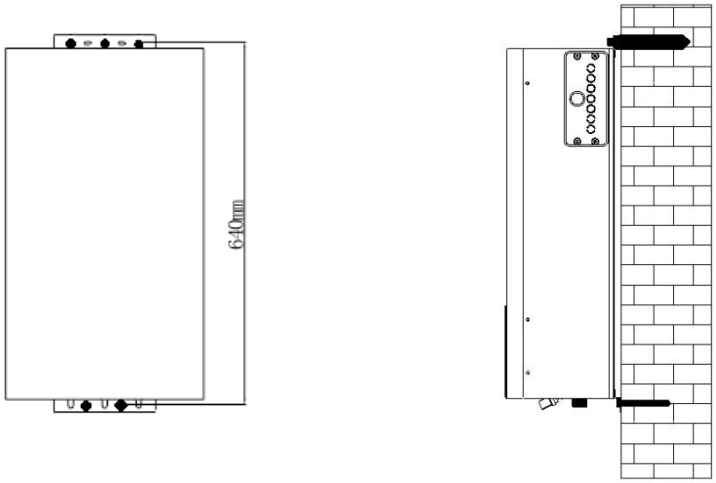


Step Two： Drill 3 screw into 3 upper expansion screw and as follow

Fig 3

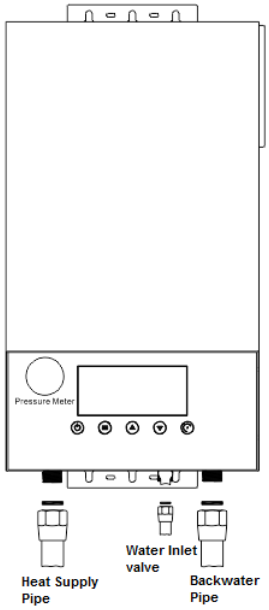


Step Three: Please hang the boiler on the 3 fixed screw. Then drill 2 screw into 2 under expansion screws,

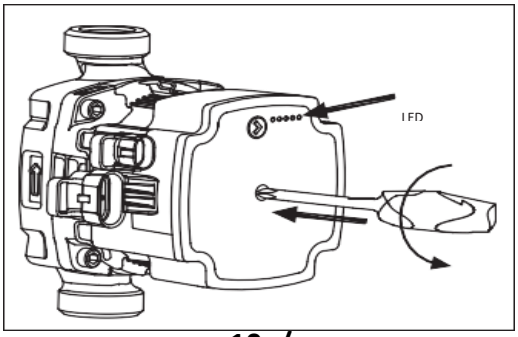


Waterway Installation

Install a pressure reducing valve at the water inlet，And Connect the heat supply pipe、water inlet pipe and backwater pipe to the relate connection on the boiler.

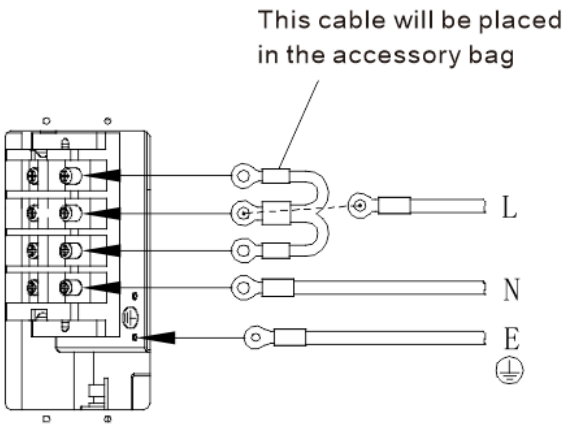


♦ In the case of a seized pump impeller due to a long layover out of the heating season and simultaneous non-compliance with the recommendation to cycle the pump every couple of days, please restore proper movement of the impeller. To do this, please use PH2 screwdriver, press and turn the screw anit-clockwise, located in the middle of the front panel of the pump until the pump impeller is spinning freely.

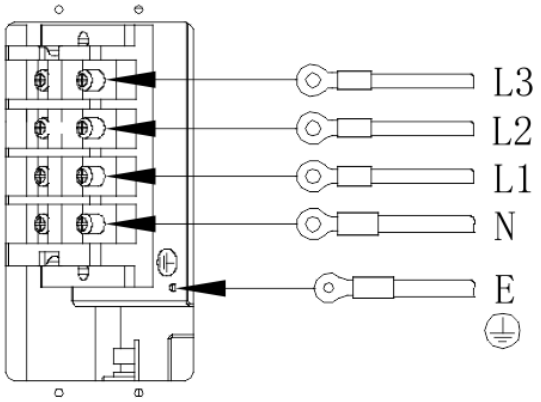


Circuit Installation

Connection to one phase electrical system



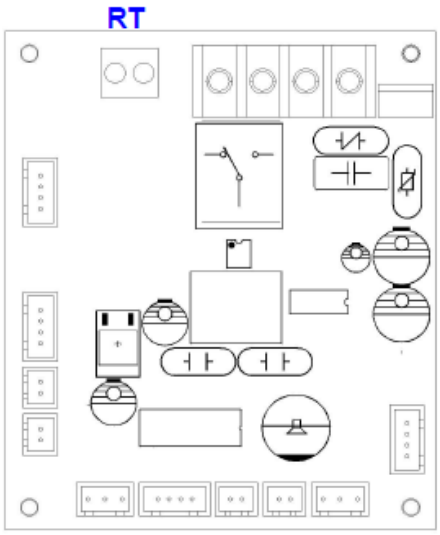
Connection to three phase electrical system



Connection of Room Thermostat (Optional)

Room Thermostat (entry RT) - This optional entry is responsible for boiler's control depending on the room temperature. The entry has to be activated (Configuration>Room temperature>Set outside room sensor)- when the voltage-free contact gets opened, the boiler stops heating. Due to such adjustments, central heating system works with stable parameters.

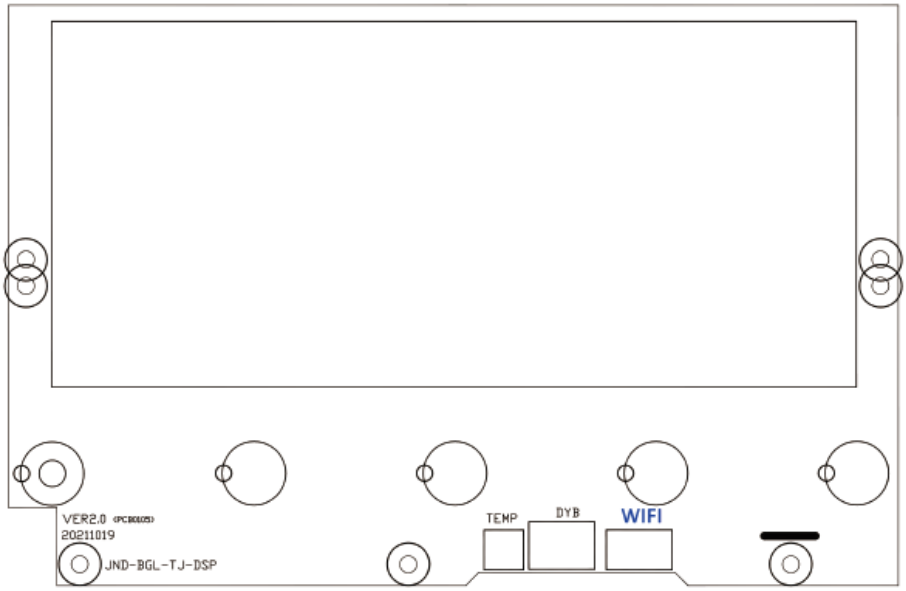
Install the room temperature sensor in a representative room in the building (such as a living room), away from heaters, windows, doors, and communication lines.



Connection of Outdoor Thermostat (Optional)

Outdoor Thermostat (entry OT) - Thermostat s wiring should be as short as possible, it should not be led close to the power cord and it must not be twisted around other wires. Install the outdoor thermostat in the shade, on the north or northwestern facade of the building, away from windows and ventilators.

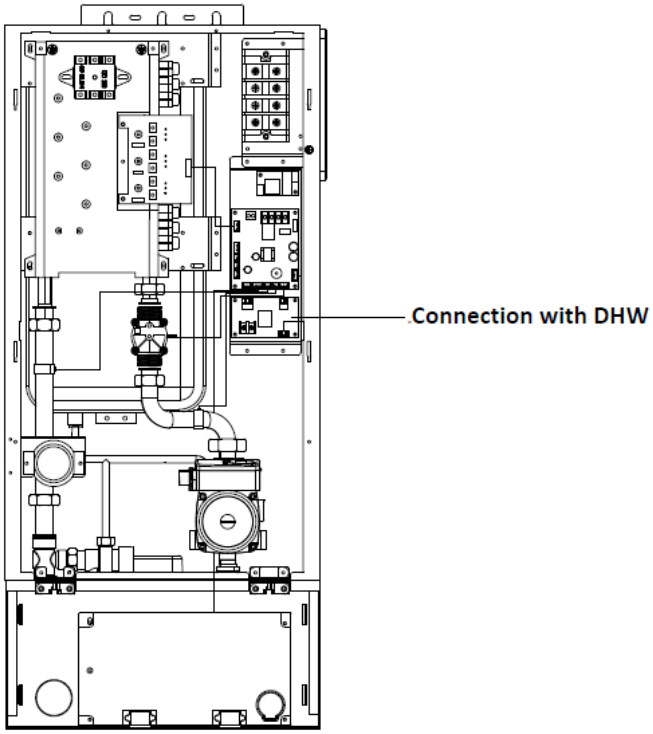
Connection of WIFI (Optional)



Display Board

DHW function (Optional)

The boiler can supply DHW by connecting with the external cylinder or buffer tank.



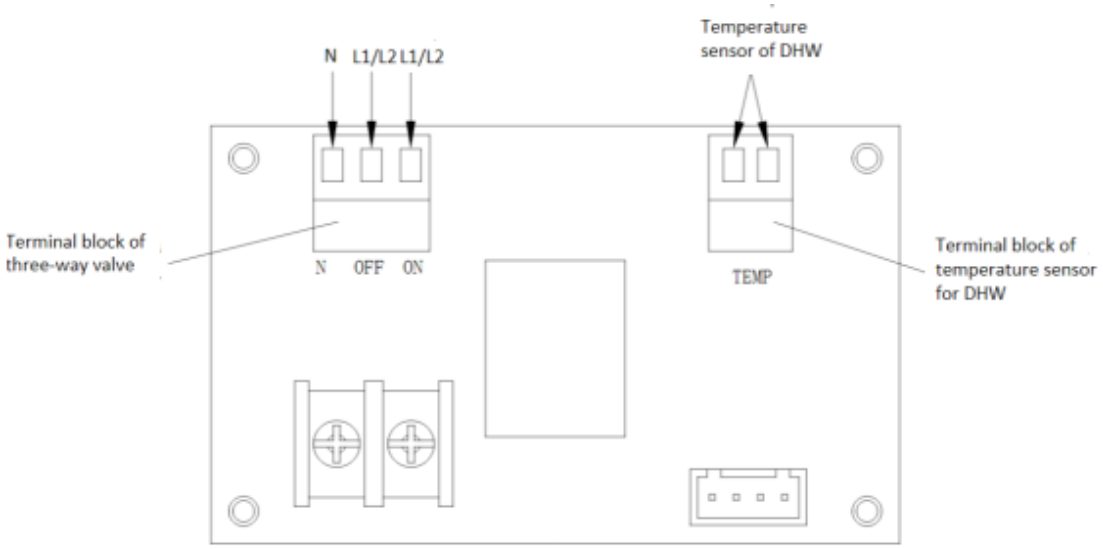
The Boiler PCB have a setting for the 3-way valve operating way which depends of the DHW temperature inside the inner tank of IWH (Indirect Water Heater).

A, Three-way valve connection (DHW Cylinder)

Switching the boiler operation to DHW external cylinder by using a three-way dividing valve with an actuator. Depending on the model used, the device should be connected as shown on the diagrams.

B, Temperature sensor connection

The temperature sensor is the NTC thermistor characteristic used to detect the water temperature in the cylinder or buffer tank.



Connection board for DHW

For Your Attention:

1), Pull the Temperature sensor terminals and Three-way valve terminals out from the board.

2), Connect the wire to the corresponding terminal interface according to the above instructions, and then plug the terminals back to the board.

3), If the direction of the electric three - way valve is reversed, the corresponding wires can be replaced L1/L2.

Operation

1，Understand the Operation Display Screen & ICON



2, Icons and Indicators

No.	Icon	Detail
1		This icon lights on means the boiler is heating.
2		This icon lights on means the boiler is heating for domestic hot water.
3		This icon lights on means enter into the temperature difference setting. 10S automatic exit without operation.
4		This icon lights on, it means the boiler keep launching anti-freezing function.
5		This icon lights on, it means the boiler connected a external controller, and the controller is available to operate.
6		This icon light on, it means the pump is working.
7		This icon lights on means the heating chamber is working.
8		This icon lights on means enter into the DHW external cylinder temperature setting. 10S automatic exit without operation.
9		WIFI
10		It displays the actual heating temperature.
11		It displays the actual domestic hot water temperature.
12		ON/OFF Key
13		Increase
14		Decrease
15		Menu

16		EEP Key

3, Key Operation Instruction

Name	Working Condition	Touch Type	Functions
 ON/OFF Key	Non-setting state	Touch and hold	Touch and hold 2s for ON/OFF
	Set state	Single Touch	Return to previous menu
	Anti-Legionella and power on state	Single Touch	Exit Anti-Legionella
	Error State	Touch and hold	Touch and hold 5s for OFF and reset
 Function Key	Set menu status	Single Touch	Switch into each settings
	EEP setting state	Single Touch	Switching and determining each EEP parameters
	Power on and temperature setting state	Single Touch	Each press, the parameters are increased by 1
		Touch and hold	The setting temperature continues to increase
	System parameter setting or mode setting state	Single Touch	Each press, the parameters are increased by 1
	Power on and temperature setting state	Single Touch	Each press, the parameters are reduced by 1
		Touch and hold	The setting temperature continues to reduce
	System parameter setting or mode setting state	Single Touch	Each press, the parameters are reduced by 1
	Power-off state	Touch and hold	Enter into the WIFI setting
 EEP Key	Power-off state	Touch and hold	Touch and hold 3s to enter EEP setting
	Power on Non-setting state	Single Touch	Enter temperature difference setting or the buffer tank water temperature setting

4. Functional Operation Instructions

4.1. Turn ON Operation

Under power supply condition, In unset status, touch "" and hold for 2s' to start up the machine. In working condition, touch "" and hold for 2s' to turn off the machine

4.2. .Operation in Power On State:

- **Single Heating Mode:**

1- In power-on state, the icon "" will always light on;

2- In working setting state, It will display the outlet water temperature from heating element. Press the key " " or "" to enter into the outlet temperature setting state, then press the key "" or " " to set

outlet water temperature for heating;

3-In the working state or outlet temperature setting state, single press the function key " " to switch to the Temperature Difference Setting State, then press the key " " or " " to set Temperature Difference.

4- Single press the function key " " cyclically selects setting status between Outlet Water Temperature Setting and the Temperature Difference Setting;

5- After setting, if there is no key operation in 3 seconds, it will automatically save the setting and exit.

- **DHW External Cylinder Mode** (If you chose the Single Heating Mode, please ignore this operation)**:**

1- In Power-On state, the DHW cylinder icon " " will always light on;

2- In working setting state, It will display the outlet water temperature from the heating element. Press the key " " or " " to enter into the temperature setting status of the DHW cylinder , and then press the key " " or " " again to adjust the water temperature in tank;

3- In the power-on state, single press the function key " ", it will display the water temperature in DHW cylinder.

4) After setting, if there is no key operation in 3 seconds, it will automatically save the setting and exit.

- **Automatic Switch Mode**（If you chose the Single Heating Mode, please ignore this operation）**:**

1- In this state, it will automatically detect whether the temperature of the DHW cylinder needs to be heated, if it needs, the water temperature in DHW cylinder will be heated (the icon " " will always on and " " will flicker,), otherwise it will enter into heating state(the icon " " will flicker and " "always on);

2- In working setting state, It will display the outlet water temperature from heating element. Press the key " " or " " to enter into the setting state of heating water temperature, and then press the key " " or " " again to adjust the water temperature for heating.

3- In the working state or outlet temperature setting state, single press the function key " " to switch to the Temperature Difference Setting State, then press the key " " or " " to set Temperature Difference.

4- In the temperature difference setting state, press the function key " " to display the water temperature in DHW cylinder (the heating icon " " will light off, the DHW icon " "will always light on), and then press the key " " or " " to set water temperature in cylinder.

5- Single press the function key " " cyclically selects setting status between Outlet Water Temperature Setting and the Temperature Difference Setting;

6- After setting, if there is no key operation in 3 seconds, it will automatically save the setting and exit.

4.3 Switch different working mode among Single Heating Mode, DHW External Cylinder Mode and Automatic Switching Mode,

The boiler can be connected to external cylinder for hot water supply, while the boiler is connected to a external cylinder, the working mode can be switched to **Single Heating Mode**, **DHW External Cylinder Mode** or **Automatic Switching Mode,** the default setting mode is **Single Heating Mode:**

If the boiler is not connected to external cylinder, the default working mode is **Single Heating Mode** without options.

In OFF mode, press “ ” and hold for 3 seconds, the system will enter into EEP password menu PP, And press the key " " to enter the parameter setting menu “**PP0A”**, and press the key " " to switch the submenu “ **DS ”**, and then press the key " " or " " in the submenu to adjust the parameter (00 indicates Single Heating Mode, 01 indicates DHW External Cylinder mode, and 02 indicates Automatic Switching Mode) , after setting, press " ” to quickly save and exit the setting.

When switching different mode, the corresponding icon will light on.

The indicator icon representing the working mode is shown as below

- Select the Single Heating Mode, the icon “ ” will light on;
- Select the DHW External Cylinder Mode, and the icon " " will light on;
- Select the Automatic Switching Mode, the icon " " and " " will light on at the same time;

For the above operations, the icon will light on for 3 seconds then light off automatically, which means the working mode selection has been confirmed.

Remarks: In the automatic switching mode, when the DHW cylinder is working, DHW icon " " will flicker.

4.4. Automatic Sterilization Function （If you chose the Single Heating Mode, please ignore this operation）

1- In DHW External Cylinder Mode or Automatic Switch Mode, if the boiler has been powered for one week or after the boiler power off then power on again, the boiler will start the tank sterilization program. The boiler will heat the water in tank, and the icon “ ” will be on with blue light.

2- while the water temperature in tank reach 65°C, the pump will continue to work for one minute then exit the sterilization program, enter into normal working condition.

4.5. WiFi Network Distribution (Optional Function)

In OFF Mode, press and hold on “ ”, the “ ” will keep flickering, it means the boiler enter into WiFi Network Distribution mode, if the WiFi configuration is successful, the “ ” will keep on.

4.6 EEP

In standby mode, press “ ” and hold for 3 seconds, the system will enter into EEP password menu PP:

Input set password and press the EEP key " " to enter the parameter setting menu, press the key " " to switch the submenu, and then press the key " " or " " in the submenu to adjust the parameter, after setting, press " ” to quickly save and exit the setting.

Trouble Shooting

Error Code	Analysis of Cause	Solution
E1	A, Loose connection between the heating system outlet water temperature sensor and main control board. B, The heating system outlet temperature sensor open circuit or short circuit fault.	A, Fix the connecting wire B, Replace the temperature sensor. C, Contact an authorized service or the seller
E2	A, Loose connection between the heating system back water temperature sensor and main control board. B, The heating system back water temperature sensor open circuit or short circuit fault	A, Fix the connecting wire. B, Replace the temperature sensor. C, Contact an authorized service or the seller
E3	A, The resistance of the outlet temperature sensor is abnormal. B, The triac was burned cause the dry heating, heating water temperature≥95℃.	A, Replace the outlet temperature sensor if the water is not heated but the E3 showed. B, Replace the triac if it was open circuit.
E5	A, Loosen connection between the flow meter and the main control board. B, Pump impeller was blocked or pump failure C, Flow meter failure. D, Excessive air bubbles in pipes or clogging of filters	A, Fix the connecting wire. B, Restore proper movement of the pump impeller or replace it. C, Replace the flow meter. D, Vent the air bubbles in the pipes or clean the filter.
EA	Mainboard power supply ≥300±10 v	Make sure the supply power voltage lower than 250V and the null line in the right position.
Ec (Only available in DHW mode)	A, Loosen connection between the temperature sensor and the DHW board. B, The temperature sensor which connected with the cylinder or buffer tanks failure.	A, Fix the connection wire. B, Replace the temperature sensor.
Ed (Only available in DHW mode)	The resistance of the temperature sensor is abnormal, the water temperature in the cylinder or buffer tanks ≥95℃	Replace the temperature sensor.

Maintenance and Servicing

1， If there will be no person at home in a short period (within one week), please set the water temperature to be the lowest. Then the system will operate at lowest temperature.

2， If there will be no person at home for a long time, please drain away the water in all the pipes of the heating system, please remember to

3， ---Don’t use any abrasive or detergent which may damage the metal with spray-painting.
---Don’t use any spry、solvent or detergent contain chlorine.
---Please use wet duster cloth with litter liquid soap to clean the panel.

4， Please regular check if the power connection is good, ground wire is reliable grounding.

5， Please regular check if the pipeline connection is good without any leakage.

6， Maintenance must be operated by professional person.

7， Power off before cleaning the equipment.