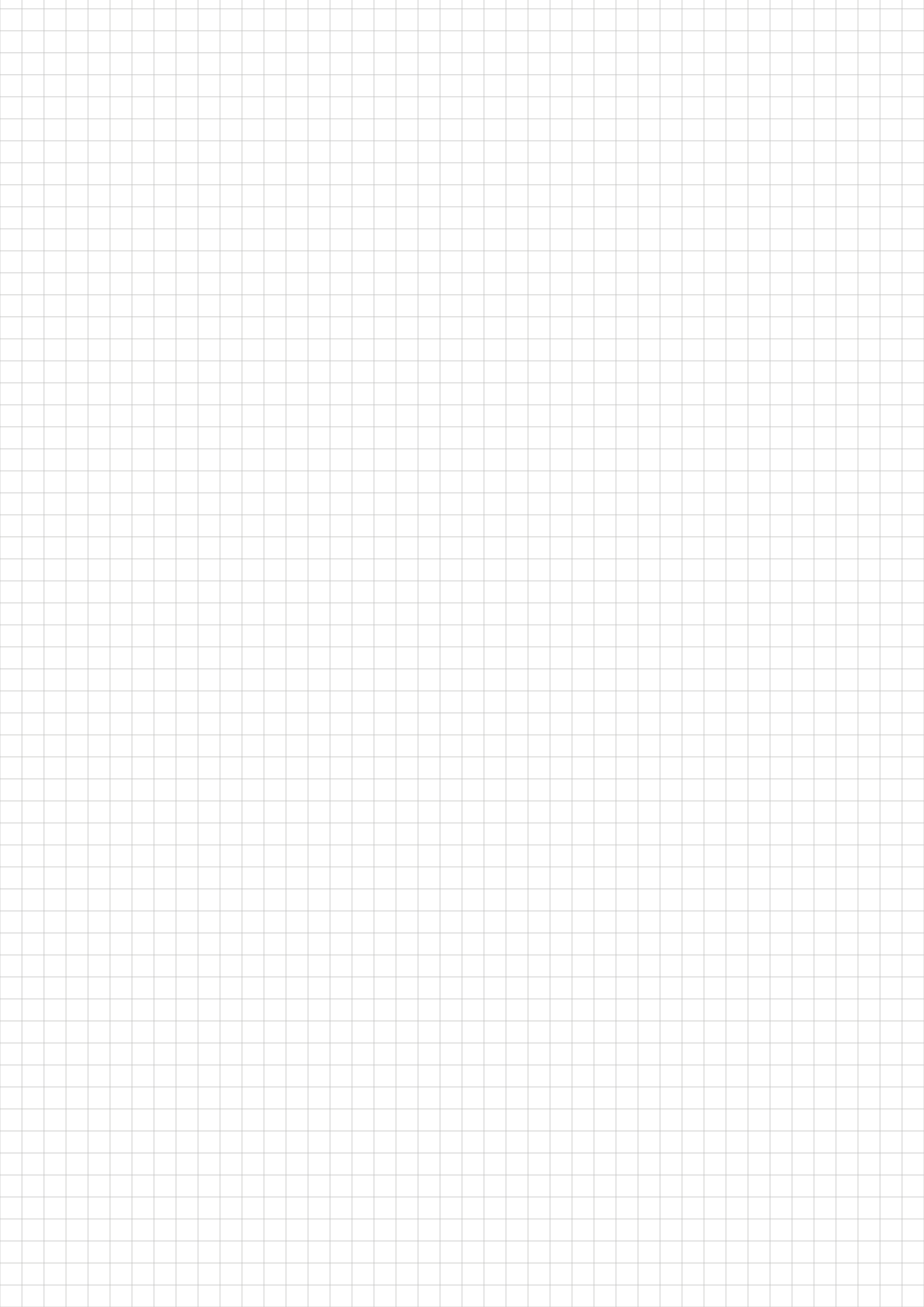


**DC INVERTER  
AIR TO WATER  
SWIMMING POOL  
HEAT PUMP UNIT**

**Installation & Instruction Manual**



# SWIMMING POOL HEAT PUMP

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# **SWIMMING POOL HEAT PUMP**

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## **TO USER**

Dear customers, thank you for using our products.

Here is some matters need attention for you below , as improper operation or unqualified engineering will reduce the service life of equipment, damage the unit, and even cause safety accidents:

### **General procedures**

1. The unit must be initially started by authorized personnel or under their supervision.
2. In order to better use the equipment, operators need to be training.
3. Operators regularly record the operation data of the unit periodically to provide accurate data and basis for equipment maintenance.
4. The system is filled with high pressure refrigerant. During the installation, operation and maintenance of the unit, It is forbidden to trample, collide and deform pipelines, instruments, valves and joints to avoid leakage of refrigerant.
5. When the heat pump occur failure protection, please find out the reason according to the controller display. Restart the unit after have the solution, otherwise the unit will damage.
6. The refrigerant in the system of the unit is tasteless and non-toxic, but when there is a large amount of leakage in the closed space, it can cause asphyxiation and produce toxic gas in case of fire. When it is found that leakage cannot be stopped, it is absolutely prohibited to fire, and please stay away from the unit, ventilate the scene, inform relevant personnel to cause prevention.

### **Installation guide**

1. Equipment installation, debugging and maintenance must be operated by professionals.
2. There is obstacle distance requirement for the unit installation. Please refer to the product manual for details.
3. The outlet water pipe of the unit must be installed with a flow switch and connected to the control part of the unit, otherwise the heat exchanger pipe will be damaged by frost crack.
4. The water inlet pipe of the unit shall be equipped with a detachable pipe filter of more than 40 mesh, otherwise the sand particles in the water will wear through the pipe wall of the heat exchanger and damage the unit. Please check and clean water filter monthly.
5. The circulating heated water of the unit must meet the national residential water standard, otherwise, the untreated water will corrode copper pipe and the reduce the heat transfer effect. Please inspect into the water quality of the unit regularly.
6. Please check water system has been cleaned and there is no leakage before the heat pump water side heat exchanger is connected to the water.

### **Operation requirement**

1. Don't adjust the set values of parameters of the heat pump (except technical personnel ).
2. After the first start up or long shutdown, check whether the electrical equipment connection is tight; the valves are open before starting and the compressor must be powered on for more than 8 hours before standby heating. Otherwise it will cause irreversible damage to the compressor.

# SWIMMING POOL HEAT PUMP

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3. When the environment temperature is lower than 0 °C, if do not use the heat pump for a long time, please check the water of unit and system have been drained out or not, otherwise it will easy to frost and damage heat exchanger.

4. Please ensure in and out of the water temperature difference of circulating water pump is between 6 °C or less.

## Electricity safety warning

1. Before electricity-related operations, all power supply must be cut off and anti-static gloves must be worn to avoid serious casualties.
2. The power line must be selected according to the maximum operating current of the unit.
3. Please follow the circuit diagram in the electrical box to wire
4. When the unit is connected with external power cord, the coil or sheath cannot fall off to prevent power leakage.
5. The unit must be strictly grounded.
6. The power line and signal line must be wired separately, and don't use the same multi-core cable.
7. The three-phase unit is strictly prohibited to operate in reverse phase or absent phase, please check the phase sequence before starting up.

## Winter defrost warning

When the ambient temperature is lower than 0 °C in winter, do not turn off the heat pump. If the heat pump is turned off more than 1 hour or not used for a long time, please cut off the power supply and drain the water in the heat exchanger to prevent the machine damage from freezing, this situation does not belong to warranty.

2, When the ambient temperature is lower than 0 °C and heat pump is off, please do not cut off power supply. If the heat pump is turned off more than 1 hour or not used for a long time, please cut off the power supply and drain the water in the heat exchanger to prevent the machine damage from freezing, this situation does not belong to warranty.

3, If the heat pump unit is off and in standby mode, the unit with automatic anti-freezing function.

4. Filter should be installed before water inlet and cleaned regularly, cleaning cycle is recommended to be 3 months/time.

4. The heat exchanger shall be regularly cleaned with cleaning fluid to avoid heat pump failure caused by scaling. Recommended cleaning cycle 3 months/time. When the water quality is hard or high temperature water is used for a long time, the cleaning cycle should be shortened appropriately.

## Warning: electric shock

Before the operation of the heat pump, please confirm the grounding wire is connected or not. Check whether the wiring power is consistent with the power required by the label.

## Warning: rotation attention

Please do not put your hands or any objects into the fan blade, which is likely to cause fan blade damage and personal injury.

## Be careful with electricity

This equipment can only be operated and maintained by professionals.

# **SWIMMING POOL HEAT PUMP**

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For your safety - This product must be installed by a licensed HVAC technician certified in heat pump repair and maintenance by the jurisdiction in which the product will be installed where such state or local requirements exists. The technician must possess and comply with all certifications and regulations regarding the purchasing, handling, transportation and reclamation of refrigerant. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and operation can create an electrical hazard which can cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

## **Attention**

Installation and service must be performed by a qualified installer or service agency. To the installer: After installation, these instructions must be given to the homeowner or left on or near the heat pump. This manual contains important information that will help you in operating and maintaining this heat pump. Please retain it for future reference.

## **! WARNING**

The elevated water temperature can be hazardous. Consult heater operation and installation instructions for water temperature guidelines before setting temperature.

## **! WARNING**

The following "Safety Rules for Hot Tubs," should be observed when using the spa.

## **! WARNING**

Spa or hot tub water temperature should never exceed 104°F (40°C). One hundred degrees Fahrenheit (100°F [38°C]) is considered safe for a healthy adult. Special caution is recommended for young children.

## **! WARNING**

The drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness which could lead to unconsciousness, and subsequently result in drowning.

## **! WARNING**

Pregnant women take note! Soaking in water above 102°F (38.5°C) can cause fetal damage during the first three (3) months of pregnancy (which could result in the birth of a brain-damaged or deformed child). If pregnant women are going to use a spa or hot tub, they should make sure the water temperature is below 100°F (38°C) maximum.

# **SWIMMING POOL HEAT PUMP**

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## **Attention**

The water temperature should always be checked with an accurate thermometer before entering a spa or hot tub. Temperature controls may vary by as much as 35.6F° (2°C).

## **! WARNING**

Persons with a medical history of heart disease, diabetes, circulatory or blood pressure problems should consult their physician before using a hot tub or spa.

## **! WARNING**

Persons taking any medication which induces drowsiness (e.g., tranquilizers, antihistamines, or anticoagulants) should not use spas or hot tubs.

## **! WARNING**

Hyperthermia occurs when the internal body temperature reaches a level several degrees above the normal body temperature of 98.6°F (37°C). Symptoms include dizziness, fainting, drowsiness, lethargy, and an increase in the internal body temperature. The effects of hyperthermia include:

- Lack of awareness of impending hazard
- Failure to perceive heat
- Failure to recognize need to leave spa
- Physical inability to leave spa
- Fetal damage in pregnant women
- Unconsciousness resulting in a danger of drowning

## **! CAUTION**

When pool equipment is located below the pool surface, a leak from any component can cause large scale water loss or flooding. Supplier cannot be responsible for such water loss or flooding or resulting damage.

## **! CAUTION**

Make sure that flow requirements and pool water turn over rates can be maintained with the installation of additional heat pumps and plumbing restrictions.

## **! WARNING**

A check valve can interfere with the proper operation of certain Suction Vacuum Release System (SVRS) products. To avoid possible entrapment hazard, serious injury, or death, make sure to review the operation/owners manual of your particular SVRS product before installing the check valve. tranquilizers, antihistamines, or anticoagulants) should not use spas or hot tubs.

# **SWIMMING POOL HEAT PUMP**

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## **ELECTRICAL SHOCK HAZARD**

This heat pump contains wiring that carries high voltage. Contact with these wires may result in severe injury or death. Disconnect power circuit before connecting the heat pump

### **! CAUTION**

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

### **! CAUTION**

This heater must be connected to a bonding grid with a solid copper wire not smaller in diameter than 8 AWG (In Canada, it shall be no smaller than 6 AWG.)

### **! CAUTION**

Do not use this heat pump if any part has been under water. Immediately call a qualified service technician to inspect the heater and replace any part of the control system which has been under water.

### **! CAUTION**

Keep all objects off the top of the heat pump. Blocking air flow could damage the unit and may void the warranty.

### **! CAUTION**

The water pressure switch should be adjusted to turn the heater off when the pump is off. Setting the switch to close at too low of a flow can damage the appliance. Adjust the switch to turn the heater off, not on.

### **! CAUTION**

Failure to winterize could cause damage to the heat pump and will void the warranty.



# SWIMMING POOL HEAT PUMP

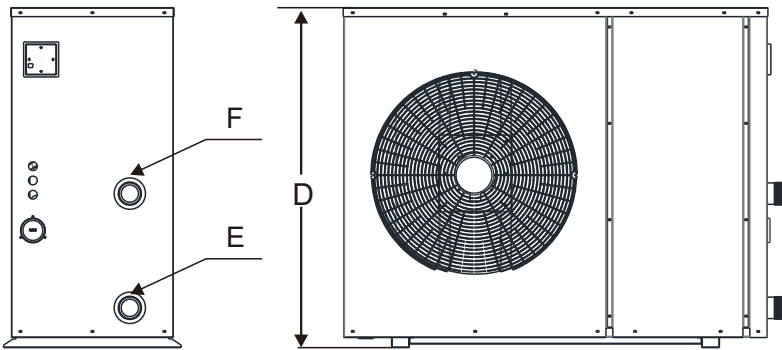
## I. Parameter

MODEL:	MALCRW025ZA/B	MALCRW030ZA/B	MALCRW040ZA/B	MALCRW050ZA/B
Advised pool volume	20~40m <sup>3</sup>	25~45m <sup>3</sup>	30~55m <sup>3</sup>	40~75m <sup>3</sup>
Operating air temperature	-15~43(°C)	-15~43(°C)	-15~43(°C)	-15~43(°C)
Heating capacity in Booster mode ①	10.5kW	13.0kW	16.5kW	21.0kW
	35900 BTU/h	44400 BTU/h	56313 BTU/h	71700 BTU/h
COP in Booster mode ①	6.5	6.5	6.6	6.5
Heating capacity ①	9.0kW	11.0kW	13.5kW	18.0kW
COP ①	15.5~7.2	14.9~7.0	15.4~7.4	15.9~6.7
COP at 50% capacity ①	10.6	10.5	11.1	11.2
Heating capacity in Booster mode ②	7.5kW	9.3kW	11.5kW	14.5kW
	25600BTU/h	31800BTU/h	39250BTU/h	49500BTU/h
COP in Booster mode ②	4.31	4.3	4.5	4.2
Heating capacity ②	6.25kW	7.8kW	9.5kW	12.5kW
COP ②	7.8~5.0	7.5~4.8	7.6~4.8	7.8~4.5
COP at 50% capacity ②	6.6	6.4	6.9	6.9
Cooling capacity	4.9kW	6.0kW	8.5kW	11.0kW
Power supply	220VAC/1PH/50Hz	220VAC/1PH/50Hz	220VAC/1PH/50Hz	220VAC/1PH/50Hz
Rated input power	0.22~1.49 (kW)	0.26~1.52 (kW)	0.31~1.83 (kW)	0.43~2.61 (kW)
Rated input current	1.06~5.81 (A)	1.13~6.61 (A)	1.35~7.96 (A)	1.87~11.35 (A)
Advised water flux (m <sup>3</sup> /h)	3~4m <sup>3</sup> /h	4~5m <sup>3</sup> /h	4~6m <sup>3</sup> /h	6.5~8.5m <sup>3</sup> /h
Water pipe in-out size (mm)	1-1/2"	1-1/2"	1-1/2"	1-1/2"
Refrigerant	R32 /R410A			
Electric shock protection	I	I	I	I
IP level	IPX4	IPX4	IPX4	IPX4
Noise	45dB	45dB	46dB	48dB
Unit Net Dimensions (L/M/H)	1100×400×615mm	1160×430×710mm	1160×430×710mm	1210×500×960mm
Unit Shipping Dimensions(L/M/H)	1130×420×760mm	1200×450×850mm	1200×450×850mm	1230×530×1100mm
Net Weight (kg)	60Kg	70Kg	80Kg	100Kg
Shipping Weight(Kg)	65Kg	75Kg	90Kg	110Kg

Note : (1)① Heating: Outdoor air temp : 24°C/19°C, Outlet water temp:28°C, Input water temp:26°C ;  
 (2)② Heating: Outdoor air temp : 15°C/12°C, Outlet water temp:28°C, Input water temp:26°C ;  
 (3) Cooling: Outdoor air temp: 35°C/24°C, Outlet water temp:28°C, Input water temp:30°C ;  
 (4) Using in the ambient temp: -15~43°C

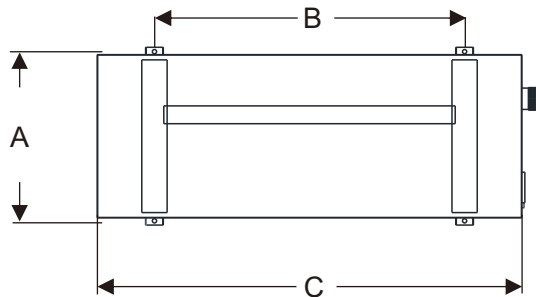
# SWIMMING POOL HEAT PUMP

## II. Dimensions



Units: mm

MODEL: Size	MALCRW025ZA/B
A	400
B	630
C	1030
D	620
E	Water inlet
F	Water outlet



Units: mm

MODEL: Size	MALCRW030ZA/B MALCRW040ZA/B
A	400
B	806
C	1150
D	710
E	Water inlet
F	Water outlet

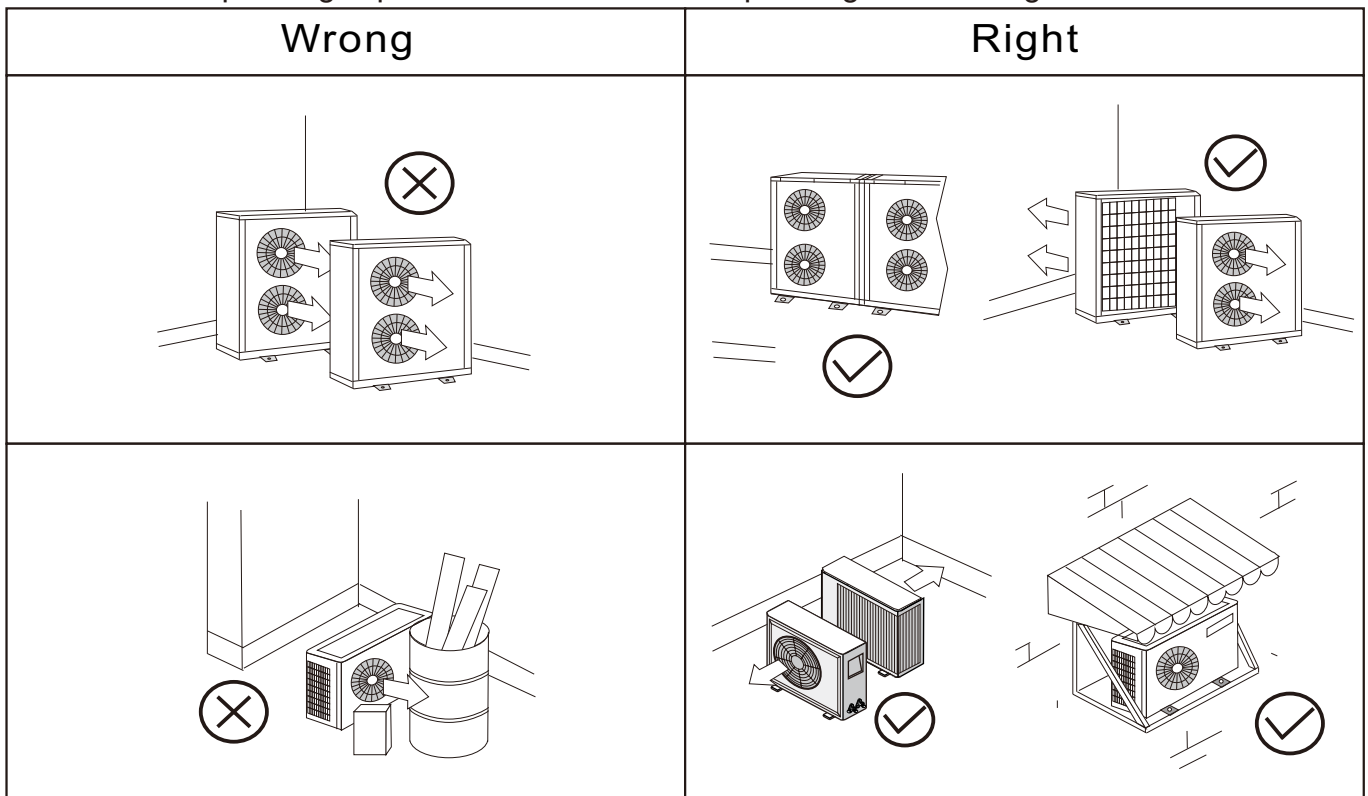
Units: mm

MODEL: Size	MALCRW050ZA/B
A	475
B	870
C	1230
D	950
E	Water inlet
F	Water outlet

## III. Installation

### 1. Unit installation position

To avoid ventilation short, the unit's discharged air should not be return when installation. Please keep enough space around the unit for repair. Right and wrong means as below:



# SWIMMING POOL HEAT PUMP



1. To get enough air for ventilation of the unit, the installation position should be with good ventilation.

Notice:

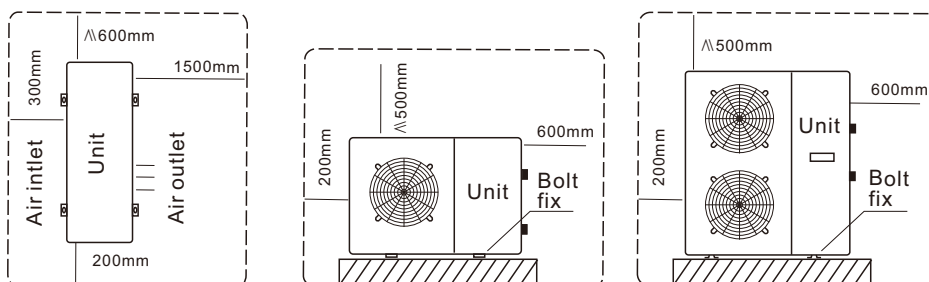
2. The installation position can hold the outdoor unit without noise and shake.
3. No sunlight to the unit. Set an awning if necessary.
4. The water from rain and defrosting can be discharged in the installation position.
5. The unit will not be covered by snow in the installation position.
6. The discharged air will not face strong air in the installation position.
7. Assure the noise caused by the unit ventilation and operation will not affect the neighbour.
8. The installation position will not be affected by garbage, oil and mist.
9. The unit will be damaged under the condition with oil(engine oil), salt(sea area) and sulfide air(near thermal spring and refining factory).

## 2. Heat Pump Positioning

- 2.1 For correct operation air must be free to circulate around the heat pump. Do not place the unit in a shed, greenhouse or similar. This unit is designed to be placed outdoors only.
- 2.2 Refer to the drawing below for required clearance.
- 2.3 You should position the heat pump so that the control panel does not face directly towards the sun.
- 2.4 The heat pump must be upright.
- 2.5 The distance between the heat pump and the pool / plant room should be as short as practically possible to reduce pressure and heat loss in the pipe work.
- 2.6 Insulating the pipe work will assist with the prevention of heat losses.
- 2.7 An isolator switch should be installed (by a qualified electrician) near the heat pump.
- 2.8 The electrical supply to the heat pump must be protected by a 30mA RCD.
- 2.9 The air inlets and outlets must not be obstructed or blocked.
- 2.10 Even though the heat pump is low noise, it must be positioned so as to be considerate to neighbours.
- 2.11 Your heat pump must be placed on a solid base.
- 2.12 Condensation will drip from underneath the heat pump, your base must be able to tolerate this.

## The position of installing unit

### A. Side fan type installation space requirements:



## 3. Pool Pipe Connecting

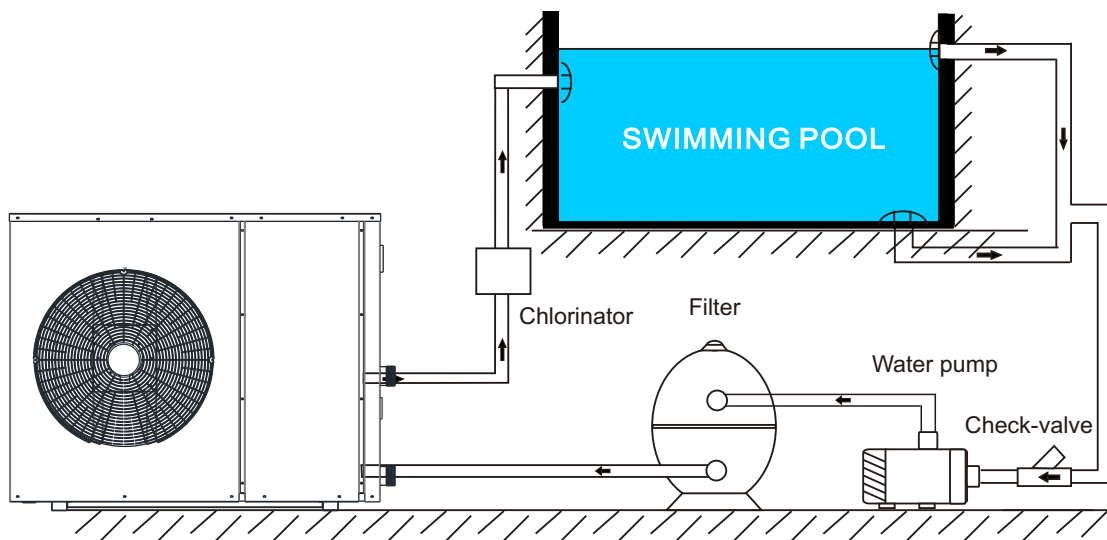
- 3.1 The pool water is fed through the heat pump by a swimming pool pump.
- 3.2 The heat pump must be installed after (down stream) the swimming pool filter so clean, filtered water passes through it.
- 3.3 Double union ball valves must be fitted just before the heat pump inlet and just after the outlet to aid servicing and winterising.
- 3.4 Each heat pump has a maximum water flow rate. If the flow via the pool pump is higher than this then a by-pass should be installed. Consult your supplying dealer.
- 3.5 Each heat pump also has a minimum flow rate, below this the heat pump will not operate. Consult your supplying dealer.
- 3.6 Pipe work of less than 1-1/2 inch diameter should not be used.

# SWIMMING POOL HEAT PUMP

- 3.7 Fit a union joint onto each pipe.
- 3.8 Push the gasket over the pipe until the gasket is about 5 -10mm from the edge of the pipe. You may need to lubricate the gasket.
- 3.9 Insert the pipe into the heat pump and tighten the union joint.
- 3.10 The union must only be hand tightened.
- 3.11 If the swimming pool is equipped with a chlorinator, brominator, or possibly chemical control with acid and chlorine pumps, there must be a non-return valve used in the return pipe work after the heat pump. Any dosing system must be the final equipment before the water returns to the swimming pool. Damage to the heat pump caused by chemical dosing
- 3.12 Any heat exchanger or electric heater fitted as auxiliary heating must be installed after (down stream from) the heat pump so as to avoid pre-heating the pool water before it enters the heat pump.

## Installation Drawing

1:Picture 1 effective for the side fan type models.



## 4. Electric wiring

- 4.1 Unit supply cable must be used copper. Power supply voltage should be in line with the rated voltage and the rated current.
- 4.2 The unit, power supply circuit must have a grounding wire, and the power supply ground wire must connect to the external grounding wire, and an external grounding wire to be effective.
- 4.3 Wiring installation must be installed by professional technicians carried out in accordance with circuit.
- 4.4 Setting up a good leakage protection devices and in accordance with the relevant national technical standards.
- 4.5 Power line and signal line layout should be neat, rational, strong and weak lines separating cable and Can not interfere with each other, without contact with the connecting pipe and valve.
- 4.6 After the construction of all wiring is completed, carefully check the correct order to connect the power.
- 4.7 Unit electric wire connection: connect to the appropriate terminals according to wiring diagram, and fix it by the pressure line of board in the electrical box.
- 4.8 All the wiring construction is completed, can be plugged in only after careful examination correctly.
- 4.9 Unit control board fuse parameters: 5A.
- 4.10. Power wiring as follows (single unit):

Mode:	Host Power	Phase line	Zero line	Ground line	Max.line length (m)	Signal line	Temp. sensor assistance line	Max.line length (m)
025ZA/B	220V/1PH/50Hz	1.5mm <sup>2</sup>	1.5mm <sup>2</sup>	1.5mm <sup>2</sup>	15mm	0.5mm <sup>2</sup>	0.5mm <sup>2</sup>	15mm
030ZA/B~040ZA/B	220V/1PH/50Hz	2.5mm <sup>2</sup>	2.5mm <sup>2</sup>	2.5mm <sup>2</sup>	15mm	0.5mm <sup>2</sup>	0.5mm <sup>2</sup>	15mm
050ZA/B	220V/1PH/50Hz	4.0mm <sup>2</sup>	4.0mm <sup>2</sup>	4.0mm <sup>2</sup>	15mm	0.5mm <sup>2</sup>	0.5mm <sup>2</sup>	15mm

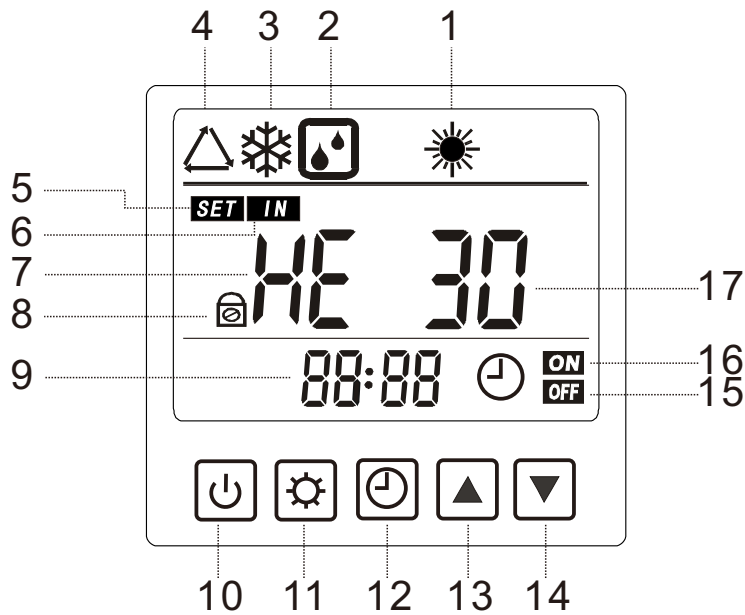
Note: 1. used PVC insulated copper wire for above wiring

2. for installation requires, the line is longer than the maximum line length, please contact the company

# SWIMMING POOL HEAT PUMP

## III. USE

### 1. Wire controller interface display



No.	Icon	Instructions
1		Heating mode icon
2		Defrost status icon
3		Cooling mode icon
4		Auto heating/cooling mode icon
5	<b>SET</b>	Setting temp. / wifi icon
6	<b>IN</b>	Water inlet temp.
7	<b>HE</b>	Turbo mode icon
8		Button lock icon
9	<b>00:00</b>	Clock /time icon

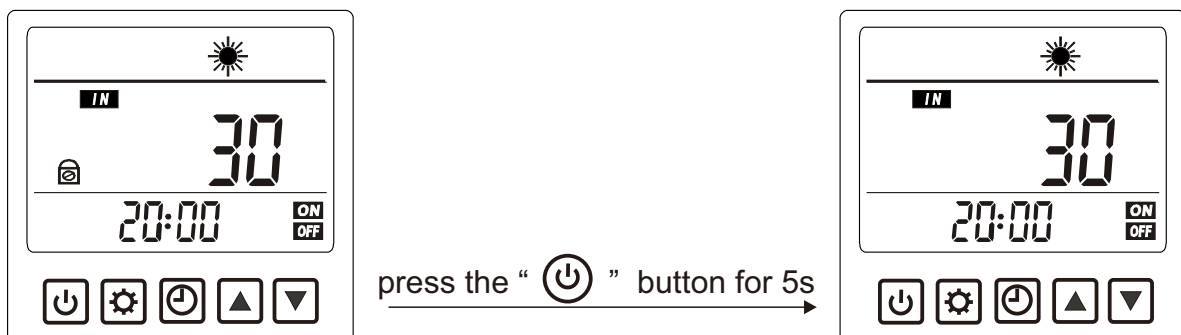
No.	Icon	Instructions
10		Unit turn on/off button
11		Mode select button function button
12		Clock /Timer button
13		Down button
14		Up button
15	<b>OFF</b>	Timer off icon
16	<b>ON</b>	Timer on icon
17	<b>30</b>	Inlet temp. and the valve
18		

### 2. Use of the wire controller

#### 2.1 Key lock and unlock



If the unit does not have any input operation for 60 seconds, the remote controller display screen will enter the dormant state, and the screen will be automatically locked, and the screen " " icon will light up

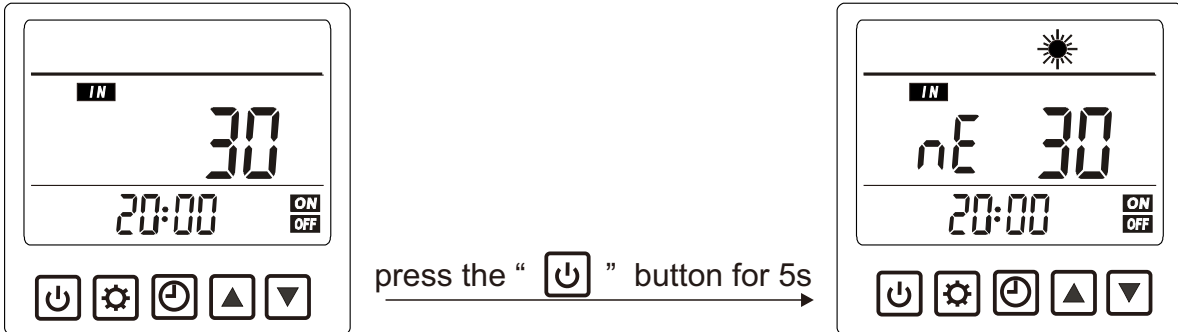
In the locked state, click any button to turn on the screen, press and hold the " " button for 5 seconds, after the buzzer beeps once, the lock button is released and the " " icon turns off.



# SWIMMING POOL HEAT PUMP

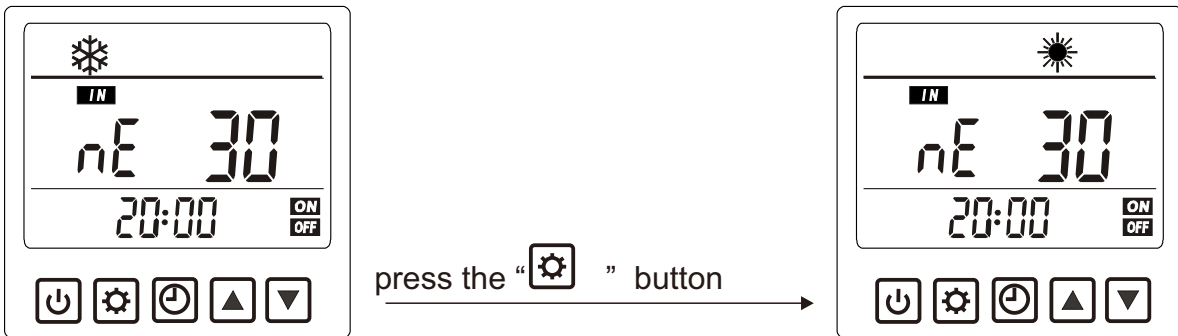
## 2.2 Turn on/off the unit










On the standby status ,press the “  ” button for 5s,when you hear the sound of “ beep”,the icon of running mode display interface , The unit is default running automatic mode.press the “  ” button for 5s again ,the unit is turn off status.




## 2.3 Mode select

On the turn on status ,press the “  ” button ,when you hear the sound of “ beep”,change the running mode ,the icon of running mode display interface.



- “  ”+ **nE** the Intelligent heating mode, the unit operates at an intelligent constant temperature speed .
- “  ”+ **HE** the Turbo heating mode The unit operates in accelerated thermostatic mode
- “  ”+ **LO** the silent heating mode, the unit operates at low speed.
- “  ”+ **nE** the Intelligent cooling mode, the unit operates at an intelligent constant temperature speed .
- “  ”+ **HE** the Turbo cooling mode The unit operates in accelerated thermostatic mode
- “  ”+ **LO** the silent cooling mode, the unit operates at low speed.
- “  ”+ **nE** the Intelligent auto mode, the unit operates at an intelligent constant temperature speed .
- “  ”+ **HE** the Turbo auto mode The unit operates in accelerated thermostatic mode
- “  ”+ **LO** the silent auto mode, the unit operates at low speed.

“  ”automatic mode ,when the water inlet temperature is higher than the setting temperature ,the unit is running cooling mode ,if the water inlet temperature is lower than the setting temperature ,the unit is running heating mode .

# SWIMMING POOL HEAT PUMP

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If it is heating in automatic mode, the automatic icon "  " and the heating icon "  " will light up together.




If it is cooling in automatic mode, the automatic icon "  " and the cooling icon "  " will light up together




## 2.4 Water inlet temperature setting


On the running status ,press " up " or " down " button, the set temperature would keep flicking to show the current temp of the water and the icon of " set " press " up " or " down " button to adjust the water temperature value.


## 2.5 Clock setting

On the main interface, long press the "  " button for 5 seconds to enter the real-time clock setting interface, the clock hour and minute flash together

In the real-time clock setting interface, press the "  " button, the digits of the hour part will flash, and the minute part will stop flashing. At this time, press the "  " or "  " key to set the hour of the real-time clock.


After setting the hour part, press the "  " key again, the digits of the minute part will flash, and the hour part will stop flashing. At this time, press the "  " or "  " key to adjust the minutes of the real-time clock. Set up.

When the minutes is set, press the "  " key again to confirm the real-time clock setting and return to the main interface




In the real-time clock setting interface, press the "  " button to confirm the current real-time clock setting value and return to the main interface




In the real-time clock setting interface, if there is no key operation for 30 seconds, confirm the current real-time clock setting value and return to the main interface


## 2.6 Time setting for timing on/off




In the main interface, press the "  " key to enter the setting interface of the timing group

When entering the timing time setting interface, timing group 1 flashes, the line controller has a total of 2 timing time groups 1, 2

When the number 1 is flashing regularly, press the "  " button to enter the setting interface of the hour part of the scheduled start-up time of the timing 1 group, the number of the hour part of the scheduled start-up time flashes, press the "  " or "  " key at this time , .Then you can set the hours for group 1

After setting the hour part of the scheduled start-up, press the "  " button again, and the number of the minute part of the scheduled start-up time will flash. At this time, press the "  " key or "  " key to set the timing set in minutes of group 1.


After setting the timing 1 set of minutes to turn on, press the "  " button again to enter the hour setting of timing of group 1 set of shutdown, the setting method is the same as above.

After setting the timing shutdown time, press the "  " button again to confirm and save the current group's set timing switch time. At this time, press the "  " key or "  " key to enter the next set of timing switch time The setting method is the same as the timing 1 group

If the timed time group is valid, the serial number of the timed time group will be displayed in the main interface

In a group of timing time settings, if the timing of timing on and off timing are the same, the timing on/off of this group is invalid

In the timing interface, if there is no key operation for 30 seconds, confirm the current set timing time and return to the main interface

In the timing interface, press the "  " button to confirm the current set timing time and return to the main interface



# SWIMMING POOL HEAT PUMP

## 2.7 Status parameter checking

The temperature status query comparison table of the unit

(users can query, long press the "▲" key for 3 seconds to enter, and then press the "▲" and "▼" keys to scroll up and down pages for query)

Parameter table

NO.	Parameter name	Remarks
T1	Discharge air temperature	Measured
T2	Suction air temperature	Measured
T3	Inlet water temperature	Measured
T4	Outlet water temperature	Measured
T5	Outdoor coil temperature	Measured
T6	Outdoor ambient temperature	Measured
T7	Reserved	Measured
T8	Reserved	Measured
T9	Reserved	Measured
T10	Reserved	Measured
T11	Reserved	Measured
Ft	Target frequency	Measured
Fr	Actual frequency	Measured
1F	Main circuit electronic expansion valve opening	Measured
2F	Auxiliary circuit electronic expansion valve opening	Measured
od	Outdoor operation mode	Measured
Pr	Outdoor fan speed	Measured
dF	Defrost state	Measured
OIL	Oil return state	Measured
r1	Reserved	Measured
r2	Button panel electric heating switch	Measured
r3	Reserved	Measured
STF	Four-way valve switch	Measured
HF	Reserved	Measured
PF	Reserved	Measured
PTF	Reserved	Measured
Pu	Water pump switch	Measured
AH	AC fan high speed switch	Measured
Ad	AC fan middle speed switch	Measured
AL	AC fan low speed switch	Measured
dcU	DC bus voltage	Measured
dcC	Inverter compressor current (A)	Measured
AcU	Input voltage	Measured
AcC	Input Current	Measured
HE1	Fault code history	Measured
HE2	Fault code history	Measured
HE3	Fault code history	Measured
HE4	Fault code history	Measured
Pr	Protocol version	Measured
Sr	Software version	Measured



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## 2.8 Parameter setting for user

On the main interface, long press the "⚙️" key for 3 seconds, then enter the unit user parameter function Settings, cooperate with the "▲" and "▼" keys to browse parameters, press the "⚙️" key to confirm to enter the modification state, cooperate with the "▲" and "▼" key to modify the value, then press "⚙️" to confirm, and press the "🔌" key to exit parameter query.

NO.	Parameter name	Range	Default
L0	Heating temperature setting	20°C~60°C	26°C
L1	Heating constant temperature difference setting	2°C~18°C	2°C
L2	Set value of deviation of heating up to temperature and shutdown	2°C~18°C	2°C
L3	Cooling temperature setting	2°C~30°C	12°C
L4	Heating constant temperature difference setting	2°C~18°C	2°C
L5	Refrigeration reaching temperature stop deviation set value	2°C~18°C	2°C
L6	Automatic mode setting temperature	8°C~60°C	26°C
L7	Water pump working method	0: The water pump does not turn off when the unit reaches constant temperature and stop 1: When the unit reaches constant temperature and stop, the water pump delays and the compressor turn off after 60 seconds, and it turns on for 5 minutes every (L8)min	0
L8	When stopping at constant temperature, open 5min every (L8)min	3~180min	30

## IV. WIFI FUNCTION

### 1. Software Download and Installation

Scan the QR code below with your browser (both Android and ios)



# SWIMMING POOL HEAT PUMP

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## 2. Account registration



Users without an account can apply by clicking the "Create A New User" function on the login page: Create a new user → enter the phone number → obtain the verification code → enter the verification code → set the password → complete, in the following order;

## 3. Unit WIFI module configuration steps:

### steps1:The controller enters the matching network mode

**A:** It can be connected within 10s by default for the first time. After 10 seconds, you need to press the button to operate the connection.(10S is the delay of WiFi entering low power) :

**B:** Manually enter the smart network distribution mode: long press "  " and "  " 3S to enter the smart network distribution mode. The " SET " icon flashes and the phone can start the network distribution;

**C:** After 3 minutes, the " SET " icon stops blinking, and the WiFi module is no longer connected. To connect again, long press the "  " and "  " keys 3S;

### steps2:Mobile Phone connected to WIFI


Turn on the WIFI function of the mobile phone and connect to the WIFI hotspot. The WIFI hotspot must be able to connect to the Internet normally, as shown in the figure:

Connect to the WIFI hotspot "111";

### steps3:Add equipment

Mobile Phone connected to WIFI Open the "smart life" APP, log in into the main interface, click on the top right corner " + " or "add equipment" of the interface, enter the all devices , interface select "heater" equipment and add equipment into the interface

### steps4:Matching

After selecting the heater, enter the interface of "Add Equipment", and confirm that the line controller has selected the intelligent network distribution mode. After the "  " icon is in the flash state, click " Confirm indicator is flashing ";

Enter the WIFI connection interface, enter the WIFI password that the phone has connected to (it must be the same as the WIFI that the phone is connected to), click OK, and directly enter the device connection state;

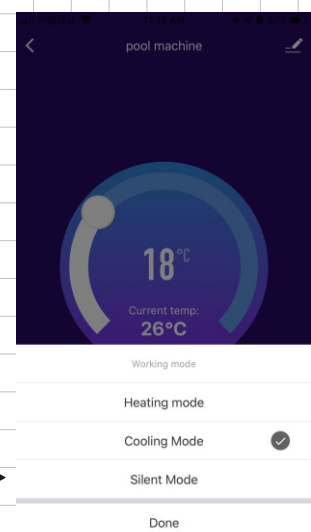
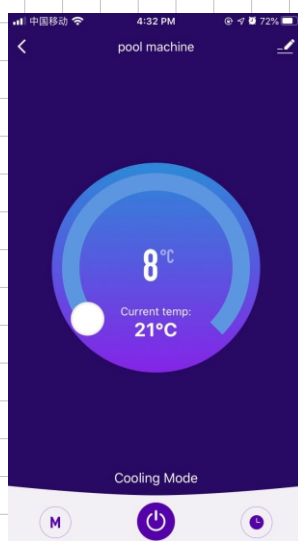
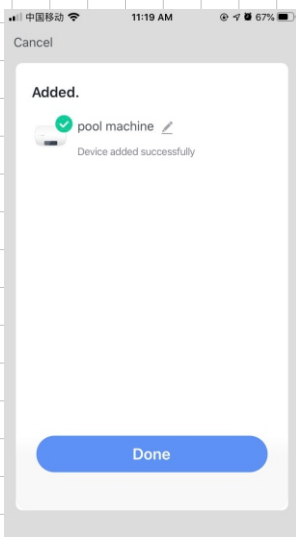
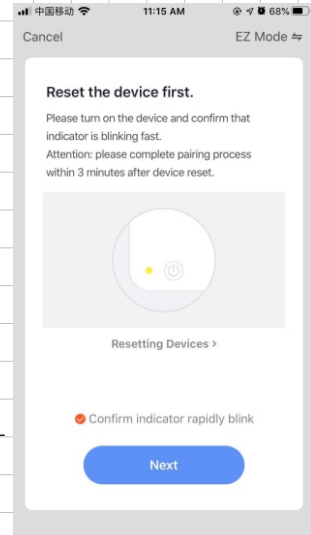
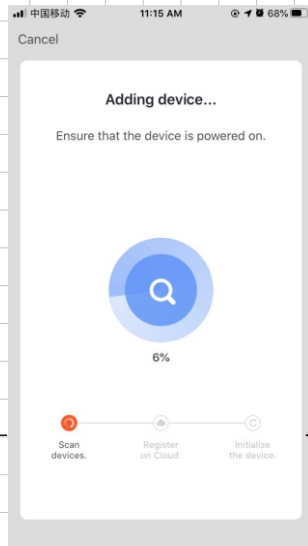
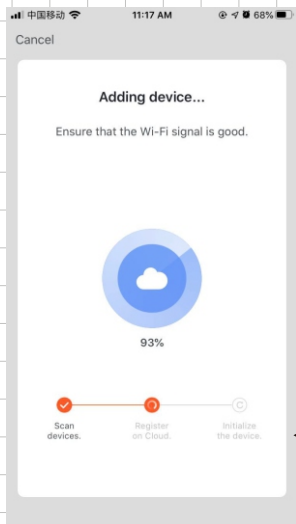
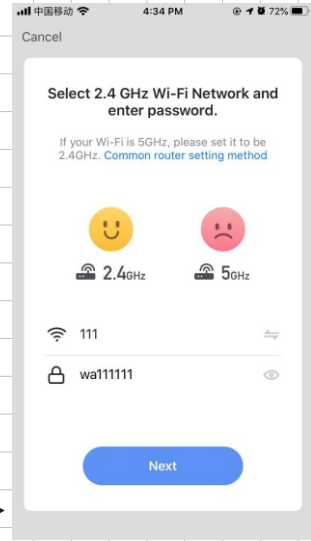
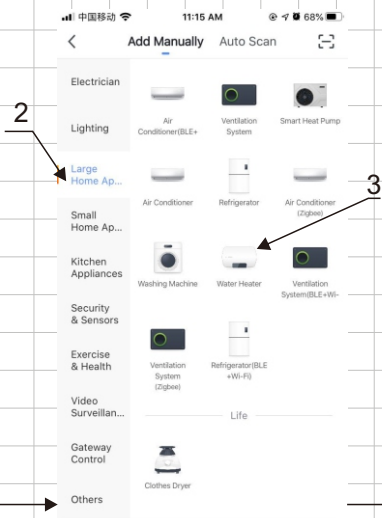
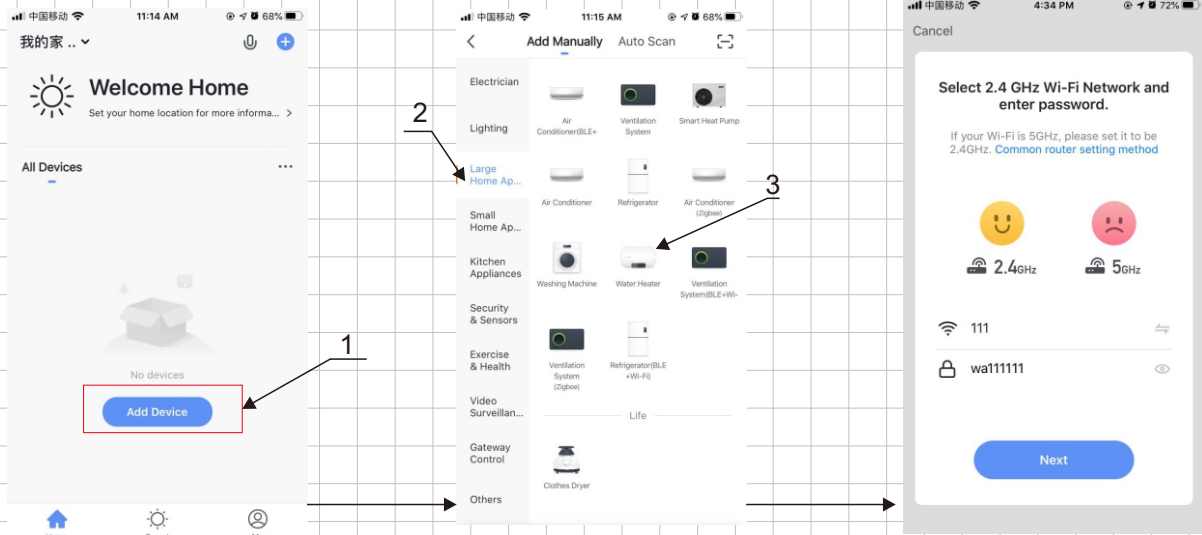
**Note:** " SET " icon will flash slowly when the WiFi module is connected to WiFi hotspot;

### steps5:Equipment management

When "Device found", "Device registered in intelligent Cloud" and "Device Initialization" are all completed, the connection is successful, and the system prompts "Device added successfully", then the network distribution is successful. The device name can be changed on this interface and the device installation location can be selected (living room, master bedroom...), and then click finish to directly enter the main interface of device operation;

The diagram is shown below:

# SWIMMING POOL HEAT PUMP



# SWIMMING POOL HEAT PUMP

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## V. Maintenance

### 1.Note

- 1.1** Check whether the exhaust equipment is normal. Avoid cutting of the water supply and or air entering into the system, or it will influence the performance and reliability of the unit. The water filter should be cleaned regularly. Keep the water clean in case of any damage to the unit due to filter's dirty and jam.
- 1.2** Keep the unit environment dry, clean and well ventilation. Clean the side air exchanger regularly(once per1-2 months) in order to maintain high exchange efficiency and save energy.
- 1.3** Usually check the performance of all the parts in the unit. Check whether the working pressure of the refrigerant system is normal. Repair and change the parts timely if there's any abnormality.
- 1.4** Usually check whether the wiring of the power and electric system is tightened and or electric parts perform abnormally or smells. Repair and change the parts timely if there's any abnormality.
- 1.5** Care the unit if the unit stops for a long time. Discharge all the water in the pump and throughout the pipe route in case breakdown to the water pump and pipe caused by frost and freeze. Discharge the water from the water pump and tube exchange Button drain. Check the unit thoroughly and flood water into the system before the unit power on again
- 1.6** To check the operation of every process in the unit, the operation pressure of the refrigerant system. You should maintain or change it in time.
- 1.7** To check the power supply and cable connection usually, there is abnormal action or bad smell about the electrical component. If there is, please maintain or change it in time.

### 2.Debugging And Running

#### 1.Preparation Before Debugging

##### 1.1 Checking-up of the Air Source Heat Pump unit.

- A. Check to assure that the appearance of the unit and the inner pipe system are not damaged in the transportation process.
- B. Check if there is air in the water pipes of the unit. If yes, please remove all the air through the vent valve on the water tubes and vent valves on the water pump.
- C. Check to assure that the blades of the fan do not touch the fixed panel or the protection net of the fan.

##### 1.2 Checking the electric supply system.

- A. Check if the power supply source accords with the power source required in this manual and the nameplate on the unit.
- B. Check if all the electric power supply and control lines are connected properly and confirm that the lines are connected according to the diagram and the grounding is reliable and the heads of all the lines are firm enough.

##### 1.3 Check the pipeline system

- A. Confirm that the system pipe, manometer, valves, and other instruments are correctly installed.
- B. Confirm that the valves in the system are open or closed properly.
- C. Check if the insulation system is in a good condition.

#### 2. Commissioning

- 2.1 The test running of the unit must be operated by a professional engineer !
- 2.2 After taking full examination of the whole system, if all parts are confirmed to be according to installation requirements, test running of the entire unit can be done.
- 2.3 The unit will turn on automatically 1 minutes later after connecting to the electric source and turning on the Heat Pump.
- 2.4 Check if the unit is running in accord with the requirements. Users can use the Air Source Heat Pump after testing properly for at least 8 hours.

# SWIMMING POOL HEAT PUMP

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## 3. Malfunction indicating table

Fault code	Fault description
E01	Exhaust temperature failure
E05	Coil temperature failure
E09	Return air temperature failure
E17	Return water temperature failure
E18	Outlet temperature failure
E21	Communication failure with indoor unit
E22	Ambient temperature failure
E25	Water flow switch failure
E27	Communication failure between outdoor board and drive board
E28	Outdoor board EEPROM error
E29	Driver board EEPROM error
P02	High and low pressure protection
P11	Excessive exhaust temperature protection
P15	Excessive temperature difference between inlet and outlet water Protection
P16	Cooling over cold protection
P17	Standby antifreeze protection
P18	Electric heating overheat protection
P19	Compressor current protection
P24	DC fan protection and failure
P25	Ambient temperature protection
P26	Heating outlet water temperature is too high protection
P27	Cooling outer coil over-temperature protection
r02	Compressor drive failure
r05	IPM module overheat protection
r06	Unit over current protection
r10	DC voltage overvoltage protection
r11	DC voltage undervoltage protection
r12	AC voltage overvoltage
r24	Abnormal power supply of external machine
E13	Cooling coil temperature failure

# SWIMMING POOL HEAT PUMP

## 4. Determine and solve malfunction by below table:

Malfunction	Reason	Solution
The unit can't run	<ol style="list-style-type: none"> <li>1. Power failures</li> <li>2. The unit wire loses</li> <li>3. The unit power fuse burns out.</li> </ol>	<ol style="list-style-type: none"> <li>1. Shut down and check the power</li> <li>2. Check the reason and repair</li> <li>3. Check and change the power fuse</li> </ol>
The water pump can run but can't circulate and is noisy	<ol style="list-style-type: none"> <li>1. The water system is lack of water</li> <li>2. There's air in the system.</li> <li>3. The water system valve doesn't open entirely</li> <li>4. The water filter is dirty and jam</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the water supplement equipment and supply water into the system.</li> <li>2. Exhaust the air from the water system</li> <li>3. Clean the water filter or exhaust the air from system</li> <li>4. Clean the water filter</li> </ol>
The cooling capacity is too low and the compressor works continuously without pause.	<ol style="list-style-type: none"> <li>1. Refrigerant is insufficient</li> <li>2. Thermal insulation of the water system is poor</li> <li>3. Thermal discharge of the exchange is poor</li> <li>4. Water flow volume is insufficient</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the leakage and add refrigerant</li> <li>2. Enhance the thermal insulation of the pipe route</li> <li>3. Clean the exchanger and improve the condensation condition</li> <li>4. Clean the water filter</li> </ol>
The compressor exhausted pressure is too high	<ol style="list-style-type: none"> <li>1. Too much refrigerant</li> <li>2. Thermal discharge of the exchange is poor</li> </ol>	<ol style="list-style-type: none"> <li>1. Discharge surplus refrigerant</li> <li>2. Clean the exchanger and improve the condensation condition</li> </ol>
The compressor suction pressure is too low	<ol style="list-style-type: none"> <li>1. Refrigerant is insufficient</li> <li>2. The filter and or capillary tube jam</li> <li>3. Water flow volume is insufficient</li> <li>4. Capillary tube of expansion valve sensor bulb breakdown</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the leakage and add refrigerant</li> <li>2. Change the capillary tube or filter</li> <li>3. Clean the exchanger and improve the condensation condition</li> <li>4. Change the expansion valve</li> </ol>
The compressor suction pressure is too low	<ol style="list-style-type: none"> <li>1. Refrigerant is insufficient</li> <li>2. The filter and or capillary tube jam</li> <li>3. Water flow volume is insufficient</li> <li>4. Capillary tube of expansion valve sensor bulb breakdown</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the leakage and add refrigerant</li> <li>2. Change the capillary tube or filter</li> <li>3. Clean the exchanger and improve the condensation condition</li> <li>4. Change the expansion valve</li> </ol>
Compressor can't work	<ol style="list-style-type: none"> <li>1. Power failure</li> <li>2. Compressor Control damaged</li> <li>3. Wire loses</li> <li>4. Compressor overload protection</li> <li>5. Return water temperature setting incorrect</li> <li>6. Water flow volume is insufficient</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the power and solve the malfunction</li> <li>2. Change Control</li> <li>3. Check loose reason and repair</li> <li>4. Compressor overload protection</li> <li>5. Reset the return water temperature</li> <li>6. Clean the water filter and exhaust the air from the system</li> </ol>
Compressor noisy	<ol style="list-style-type: none"> <li>1. Refrigerant enter into the compressor</li> <li>2. Compressor damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the reason and solve the malfunction</li> <li>2. Change the compressor</li> </ol>
Fan can't work	<ol style="list-style-type: none"> <li>1 Fan relay damaged</li> <li>2. Motor is burnt out</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the fan relay</li> <li>2. Change the fan motor</li> </ol>
The compressor run but no refrigeration	<ol style="list-style-type: none"> <li>1. The refrigerant leak out</li> <li>2. Plate exchanger freezes</li> <li>3. Compressor failure</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the leakage and add refrigerant</li> <li>2. Check the reason and change the plate exchanger</li> <li>3. Change the compressor</li> </ol>
Low water temperature protection to the unit	<ol style="list-style-type: none"> <li>1. Water flow volume is insufficient</li> <li>2. Temperature Control setting is too low</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the water filter and exhaust the air from the system</li> <li>2. Re-set</li> </ol>
Few water flow volume protection to the unit	<ol style="list-style-type: none"> <li>1. Water flow volume is insufficient</li> <li>2. Flow switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the water filter and exhaust the air from the system</li> <li>2. Change the flow switch</li> </ol>



# **SWIMMING POOL HEAT PUMP**