INSTRUCTION MANUAL

DC INVERTER AIR TO WATER HEAT PUMP

CONTENTS

Notice

1.1 Save this manual for future reference.

1.2 In order to use this product , please read this manual carefully before installation and initial operation.

1.3 Children or persons with physical, sensory or mental disability should not operate this appliance.

1.4 This appliance must be install by qualified and experienced technicians/tradespeople. Improper installation of this appliance may cause damage and danger and void the warranty.

1.5 This appliance must be installed in accordance with wiring regulations including an isolating switch from the supply mains and grounded power supply consistent with the power requirements of this appliance.

1.6 The installation of this appliance must comply with the power requirements as stated on the rating label on the side of the heat pump.

1.7 Do not install this appliance close to flammable or explosive materials, or naked flames.

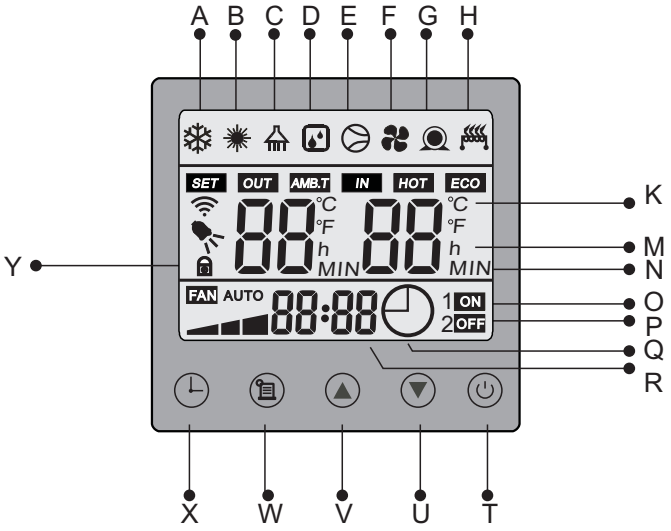
1.8 A filter in the mains water supply inlet is recommended and should be checked/cleaned periodically.

1.9 Checking and cleaning of the evaporator fin coil is recommended for good air flow.

I. USE

1. The user interface and function shows as below

symbol	icon	instructions
A		Cooling mode icon
B		Heating mode icon
C		Hot water mode icon
D		Defrost mode icon
E		Compressor run icon
F		Fan run icon
G		Water pump run icon
H		Auxiliary electrical heating icon
K	℃	The temperature icon
M	h	Hours icon
N	MIN	Minutes icon
O	ON	Timing ON icon
P	OFF	Timing OFF icon
Q		Time setting icon
R	88:88	Time icon
T		The unit switch
U		Down button icon
V		Up button icon
W		Function button icon
X		Timing button icon
Y		Lock icon



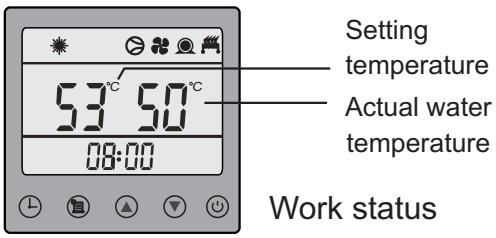
2. Using of wire controller

2.1 Keyboard locking / unlocking operation

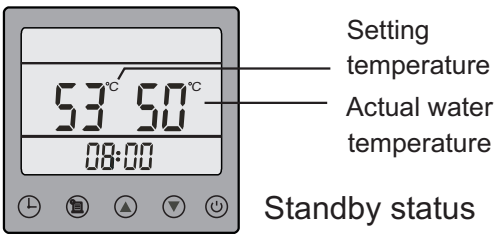
Without operation for the controller for 30 seconds, The icon will display on the controller. It means the keyboard is locked. Press until a beep sound and this unlocks the controller.

2.2 Turn on/turn off the unit

Under standby status, press the button to turn on the unit, the operation mode icon will display on the controller. Press the button again, turn off the unit. Show as the Standby status



Work status



Standby status

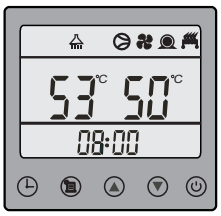
2.3 Modify the setting temperature

Under running status, short press button and button can modify the set temperature , under the hot water mode, can modify the hot water tank setting temp. .

Under the heating mode, press button and button can modify the set temperature of inlet water temperature.

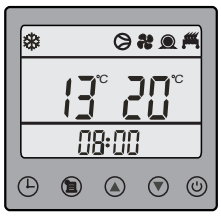
2.4 Mode selection

Under the running status, long press the ▲ button change the running model.

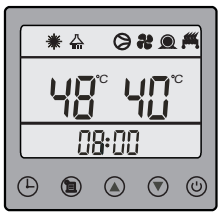


Hot water mode

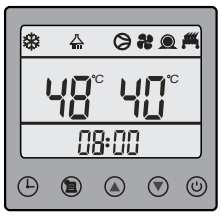
Heating mode



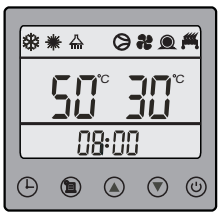
Cooling mode



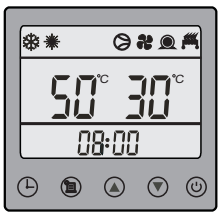
Hot water + Heating mode



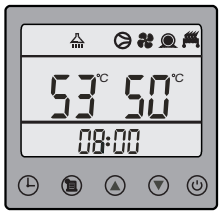
Hot water + Cooling mode



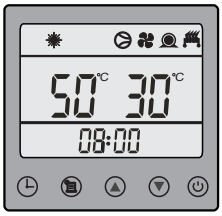
Hot water + Cooling +Heating mode



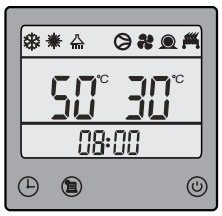
Heat + Cooling mode



Hot water mode, the temperature on the left side of the wire controller is the set temperature of hot water tank, and on the right side is the actual temperature of the hot water tank.



Heating mode (including heating mode and cooling mode), the temperature on the left side of the wire controller is the set temperature of indoor ambient(heating or cooling), and on the right side is the actual temperature of water inlet.



Hot water mode & Air condition mode , the unit default priority hot water mode , So the unit running hot water at first, the temperature on the left side of the wire controller is the set temperature of hot water tank mode, and on the right side is the actual temperature of the hot water tank. When the water tank temperature is reach, the unit will run on heating mode according to the set temperature.

The unit will be set to factory settings before packaging. When the ambient temperature ≥26℃, unit running cooling model. When the ambient temperature ≤18℃, unit run heating model. When the ambient temperature between 18℃ to 26℃, unit standby.

If you want to change the Air condition model ambient temperature, you can in the main interface long press ▣, until you listen a “beep” , and then you can see 00 parameter under the main interface. Press ▲ and ▼ button to select the parameter When you want to change 23 parameter you can short press ▣, this time 23 parameter will be flashing, you can press ▲ and ▼ to change the number.

parameter 23 is the ambient temperature setting for cooling.

parameter 24 is the ambient temperature setting for heating.

2. 5 Forced to defrost

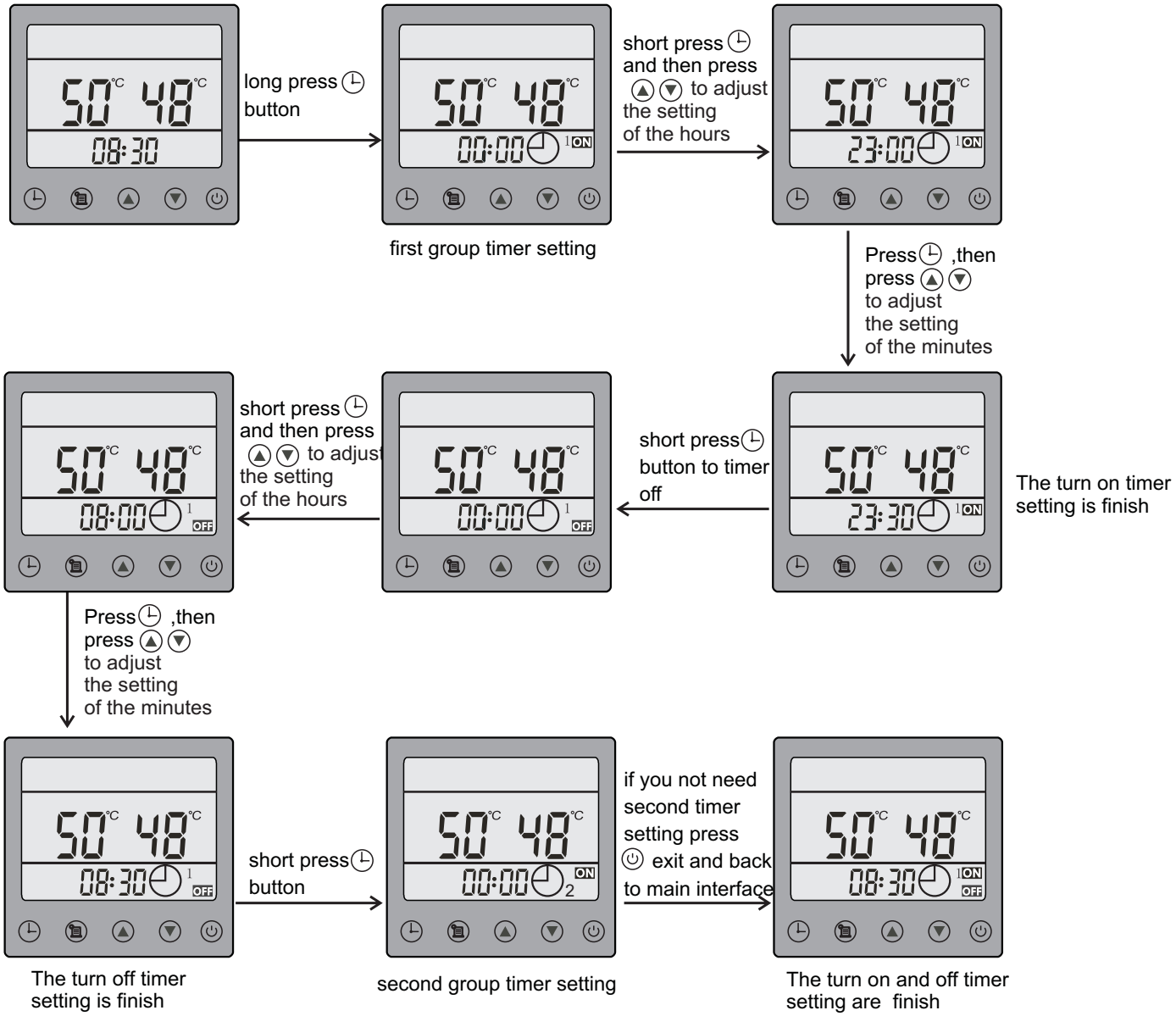
On the heating mode , press ▼ and ▣ at the same time to run defrost mode, and the icon ❄ will flash.

2.6 Clock setting

Short press the ◷ button, the time on the wire controller will flash, at this time press ◷ button to confirm , after confirm the hour icon of hours will be flashing, press ▲ ▼ can change the hours. Press ◷ button again can change the minutes. Confirm the correct time press ◷ button to exit setting.

2.7 Unit turn on /turn off timer setting

Under standby status, long press ◷ button, you can hear a sound of “beep”, enter the first group timer setting you can see 1 icon on the button right corner in the wire controller and the icon ◷ , ON and time of the wire controller will flash, at this time press ◷, the time for hours will flash, and then you can press ▲ ▼ to change the time for hours. Finish the hours setting, short press ◷ again, the time for minutes will flash, press ▲ ▼ to change the time for minutes, the unit turn on timer setting is finished. And then short press ◷ button, the icon ◷ , OFF and time of the wire controller will flash, at this time press ◷ , the time for hours will flash, and then you can press ▲ ▼ to change the time for hours. Finish the hours setting, short press ◷ again, the time for minutes will flash, press ▲ ▼ to change the time for minutes, at this time you finish the unit turn off timer setting. Then if you press ◷ again, this time enter the second group timer setting, you can see 2 icon on the button right corner in the wire controller and the icon ◷ , ON and time of the wire controller will flash. The second group timer setting like the first group, if you not need the second press ⏻ exit the timer setting to the main interface.



2.8 Cancel unit turn on /turn off timer setting

Long press the ⏲, group 1 of timer and on is flashing, if you press ▣, unit will cancel group 1 timer on. Then now group 1 of timer and off is flashing, if you press ▣, unit will cancel group 1 timer off. When group 2 and on is flashing, if you press ▣, unit will cancel group 12 timer on. Then now group 2 of timer and off is flashing, if you press ▣, unit will cancel group 2 timer off.

2.9 Checking of running parameter

In the main interface Press ▣ to enter the running parameter interface. Then, press ▲ or ▼ button to check the running parameters.

Display	Meaning	Display	Meaning
o1	Water tank temperature	A5	Main elec. expansion valves opening
o2	Water inlet temperature	A6	Condensing coil temperature
o3	Water outlet temperature	A7	Dc bus voltage
o4	Ambient temperature	A8	IPM modular temperature
o5	Reserved	A9	Real-time power
o6	Auxiliary electric expansin opening value	A10	Dc motor speed
A1	Discharge temperature	A11	High pressure value
A2	Coil temperature	A12	Low pressure value
A3	Suction temperature	A13	The input ac voltage
A4	The input ac current	A14	Actual frequency of compressor

2.10 Parameter Settings

In the main interface press ▣ 3 seconds to enter the parameter setting. Then press ▲ or ▼ button to change the parameters.

Parameter	Meaning	Range	Default	Remark
0	Start temperature difference for different mode	2-30°C	Cooling 2℃ Floor heating 2℃ Fan coil heating 5℃	
1	Initial opening of the main electronic expansion valve	40~450P	Hot water 5℃ 350P	
2	Parameter when enter energy saving mode	0	0	Not have this now
3	Curve translation	0~30℃	15℃	
4	The curve slope	24-50℃	30℃	
5	L9 time	0：00~23：	23：00h	
6	L10 time	0：00~23：	6:00 h	
7	L11 time	0：00~23：	9:00 h	
8	L21 time	0：00~23：	17:00 h	
9	Setting the water outlet temperature parameter L13	20~55℃	35℃	Parameter FO is EE(highest water temperature setting)
10	Setting the water outlet temperature parameter L14	20~55℃	35℃	Parameter FO is EE(highest water temperature setting)
11	Setting the water outlet temperature L15	20~55℃	30℃	Parameter FO is EE(highest water temperature setting)
12	Setting the water outlet temperatureL16	20~55℃	40℃	Parameter FO is EE(highest water temperature setting)
13	Maximum setting value of heating mode (including curve heating and water temperature change for different time invertal)	20~55℃	50℃	

14	~~Ambient temperature＞25°C，expansion valve opening P2~~	~~40~450P~~	~~250 P~~	
15	~~Ambient temperature＞15°C，expansion valve opening P5~~	~~40~450P~~	~~300 P~~	
16	~~Ambient temperature＞5°C，expansion valve opening P6~~	~~40~450P~~	~~300 P~~	
17	~~Ambient temperature＞2°C，expansion valve opening P7~~	~~40~450P~~	~~250 P~~	
18	~~Ambient temperature＞9°C，expansion valve opening Pb~~	~~40~450P~~	~~100 P~~	
19	~~Ambient temperature＞15°C，expansion valve opening Pc~~	~~40~450P~~	~~90 P~~	
20	~~Ambient temperature＞18°C，expansion valve opening Pd~~	~~40~450P~~	~~80 P~~	
21	~~Ambient temperature＜18°C，expansion valve opening PE~~	~~40~450P~~	~~70P~~	
22	~~Maximum opening（PA）of expansion valve~~	~~40~450P~~	~~450P~~	
23	Automatic mode – cooling outdoor temperature CM	HM~45℃	26	
24	Automatic mode – heating outdoor temperature HM	10~45℃	18	
25	~~Automatic mode- Middle value of water inlet temperature~~	~~10~45℃~~	~~24~~	
26	~~Automatic mode - cooling water inlet temperature deviation~~	~~-10~10℃~~	~~2~~	
27	~~Automatic mode - Heating water inlet temperature deviation~~	~~-10~10℃~~	~~2~~	
28	Automatic mode – mode switch waiting time N	0-90min	3	
29	Compressor cumulative running time	0~90min	45	
30	Outdoor coil temperature to enter defrost mode	-20℃~5℃	-7	
31	Defrost outdoor temperature setting	-20°C~5°C	-10	
32	Temp. difference between outdoor temp. and coil temp. to enter defrost mode	0℃~30℃	10	
33	Extended defrost time	0~90min	45	
34	Maximum defrost time (condition to exit defrost mode)	5 ---- 45	8	
35	External coil temp. to exit defrost mode	5 ---- 45℃	13	
36	~~Discharge temperature that allow turn on unload valve~~	~~90~120℃~~	~~95℃~~	~~Value will be 0 after restart unit~~
37	~~Discharge temperature difference when turn off unload valve~~	~~0~30℃~~	~~15~~	~~Value will be 0 after restart unit~~
38	Low ambient temperature protection setting	-41~0℃	-30℃	As the lowest temperature the sensor can detect is -30℃, so actually the lowest available for this parameter setting is -30℃, if you set this parameter to be lower than -30, like -31, this protection is invalid. So please set in range of -30~0℃
39	Whether reduce the working frequency or not when reach the setting temperature	10~120min	40	40 is not reducing frequency, and other value is reducing frequency
40	Cooling outdoor temp. over-low protection setting point	-1~20	5	
41	Main expansion valve overheat degree control method	0~1	0	0- according to overheat degree, 1- according to chart

42	Target overheat degree of the main expansion valve	0~20℃	5	
43	Switch time of three-way valve 2	1~99min	5	
44	Water pump working mode in heating/cooling mode	0-2	2	（0: run at intervals， 1: follow the compressor, 2: run all the time）
45	Water pump running time interval	1~30min	5	
46	Outdoor temperature setting point to force water pump to run under low temperature Ambient temperature≤Parameter 46,water pump keep running Ambient temperature＞Parameter 46+2℃,water pump stop	-25℃~5℃	-10 ℃	
47	Water system cleaning function (Close water flow protection during this function)	0-3	0	0: No 1: test water pump 2: test water pump and 3-way valve 1 3: test water pump and 3-way valve 1 2

Note: some parameter is not effective for the unit, so the have a " ——— "

II.Maintenance and repair

1.Note

1.1 Check whether the exhaust equipment is normal.

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 Often 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 abnormity.

1.4 Often 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 abnormity.

1.5 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.

1.6 To check the power supply and cable connection often, there is abnormal action or bad smell about the electrical component. If there is, please maintain or change it in time.

1.7 This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons. The instructions includes a warning to disconnect the appliance from its power source during service and when replacing.

2.Malfunction Indicating Table.

Determine and solve the malfuction by malfuction code as below:

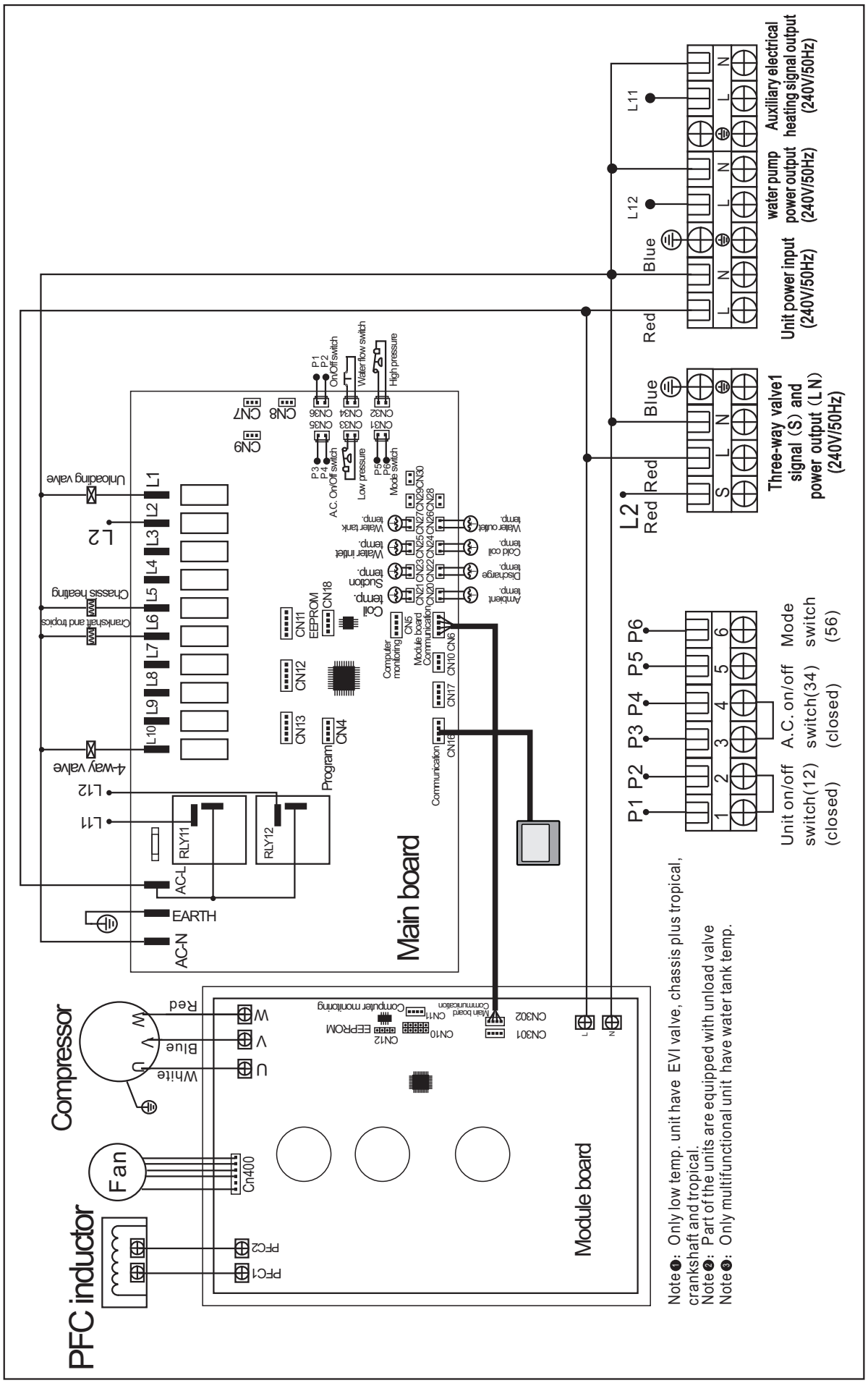
Wire Controller display	Means	Solution
E01	Discharge temperature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E05	Outdoor coil temperature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E09	Suction temperature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E13	Condensing coil temperature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E18	Outlet water temperature sensor	Please check if the temperature sensor connected circuit or disconnect
E19	Inlet water temperature sensor	Please check if the temperature sensor connected circuit or disconnect
E20	Water tank temperature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E21	Controller communication fault	1.Controller do not match main board,please change main board or controller 2.Controller's communication line(extension line) connect wrongly 3.Controller's communication line(extension line) have circuit break 4.Communication line(extension line) 's terminal do not connect right terminal on the main board
E22	Outdoor ambient temeprature sensor fault	Please check if the temperature sensor connected circuit or disconnect
E26	Indoor board and outdoor board communication fault(For split unit)	1.Please check the communication line connect rightly between indoor unit and outdoor unit 2.Please check if indoor unit main board match with outdoor unit main board 3.Replace indoor board or outdoor board
E27	Driving board communication fault	1.Please check the communication line connect rightly between main board and modular board 2.Please check if main board match with modular board 3.Replace main board or modular board
E28	Outdoor EE fault	Please check with the dealer
E33	High pressure sensor fault	Please check if the temperature sensor connected circuit or disconnect
E34	EEV loop low pressure sensor fault	Please check if the temperature sensor connected circuit or disconnect

r01	IPM modular fault	1. If happened by cooling function,please check whether the installation location have enough ventilation or not 2. If happened by heating/hot water function,please check whether the installation location have enough ventilation or not,or if the water tempeature is too high
r02	Compressor start fault	Please check if the compressor line is reversed or connected firmly
r05	IPM modular temperature too high	1. If happened by cooling function,please check whether the installation location have enough ventilation or not 2. If happened by heating/hot water function,please check whether the installation location have enough ventilation or not,or if the water tempeature is too high
r06	Compressor phase current protection	1. If happened by cooling function,please check whether the installation location have enough ventilation or not 2. If happened by heating/hot water function,please check whether the installation location have enough ventilation or not,or if the water tempeature is too high
r10	AC voltage too high or too low protection	Please check the voltage is higher than 260V or lower than 160V
r11	DC bus voltage too high or too low protection	Please contact with the dealer as it is dangerous to check by yourself
r20	Compressor protection	1. If happened by cooling function,please check whether the installation location have enough ventilation or not 2. If happened by heating/hot water function,please check whether the installation location have enough ventilation or not,or if the water tempeature is too high
P01	Water flow swtich protection	1.Check water system,water pump,water flow switch is normal or not 2.Clean the filter
P02	High pressure protection	1.Check inlet water temperature is too high or not and if it is block 2.Check whether fan blade is dirty,it will influence the heat exchang efficiency of heat exchanger 3.Check if refrigerant is too much 4.Check whetehr water temperature is too high
P06	Low pressure protection	1.Check whether the unit is leak of refrigerant 2.After confirm unit is leak of refrigerant,repair and vacuum,then fill the refrigerant accoring to nameplate
P11	Discharge temperature too high protection	1.Check water system is normal or not,water flow is smaller than before 2.Check if the unit running normal or not,discharge temperature,system pressure is normal or not
P15	Inlet water and outlet water temperature difference too large protection	1.Check water system is normal or not,water flow is smaller than before 2.Check if the unit running normal or not,discharge temperature,system pressure is normal or not

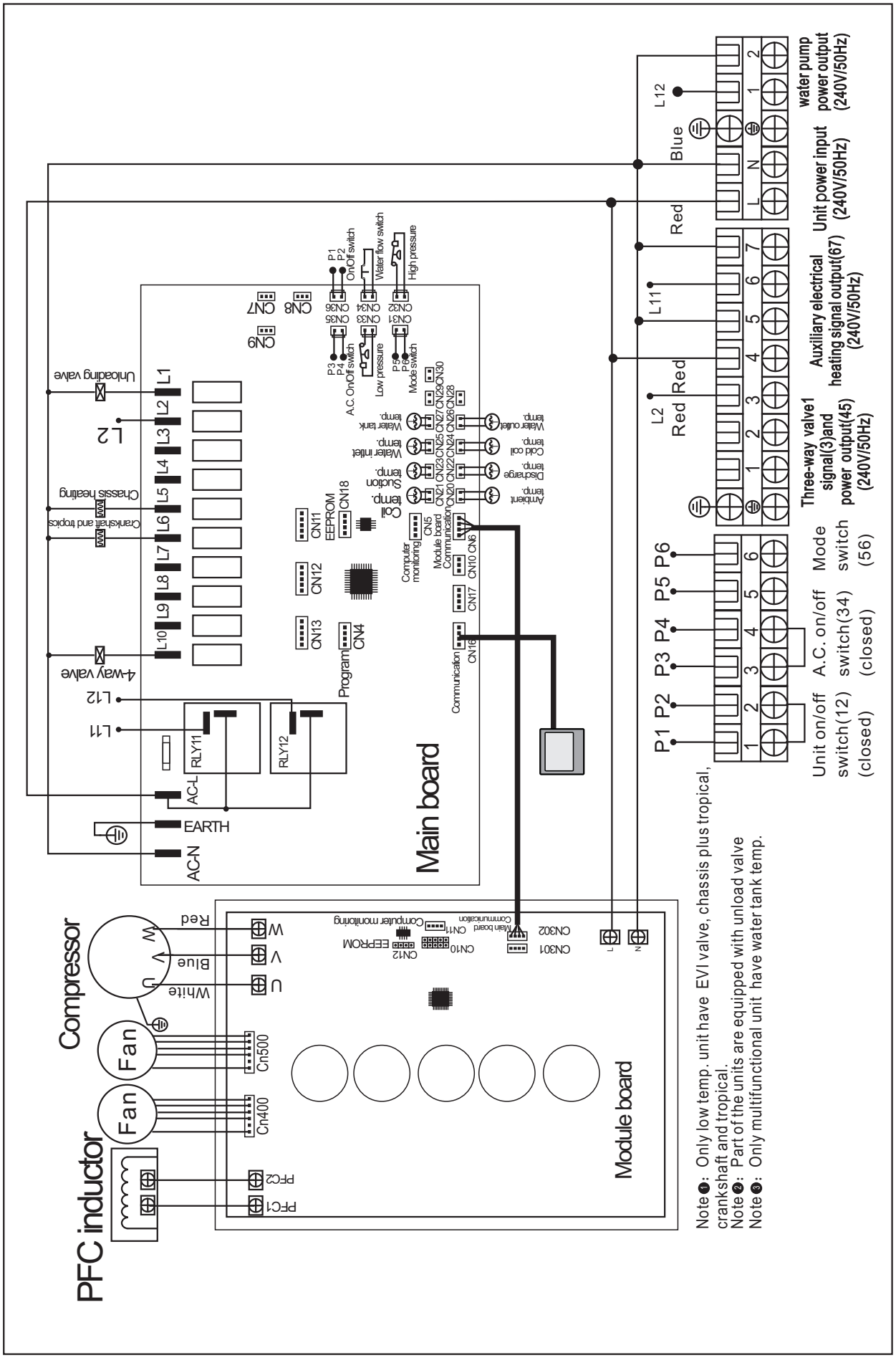
P16	Outlet water temperature too low protection	1.Check water system is normal or not,water flow is smaller than before 2.Check if the unit running normal or not,discharge temperature,system pressure is normal or not
P19	AC current protection	Please contact with the dealer
P27	Condensing coil temperature too high protection	Check whether fan blade is dirty,it will influence the heat exchang efficiency of heat exchanger
P30	Condensing coil temperature antifreeze protection	Unit antifreeze
EB	High pressure protection(pressure sensor)	1.Check if the inlet water temp. is too high or if water inlet is blocked 2.Check if the fan blades are too dirty that influence the heat exchange efficiency of the heat exchanger 3.Check if the refrigerant amount is too high 4.Check if the setting water tank temperature is too high 5.Check or replace the sensor
EC	EEV loop low pressure protection	1.Check whether the unit is leak of refrigerant 2.After confirm unit is leak of refrigerant,repair and vacuum,then fill the refrigerant accoring to nameplate
ED	Low pressure protection(pressure sensor)	Please check if the temperature sensor connected circult or disconnect
FA	DC fan motor protection	1. If happened by cooling function,please check whether the installation location have enough ventilation or not 2. If happened by heating/hot water function,please check whether the installation location have enough ventilation or not,or if the water tempeature is too high
FE	Start pressure difference protection(only pressure sensor)	Please turn off the unit and check the high and low pressure difference is too large or not,if too large,please make sure the pressure differnece is lower than 0.5Mpa
FF	Running pressure difference protection	Pressure difference too low protection,check if the refrigerant is leaking or not
PA	Outlet water temperature too high protection	1.Hot water model,outlet temperature too high,please check if the outlet water temperature too high 2.If it is the problem of temperature sensor,please replace outlet water tempeature sensor 3.Please do not set the water temperature too high
PC	In heating/hot water mode,ambient temperature too high/too low protection In cooling mode,ambient temperature too low or too high protection	1.The ambient temperature is over unit running temperature range,please check the unit working condition. 2.If it is the problem of temperature sensor,please replace outlet water tempeature sensor

III. Wiring diagram

1. INV10.5 、 INV14

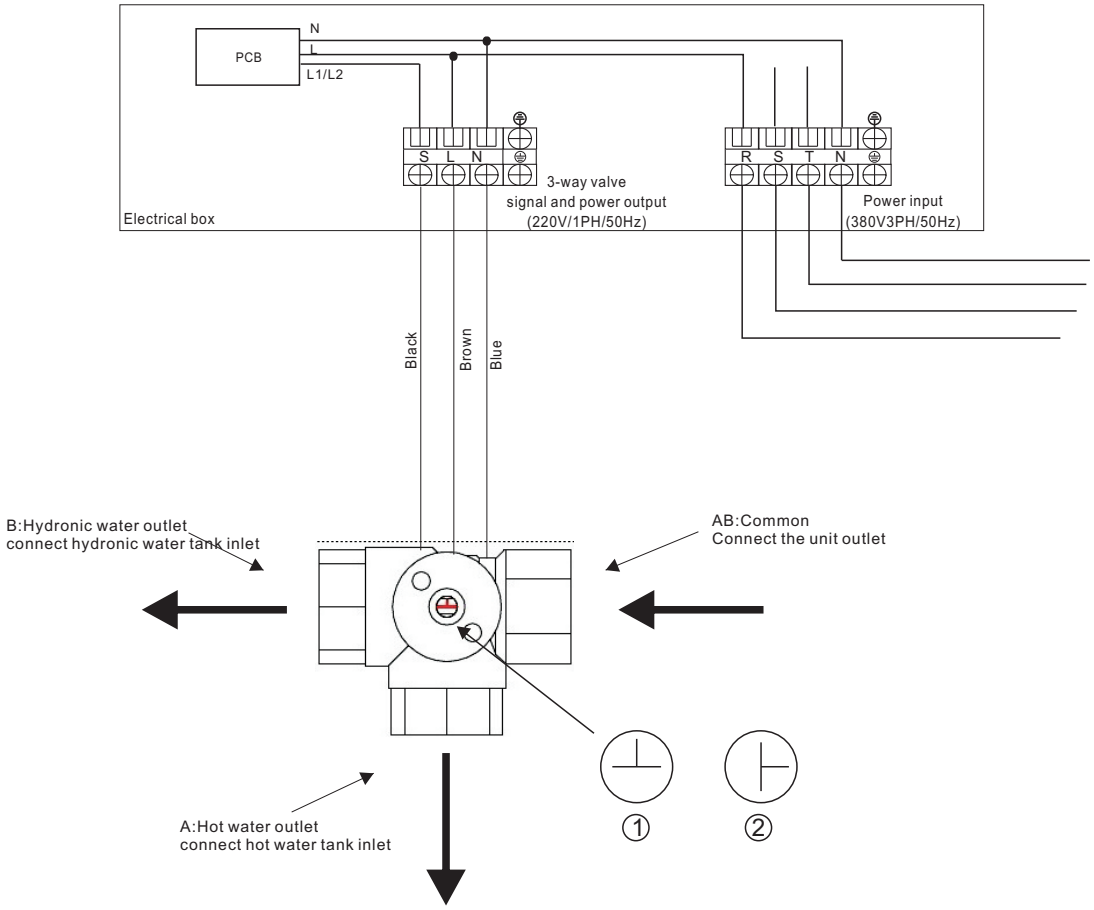


2. INV17.5


Compressor
Fan
Fan
PFC inductor
Module board
Main board
Unloading valve
4-way valve
Chassis heating
Crankshaft and tropics
AC-N
AC-L
EARTH
RLY11
RLY12
L1
L2
L11
L12
Red
Blue
White
Unit on/off switch(12) (closed)
A.C. on/off switch(34) (closed)
Mode switch (56)
Three-way valve1 signal(3)and power output(45) (240V/50Hz)
Auxiliary electrical heating signal output(67) (240V/50Hz)
Unit power input (240V/50Hz)
water pump power output (240V/50Hz)
Note❶: Only low temp. unit have EVI valve, chassis plus tropical, crankshaft and tropical.
Note❷: Part of the units are equipped with unload valve
Note❸: Only multifunctional unit have water tank temp.

2. Three way valve wiring diagram

Model for the WRA-6320A WRA-6310A WRA-6302A wiring instructions (unit for the three-phase power)



Notes:

1: Check whether the model of electric three-way valve is similar that shown above.

2: Check whether electric three-way valve T port is as shown in figure (1).
If not, Please adjust the 3-way valve T port with forceps as shown in figure (1).

3: Electric three-way valve has three wires:
Brown line for single-phase power supply firewire input.
Blue line for single-phase power supply zero line input.
Black line is the signal line, when the black line is connected to the single-phase power supply fire wire input, the three-way valve will rotate anti-clockwise by 90 degrees.

4:When the PCB is the R-phase power supply, the three-way valve power output L terminals must receive R-phase

5:Setting for the three way valve:
When the unit is running hot water mode,T for the three way valve is shown in figure (2) and the water will flow in from AB,and flow out from A.
When the unit is running in air conditioning mode,T for the three way valve is shown in figure (1) and the water will flow in from AB,and flow out from B.

DC INVERTER AIR TO WATER HEAT PUMP

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Ph 09 5358891
Email: michael@oasisheatpumps.com