

-
- Our company reserves the right to change products and specifications.
 - Our company reserves the right to make corrections at any time if there are any printing errors or omissions.
-

Air Source Heat Pump

Heat Pump For Heating & Cooling

This manual applies to the model: BLN-012TA1

Please read carefully before installation or operation

Packing List		
NO.	Description	Qty
1	Heat pump	1 pc
2	Controller	1 pc
3	Controller wire	1 pc
4	Instruction manual	1 pc
5	Antivibration rubber	1 pc

After-sale Service

The after-sales service of our products is carried out in accordance with relevant state regulations. Within the scope of warranty period, if the machine is not working properly under reasonable use, please contact with seller.

The user must designate a person to manage and use the unit reasonably and correctly in accordance with the provisions of our company's "Instructions for Use". Accidents caused by improper use are not covered by our company's warranty, and the repair costs and repair costs beyond the warranty period must be taken care of by the user.

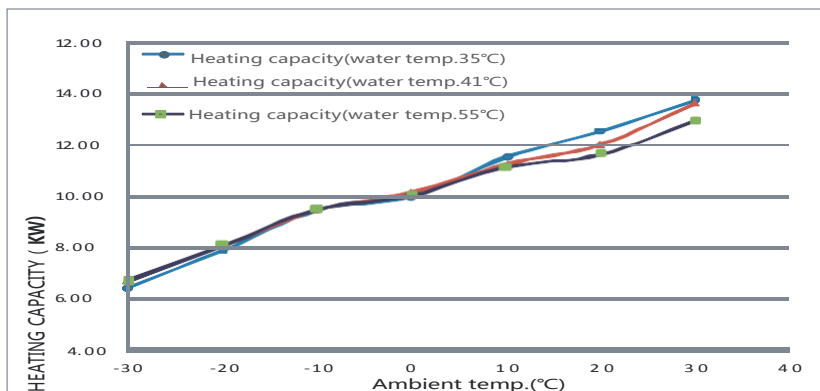
1. After- sale service

- ◆ Maintenance and repair should be performed by the seller or the specified professional installer. Improper maintenance or repair may result in water leakage, electric shock and fire.
- ◆ Please contact with the seller when the machine has to be moved or re-installed. Improper installation may result in water leakage, electric shock and fire.
- ◆ When you need after-sales service, please contact the seller and provide the following details:
 - ◆ Model No.
 - ◆ Serial number and manufacture date.
 - ◆ The detailed description of the fault.
 - ◆ Your name, address and contact number.
- ◆ If the warranty period is expired or the malfunction is caused by improper use, the company will charge a certain service fee if you need after-sales service.

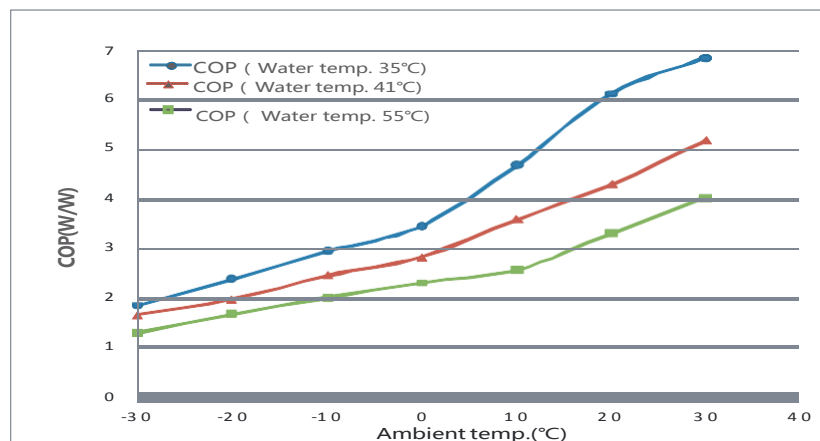
2. Maintenance

- ◆ After a period of use, the performance of the heat pump will be reduced due to the accumulation of dust inside the machine, so maintenance is required.

BLN-012 TA1 Heating Capacity Graph



BLN-012TA1 COP Graph



Note

Note:

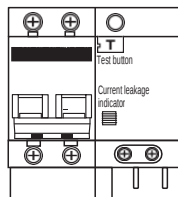
1. Please read the instruction manual carefully before installation or operation.
2. The heat pump must be installed by a professional installer.
3. Please follow the instruction manual strictly when install the heat pump.
4. If any update on the product, this instruction manual are subject to change without notice.
5. If the heat pump is installed where is vulnerable to lightning strikes, it is necessary to take lightning protection measures; If the heat pump is turned off in the winter, please be sure to drain the water in the system to prevent the cold water from swelling and causing system damage.

Contents

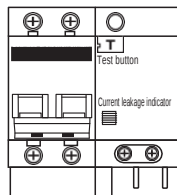
User instruction	2
Operation instructions	5
Dimension	8
Installation	9
Commissioning	17
Maintenance and service	18
Trouble shooting	19
Technical specification	23
Performance and COP graph	24
After-sale service	25

User Instructions

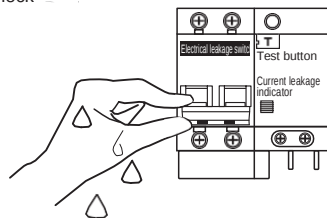
1. Please use electrical leakage switch, otherwise there may be electric shock, fire, etc.



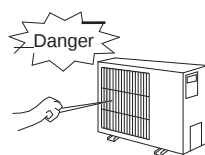
2. Make sure that the leakage protection switch is securely connected. If the wiring is not secure, it may cause electric shock, heat or fire.



3. Do not operate with wet hand, otherwise there may cause electric shock



4. Do not insert your fingers or any stick into the inside of ventilation area, otherwise harm will be caused.



1. Safety Precautions

Please make sure that you have read this manual before using our air source heat pump. In the “User Information” chapter; “User Information” provides important safety information. Please be sure to follow the instructions strictly.

Symbol explanation



Warning

Wrong operations are likely to cause serious consequences such as death, serious injury or major accidents.



Note

Improper operation may result in a safety accident, damage to the machine, or affect the function of the machine.

Specification

Model No.	BLN-012TA1
Power supply	220V/1/50Hz
Heating capacity at A7/W35	
Heating capacity	10.5 (3.2~12.1) kW
Power input	2.53kW
COP	4.15
Heating capacity at A7/W55	
Heating capacity	9.7 (3.1~10.8) kW
Power input	3.86kW
COP	2.51
Cooling capacity at A35/W7	
Cooling capacity	7.5 (4.2~10.2) kW
Power input	2.77kW
EER	2.71
Max power input	5.3kW
Max current	22 A
Refrigerant	R410A/1750g
Net weight	75kg
Dimension	1005*375*800mm
Working temperature range	-30℃~46℃
Compressor	EVI DC inverter
Water circulation volume	2.0m ³ /h
Max water pressure	0.6MPa
Water inlet/ outlet size	DN25

3. Air tightness test

The airtightness test shall be carried out after the refrigerant leakage or replacing refrigerating parts. It is strictly forbidden to charge the refrigeration system with flammable and toxic gases such as oxygen and acetylene. Only the nitrogen or refrigerant is allowed to be used for the air tightness test.

4. Refrigerant leakage detect

Check if there is any leakage at the joints with soapy water or a refrigerant leak detector. When a refrigerant leak occurs, the leak point has to be found, and the leak point must be repaired. When repairing the leak point, please make sure no refrigerant or other pressures to be left in the system, otherwise it will easily cause copper pipe explosive during welding. The tube is blasted by refrigerant pressure or other pressure, causing accidental injury to the operator.

Note: When the refrigerant leakage occurs in a small space, in order to prevent people from suffocating accidents, open all vents or forced ventilation to discharge the refrigerant before performing related operations.

Please read the labels on the machine carefully. If abnormal conditions such as abnormal noise, odor, smoke, temperature rise, electric leakage, fire, etc. are found during use, please cut off the power immediately and contact our local customer service center or dealer in time to repair it. Contact the local fire and emergency department immediately if necessary.

Warning

- 1) This machine is not allowed to be installed by the user. It must be installed by the professional installer, otherwise, it may cause safety accidents or affect the performance of the machine.
- 2) Without professional guidance, non-professionals are not allowed to disassemble the machine, otherwise accidents or damage may be caused to the machine.
- 3) Do not use or store flammable materials such as hair spray, paint, gasoline, alcohol, etc. around the machine, otherwise fire may be caused.
- 4) The main power switch of the machine should be placed where that children cannot reach to prevent children from playing with the power switch.
- 5) Do not spray water or other liquids on the machine, otherwise danger may occur.
- 6) Do not touch the machine with wet hands, otherwise it may cause electric shock.
- 7) In thunderstorms, please disconnect the main power switch of machine, otherwise lightning may cause danger or damage on the machine.
- 8) The machine needs to use a separate power switch to avoid sharing the same circuit with other electrical appliances, also supply the power to the machine with the specified power cable, and use the proper breaker with electric leakage protection required.
- 9) The machine must be installed with a specified grounding wire. Do not connect the grounding wire to the gas pipe, water pipe, lightning conductor or telephone, and the machine must be grounded reliably to avoid any electric shock.
- 10) Do not disconnect the power supply when the machine is running.
- 11) When the machine is not used for a long time, please disconnect the main power switch to avoid accidents.
- 12) If the ambient temperature is below 0 °C, it is forbidden to cut off the power supply. If the power is turned off unexpectedly under these conditions, drain the water inside the pipeline.

Note

- 1) Do not put your hands or other objects into the air outlet of the machine, otherwise fan with running at high speed may cause harm.
- 2) Do not remove the fan cover, otherwise the fan with running at high speed may cause injury to you or others.
- 3) Lightning and other sources of electromagnetic radiation may have an exceptional effect on the machine. If it does have an effect, turn off the power and then restart the machine.
- 4) Make sure the water supply of tap water to be enough when using.
- 5) Do not restart the machine frequently, otherwise the machine may be damaged.

6) The operating parameters of the machine and the set value of the protection device have been set by manufacturer. Users should not change the set value arbitrarily, and do not short the wire of the protection device. Otherwise, the machine may be damaged due to improper protection.

7) The refrigerant used in the machine is non-flammable and non-toxic. Because its specific gravity is larger than air, it will diffuse on the ground when it leaks. Therefore, if the machine is installed in the room, the room must be well ventilated to avoid asphyxia once the refrigerant leaks.

8) If refrigerant leakage occurs, stop the machine operation immediately, and call the service in time. The open flame is not allowed on the site, because the refrigerant will decompose into harmful gases when exposed to open flame.

9) In order to avoid the freezing of the water system pipeline, when the machine is deactivated in the environment below 0 °C, please keep the machine in standby state. If the machine is out of service for a long time, it is recommended that the user drain the water out of the water system and disconnect the power supply.

10) Please perform regular maintenance on the machine as required by the instructions to ensure the machine is in good operating condition.

2. Other safety

- 1) Please read all "Safety Precautions" before operating the machine.
- 2) "Safety Precautions" lists various important safety-related matters, so please observe them strictly.
- 3) The machine must use a fuse of the specified capacity and the fuse cannot be replaced by wire or copper wire.
- 4) The working environment of the machine should be kept away from the fire hazard. If the wiring problem causes fire, please turn off the main power switch immediately and use a dry powder fire extinguisher to extinguish the fire.
- 5) The machine must be disconnected with power supply before servicing.
- 6) Please avoid touching sharp edges or fin surfaces on the machine.
- 7) Please do not touch the rotating blades with your hands or other objects to avoid equipment damage and personal injury.
- 8) It is forbidden to place items above the machine to avoid accidents caused by falling objects when the machine is running.
- 9) The wire connection of the machine must be equipped with an all-pole disconnect device which requires a minimum opening distance of 3 mm.
- 10) The machine should be wired in accordance with wiring rules.



Note

- 1) Outdoor ambient temperature for cooling mode: 16 ~ 46°C, Water temperature ranges from : 5 ~ 25°C;
- 2) Outdoor ambient temperature for heating mode : -30 ~ 30°C, Water temperature ranges from : 20 ~ 55°C.

Error code	Fault description	Failure cause
E34	Compressor phase current fault	1.Driver board fault 2.System fault
E35	Radiator overheat to stop machine	
E37	DC bus over voltage	
E38	DC bus under voltage	
E39	AC input under voltage	
E40	AC input over current	
E41	Input voltage fault	
E42	Communication fault between DSP driver and filter board	
E43	Radiator sensor fault	
E44	Communication fault inside the DSP driver	
E45	Communication fault between driver and main PCB	

Fault protection instructions

1. The machine stops running when fault is detected ;
2. When the fault is removed, the compressor is shut down for three minutes before the machine can be put back into operation. ;
3. If there are three consecutive low pressure fault, high pressure fault, over-current fault, and gas exhaust temperature too high within 30 minutes, the machine will immediately stop running. After the fault is rectified, turn the power on again, start the controller, and the machine can be put into operation;
4. If the machine stops running due to the inlet water temperature sensor or the coil temperature sensor fault, due to compressor protection, the machine will have to be back into operation 3mins later after the fault is removed.
If the ambient temperature sensor fails, the machine continues to run.

Maintenance instructions

1. The machine is equipped with an inspection needle valve on the suction and exhaust pipes. The maintenance personnel can connect the pressure gauge to check the high and low pressure conditions of the system.
2. If the machine is filled with refrigerant under operating conditions, the refrigerant must be filled at the needle valve of low pressure side. If the refrigerant is added to the suction side, the refrigerant opening must be small, so that the refrigerant in the refrigerant bottle slowly enters the system to prevent liquid slamming.

Error code	Fault description	Failure causes
E 10	Low pressure fault	1. Low pressure switch fault 2. Lack of refrigerant 3. Fan doesn't work normally 4. Block exists in the refrigeration pipes 5. Ambient temperature too low
E 11	Water temperature too low (buzzer activated)	1. Water temperature is too low 2. Heat is not produced enough or heat pump failed
E 12	4-way valve fault	4-way valve fault PCB or controller failed
E 16	Communication fault between controller and PCB	1. PCB or controller failed 2. Wire disconnection between PCB and controller
E 18	High pressure switch fault	1. PCB or controller failed 2. Switch failed
E 19	Low pressure switch fault	1. PCB or controller failed 2. Switch failed
E20	Indoor temperature sensor fault	1. Sensor or sensor wire failed 2. PCB or controller failed
E21	Outdoor temperature sensor fault	Same as E20
E22	External coil temperature sensor fault	Same as E20
E23	Internal heat exchanger temperature sensor fault	Same as E20
E24	Gas suction temperature sensor fault	Same as E20
E25	Gas exhaust temperature sensor fault	Same as E20
E26	Water inlet temperature sensor fault	Same as E20
E27	Water outlet temperature sensor fault	Same as E20
E28	Water temperature sensor fault in the water tank	Same as E20
E30	IPM overcurrent	1. Driver board failed 2. system failed
E31	Compressor driver fault	
E32	Compressor overcurrent	

Operation Instruction

1. Control panel



- ⏻ ON/OFF: Turn on or turn off heat pump
- ⌚ Timer: Timing turn on or turn off heat pump
- ▲ UP: Set temperature higher
- ▼ Down: Set temperature lower
- Ⓜ Mode: Underfloor heating, radiator heating or cooling
- ⛶ Set: Set back end parameters

2. Operation instruction

2.1 Turn ON&Turn OFF

- ◆ In the off state, click the “on/off” button after the controller is unlocked, the machine will be turned on immediately. Otherwise, it will be turned off.
- ◆ Unlock/lock button: Press the “On/Off” button for 3 seconds to unlock the controller. No button operation for 30 seconds, the brightness of the LCD display is automatically dimmed, and the “button locked” state is automatically activated.
- ◆ LCD display: The icon  disappears to exit the “lock button” status, and the icon  lights to enter the “lock button” status.

2.2 Switch operation mode

In the power-on state, after unlocking, press the "Mode" button to switch the operation mode. There are three modes to switch, which are the underfloor heating, radiator heating and cooling modes.

 — Floor heating mode  — Heating mode  — Cooling mode

2.3 Set water inlet temperature

In the power on state, after unlocking, press the "Up" or "Down" button to adjust the setting temperature.

2.4 Clock setting

2.4.1 Enter clock setting: When the controller is powered on, press and hold the "Timer" button for 5 seconds, and the hour portion of the clock area is flashing, which indicates that the clock setting state is entered;

2.4.2 Clock setting operation: Enter the clock setting state, the hour part is flashing, press the "Up" or "Down" button to modify the hour part, then press the "Timer" button, the minute area is flashing, press the "Up" or "Down" button to modify the minute part. Press the "Timer" button or no button operation for 20 seconds, Save your current settings and exit.

2.4.3 Set timer control

2.4.3.1 Timing settings can be set separately for two time periods, which are "1" and "2" for each period. Each group of time periods can be set to "Timed Power On" and "Timed Power Off"; when "Timed Power On" and "Timed Power Off" are set at the same time, it is taken as "invalid" status.

2.4.3.2 Enter timing settings :

1) Click the "Timer" button, the "1" and "ON" icons at the bottom right of the screen are displayed, and the hour display area is flashing, which indicates that the "the 1st time period turn on" setting state is entered. The hour area is flashing, press the "Up" or "Down" button to modify the time, then press the "Timer" button to confirm the modification and transfer to the minute setting. the minute area is flashing, then press the "Up" or "Down" button to modify the time, and then press the "Timer" button to confirm the modification.

2) After the "Timed Power On" is set, enter the "Timed Power Off" setting. When the "1" and "OFF" icons are displayed at the bottom right of the screen, it means to enter the "the 1st time period turn off" setting state, the hour area is flashing, press the "Up" or "Down" button to modify the time, then press "Timer" to confirm the modification and transfer to the minute setting. The minute area is flashing, then press the "Up" or "Down" to modify the time, then press "Time" to confirm the modification. Enter the timing setting of "Time Period 2".

3) "Time Period 2" setting operation is the same as above.

2.4.3.3 Exit setting timing: When setting the timing state, press the "switch" button or no button operation for 20 seconds to exit setting time.

2.4.3.4 Cancel the timing setting: Entering the timing setting state, press and hold the "Timer" button for 5 seconds to cancel the exist time period.

2.5 Booster mode:

In the power-on state, in the radiator heating or floor heating mode, press and hold the "Function" button for 3 seconds to enter the booster mode, then press the "Function" button or the "On/Off" button to exit the booster mode.

Booster mode description: the heat pump and electric heating element are turned on at the same time.

LCD display: "Boost icon" lights up.

2.6 Forced defrost function :

In the power-on state, in the heating or floor heating mode, press the "Function" button + "Up" button simultaneously for 5 seconds to enter the defrost mode.

Trouble shooting analysis

Error code	Fault description	Failure causes
E 01		Power phase incorrect PCB failed
E 02	Power supply lack of phase	Power supply lack of phase PCB failed
E 03	Outside water flow switch fault	1. Circulating pump failed or water system blocked 2. Water flow switch failed or opposite installed direction 3. The lift of circulating pump is not enough 4. Circulating pump has opposite installed direction
E 04	Heating side water flow switch fault	Same as above
E 05	High pressure fault	1. High pressure switch failed 2. Excessive refrigerant 3. Fan doesn't work normally or water circulated abnormally 4. Air or other objects mixed into the refrigeration system 5. Too much scale in water heat exchanger
E 06	Low pressure fault	1. Low pressure switch fault 2. Lack of refrigerant 3. Fan doesn't work normally 4. Block exists in refrigeration system
E07	Temperature difference is too big between water inlet and water outlet	Water circulating volume is not enough Water temperature sensor failed
E08	Gas exhaust temperature too high	1. Sensor or sensor wire failed 2. Lack of refrigerant 3. Air mixed into the refrigeration system 4. Fan doesn't work normally or heat cannot be dismissed sufficiently 5. EEV opening is abnormal 6. PCB failed
E09	High pressure fault protection	1. Excessive refrigerant 2. Fan doesn't work normally or water circulated abnormally 3. Air or other objects mixed into the refrigeration system 4. Too much scale in water heat exchanger 5. High pressure sensor failure

3.4 Power outage

If there is a power outage during operation, then the machine will stop running.

Before the power outage, the controller automatically memories the ON/OFF status of the machine. After re-powering, the controller will send an ON/OFF signal to the machine according to the state of memory before power outage to ensure that the machine recovers back to previous status from abnormal power failure.

3.5 Heating capacity

Because the heat pump absorbs heat from the outside, once the outdoor temperature is lowered, the heating capacity will be reduced.

3.6 Electric leakage protector

After the unit has been running for a period of time (usually one month), the leakage protector needs to press the test button under the closed energized state to check whether the performance of the leakage protector is normal and reliable (the leakage protector should be disconnected once every time the test button is pressed). If the accident is not found, the test is allowed to be sent once. If it is not working, the cause should be found out, and if necessary, the action characteristic test should be carried out. After checking, it is confirmed that the leakage protector itself has failed. It should be replaced or repaired in time.

3.7 Working temperature range

In order to use the machine correctly, please operate under the following conditions, outdoor temperature: -30°C ~ 46°C.

3.8 Antifreeze in the winter

When the ambient temperature is below 0°C, it is strictly forbidden to cut off the power. If there is an unexpected power failure under this condition, please drain the water from the heat.

Maintenance

1. Please check whether the grounding wire is connected reliably before use. If there is any abnormality, please replace it in time.
2. Please check the air inlet and outlet of the outdoor unit regularly for blockage.
3. Professional are required to clean outdoor unit heat exchanger, casing and water circulation piping. It is recommended to clean the filter of the water side filter regularly (cleaning is usually done once a year, depending on the actual situation).
4. Regularly check that the safety valve is working properly, and ensure that the drain can be drained normally by manually turning the red knob (usually once every three months, depending on the actual situation).
5. Regularly (usually once a year, but depending on the actual situation) Check whether the water pipe joint and the refrigerant connection pipe are leaking or leaking refrigerant (there are oil leakage marks). If there is any leak, please contact the seller.
6. The machine can only be serviced by professional. The machine must be cut off before contacting the wiring part.
7. Once the machine will not be used for a long time, please cut off the power, drain the water in the pipeline, and close each valve.

LCD display: "Defrost icon" lights up.

2.7 Refrigerant recovery function (this function is not required for the monoblock machine) :

In the off state, long press the "Mode" button + "Up" button for 5 seconds to enter; press the "Mode" button + "Up" button to exit.

LCD display: The cooling icon flashes and the temperature zone shows the evaporation temperature value.

2.8 Waterway emptying mode

In the off state, press the "Mode" button + "Down" button simultaneously for 5 seconds to enter; press the "Mode" button + "Down" button to exit.

LCD display: "Pump icon" flashes.

2.9 Running parameter query

Press the "Mode" button for 3 seconds to enter the running parameter query state during the power on or off state, press the "Up" or "Down" button to scroll through the line to display the "Running Parameters"; the temperature display area displays the parameter serial number, and the timed area displays the parameter content. Press the "ON/OFF" button or the no button operation for 20 seconds to automatically exit the running parameter query status.

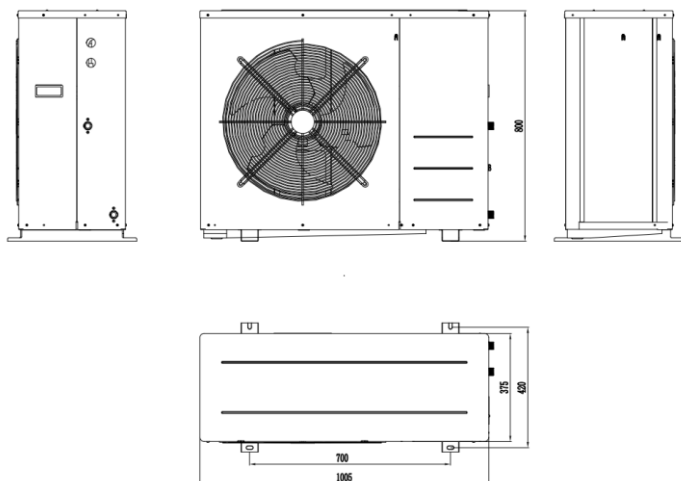
Operation Parameter Query

Query code	Description	Range
1	Compressor running frequency	0~99Hz
2	Fan motor running frequency	0~99Hz
3	Main EEV opening	0~480P
4	EVI EEV opening	0~480P
5	AC input voltage	0~500V
6	AC input current	0~50.0A
7	Compressor phase current	0~50.0A
8	Compressor IPM mould temperature	-50~200°C
9	Condensing temperature	-50~200°C
10	Vaporization temperature	-50~200°C
11	Outdoor ambient temperature	-50~200°C
12	Outdoor coil temperature	-50~200°C
13	Indoor coil temperature	-50~200°C
14	Gas suction temperature	-50~200°C
15	Gas exhaust temperature	-50~200°C
16	Water inlet temperature	-50~200°C
17	Water outlet temperature	-50~200°C
18	Economizer inlet temperature	-50~200°C
19	Economizer outlet temperature	-50~200°C
20	Dialer value	0~15

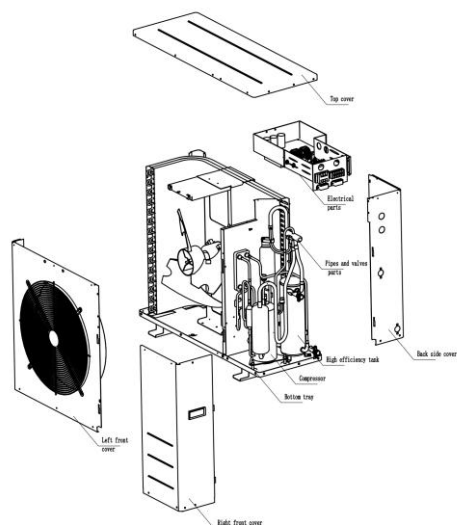
2.10 Display fault: When the machine has a fault, the fault is flashing in the timing area, and the fault code is displayed cyclically; when the fault is eliminated, the normal display is restored.

Dimension

1. Dimension



2. Explosive Diagram



Commissioning

1. Precautions before commissioning

- 1.1 Is the machine properly installed;
- 1.2 Is the wiring and piping correct;
- 1.3 Whether the water pipelines is empty or not;
- 1.4 Whether the heat insulation has been perfected;
- 1.5 Is the ground wire connected reliably;
- 1.6 Whether the power supply voltage matches the rated voltage of the machine;
- 1.7 Is there any obstacle in the air inlet and outlet of the machine;
- 1.8 Is the safety valve installed correctly;
- 1.9 Whether the leakage protector can operate effectively;
- 1.10 The system water pressure is not less than 0.15MPa, and the maximum pressure cannot exceed 0.5MPa;
- 1.11 In winter, the machine needs to be energized at least 24 hours earlier before operation as the compressor needs to be preheated.

2. Commissioning

Use the controller to control the machine operation and check the following items according to the instruction manual:

(If there is any fault, please find out the faults and reasons described in the manual and eliminate them)

- 2.1 Is the controller normal?
- 2.2 Is the function key of the controller normal?
- 2.3 Is the drainage normal?
- 2.4 Test whether the heating mode and cooling mode are working properly;
- 2.5 Is the outlet water temperature normal?
- 2.6 Whether there is vibration and abnormal sound during operation;
- 2.7 Does the generated wind, noise and condensate affect neighbors;
- 2.8 Is there refrigerant leakage.

3. Operation and debugging

3.1 About 3mins of protection

Due to the self-protection of the compressor, the machine cannot be restarted again within 3 mins

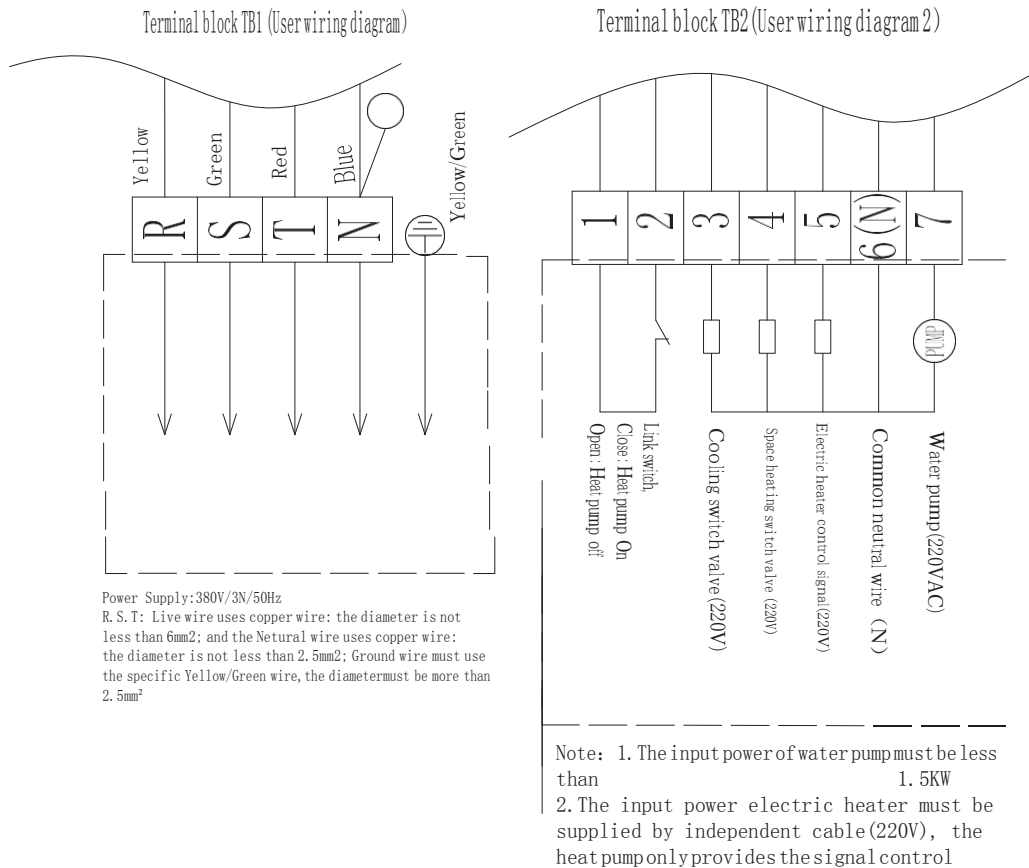
3.2 Feature of heating operation

During operation, if the ambient temperature is too high, the outdoor motor may run low or stop.

3.3 About defrosting during heating operation

In the case of heating operation, when the unit has frost formation, the defrosting operation (about 2-8 minutes) is automatically performed to improve the heating effect. The outdoor motor stops running during the defrost operation.

Wiring Diagram



Installation

1. Installation preparation

1.1 Install the required tools (self-provided)

No.	Tool	No.	Tool
1	Level	10	Saw
2	Electric hammer	11	Flat blade screw driver
3	Adjustable wrench	12	Cross screw driver
4	Needle-nose plier	13	Copper tube knife
5	Impulse drill	14	PP-R tube knife
6	Ruler	15	PP-R tube heat melting device
7	Torque wrench	16	Compound gauge
8	Hexagonal wrench	17	Vacuum pump
9	Hammer	18	Electronic balance

1.2 Connecting wires, insulation materials, PP-R pipe and connector

- The material and thickness of the insulation pipe meet the specified requirements, otherwise heat loss and condensation will be caused;
- Please refer to the "Electrical Installation" description section of this manual for wire size selection.

Model	Water inlet/outlet size
BLN-012TA1	DN25(male)

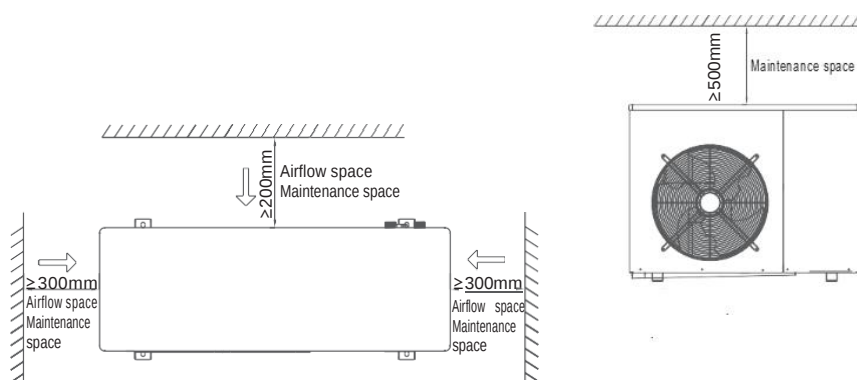
1.3 Other installation materials

- Fix the pipe bracket and pipe clamp of the connecting pipe
- Wire threading pipe and pipe clamp
- Insulating tape, raw tape
- Expansion bolt
- Mounting bracket

2. Heat pump installation

- 2.1 The machine installation space meets the following schematic requirements to ensure normal air circulation and maintenance;
- 2.2 The location of the machine should be kept away from heat, steam or flammable gases;
- 2.3 Do not install the machine in places with strong wind or dust;
- 2.4 Do not install the machine where it is often passed through the air suction side and air exhaust side;
- 2.5 The installation position of the machine should be properly drained to the nearby sewer.

Heat Pump Installation Space Diagram

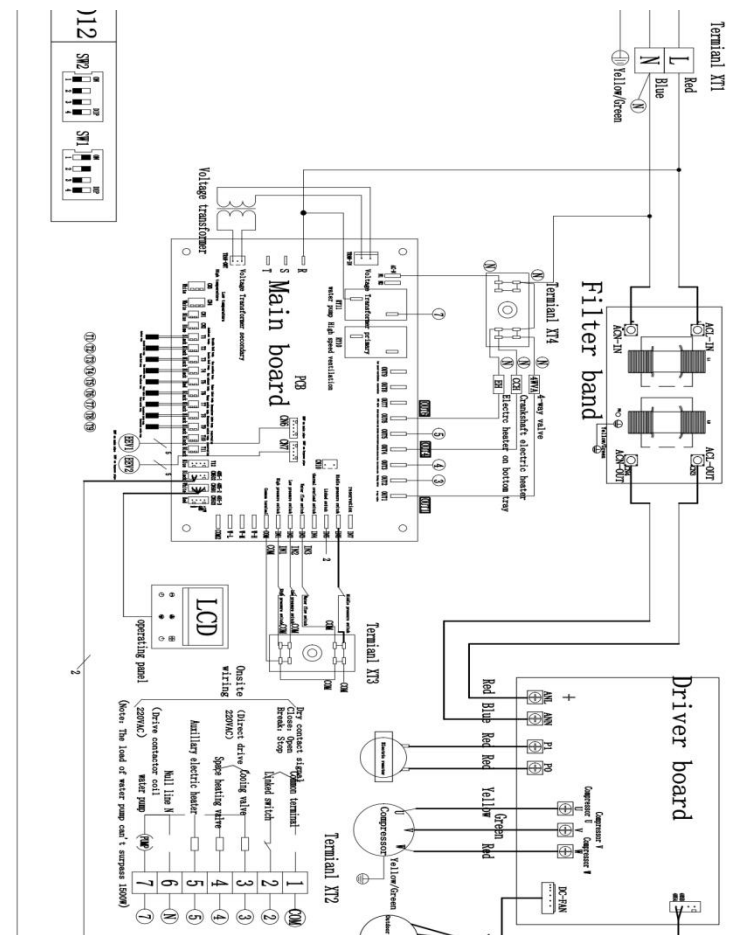


! Note

Installation in the following locations may cause the machine to malfunction:

1. A place with more oil;
2. Wet place;
3. Seaside saline-alkali area;
4. Special environmental conditions;
5. High-frequency facilities such as wireless equipment, welding machines and medical equipment.

Electrical Wiring Diagram



6. Electrical Installation

All wiring and grounding must comply with local electrical codes.



Note

- ◆ The specification label should be carefully checked to ensure that the wiring meets the specified requirements and is correctly wired according to the wiring diagram;
- ◆ The auxiliary electric heater must be equipped with independent current circuit breaker and leakage protector;
- ◆ The power supply must meet the requirements of the machine and must be reliably and effectively wired;
- ◆ Wires should not be in contact with copper pipes, compressors, motors or other operating components;
- ◆ Do not change the internal wiring of the machine without permission, otherwise the seller will not commit any responsibility;
- ◆ Do not send power before the wiring is completed, so as to avoid personal injury;
- ◆ The supply voltage should vary within $\pm 10\%$ of the standard value.

Electrical specifications

Model	Power supply	Max input current	Fuse (A)	Electric leakage protector(mA)	Power cable (mm ²)
BLN-012TA1	220V/50Hz	22A	25A	30mA	6

Power cable and signal wire connection instruction

- 6.1 Remove the front cover of the machine and connect the wire to the corresponding terminal block according to the electrical wiring diagram to confirm that the connection is secure.
- 6.2 Secure the cable with the wire clamp and install the service plate.
- 6.3 Do not connect the wrong line, otherwise it will cause electrical failure or even damage the machine.
- 6.4 The type and rating of the fuse are based on the specifications on the corresponding controller or fuse cover.
- 6.5 The power cable must be selected and installed by the professional installer. When the installer selects the power cable, the power cable should not be lighter than the neoprene armored cord (line 57 of IEC 60245). For specific power cable specifications, see the electrical specifications. .
- 6.6 If the user's power distribution capacity is insufficient or the power cord (copper core wire) is not configured as required, the machine cannot be started or operated normally, the seller will not take any responsibility.

3. Outdoor unit specific installation steps

- 3.1 Install the unit on a solid surface such as concrete, and the load-bearing surface or mounting bracket must meet the strength requirements;
 - 3.2 Fasten the outdoor unit to the mounting bracket with bolts and nuts and keep it level;
 - 3.3 If installed on a wall or on a roof, the bracket must be firmly fixed to prevent damage caused by earthquake or strong wind;
 - 3.4 The positioning dimension of the outdoor unit installation base is 810*394mm, and it is required to install four positioning foot bolts with a diameter of 10mm. The base of the installation of the outdoor unit. The inch recommendation is: 1200*450mm.
- Installation Precautions

Installation Precautions

- 1.1 The unit should be installed so that the inclination of any vertical surface does not exceed 5 degrees;
- 1.2 Do not install the outdoor unit directly on the ground;
- 1.3 The strength of the ordinary air-conditioning bracket may not be applicable to the unit. Please design or select the bracket according to the weight of the unit;
- 1.4 If the mainframe is installed and fixed on the open balcony and the roof, it is necessary to carry out the lifting of the unit. Pay attention to the following points when lifting:
 - 1.4.1 Please use 4 or more soft slings to lift the handling unit;
 - 1.4.2 In order to avoid scratching and deformation of the surface of the unit, please install the guard plate on the surface of the unit during lifting and loading;
 - 1.4.3 Before final installation, it is necessary to check whether the foundation is correct or not, in case it is wrong with the actual object.

4. User end water system installation

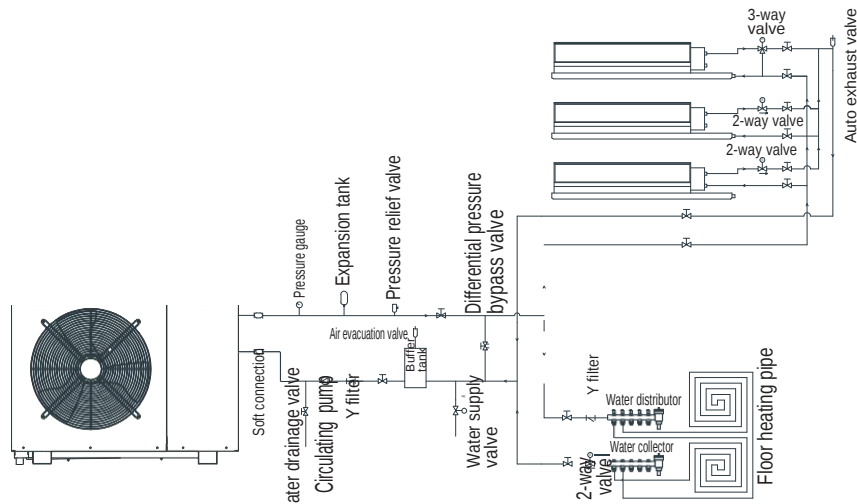
- 4.1 The installation of the waterway system must meet the following principles:
 - 4.1.1 Pipe length is as short as possible;
 - 4.1.2 Pipe diameter must meet the requirements of the unit;
 - 4.1.3 The elbows on the waterway are as few as possible, and the elbow radius is as large as possible;
 - 4.1.4 The thickness of the water pipe insulation layer meets the specified requirements;
 - 4.1.5 Dust and debris should not enter the pipeline system as much as possible;
 - 4.1.6 The unit must be fixed before the piping system can be installed.
- 4.2 Water pipe selection

Model	Water inlet/outlet size
BLN-026 TA1	DN25

Remarks:

1. Hydraulic calculation must be carried out after the main water pipe selection is completed. If the water side pipeline resistance is greater than the selected pump lift, the larger water pump must be re-selected or the water pipe must be increased in size;
2. When multiple units are connected in parallel, the main and circulating water pumps must be selected as appropriate according to the hydraulic calculation requirements.

4.3 Piping instruction



Remarks:

- 1) The same piping design is allowed to distribute the water evenly;
 - 2) The system must be equipped with an automatic water supply valve, and the highest point of the water system must be equipped with an automatic pressure relief valve;
 - 3) The drain valve shall be installed at the bottom of the pipeline to facilitate drainage;
 - 4) The pressure relief valve is installed at the highest point of the system pipe line, and the terminal of water pipe must have an expansion diameter;
 - 5) Normal working water capacity can ensure normal defrosting in winter (ensure that the water capacity per KW exceeds 10L);
 - 6) The machine has been equipped with water flow switch, users do not need to install one more;
 - 7) In order to facilitate the maintenance of the machine, a pressure gauge is required to be installed for the outlet pipe of the machine;
 - 8) If the floor heating is controlled by the compartment, and the number of the manifolds in the smallest area is less than or equal to 2, please install the differential pressure bypass valve according to the schematic diagram;
- 4.4 Water quality requirements by the machine
- 4.4.1 When the water quality is not good, it will produce some scale and sediment such as sand. Therefore, the water used must be filtered and softened with soft water equipment before it flows into the heat pump water system;
- 4.4.2 Please analyze the water quality before using the machine, such as PH value, conductivity, chloride ion concentration, sulfur ion concentration, etc.

PH	Water hardness	Conductivity	S	Cl	Nh4
7-8.5	<50ppm	<200uV/cm(25℃)	N/A	<50ppm	N/A
So4	Si	Iron content	Na	Ca	
<50ppm	<30ppm	<0.3ppm	N/A	<50ppm	

4.5 Water pipeline installation instructions

- 4.5.1 Install all water pipelines;
- 4.5.2 Check if any water leak in the pressurized pipelines;
- 4.5.3 Clean the water pipelines.
- 4.6 Water pipeline feed-water and pipeline emptying steps:
- 4.6.1 Open the pressure relief valve on the water distributor and all valves;
- 4.6.2 Feed the water at the pipe filling port;
- 4.6.3 During the feed-water process, it is necessary to observe if the pressure relief valve or the drain valve has water overflow, and if there is water overflow, it means that the water in the system has been fully filled;
- 4.6.4 Close the pressure relief valve, and then look at the water pressure gauge. If the pressure value is more than 0.15Mpa, please close the feed-water valve and the water drain is completed.

5. Selection and installation of water system accessories

5.1 Selection of circulating pump

- 5.1.1 The machine must be installed with a circulating pump to be used. The heat pump provides the power port of the circulating pump (single-phase power supply). Please refer to the circuit diagram for wiring. The maximum power of circulating pump is not allowed to exceed 1.5kW.
- 5.1.2 Please select the circulating pump according to the actual lift required, and the flow must be guaranteed to meet the requirements of the machine nameplate.

5.2 Selection of auxiliary electric heater

- 5.2.1 The user can select the auxiliary electric heater if needed, however the machine only provides the port to be connected with signal wire to control auxiliary electric heater.
- 5.2.2 The installation of the auxiliary electric heater must be installed by the professionals.

5.3 Selection of water flow switch

The machine has a built-in water flow switch, so it does not require one more water flow switch.

5.4 Other optional accessories recommended

Accessories	Description	Remark
Buffer tank	60L	
Expansion tank	10 L	Only pressurized system
Pressure gauge	1.5MPa	
Safety valve	0.6MPa	Only pressurized system