DHP-R Series
MANUAL

Installation & Operation

Read this manual carefully before installing or operating this unit

CHAPTER 1: Installation

Chapter 1 deals with installation of your **Evoheat** pool heater and is predominately for use by your installer/ technician. **Evo** recommends however that owners make themselves familiar with this chapter.

CHAPTER 2: Operation

Chapter 2 covers operation of your **Evoheat** pool heater including basic and advanced operation modes and maintenance/ troubleshooting.

**Please take the time to read this manual thoroughly.
Failure to do so can void customer warranty, cause possible damage to your heater, and may cause a loss of heater efficiency.**

Table of Contents

1. General information

1.1 Introduction

This manual provides installation and operation instructions for EVOHEAT heat pumps. Read these installation and operation instructions carefully before proceeding with the installation and operation of your heater. Consult your EVOHEAT Distributor with any questions regarding this equipment.

Installation and service must be performed by a qualified installer. The manufacturer will not be responsible for any damage to the unit or injury caused by improper installation, operation or maintenance.

1.2 Consumer and Safety Information

a. Evo recommends 27°C as the optimum water temperature for swimming.

b. The consumption of alcohol or drugs before or during spa or pool use can cause drowsiness which could lead to unconsciousness and subsequent risk of drowning.

c. Immersion in water exceeding 38°C during pregnancy is not recommended.

d. The water temperature should always be checked with an accurate thermometer before entering a spa or hot tub.

e. 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.

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

g. Prolonged immersion in hot water can induce hyperthermia.

1.3 Energy Saving Tips

It is important to note that a heat pump will not heat a pool as fast as a large gas pool heater. If the pool water is allowed to cool significantly, it may take several days to return to the desired swimming temperature. For weekend use, it is more economical to maintain the pool water temperature at or near your desired swimming temperature. If you do not plan to use your pool for a prolonged period, then you might choose to turn the heat pump completely off or decrease the temperature setting of the control several degrees to minimize energy consumption.

a. Use an accurate pool thermometer. A difference of 2°C , between 26°C and 28°C, will significantly increase energy consumption.

b. Carefully monitor the water temperature of your pool in the summer time. You can reduce heat pump usage due to warmer air temperatures.

c. When the pool is not to be used for long periods, turn off the heat pump.

d. Where possible, shelter the pool from prevailing winds with well-trimmed hedges or other landscaping, cabanas, or fencing.

e. Always use a high quality pool cover when practical. Besides providing a valuable water saving feature, a pool cover will dramatically reduce heat loss. See attached appendix for further information.

2.2   Dimensions

DHP20 – 50R

Vertical Vision

Water outlet
40

Water inlet
40
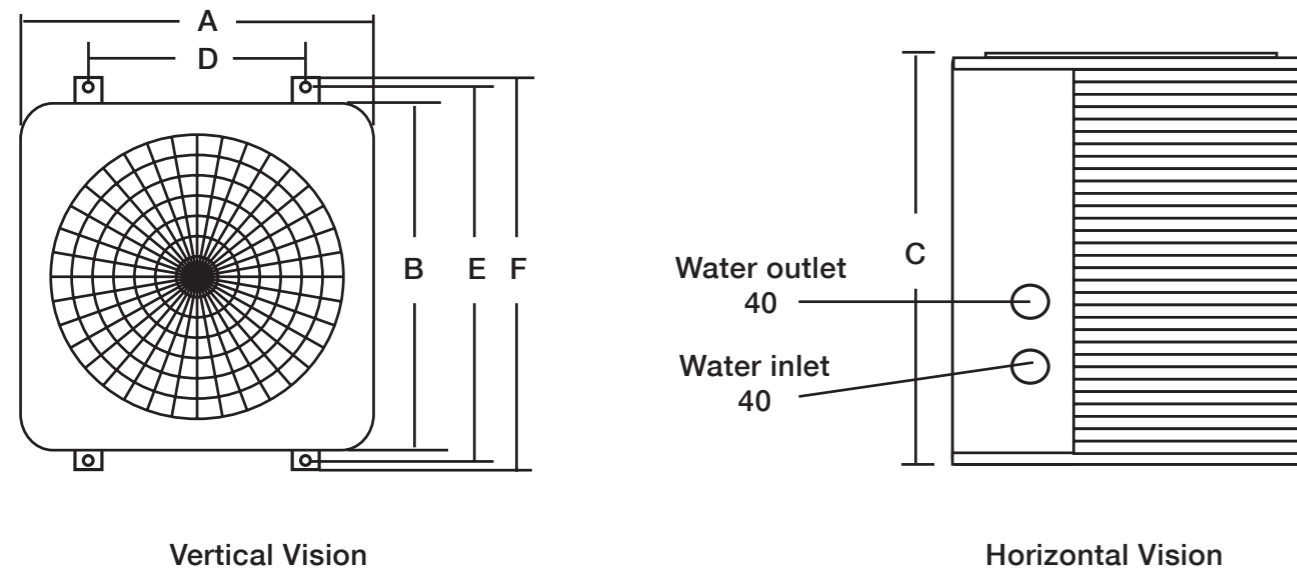
Horizontal Vision

DHP \ SIZE mm	A	B	C	D	E	F	G
020/030	680	645	720	422	663	686	Φ40
040/050	700	700	848	400	720	745	Φ40

DHP603-R

1130

1015

Water outlet
40

Water intlet
40

Drainage
32

Horizontal Vision

985

480

735
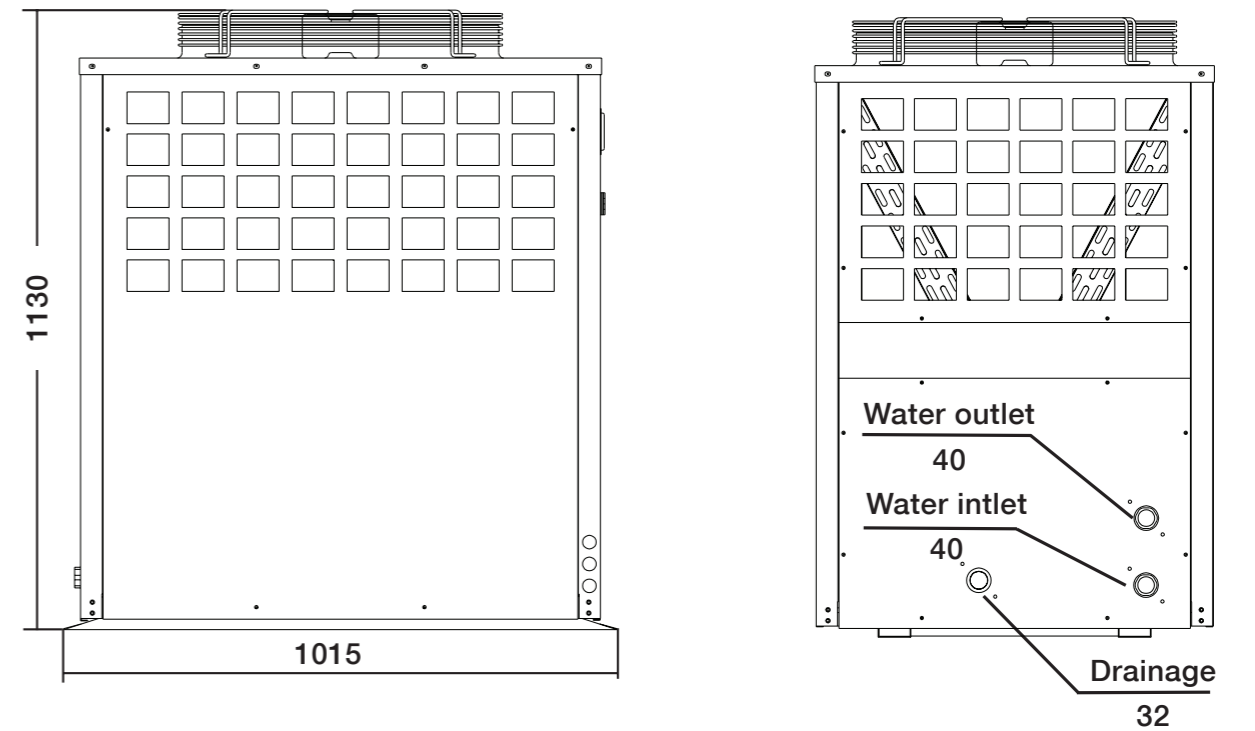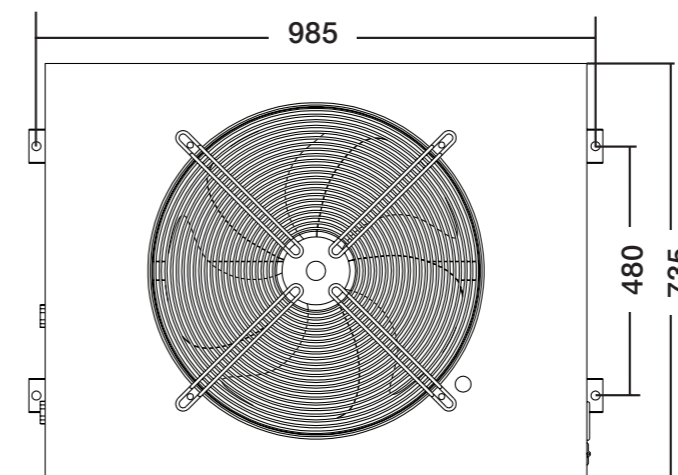
Vertical Vision

Before installation it is very important to ensure 4 variables are carefully checked to allow the unit to operate correctly:

1. **Adequate Air Flow**

2. **Correct water flow volume**

3. **Correct electrical connection & supply**

4. **Heater condition**

1. Air Flow

Installing the heater indoors or in an enclosed space will result in very poor performance and can in extreme cases damage the heater. Ensure the heater is installed in a well ventilated area with plenty of fresh air, a minimum gap between walls/fences etc of 600mm on the sides and 1500mm overhead clearance.

⚠️ **Important**: Ensure that the cold air off the top of the heater does not recycle through the heater.

2. Water Flow

It is CRITICAL that there is sufficient water flow to the unit. Incorrect water flow can cause a loss of efficiency and possible damage to the unit. Optimal water flow rates are listed in the Evoheat sales brochure and in this manual on page 5. It is imperative that water flow is kept as close as possible to these flow rates. Correct water flow not only offers optimal heater performance, but may also prevent possible damage to your heater.

3. Electrical Connection

Always use a qualified Electrician to perform any electrical work. Ensure the power cable and circuit breaker are of a suitable size for the heater being installed. Also check that there is adequate voltage and current available at the heater connection to run the unit. Voltage range should be 220-240 volts for single phase, and 380-415 volts for 3 phase units. Voltage ranges outside these parameters will cause heater damage and void your warranty. Correct phase connection is important with 3 phase heaters.

4. Heater Condition

Check the heater packaging upon delivery for any obvious signs of damage. Inform your supplier IMMEDIATELY if there is any evidence of rough handling.

When the heater has been removed from the packaging check the refrigerant gauge on the front panel of the unit. The gauge should be showing a pressure of approx 1Mpa on the outside black band – any less than this figure means there may be a leak in the refrigerant system and you should immediately contact your Evoheat Dealer.

Example of a unit with a refrigerant leak and zero pressure – notify Evoheat Dealer.

3. General installation information

3.1 Inspection

Inspect the packaging, the heater and other items after receipt for possible damage in transportation. Please contact your EVOHEAT dealer immediately should you suspect any damage has occurred during transportation.

Install your EVOHEAT heat pump in accordance with the procedures in this manual. Always check that your installation will comply with local building and council regulations.

Correct installation is required to ensure safe and efficient operation of your pool heater. Installation requirements for EVOHEAT heat pumps include the following:

a. Appropriate site location and clearances.

b. Sufficient air ventilation.

c. Correct electrical connection.

d. Adequate water flow.

> ⚠ *This manual provides the information needed to meet these requirements.*
>
> *Review all application and installation procedures completely before continuing the installation.*

3.2 Location

Evo recommend the heat pump should ONLY be installed in a location with appropriate ventilation.

The Evo pool heat pump should be installed with a minimum clearance of at least 3.5m to the water's edge.

Furthermore, EvoHeat recommend installing the heat pump no greater than 7.5 meters away from the water's edge due to heat loss from the piping. If you do not have a location with these suggested clearances, please contact our EvoHeat Tech Support Specialist on 1300 859 933 to discuss appropriate installation locations.

The heat pump should be installed a maximum of 5m below the water level of the pool/spa.

Make sure the heat pump is not located where large amounts of water may run-off from a roof into the unit. Sharp sloping roofs without gutters will allow excessive amounts of rain water mixed with debris from the roof to be forced through the unit. A water deflector may be needed to protect the heat pump.

If installing the heater on an existing pump/filtration system the heater must be installed AFTER the filter and BEFORE the chlorinator/sanitizer.

The heat pump should be installed on a flat level surface.

In the event that a suitable location is unavailable contact Evo Industries for specialist technical advice.

3.3 Airflow Clearances

The unit needs continuous fresh air whilst running. The heater draws up to 80m3/min ambient air through the sides and discharges through the top fan cowl. Leave sufficient space for unobstructed airflow into and out of the heater.

Do not locate the heater in an enclosed area, or the discharged cold air will recirculate into the unit and consequently lower the heating efficiency.

3.4 Water Flow and Plumbing Setup

All EVOHEAT heat pumps have a factory preset internal water flow switch. If there is insufficient water flow the heater will not operate.

Before connecting the heater to the plumbing, all piping must be thoroughly flushed to ensure no debris can enter the heater. Failure to remove pipe debris can jam or damage the flow switch and may cause damage to the heater.

When cleaning the pool it is advisable to turn off your heater as restricted water flow may cause the heater to shut down and indicate low water flow fault (P08 error).

Minimum airflow required clearances

300mm (rear)

600mm (side)   600mm (side)

900mm (front)

Overhang with gutter

Rain runoff must be directed away from unit

1500mm minimum clearance, overhead

300mm minimum clearance, rear

900mm minimum clearance, front

> ⚠ *A Variable speed pump or bypass valve and plumbing MUST be fitted to allow water flow to be adjusted through the heater. Do not direct connect a water pump with higher flow than required to the heat pump.*

3.5   Water Pump Connection

How do I connect up my new EVO heater to my pool or spa?

The EVO JBox is the answer. The JBox will save you money on water pumps and running costs.

The JBox allows either the heater OR the chlorinator to supply power to the water pump so each system can run independently of the other.

Installation Options

There are 3 methods to install an Evo heat pump.

1. Slave Mode

Heater is connected to the filtration system but relies on water flow from the chlorinator for start and stop times.
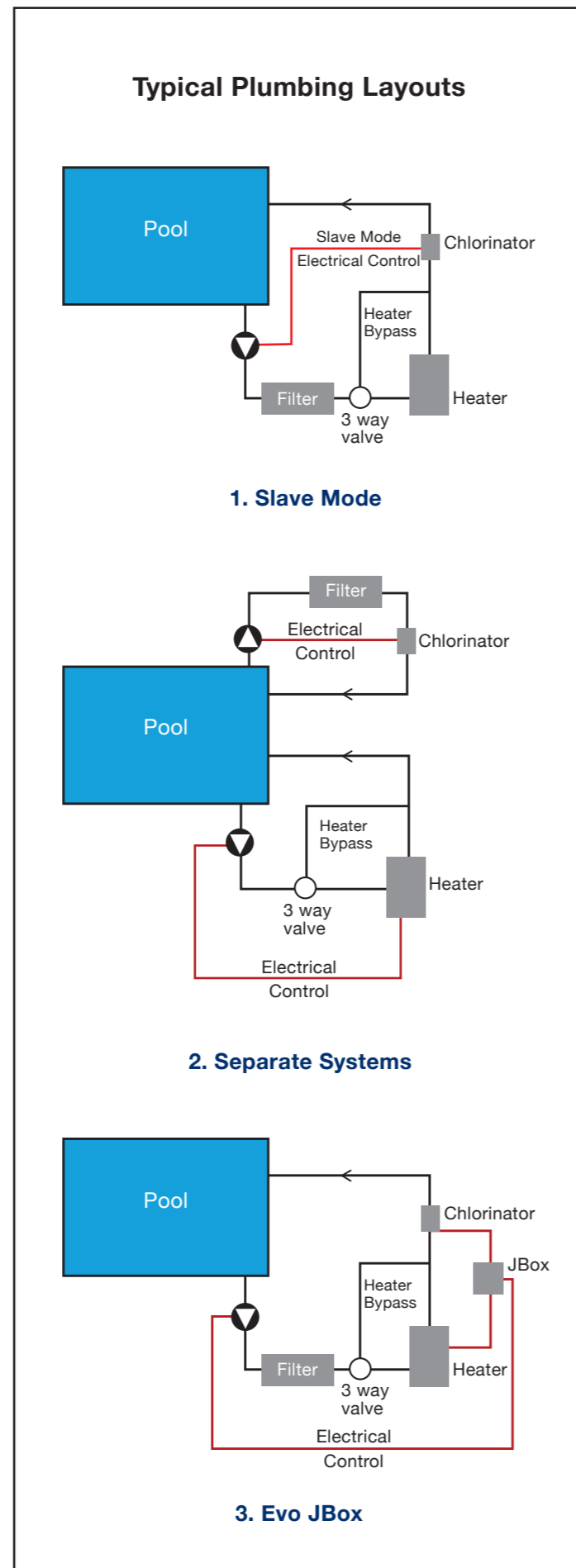
Advantages

• Only 1 pump needed – savings on purchase and running costs.

Disadvantages

• As the heater may need to run 18+hrs a day the chlorinator will need to be adjusted to allow the pump to run longer. This can cause water chemical balance issues resulting from over or under chlorinating the pool. You will need to constantly monitor and fiddle with the chlorinator output to keep it.

2. Seperate Systems

Heater runs on a dedicated circuit to the filtration system. The heater controls the start and stop times of this pump.

Typical Plumbing Layouts

1. Slave Mode

2. Separate Systems

3. Evo JBox

Advantages

• Easy to use – set and forget the heater operation and leave your chlorinator to work as normal

• No water balance issues due to adjusting the chlorinator running time.

Disadvantages

• Purchase of 1 extra water pump at up to $800

• Electrical use from this pump could add up to over $1000 per year

3. EVO JBox

Heater is connected into the filtration plumbing. After installing the Evo JBox and having your electrician hard wire the JBox to the heater, simply plug the water pump into the JBox and plug the JBox into the Chlorintor.

Advantages

• Only 1 pump needed – savings on purchase and running costs

• Save up to $1000pa on electricity

• Easy to use – set and forget the heater operation and leave your chlorinator to work as normal

• No water or chemical balance issues due to adjusting the chlorinator running time

Disadvantages

• None!

Order an EVO JBox with your heater and relax in your pool while maximising the savings.

3.6   Drainage

Whilst the heater is operating, water in the air condenses on the fins of the evaporator. In the instance of high humidity, the condensate may be several litres per hour. This may give the impression that the heater is leaking, however this is a normal function of heat pumps. The heater will automatically activate reverse cycle or de-icing mode when required which also increases condensate discharge. This normally occurs at temperatures below 8 degC. The condensate water will discharge through the base of the heater. As an option a pipe can be connected to the drain on the base of the unit to direct condensate water to an appropriate location.

Condensate Drain Barb

Fit these into the 2 holes under the unit if you need to direct water away from the heater. Put in hot water if stiff.

3.7 Electrical Connection

> ⚠️ **NOTE:** *EVO heat pumps MUST be connected by a licensed electrician. Under no circumstances should you attempt to install or repair your heat pump yourself.*

Heater electrical installation undertaken by an unlicensed installer may cause electric shock or even death, and will void the warranty.

A licensed electrician must read the information in this manual before connecting.

a. Ensure power is disconnected during installation or service.

b. Always comply with the national and local electrical codes and standards.

c. Ensure electrical cable size is adequate for heater requirements at the installation location.

d. The heater must be equipped with a circuit breaker and isolation device.

e. Circuit breaker must be installed between the heater and the water circulation pump if the water pump is hard-wired into the heater. Please note recommended circuit breaker sizes make no allowance for a water pump hard wired into the heater.

f. Evo strongly recommends the installation of a Residual Current Device.

g. The unit must be well earthed.

Remove the front panel to access the electrical connection terminals of the heater. **The electrical wiring diagram is affixed to the inside of the front panel.**

SEE APPENDIX "A" FOR WIRING DIAGRAM INFORMATION

3.8 Remote Controller Connection

All Evo heaters are able to be controlled remotely by any device capable of opening and closing a circuit. The circuit must be low voltage 5V or lower.

Remove the cable loop between DI01 and GND on the pcb and connect the remote cable from the external controller into these terminals.

When this circuit is open (no connection) the Evo heat pump will not operate. When the circuit is closed the unit will operate according to the parameters set on the controller(s).

Connect here
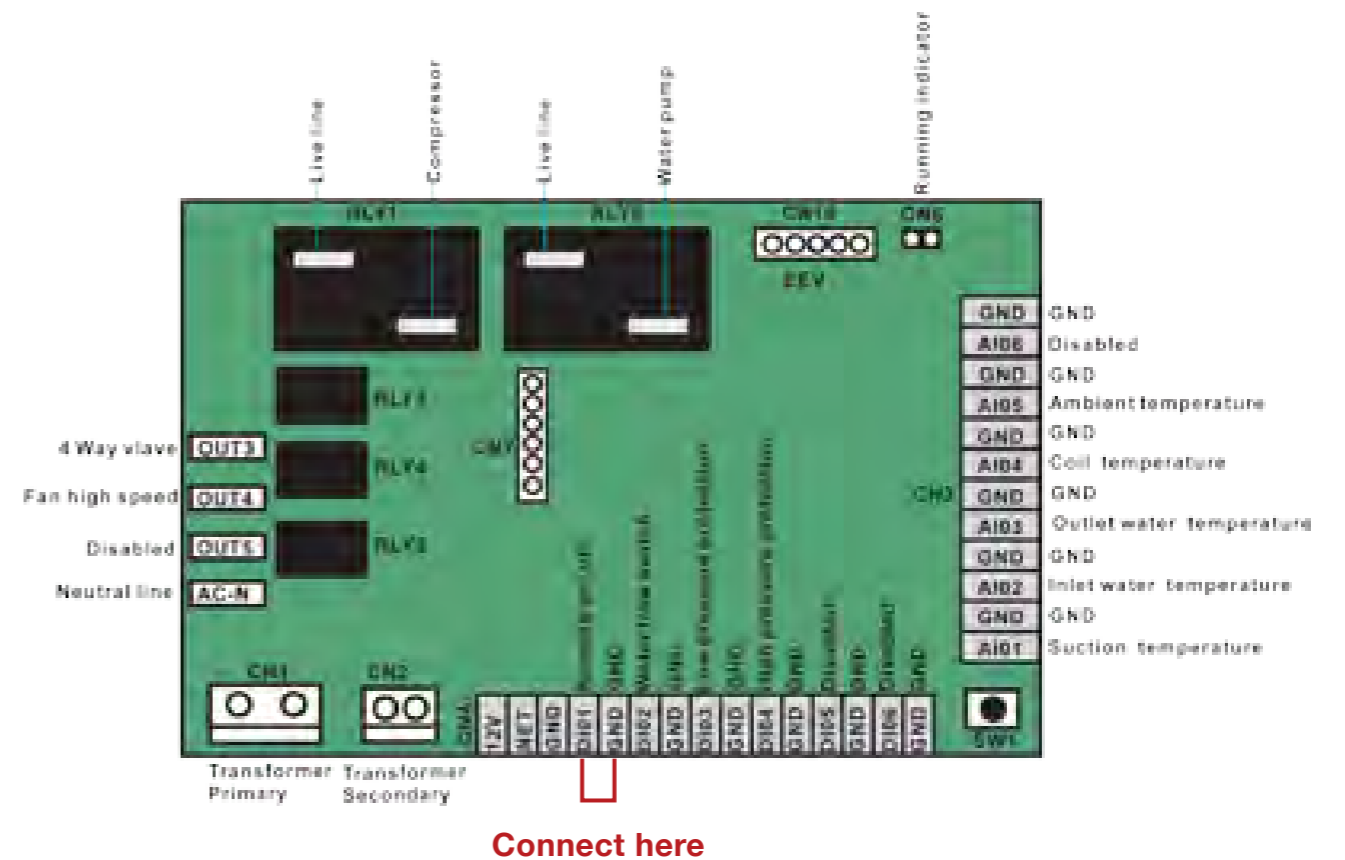
4. USAGE AND OPERATION

1.Function of controller

Main display area

Aux. Display area
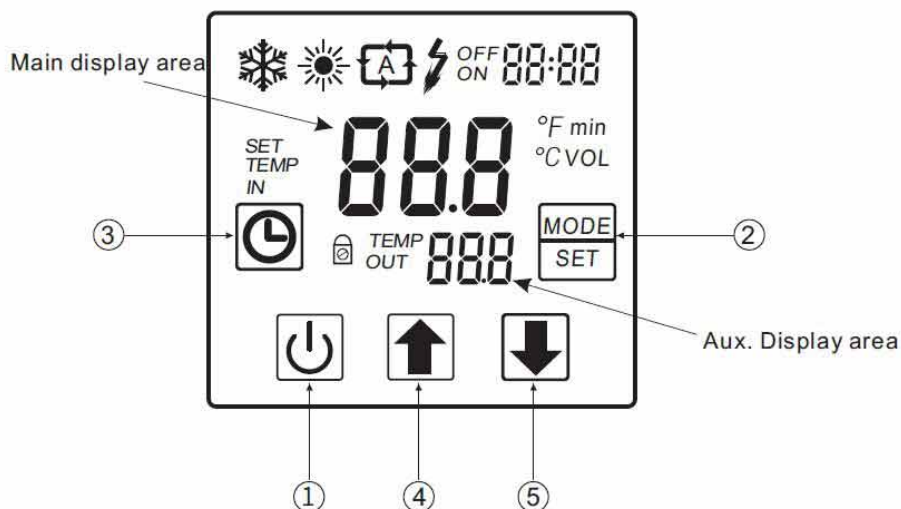
1）Button function

NO	Symbol	Name	Function
①		On/off	Press this button can start up or shut down the unit, cancel the current operation or back to the upper interface
②	MODE SET	Mode	Press this button can switch modes or save parameter setting.
③		Clock	Press this button can set the clock and timer
④		Up	Press this button can move up or increase parameter value.
⑤		Down	Press this button can move down or decrease the parameter value.

4. USAGE AND OPERATION

Symbol	Meaning	Function
❄	Cooling	It is showed when the unit in cooling mode.
☀	Heating	It is showed when the unit in heating mode and flashed in defrosting.
🄰	Automatic	It is showed when the unit in automatic mode.
⚡	Electric-heating	It is showed when the unit in electric-heating mode. (Swimming pool unit without this display)
ON	Timer on	It is showed when the unit sets the timer on
OFF	Timer off	It is showed when the unit sets the timer off
IN	Inlet water	It is showed when the main display area gives the inlet water temperature.(measured value)
OUT	Outlet water	It is showed when the AUX display area gives the outlet water temperature.(measured value)
TEMP	Temperature	It is showed when the main/ AUX display area gives temperature
VOL	Flow	It is showed when the main display area gives the water flow value
min	Minute	It is showed when the main display area gives minute value
°F	Fahrenheit	It is showed when the main/AUX display area gives Fahrenheit value
°C	Centigrade	It is showed when the main/AUX display area gives centigrade value
SET	Parameter setting	It is showed when the parameter can be setted.
🔒	Lock	It is showed when the keyboard is locked.

4. USAGE AND OPERATION

2.The controller usage

2.1 Starting up and shutting down

In the off interface, press " 🔌 " for 0.5s can start up the unit, and aux. display-area shows water outlet temperature; In the running interface, press " 🔌 " for 0.5s can shut down the unit and aux. display-area shows "OFF".

Attention: the operation of Starting up and shutting down can only be done in the main interface. For example:
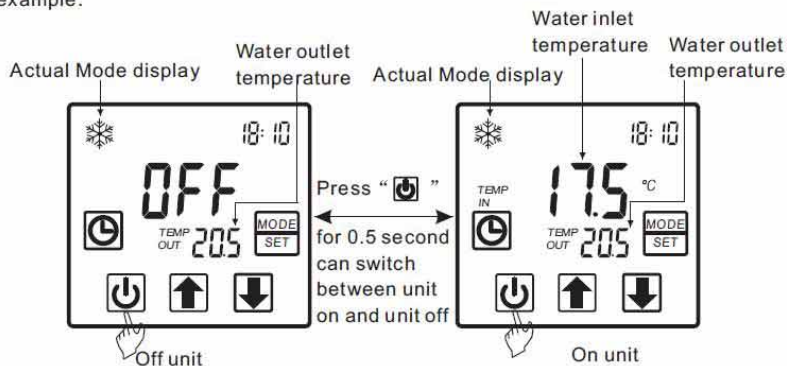
2.2 Modes switching

If it is cold/ heat unit, in the main interface, you can switch different modes of cooling, heating, auto mode by pressing " MODE SET ".

Attention: The modes switching is useless if the unit you buy is single-cold/ single-heat unit. For example:

11
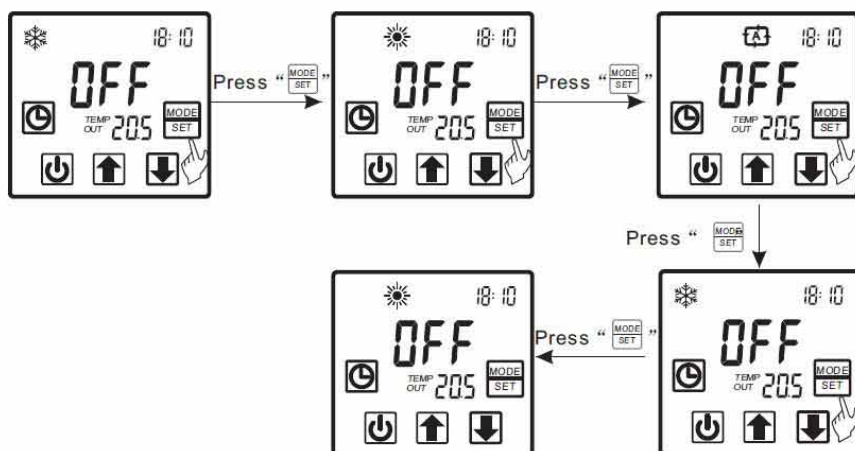
4. USAGE AND OPERATION

2.3 Temperature setting

In the main interface，press " ⬆ " or " ⬇ " and the current mode target-temperature flashes, then press " ⬆ " to increase the temp.value, or press " ⬇ " to decrease it.

Press " MODE SET " can save setting parameter and back to the main interface：

Press " ⏻ " can not save setting parameter but back to the main interface：

Attention：If there is no operation for 5s，system would remember parameter setting and back to the main interface.
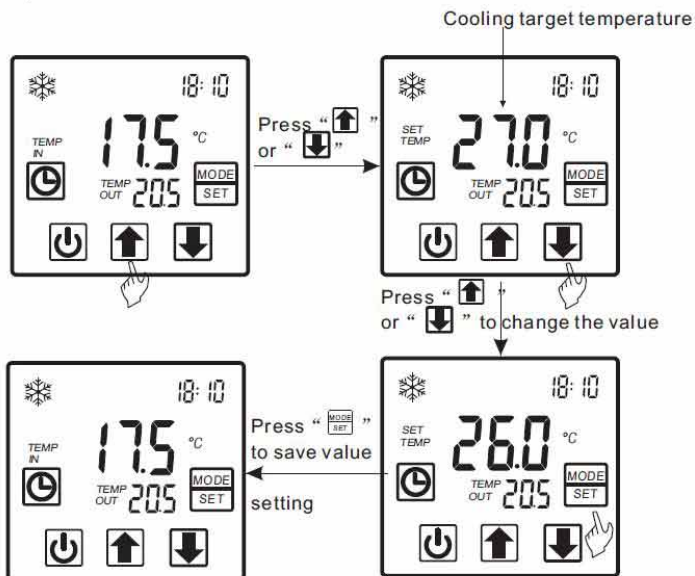
For example：

2.4 Clock setting

In the main interface，press " 🕐 " twice，Hours start to flashing ，and press " ⬆ " to increase value or press " ⬇ " to decrease value，and press " 🕐 " to save setting：

At the same time, minute start to flashing ，press " ⬆ " to increase value or press " ⬇ " to decrease value，and press " 🕐 " to save setting.

Press " ⏻ " can not save setting parameter and back to main interface.

Attention：If there is no operation for 5s system will remember parameter setting and back to the main interface.

For example：

Hour minute

Flashing

Press " ⏰ "

Press " ⏰ "

Flashing

Flashing

Press " ⬆ "
or " ⬇ "

Press " ⏰ "
to save hour
value setting

Flashing

Flashing

Press " ⬆ "
or " ⬇ "

Press " ⏰ "
to save minute value setting
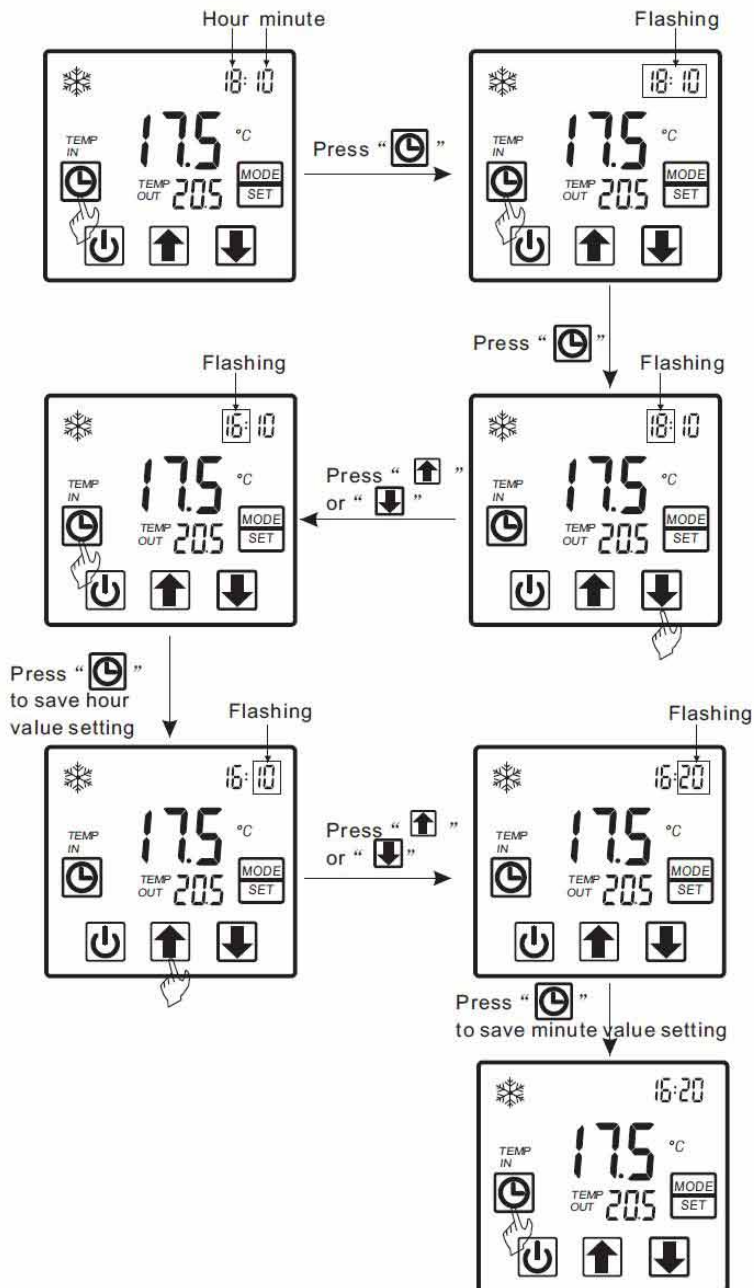
Flashing

4. USAGE AND OPERATION

2.5 Timer setting

In the main interface，press " 🕒 " hold on 2 seconds and "on" is flashing, at this time, you can set the timer on（means the unit timer is on），then press " 🕒 " again and hold on 2 seconds and "off" is flashes you can set the timer off（means the unit timer is off）.

If you want cancel the timer off, In the "off" flashing interface，press " ⏻ " to cancel

Attention：1) If there is no operation for 5s，system will remember clock setting and back to the main interface.

2) By pressing " 🕒 " till the "off" flashing, you can set the timer off without timer on.
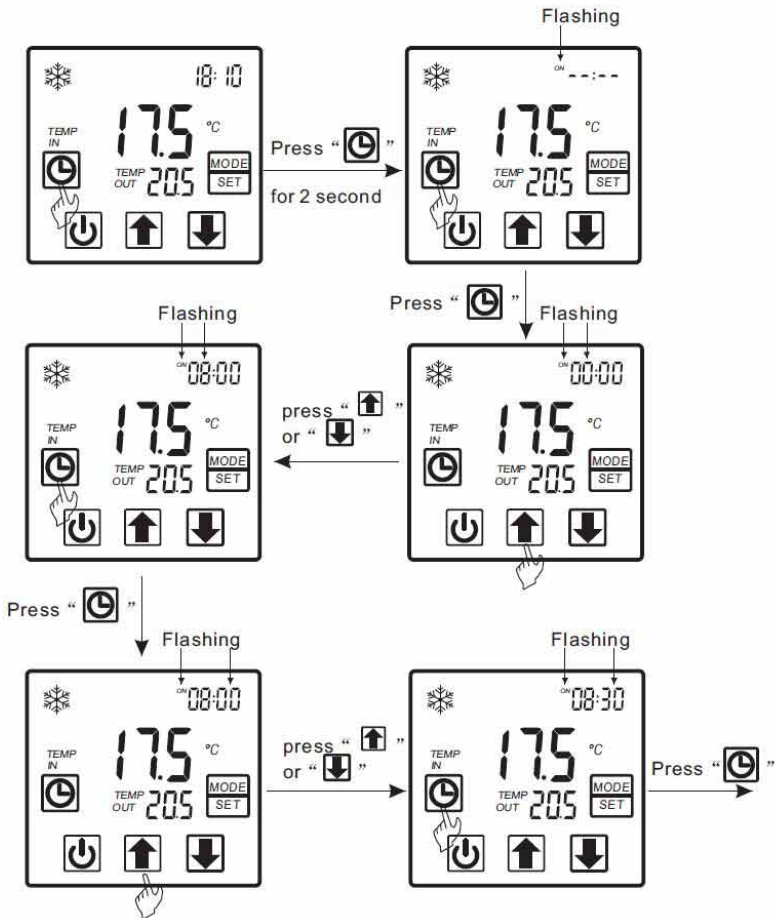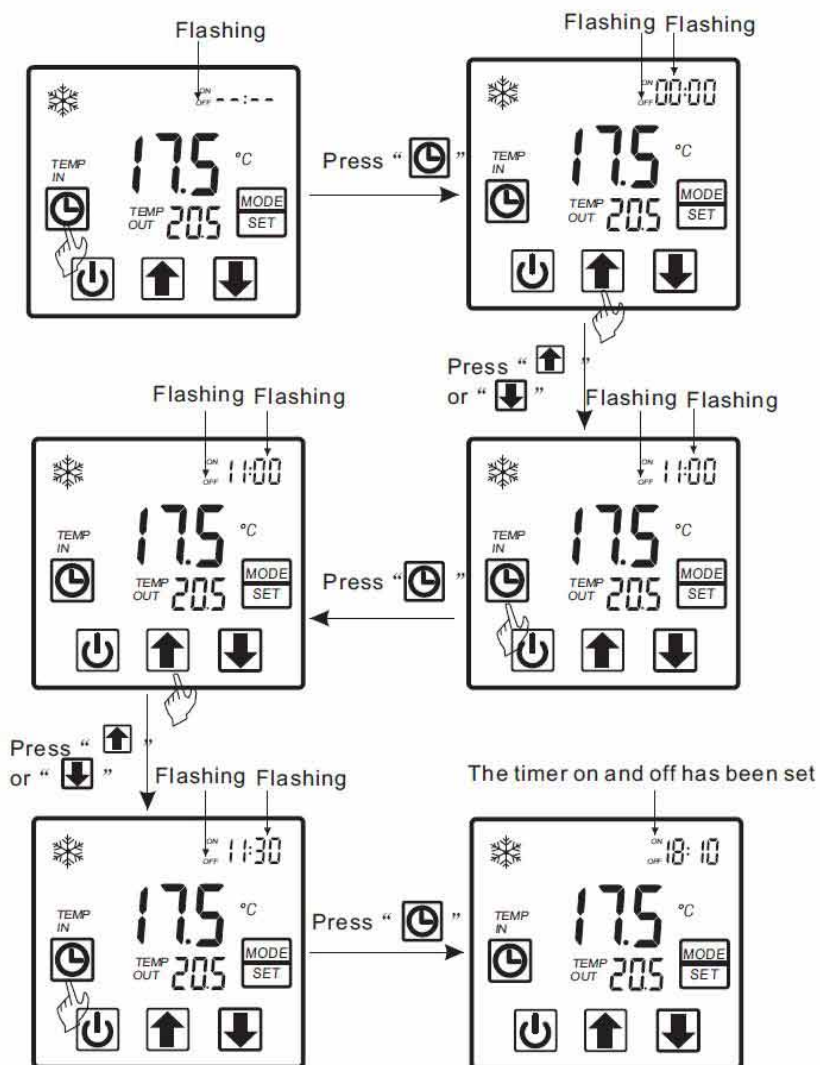
2.6 Cancel the timer setting

Press " " for 2s and "ON" is flashing，at this time, press " " to cancel the setting of timer on; It is the same way to cancel the setting of timer off .

For example:

The timer on/off has been set

"ON" is flashing

 Press " " for 2s

Press " " The setting of timer on has been cancelled

"OFF" is flashing

 Press " " for 4s

Press " " The setting of timer off has been cancelled
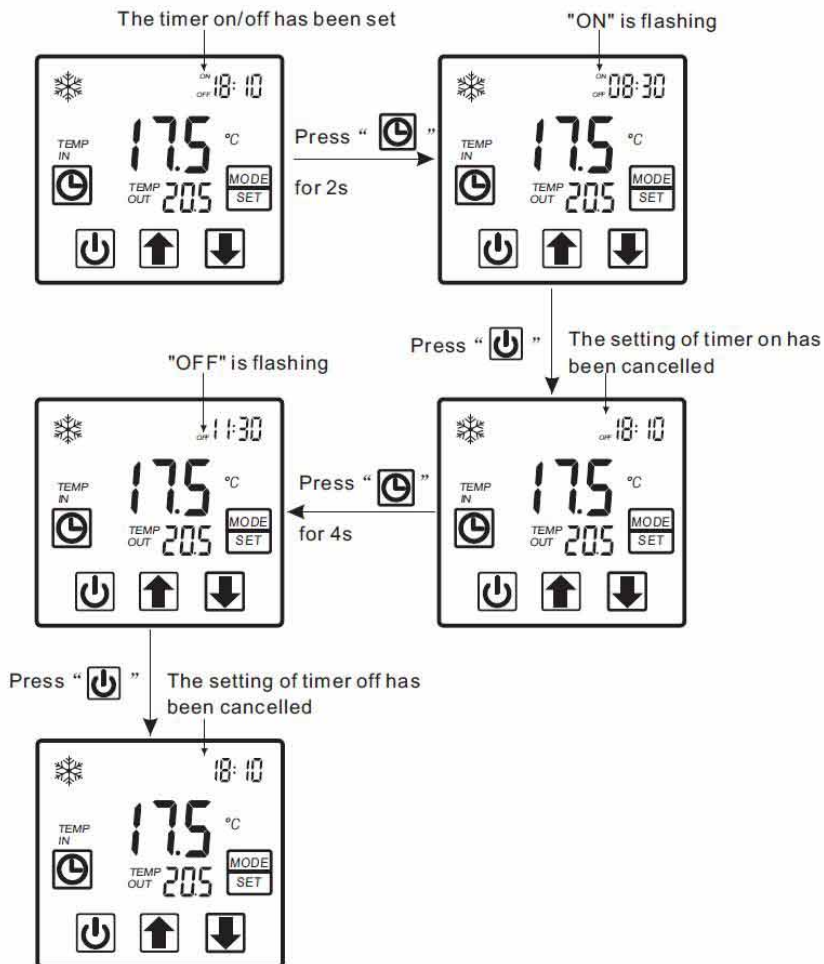
2.4 Keyboard lock

To avoid mis-operation, please lock the controller after parameter setting.
At the main interface, press " ⏻ " for 5 seconds, the keyboard will be locked.
When the keyboard is locked, press " ⏻ " for 5 seconds, the keyboard will be unlocked.
NOTES: When the unit is in alarming state, the key lock can be removed automaticly.

Hold on " ⏻ "

Locked
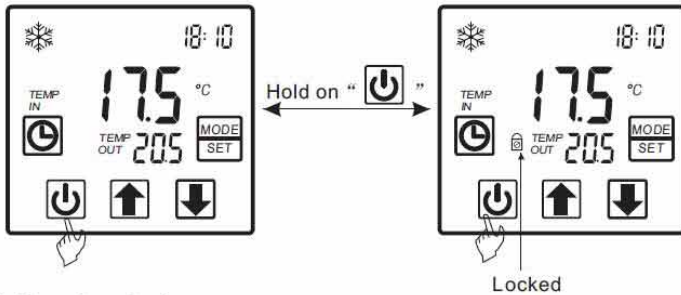
2.5 Malfunction display

There will be malfunction code showing on the controller screen when relative malfunction occurs.
You can refer to the malfunction table to find out the failure cause and solution.
For example"

Water inlet temp. Sensor failure
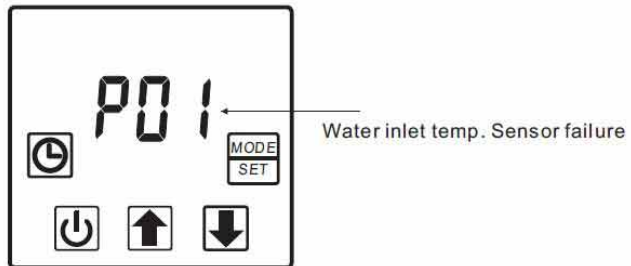
4. USAGE AND OPERATION

3. Parameter table

Meaning	Default	Remark
Heating inlet target temp.	27℃	Adjustable
Cooling inlet target temp.	27℃	Adjustable
Auto inlet target temp.	27℃	Adjustable

Remark:
The wire controller can display the temperature unit as "℉" or "℃" according to the unit Model you bought.

2. PCB I/O Ports description
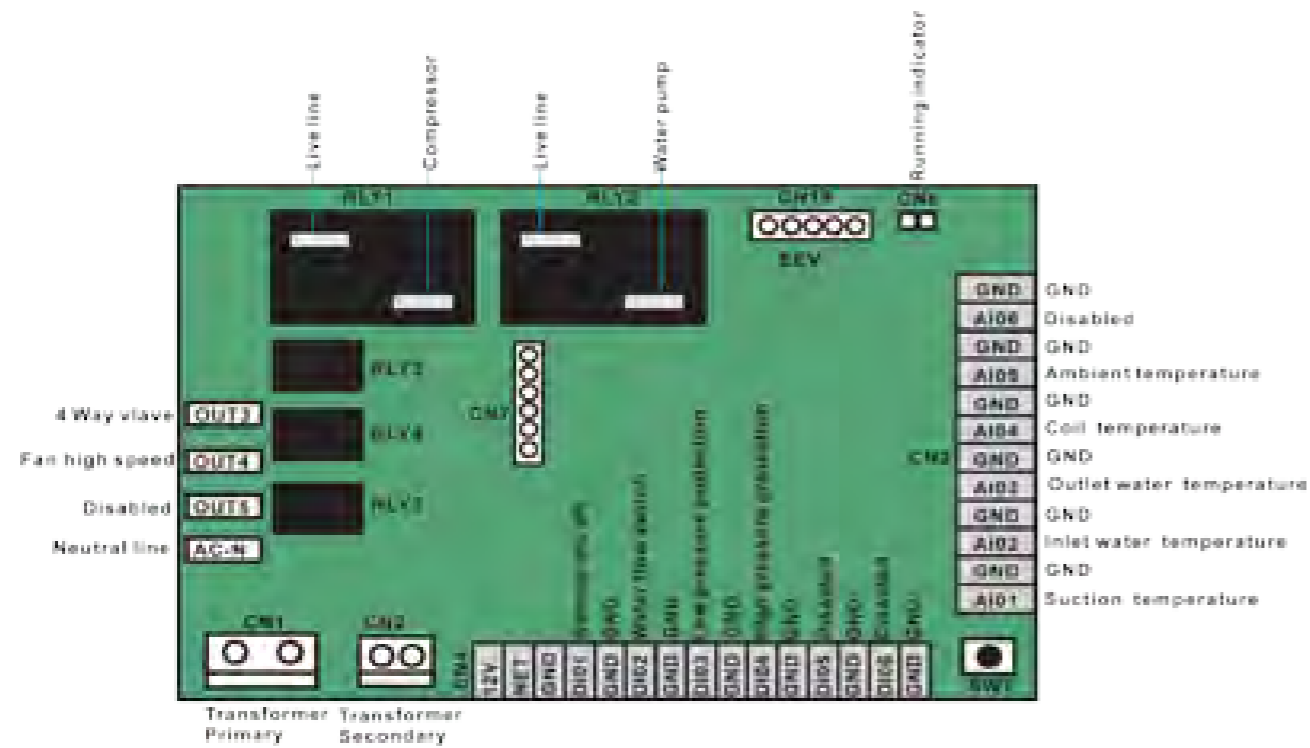
3. Parameter

Parameter table

No.	Type	Parameter and description	Setting value Code	Setting value Setting	Default Level
1	d	Start defrosting temperature	d01	-30-0°C	F/U
2		End defrost temperature	d02	0-30°C	F/U
3		Defrosting cycle	d03	1-90min	F/U
4		Maximum defrosting time	d04	1-20min	F/U
5	E	EEV mode	E01	0-1	F/U
6		Super heat	E02	-20-20°C	F
7		Initial place	E03	0-500	F
8		Minimum place	E04	0-500	F
9		Defrost place	E05	0-500	F
10		Cooling place	E06	0-500	F
11	F	Fan parameter	F01	0-4	F/U
12		Coil temp. in high speed fan mode (Cooling)	F02	-15-60°C	F
13		Coil temp. in low speed fan mode (Cooling)	F03	-15-60°C	F
14		Coil temp. when the fan stop (Cooling)	F04	-15-60°C	F
15		Coil temp. in high speed fan mode(Heating)	F05	-15-60°C	F
16		Coil temp. in low speed fan mode(Heating)	F06	-15-60°C	F
17		Coil temp. when the fan stop(Heating)	F07	-15-60°C	F
18		Fan start low speed running time	F08	0-23h	F
19		Fan stop low speed running time	F09	0-23h	F
20		Fan speed control temp.	F10	0-1	F
21	h	Automatic restarting	H01	0-1	F
22		Model(cooling only/AUTO/heating only)	H02	0-2	F/U
23		Temperature unit transformation	H03	0-1	F
24	P	Water pump model	P01	0-2	F/U
25		Water pump running cycle	P02	0-120min	F/U
26		Water pump running time	P03	0-30min	F/U
27		Delay in switching on the compressor after switching on the pump	P04	0-30min	F/U
28	r	Inlet water setting temp. (cooling)	r01	r08-r09	F
29		Inlet water setting temp. (Heating)	r02	r10-r11	F
30		Target setting temp. (Auto mode)	r03	r08-r11	F
31		Cooling differential	r04	0-10°C	F
32		Cooling stop differential	r05	0-10°C	F
33		Heating differential	r06	0-10°C	F
34		Heating stop differential	r07	0-10°C	F
35		Minimum set point in Cooling	r08	-30-r09°C	F
36		Maximum Cooling set point	r09	r08-80°C	F
37		Minimum Heating set point	r10	-30-r11°C	F
38		Maximum Heating set point	r11	r11-80°C	F

Description of the parameters

D ——— Defrost parameter

D01 ——— Start defrost temperature

To start the defrost cycle; the condition must be valid for the time d03.

D02 ——— End defrost temperature

Establishes the temperature above which the defrost cycle ends.

D03 ——— Defrosting cycle

Represents delay between two successive defrost cycle. The first time, when coil temperature is lower than D01, there must be valid for the time d03 to start defrost.

D04 ——— Max.defrosting duration

Represents the maximum duration of the defrost cycle (the defrost ends when the maximum duration has been arrived, even if the defrost hasn't finished)
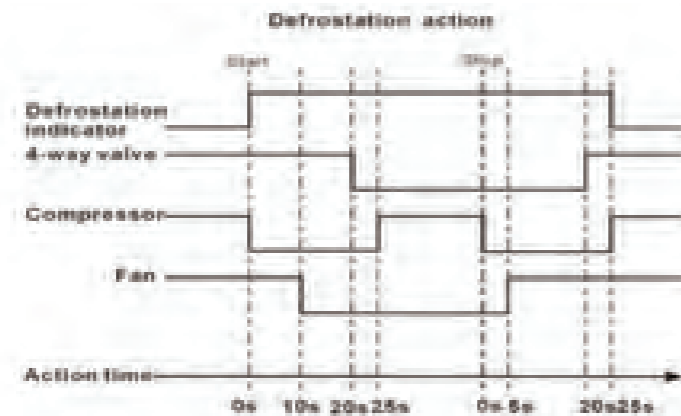
Attention: The situation of defrostation abnormal ending

1) If the unit is shut off during defrosting,the system will continue running until defrost has finished.
2) If the HP switch has triggered during defrosting, then unit will shut down and show HP malfunction. After recovering , the system retrurns to normal heating mode.
3) If the LP switch is triggered during defrosting, the unit will skip the LP malfunction, exit defrosting and go back to normal heating mode, then the system will check the LP switch after 5min.
4) If the Flow switch is triggered during defrosting, then unit will turn off and show Flow Malfunction. After recovering this malfunction, the system continues defrosting.
5) If the exhaust temperature is too high during defrosting, then unit will shut down and show this malfunction. After recovery, the system goes on defrosting.
6) If there is a high Temperature difference between inlet and outlet during defrosting, then the unit will shut down and show this malfunction. After recovering, the system goes on defrosting.
7) If the System shows Antifreezing protection during defrosting, the unit will shut down and show this malfunction. After recovering, the system goes on defrosting.

E ——— EEV parameter

E01 ——— EEV mode

E01=0: EEV is running by manual operation;

E01=1: EEV is running by automatic operation;

E02 ——— Target Super heat

E03 ——— Initial position

If E01=0, represents expansion valve is fixed in this position.

If E01=1, represents expansive valve initial position

E04 ——— Minimum position

E05 ——— Defrost position

Fix the EEV position during defrosting.

E06 ——— Cooling position

Fix the EEV position in cooling mode.

F ——— Fan parameter

Normally the Fan will start up 5s ahead of the Compressor and turn off 30s after it shuts down. During defrosting the fan operation is according to defrosting control settings.

F01 ——— Fan parameter

F01=0: in low speed fan mode;

F01=1: in high speed fan mode;

F01=2: the fan running mode depends on coil or ambient temperature (F02-F07);

Attention: The temperature probe is decided by F10.

F01=3: the fan runs at low speed depending on time (F08-F09), the fan runs at high speed during other times;

F01=4: the fan running speed depends on F02 and F03.

F02 ——— Coil or ambient temperature set point for high speed fan mode (Cooling)

This represents if the temperature above F02, the fan will on high speed (Cooling)

F03 ——— Coil or ambient temperature set point for low speed fan mode (Cooling)

This represents if the temperature below which the fans remain on at low speed (Cooling)

F04 ——— Coil or ambient temperature set point for the fan stop (Cooling)

This represents the temperature in reference to F03 below which the fans are stopped.

The Fan speed at cooling mode

High speed

Low speed

F0   F0   F0   Coil temperature (Ambient)
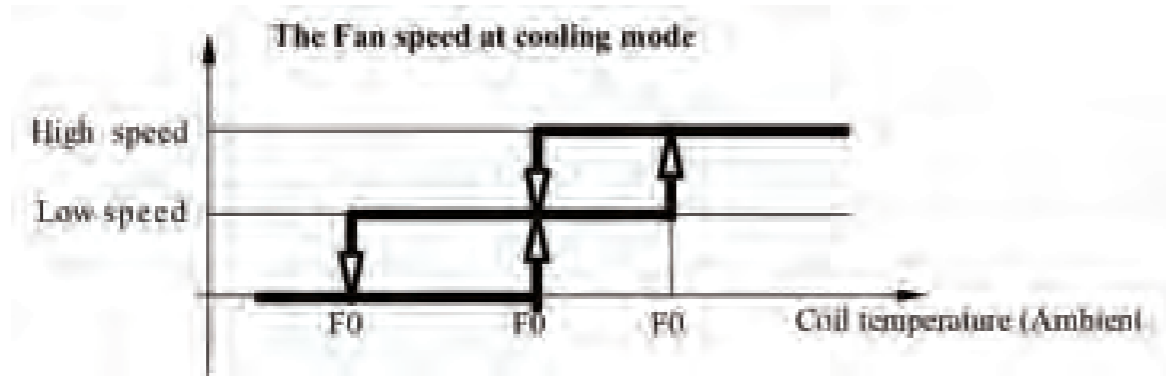
F05 ——— Coil or ambient temperature set point for high speed fan mode (Heating)

This represents the temperature above which the fans remain on at high speed (Heating)

F06 ——— Coil or ambient temperature set point for low speed fan mode (Heating)

This represents the temperature below which the fans remain on at low speed (Heating)

F07 ——— Coil or ambient temperature set point for the fan stop (Heating)

This represents the temperature in reference to F06 below which the fans are stopped.

The Fan speed at heating mode

High

Low speed

F0 5   F0 6   F0 7   Coil temperature Ambient
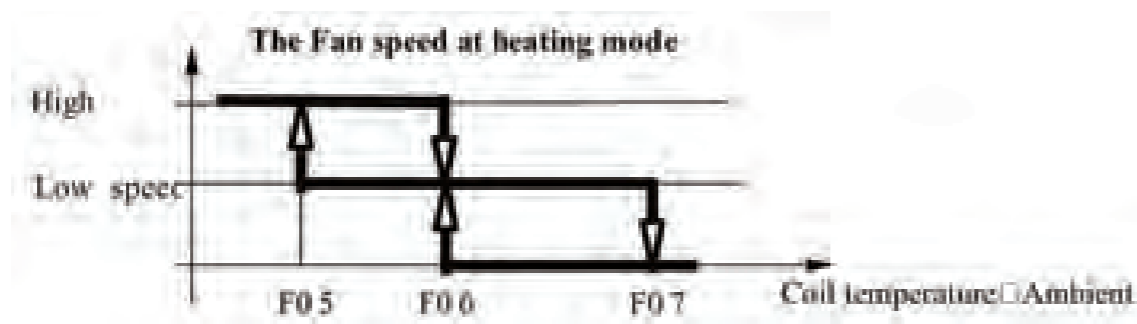
F08 ——— Fan start low speed running time (Just for F01=3)

F09 ——— Fan stop low speed running time (Just for F01=3)

F10 ——— Fan speed control temp.

When F10=0, Fan speed is decided by coil temperature;

When F10=1, Fan speed is decided by ambient temperature.

H ——— System Parameter

H01 ——— Automatic restart

H01=0: disable automatic restart; H01=1: enable automatic restart

H02 ——— Mode

H02=0: only cooling;

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H02=1: heating, cooling and automatic;

H02=2: only heating.

H03 ——— Temperature unit of measure

H03=0: Centigrade unit; (Other area)

H03=1: Fahrenheit unit.(For North America area)

P ——— Water pump parameters

P01 ——— Water pump model

P01=0, water pump will always on except on standby and alarm.

P01=1, water pump will operate depend on compressor, and has 2 minutes delay after the compressor has stopped;

P01=2, water pump will be started and stopped at regular intervals after compressor stop. Depend on P02 and P03.

P02 ——— Minimum off time before the next pump start.

P03 ——— minimum on time that the pump remains on.

P04 ——— the time of pump advance compressor to start up.

The action sequence of pump and compressor

Compressor

Pump

P0 P0 P0 P0 P0 P0   2min   P0 P0 P0
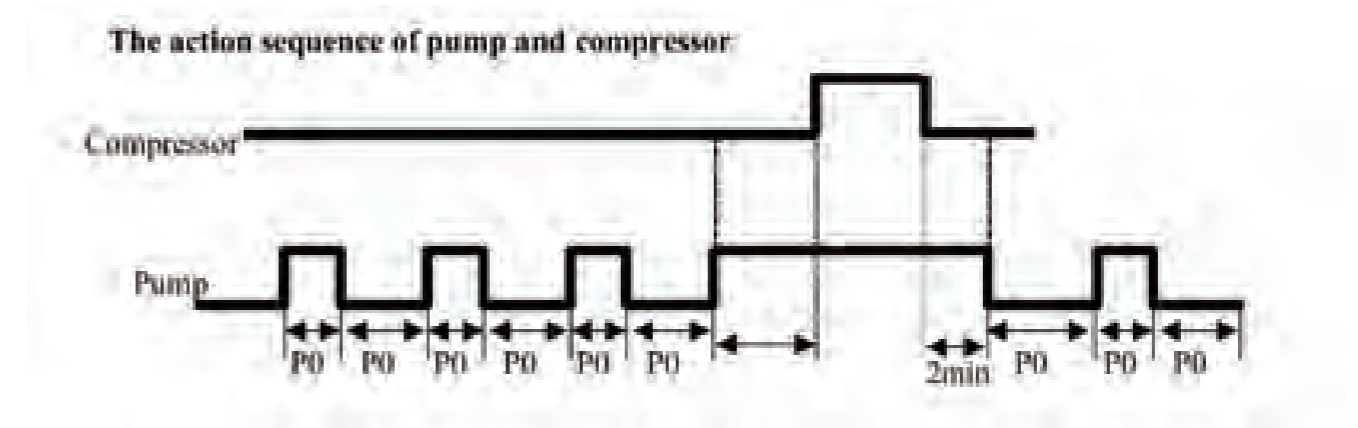
R ——— Temperature parameter

R01 ——— Cooling set point

Inlet water setting temp. (Cooling)

R02 ——— Heating set point

Inlet water setting temp. (Heating)

R03 ——— AUTO set point (Auto mode)

Target setting temperature for auto mode.

R04 ——— Start differential of cooling

This represents the difference between R01 and start cooling point.

R05 ——— Stop differential of cooling

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This represents the difference between R01 and stop cooling point.
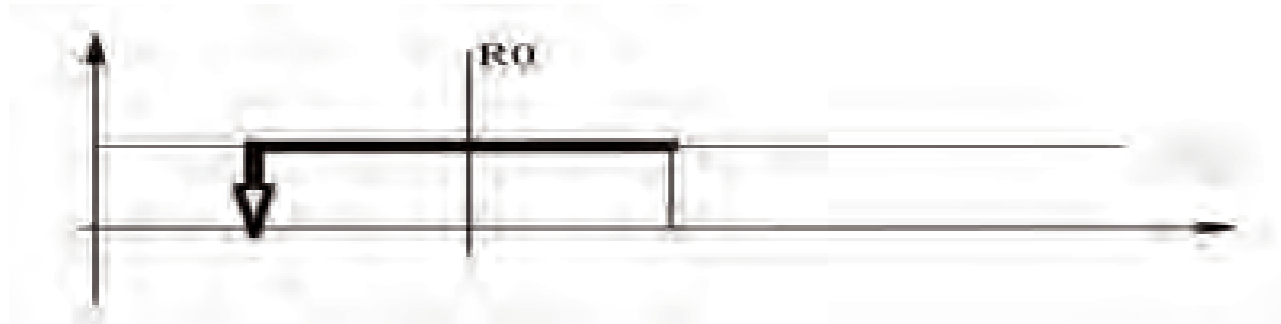
R06 ——— Start differential of heating

This represents the difference between R02 and start heating point.

R07 ——— Stop differential of heating

This represents the difference between R02 and stop heating point.
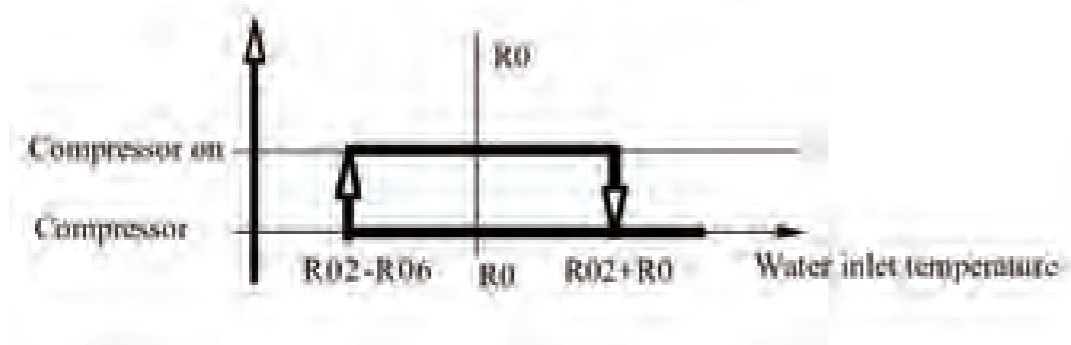
R08 ——— Min. set point in Cooling

Establishes the minimum limit for setting the Cooling set point

R09 ——— Max. Cooling set point

Establishes the maximum limit for setting the Cooling set point

R10 ——— Min. Heating set point

Establishes the minimum limit for setting the Heating set point

R11 ——— Max. Heating set point

Establishes the maximum limit for setting the Heating set point
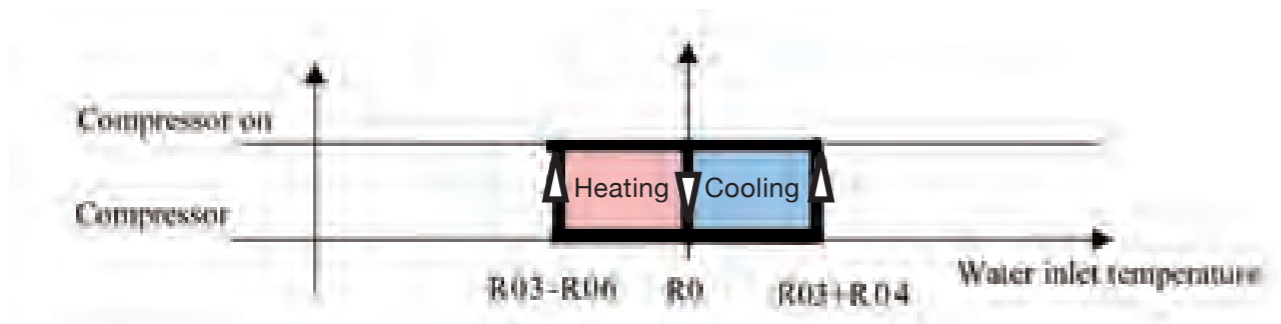
Maintenance and Troubleshooting

6.1 Maintenance

General Maintenance

Do I need to get my unit serviced regularly?

It is recommended that you get your EvoHeat unit serviced once a year by your local certified air conditioning or refrigeration technician. If your unit is located in a coastal area, more frequent maintenance may be necessary. During the service, they will check the operational pressures of the refrigeration system and give the unit and fins a good clean to ensure maximum performance.

Do we have recommended service agents?

EvoHeat have a large database of recommended service agents. Please contact EvoHeat tech support on 1300 859 933 for your local service agent details.

Should I check my unit regularly?

We recommend you check your unit regularly to avoid potential issues and damage to your heat pump.

What should I check?

Check the water inlet/outlets often for leaks. You should avoid the condition of no water or air entering into the system, as this will influence unit's performance and reliability.

You should clear the pool/spa filter regularly to avoid damage to the unit as a result of the dirty of clogged filter.

The area around the unit should be dry, clean and well ventilated. Make sure there is nothing blocking the airflow of the heater e.g. Leaf litter.

Discharge all water in the water pump and water system, so that freezing of the water in the pump or water system does not occur. You should discharge the water at the bottom of water pump if the unit will not be used for an extended period. You should check the unit thoroughly and fill the system with water fully before using it for the first time after a period of time.

Check the power supply and cable connection often, should the unit begin to operate abnormally, switch it off and contact the qualified technician

6.2 Troubleshooting

The unit will not run

a. Is the screen of control panel lit? If not, make sure the electrical wires and cables are correctly connected and the power is on. Ensure any circuit breaker devices are set to the ON position and press the ON button on your controller. Check your controller cable is plugged in and is not damaged. If the unit has been shut off or the power has been interrupted the heater will not restart for a 5 minute period to protect the compressor. Wait 5 minutes before attempting a restart.

b. Is there sufficient water flow? If the screen displays a water flow related error check the water flow. Is the water pump in operation and the system free of debris that may cause a blockage? Disconnect pool cleaners to ensure proper water flow.

c. Is the current pool/spa water temperature higher than the set temperature on the controller? If so the unit will not operate until the pool/spa water temperature falls below the set temperature on the controller.

d. Check the unit is set to run at the correct time and date. Please check your current timing or temperature modes on your controller – you may have programmed the unit to turn on at a different time/date.

e. Check the controller for error messages and refer to table below.

The unit is running but not heating

a. Is the fan functioning? If not contact EVOHEAT for service information

b. Is the air discharged from the top of the fan noticeably cooler than the ambient temperature? If not, check the refrigerant gauge on the bottom panel of the heater. Another way to determine if the heater is working correctly is to view MAIN MENU>UNIT STATUS. Check to see if the WATER OUT temp is higher than the WATER IN temp. Check also the INLET WATER TEMP is lower than the HEAT TEMP set point. If the gauge shows less than 0.8MPA (the outside black band) contact **EVOHEAT to check the refrigerant system.**

c. Ensure sufficient fresh airflow around the unit as per installation instructions. Make sure cold air discharged from the top of the unit does not recycle back through the heater. Check and clean the condenser fins if they are dirty or blocked.

d. The unit will periodically defrost when the ambient air temperature is lower than 8 degrees C.

Heater runs continuously

a. Check the set temperature is at your desired level and that the pool water temperature is at or below this set point.

b. Possible electrical component failure – contact EVOHEAT

Water appearing around unit base

a. Condensation is a normal by product of running a pool heat pump.

b. Possible water leak. Check the discharge for the presence of chlorine. If the water has no chlorine then it is condensation and is normal. Another method of checking is to turn the heater off and run the water pump continuously for a period of 2-4 hours. If the water dries out then it was condensation. If there is a continuous leak contact EVOHEAT for service.

Temperature on controller is different from actual pool temperature

a. Possible temperature drop due to plumbing. Try increasing set temperature to reach your desired swim temp

b. Possible fouling of sensor or faulty sensor

Trouble Shooting

CODE	FAILURE	REASON	SOLUTION
P01	Water inlet temp. sensor failure	The water inlet temperature sensor is open or short circuit or the water temperature sensor is loose or faulty	Check or change the water inlet temperature sensor
P02	Water outlet temp. sensor failure	The water outlet temperature sensor is open or short circuit or the water temperature sensor is loose or faulty	Check or change the water outlet temperature sensor
P04	Ambient temp. sensor failure	The ambient temperature sensor is open or short circuit	Check or change the ambient temperature sensor
P05	Coil temp. sensor failure	Temp. Sensor is loose or faulty	Check or change the sensor
P07	Suction temp. sensor 1 failure	Temp. Sensor is loose or faulty	Check or change the sensor
P08	Exhaust temp sensor failure	The exhaust temp. sensor is open or short circuit	Check or change the temp sensor
E01	High pressure protection (HP)	HP switch is loose or faulty. Low water flow	Check or change the sensor. Check water flow of system
E02	Low pressure protection (LP)	LP switch is loose or faulty. Loss of refrigerant.	Check or change the sensor. Check Pressure gauges.
E03	Water flow protection	Flow switch is loose or faulty. Low water flow	Check or change the sensor. Check water flow of system
E06	Temp. difference between inlet and outlet	Temp. difference >13	Temp. difference >13, power off
E07	Antifreezing protection	Antifreezing temp. <2	Check flow and water system
E08	Communication failure	Communication failure between wire controller and main board	Check the connection between wire controller and main board
E19	Primary Antifreezing protection	Ambient temp. is too low	/
E29	Secondary Antifreezing protection	Ambient temp. is too low	/

Appendix □ Temp Sensor Probes

Resistance/Temp Table □ R25=5KΩ B25/50=3470K □

T(□)	R(KΩ)		T(□)	R(KΩ)		T(□)	R(KΩ)
-30.0	63.7306		14.0	7.7643		58.0	1.5636
-29.0	60.3223		15.0	7.4506		59.0	1.5142
-28.0	57.1180		16.0	7.1513		60.0	1.4666
-27.0	54.1043		17.0	6.8658		61.0	1.4206
-26.0	51.2686		18.0	6.5934		62.0	1.3763
-25.0	48.5994		19.0	6.3333		63.0	1.3336
-24.0	46.0860		20.0	6.0850		64.0	1.2923
-23.0	43.7182		21.0	5.8479		65.0	1.2526
-22.0	41.4868		22.0	5.6213		66.0	1.2142
-21.0	39.3832		23.0	5.4048		67.0	1.1771
-20.0	37.3992		24.0	5.1978		68.0	1.1413
-19.0	35.5274		25.0	5.0000		69.0	1.1068
-18.0	33.7607		26.0	4.8108		70.0	1.0734
-17.0	32.0927		27.0	4.6298		71.0	1.0412
-16.0	30.5172		28.0	4.4566		72.0	1.0100
-15.0	29.0286		29.0	4.2909		73.0	0.9800
-14.0	27.6216		30.0	4.1323		74.0	0.9509
-13.0	26.2913		31.0	3.9804		75.0	0.9228
-12.0	25.0330		32.0	3.8349		76.0	0.8957
-11.0	23.8424		33.0	3.6955		77.0	0.8695
-10.0	22.7155		34.0	3.5620		78.0	0.8441
-9.0	21.6486		35.0	3.4340		79.0	0.8196
-8.0	20.6380		36.0	3.3113		80.0	0.7959
-7.0	19.6806		37.0	3.1937		81.0	0.7730
-6.0	18.7732		38.0	3.0809		82.0	0.7508
-5.0	17.9129		39.0	2.9727		83.0	0.7293
-4.0	17.0970		40.0	2.8688		84.0	0.7086
-3.0	16.3230		41.0	2.7692		85.0	0.6885
-2.0	15.5886		42.0	2.6735		86.0	0.6690
-1.0	14.8913		43.0	2.5816		87.0	0.6502
0.0	14.2293		44.0	2.4934		88.0	0.6320
1.0	13.6017		45.0	2.4087		89.0	0.6144
2.0	13.0057		46.0	2.3273		90.0	0.5973
3.0	12.4393		47.0	2.2491		91.0	0.5808
4.0	11.9011		48.0	2.1739		92.0	0.5647
5.0	11.3894		49.0	2.1016		93.0	0.5492
6.0	10.9028		50.0	2.0321		94.0	0.5342
7.0	10.4399		51.0	1.9656		95.0	0.5196
8.0	9.9995		52.0	1.9015		96.0	0.5055
9.0	9.5802		53.0	1.8399		97.0	0.4919
10.0	9.1810		54.0	1.7804		98.0	0.4786
11.0	8.8008		55.0	1.7232		99.0	0.4658
12.0	8.4385		56.0	1.6680		100.0	0.4533
13.0	8.0934		57.0	1.6149			

1) When there is a malfunction, test the resistance value with a multimeter and compare the actual probe temperature with the above table to confirm the Sensor Probe resistance is within spec +/-5%.

Appendix A – Wiring Diagrams

DHP20/30-R

DHP40-R   CODE：20120827-0001

Appendix A – Wiring Diagrams

DHP50-R

AT：Ambient temperature
CH：Compressor heater
COMP：Compressor
CT：Coil temperature
FM：Fan motor
FS：Flow switch
HL：Indicator
HP：High pressure protection
IT：Inlet water temperature
KM1：Contactor of compressor
LP：Low pressure protection
MTS：Mechanism temperature switch
OT：Outlet water temperature
SUT：Suction temperature
4V：4 way valve

DHP603-R

AT：Ambient temperature
COMP：Compressor
CT：Coil temperature
FM：Fan motor
FS：Flow switch
HL：Indicator
HP：High pressure protection
IT：Inlet water temperature
KM1：Contactor of compressor
KM2：Contactor of pump
K4：Relay coil of fan
LP：Low pressure protection
MTS：Mechanism temperature switch
OT：Outlet water temperature
PH：Pan heater
PM：Phase monitor
TC：Transformer
4V：4 way valve

6.APPENDIX

(2) Cable specification

1. Single phase unit

Nameplate maximum current	Phase line	Earth line	MCB	Creepage protector	Signal line
No more than 10A	$2\times1.5mm^2$	$1.5mm^2$	20A	30mA less than 0.1 sec	$n\times0.5mm^2$
10~16A	$2\times2.5mm^2$	$2.5mm^2$	32A	30mA less than 0.1 sec	
16~25A	$2\times4mm^2$	$4mm^2$	40A	30mA less than 0.1 sec	
25~32A	$2\times6mm^2$	$6mm^2$	40A	30mA less than 0.1 sec	
32~40A	$2\times10mm^2$	$10mm^2$	63A	30mA less than 0.1 sec	
40~63A	$2\times16mm^2$	$16mm^2$	80A	30mA less than 0.1 sec	
63~75A	$2\times25mm^2$	$25mm^2$	100A	30mA less than 0.1 sec	
75~101A	$2\times25mm^2$	$25mm^2$	125A	30mA less than 0.1 sec	
101~123A	$2\times35mm^2$	$35mm^2$	160A	30mA less than 0.1 sec	
123~148A	$2\times50mm^2$	$50mm^2$	225A	30mA less than 0.1 sec	
148~186A	$2\times70mm^2$	$70mm^2$	250A	30mA less than 0.1 sec	
186~224A	$2\times95mm^2$	$95mm^2$	280A	30mA less than 0.1 sec	

2. Three phase unit

Nameplate maximum current	Phase line	Earth line	MCB	Creepage protector	Signal line
No more than 10A	$3\times1.5mm^2$	$1.5mm^2$	20A	30mA less than 0.1 sec	$n\times0.5mm^2$
10~16A	$3\times2.5mm^2$	$2.5mm^2$	32A	30mA less than 0.1 sec	
16~25A	$3\times4mm^2$	$4mm^2$	40A	30mA less than 0.1 sec	
25~32A	$3\times6mm^2$	$6mm^2$	40A	30mA less than 0.1 sec	
32~40A	$3\times10mm^2$	$10mm^2$	63A	30mA less than 0.1 sec	
40~63A	$3\times16mm^2$	$16mm^2$	80A	30mA less than 0.1 sec	
63~75A	$3\times25mm^2$	$25mm^2$	100A	30mA less than 0.1 sec	
75~101A	$3\times25mm^2$	$25mm^2$	125A	30mA less than 0.1 sec	
101~123A	$3\times35mm^2$	$35mm^2$	160A	30mA less than 0.1 sec	
123~148A	$3\times50mm^2$	$50mm^2$	225A	30mA less than 0.1 sec	
148~186A	$3\times70mm^2$	$70mm^2$	250A	30mA less than 0.1 sec	
186~224A	$3\times95mm^2$	$95mm^2$	280A	30mA less than 0.1 sec	

If the unit is installed outdoors, please use a cable which guards against UV.

EVOHEAT Pump Warranty

Please refer to the EvoHeat website for warranty details
- Australia: www.evoheat.com.au
- South East Asia: www.evoheat.com.sg

2.   Warranty terms are from date of purchase.

3.   This warranty excludes any defect or injury caused by or resulting from misuse, abuse, neglect, accidental damage, improper voltage, vermin infestation, incompetent installation, any fault not attributable to faulty manufacture or parts, any modifications which affect the reliability or performance of the unit.

4.   This warranty does not cover the following:
a.   Natural Disasters (hail, lightening, flood, fire etc.)
b.   Rust or damage to paintwork caused by a corrosive atmosphere
c.   When serviced by an unauthorized person without the permission of Evo Industries
d.   When a unit is installed by an unqualified person
e.   Where a unit is incorrectly installed
f.   When failure occurs due to improper or faulty installation
g.   Failure due to improper maintenance (refer Operating Instructions)
h.   'No Fault Found' service calls where the perceived problem is explained within the
i.   Costs associated with delivery, handling, freighting, or damage to the product in transit.

5.   If warranty service is required you should:
a.   contact Evo Industries Australia on 1300 859 933 or via our Contact page on our web site
b.   provide a copy of your receipt as proof of purchase
c.   have completed the online warranty registration or provide a completed warranty card.

6.   Onsite technical service is available within the normal operating area of your Evo Industries authorized Service Centre. Service outside this area will incur a traveling fee.

7.   Unless otherwise specified to the purchaser, the benefits conferred by this express warranty and additional to all other conditions, warranties, rights and remedies expressed or implied by the Trade Practices Act 1974 and similar consumer protection provisions contained in legislation of the States and Territories and all other obligations and liabilities on the part of the manufacturer or supplier and nothing contained herein shall restrict or modify such rights, remedies, obligations or liabilities.

Warranty Registration

To register your Warranty, please enter the following details or go online at https://evoheat.com.au/warranty-registration/ to register directly at our website. Fields with a star (*) must be filled in before continuing. For information about what Evo Industries Australia will do with your personal details, please refer to our Privacy Disclaimer.

Family Name: * ....

Given Name: * ....

Preferred Title: * ....

Age Group: * ☐ 18-24   ☐ 25-34   ☐ 35-44   ☐ 45-54   ☐ 55-64   ☐ 64+

Street Address: * ....

Suburb: * ....

Postcode: * ....

State: * ....

Email: * ....

Please tell us about which EvoHeat product you bought, who you bought it from and what you will be using it for.

Product & Model: * ....

Serial Number: ....

Authorised Installer: ....

Date Purchased: * ....

Date Installed: ....

Receipt Number: * ....

Company you bought it from: * ....

Did you purchase the item when you purchased your pool?: ....

If you purchased it after the pool, how many years did you wait?: ....

What size is your pool or spa?: ....

Why did you choose an **EVOHEAT** product?: ....

www.evoheat.com.au