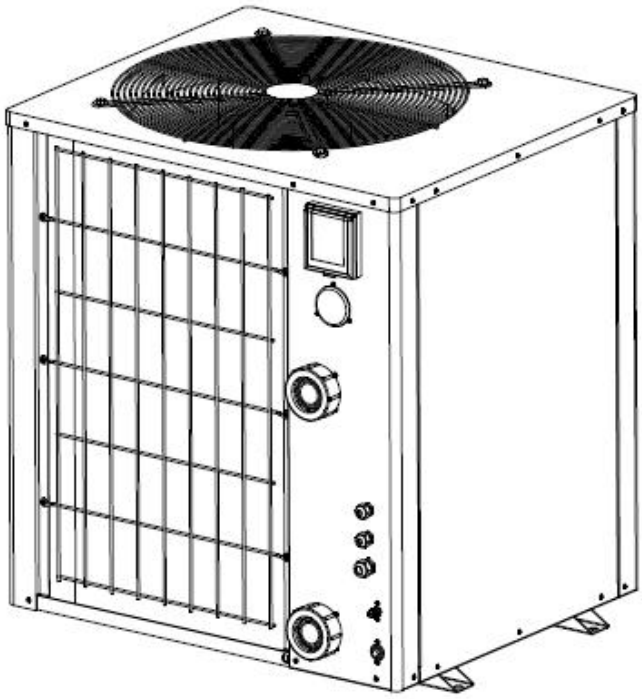
Swimming Pool Heat Pump

User and Service Manual



KlimaTeknik Top Heat pump

INDEX

Thank you for purchasing our product for your pool or spa heating. Heat Pumps use the ambient air temperature to heat your pool or spa water efficiently. Heat Pumps perform better with warmer ambient temperatures & it will heat your water and maintain constant temperature whilst the ambient air temperature is between -5 to 43℃. The use of a heat pump will extend your swimming season & provide extra enjoyment for you and your family.

⚠ **ATTENTION: This manual includes all the necessary information regarding the use and the installation of your heat pump.**

The installer must read the manual and attentively follow the instructions in implementation and maintenance.

The installer is responsible for the installation of the product and should follow all the instructions of the manufacturer and the regulations in application. Incorrect installation against the manual implies the exclusion of the entire guarantee and warranty.

The manufacturer declines any responsibility for the damage caused to people, objects and errors due to incorrect installation. It is the owners responsibility to ensure that the pool or spa water maintains correct water chemistry balance as bad water chemistry can damage the heat pump internal components which will not be covered under this warranty. Any usage outside of what is stated within this manual or its designed purpose of manufacturing will be regarded as dangerous and is not recommended.

WARNING: Please always shut off the power supply if you need to open the heat pump cabinet to work inside the heat pump. As this is an electrical product there is high voltage electricity inside. Any electrical connections and/or repairs should be conducted by a licensed electrician.

WARNING: When using the 10mtr external control panel extension please ensure the display controller is located in a dry area. Also keep the insulation cover closed to protect the display on the controller from being damaged by humidity and possible rain.

1. Specifications

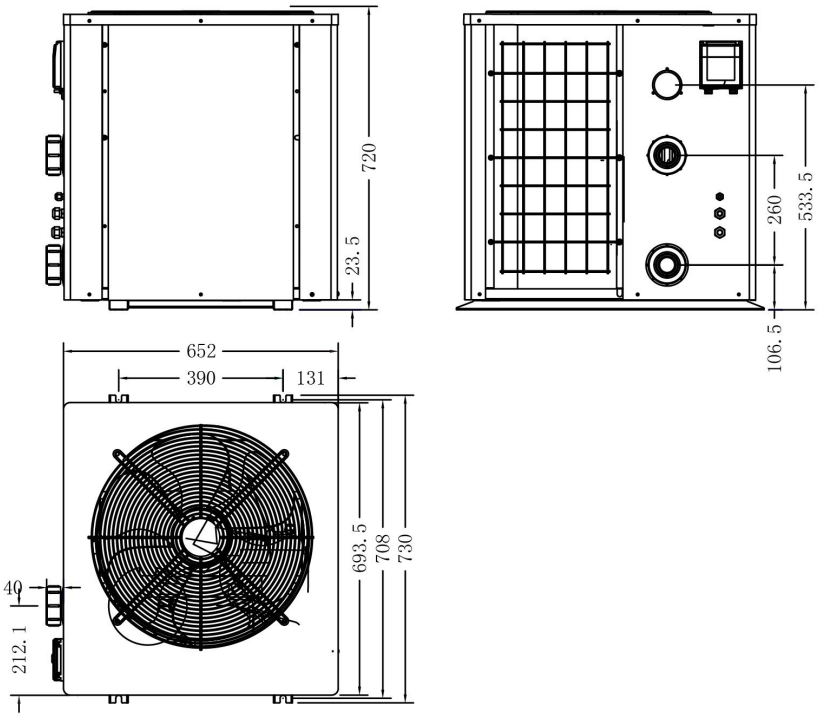
Vertical design, R410A, Heating & Cooling function

Model		KT135CV-TOP	KT175CV-TOP	KT220CV-TOP	KT300CV-TOP
*** Heating Capacity at Air 28℃, Water 28℃,Humidity 80%**					
Max Heating Capacity	kW	13.5	17.5	22	30
Rated Heating Capacity	kW	11.5	15.5	18.5	25.5
Input Power (Heating)	kW	1.95	2.67	3.36	4.47
MAX C.O.P		6.9	6.6	6.5	6.7
C.O.P		5.9	5.8	5.5	5.7
*** General data**					
Compressor type		Rotary / R410A	Rotary / R410A	Scroll / R410A	Scroll / R410A
Voltage		220-240V/50Hz/ 1PH	220-240V/50Hz/ 1PH	380-415V~50Hz/ 3PH	380-415V~50Hz/ 3PH
Running Current Heating	A	8.6	11.9	5.8	8.0
Advised pool volume (with pool cover)	m^3	30-60	55-80	65-90	90-130
Advised water flux	m^3/h	3.5~7.1	4.6~9.3	5.6~11.2	7.1~14
Water Pressure Drop	KPa	15	16	16	18
Heat exchanger		Titanium in PVC			
Water connection	mm	50			
No. of Fan		1			
Ventilation type		Vertical			
Fan Speed	RPM	650			
Noise level(10m)	dB(A)	43	44	46	48
Noise level(1m)	dB(A)	52	54	56	58
Net Weight	kg	70	88	100	120
Net Dimension (WxDxH)	mm	730*652*720	730*652*720	865*685*910	865*685*910
Packing Dimension (WxDxH)	mm	775*730*742	775*730*742	885*740*930	885*740*930

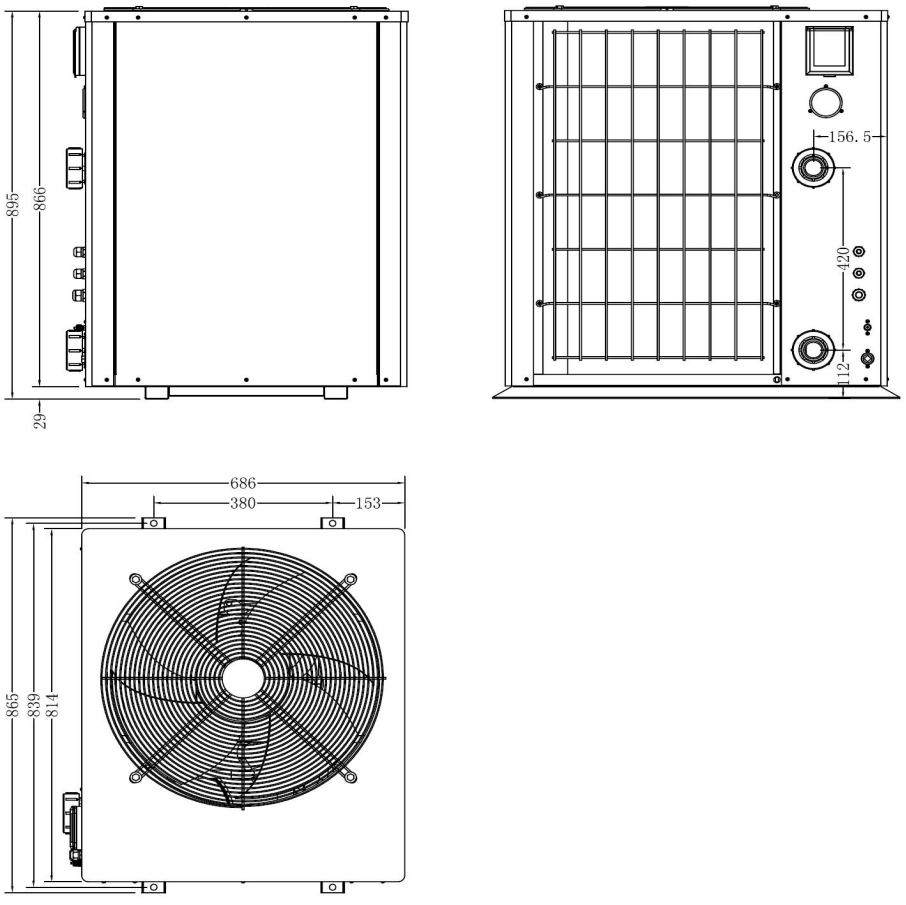
* Above data are subjects to modification without notice.

2. Dimensions

Model: KT135CV-TOP/KT175CV-TOP



Model: KT220CV-TOP/KT300CV-TOP



3. Installation and connection

3.1 Notes

Upon purchase you will receive your complete Heat Pump. All other components, including a bypass if necessary, must be provided by the user or the installer.

Attention:
Please observe the following rules when installing the heat pump:

1. Any addition of automated chemicals must take place in the piping located **downstream** from the heat pump.
2. Install a bypass if the water flow from the swimming pool pump is more than 20% greater than the allowable flow through the heat exchanger of the heat pump.
3. Install the heat pump above the water level of the swimming pool.
4. Always place the heat pump on a solid foundation and use the included rubber mounts to avoid vibration and noise.
5. Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before starting the heat pump.

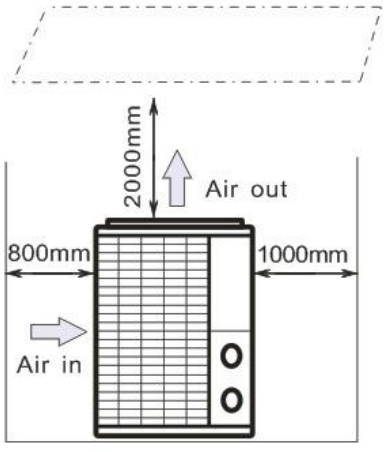
3.2 Heat pump location

The unit will work properly in any desired location as long as the following three items are present:

1. Fresh air – 2. Electricity – 3. Swimming pool filtration

The unit may be installed in virtually any **outdoor** location as long as the specified minimum distances to other objects are maintained (see drawing below). Please consult your installer for installation with an indoor pool. Installation in a windy location does not present any problem at all, unlike the situation with a gas heater (including pilot flame problems).

ATTENTION: Never install the unit in a closed room with limited air volume in which the air expelled from the unit will be reused, or close to shrubbery/plant life that could block the air inlet. Such locations impair the continuous supply of fresh air, resulting in reduced efficiency and possibly preventing sufficient heat output. Heat Pumps require fresh air & maximum ventilation to be more productive.
See the drawing below for minimum dimensions.



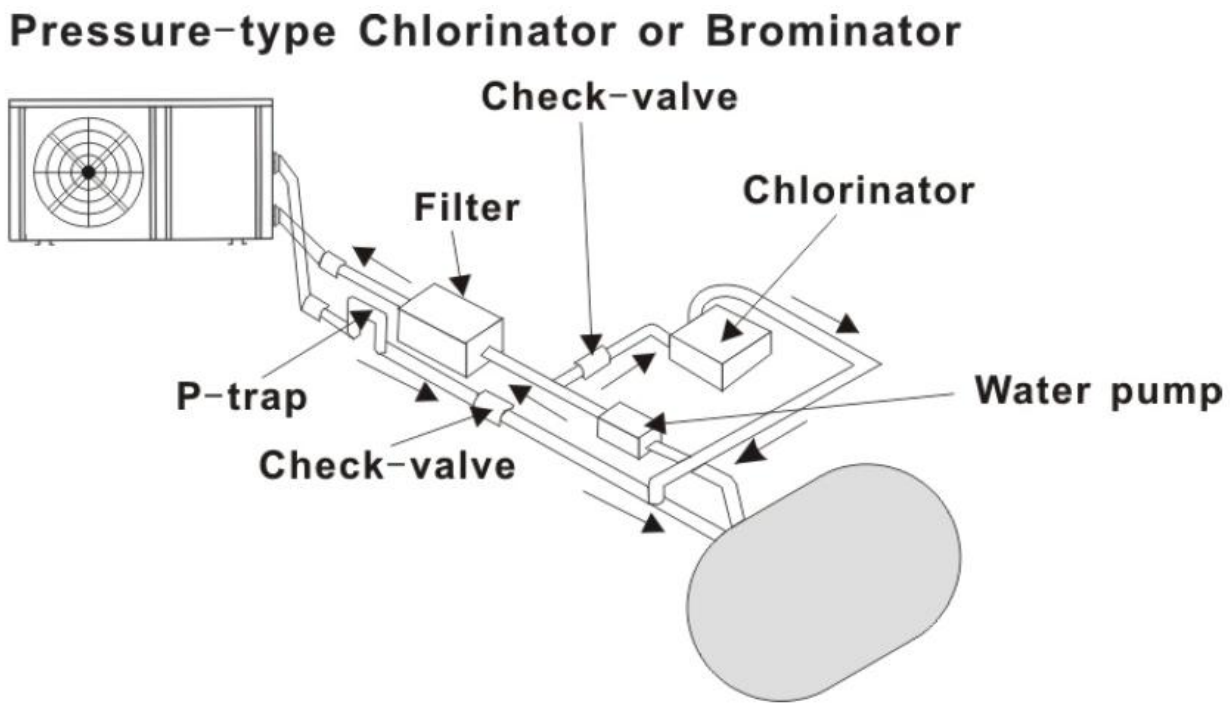
3.3 Distance from your swimming pool

The heat pump is normally installed within a perimeter area extending 7.5 m from the swimming pool. The greater the distance from the pool, the greater the heat loss in the pipes. As the pipes are mostly underground, the heat loss is low for distances up to 30 m (15 m from and to the pump; 30 m in total) unless the ground is wet or the groundwater level is high. A rough estimate of the heat loss per 30 m is 0.6 kWh (2,000 BTU) for every 5 ºC difference between the water temperature in the pool and the temperature of the soil surrounding the pipe. This increases the operating time by 3% to 5%.

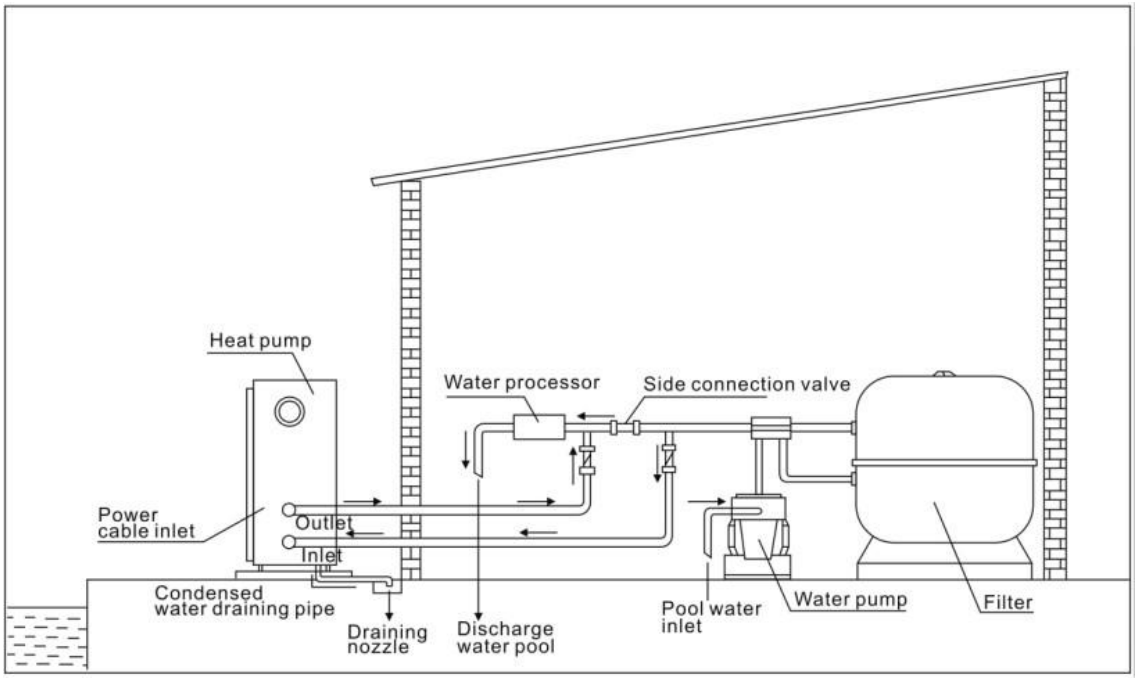
3.4 Check-valve installation

Note: If automatic dosing equipment for chlorine and acid (pH) is used, it is essential to protect the heat pump against excessively high chemical concentrations which may corrode the heat exchanger. For this reason, equipment of this sort must always be fitted in the piping on the **downstream** side of the heat pump, and it is recommended to install a check-valve to prevent reverse flow in the absence of water circulation.

Damage to the heat pump caused by failure to observe this instruction is not covered by the warranty.

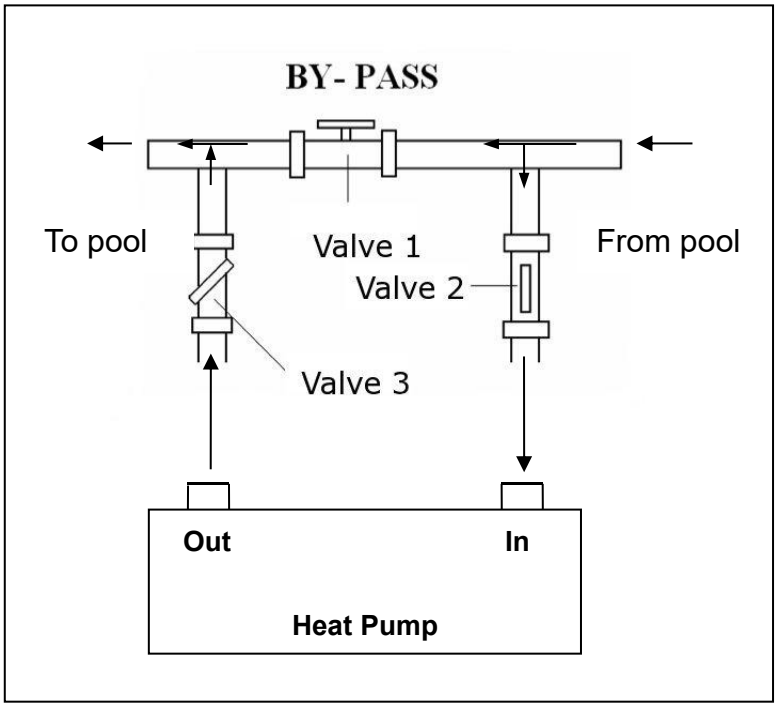


3.5 Typical arrangement



Note: This arrangement is only an illustrative example.

3.6 Adjusting the bypass

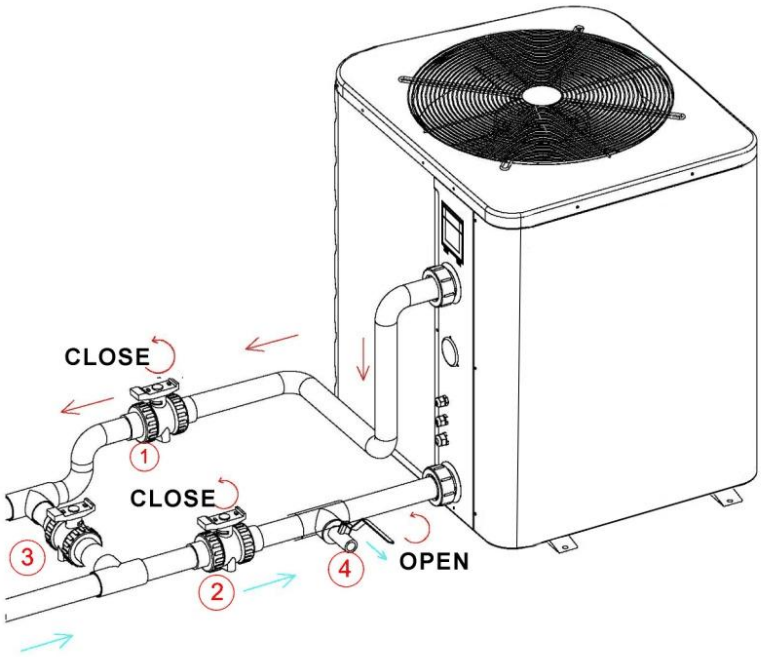


Use the following procedure to adjust the bypass:

1. Valve 1 wide open. Valve 2 & valve 3 closed.
2. Slowly open valve 2 & valve 3 by half, then close the valve 1 slowly to increase the water flow to valve 2 & valve 3.
3. If it shows 'ON' or 'EE3' on display, it means the water flow into heat pump is not enough, then you need adjust the valves to increase the water flow through the heat pump.

Note: Operation without a bypass or with improper bypass adjustment may result in sub-optimal heat pump operation and possibly damage to the heat pump, which renders the warranty null and void.

Drain out the water in winter for the units without drainage outlet in heat exchanger



Turn off the heat pump and be sure that it disconnected power
Turn off the water pump

- Close the valves 1 and 2
- Open the valve 4

Allow water to drain out over a long period until heat pump is fully drained.
NOTE: It need to close the valve 4 before turn on the heat pump.

3.7 Electrical connection

Note: Although the heat pump is electrically isolated from the rest of the swimming pool system, this only prevents the flow of electrical current to or from the water in the pool. Earthing is still required for protection against short-circuits inside the unit. Always provide a good earth connection.
We also recommend that electrical installation is conducted by a licensed electrician.

Before connecting the unit, verify that the supply voltage matches the operating voltage of the heat pump.
It is recommended to connect the heat pump to a circuit with its own fuse or circuit breaker and adequate wiring.
Connection: Open the terminal box on the side panel.
Connect the electrical wires to the terminal block marked ‘POWER SUPPLY’
A second terminal block marked ‘WATER PUMP ’ is located next to the first one. If you are using a secondary pump to circulate water from the pool to the heat pump this pump can be connected to the second terminal block here. This allows the filter pump operation to be controlled by the heat pump.

3.8 Initial operation

Note: In order to heat the water in the pool (or spa), the filtration pump must be running to cause the water to circulate through the heat pump. The heat pump will not start up if the water is not circulating through it.

After all connections have been made and checked, carry out the following procedure:

1. Switch on the filtration pump. Check for leaks and verify that water is flowing from and to the swimming pool.
2. Connect power to the heat pump and press the On/Off button ⏻ on the electronic control panel. The unit will start up after the time delay expires (see below).
3. After a few minutes, check whether the air blowing out of the unit is cooler.
4. When turning off the filtration pump , the unit should also turn off automatically , if not, then adjust the flow switch.
5. Allow the heat pump and the filtration pump to run 24 hours a day until the desired water temperature is reached. The heat pump will stop running at this point. After this, it will restart automatically (as long as the filter pump is running) whenever the swimming pool water temperature drops 2 degrees below the set temperature.

Depending on the initial temperature of the water in the swimming pool and the air temperature, it may take several days to heat the water to the desired temperature. A good swimming pool cover can dramatically reduce the required length of heating time & is highly recommended as standard.

Water Flow Switch:

The heat pump is fitted with an automatic flow switch to protect the heat pump from inadequate water flow. If the pool water level is
higher than 1m above or below the heat pump's automatic adjustment knob, your dealer may need to adjust its initial startup.

Time delay:

The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive contact wear. The unit will restart automatically after this time delay expires. Even a brief power interruption will trigger this time delay and prevent the unit from restarting immediately. Additional power interruptions during this delay period do not affect the 3-minute duration of the delay.

3.9 Condensation

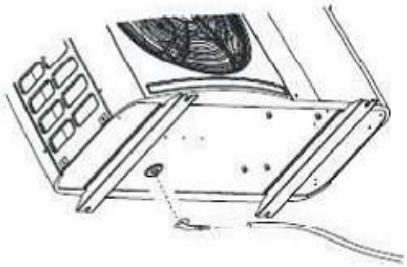
The air drawn into the heat pump is strongly cooled by the operation of the heat pump for heating the pool water, this may cause condensation on the fins of the evaporator. The amount of condensation may be as much as several liters per hour at high relative humidity. This is sometimes mistakenly regarded as a water leak. If there is excessive water coming from your heat pump please see your installer.

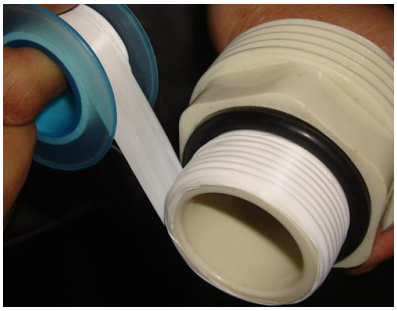
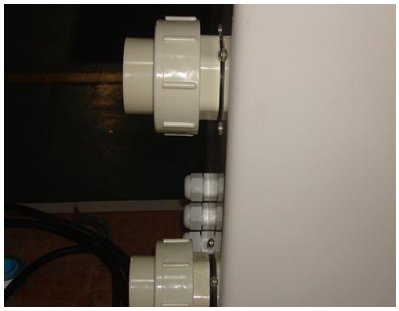
4. Accessories

4.1 Accessories list

 Anti-vibration base, 4 pcs	 Draining jet, 2 pcs	 Waterproof box, 1 pc
 10M Signal wire, 1 pc	 Water drainage pipes, 2 pcs	

4.2 Accessories installation

	**Anti-vibration bases** 1. Take out 4 Anti-vibration bases 2. Put them one by one on the bottom of machine feet like the picture.
 	**Draining jet** 1. Install the draining jet under the bottom panel 2. Connect with a water pipe to drain the water. Note: Lift the heat pump to install the jet. Never overturn the heat pump as it could damage the compressor.

<table>
<tr>
<td>     </td>
<td>Water Inlet & outlet junction
1. Use the pipe tape to connect the water Inlet & outlet junction onto the heat pump
2. Install the two joints like the picture shows
3. Screw them onto the water Inlet & outlet junction</td>
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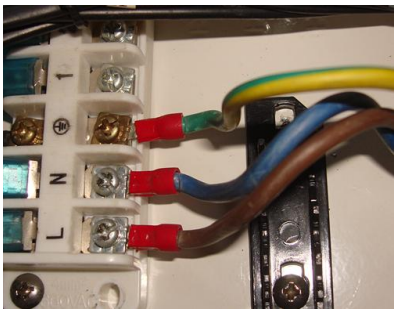
<tr>
<td>  </td>
<td>Mains cable wiring
Please refer to the photo</td>
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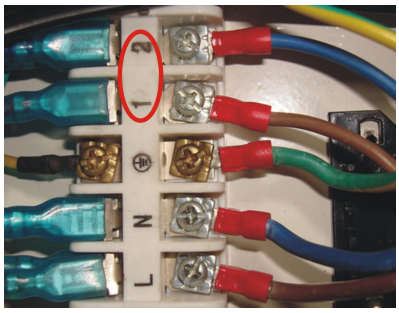
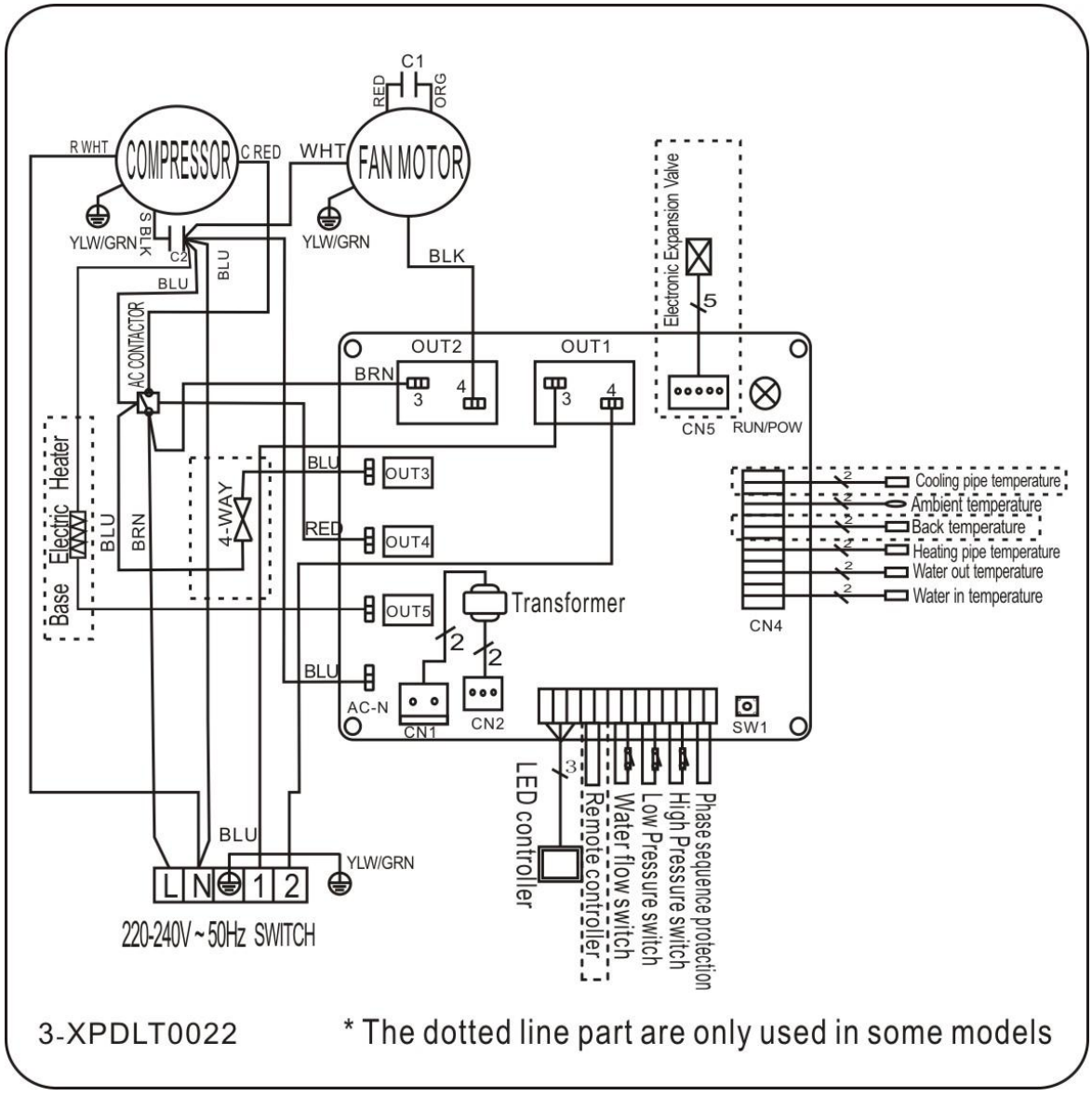
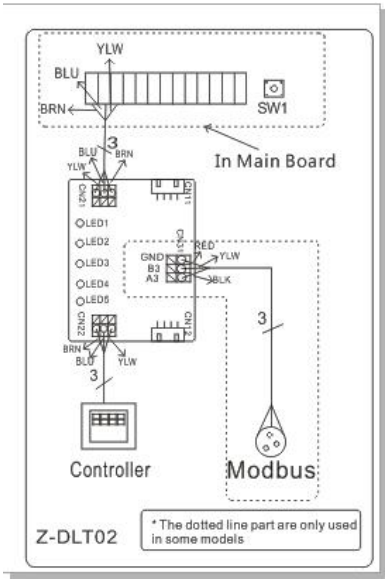
<td>  </td>
<td>Water pump wiring
1. With the connector 1 and 2 you can pilot the water filtration through the timer of the filtration (dry contact)</td>
</tr>
</table>

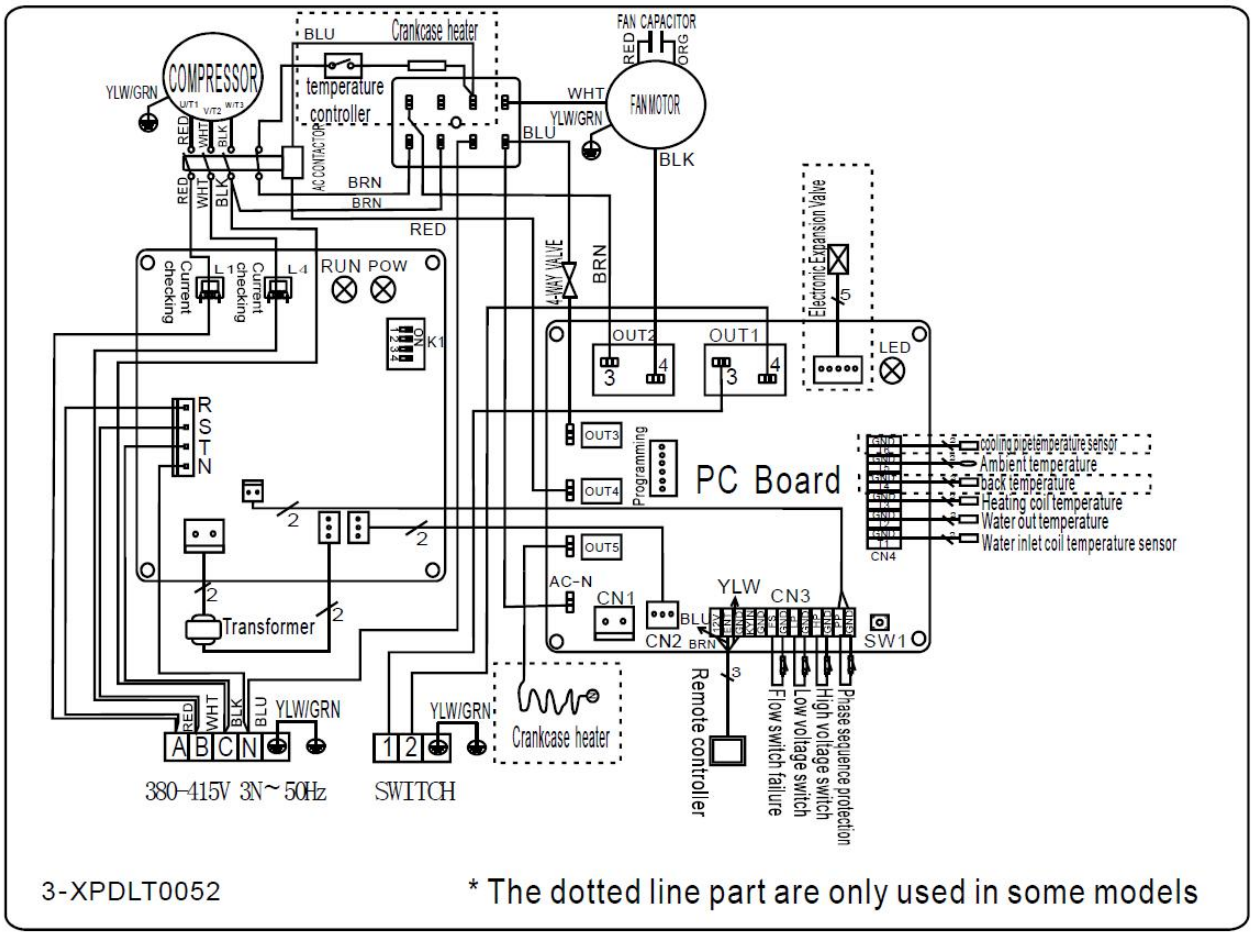
5. Electrical Wiring

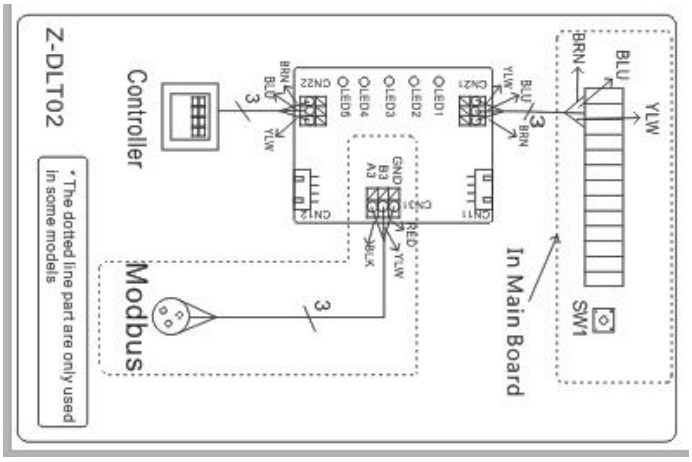
5.1 Electrical wiring diagram for KT135CV-TOP/KT175CV-TOP





5.2 Electrical wiring diagram for KT220CV-TOP/KT300CV-TOP





NOTE:

(1)Above electrical wiring diagram is only for your reference, please consult the manufacturer for repair advice.

(2)The swimming pool heat pump must be connected to earth, although the units heat exchanger is electrically isolated from the rest of the unit. Grounding the unit is still required to protect you against short circuits inside the unit .Bonding is also required.

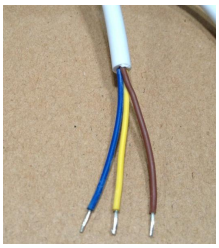
Disconnect: A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit .This is common practice on commercial and residential heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

5.3 Installation of the control panel & external cable extension (to be completed prior to electrical connection).

Photo(1)

Photo(2)

Photo(3)



Photo(4)

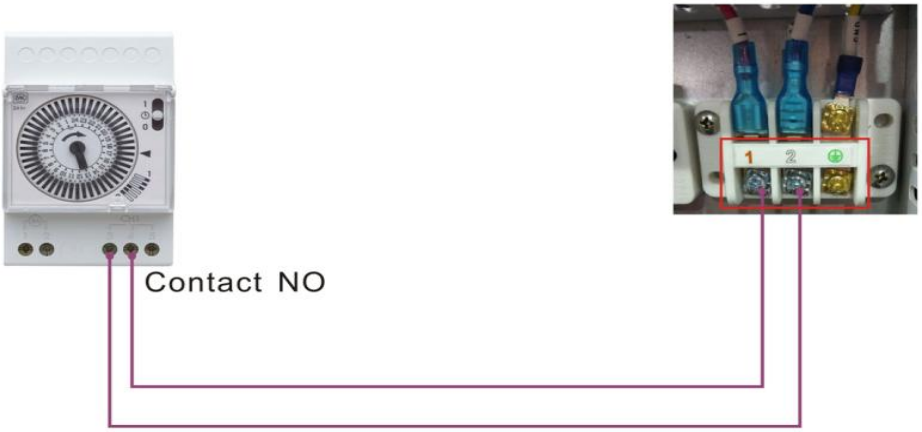
Photo(5)

Photo(6)

- 10 Meters signal wire with one plug (photo1)
- The side with plug connects with the control panel (photo2)
- The other side of the signal wire. (photo3)
- Open the electrical box cover and put the side without plug through the electrical box. (photo4,5)
- Insert the wiring into the designated position on the PC board. (photo6)

5.4 Connection to pilot the water pump

Dry contact timer connection



Dry contact pump connection

6. Controller Operation

1. Switch on/off your heat pump.

By clicking  to switch on or off your heat pump, as below interfaces show.

2. Adjust the set temperature and running mode.

Click  or  to turn up or down the temperature you require; The main interface will show the inlet water temperature after 5 seconds. Click  and  at the same time to check IN, OUT, SET temperature.

Click  to set the working mode: cooling mode, heating mode and auto mode, the default setting is heating mode.

When the pool heat pump is in defrosting, the heating icon  flashes.

3. Specification setting

Press  for 2s to enter the query or setting for parameter, timer and error code, interface as below:

Click  and  to select and click  to enter setting.

3.1 Parameter query

Select  and click  to enter setting.

Click  and  to check the parameter B to H.

Code	Name	Range	Remark
B	Water in temperature	-9～99℃	Actual value
C	Water out temperature	-9～99℃	Actual value
D	Heating pipe temperature	-9～99℃	Actual value
E	Gas return temperature	-9～99℃	Actual value
F	Ambient temperature	-9～99℃	Actual value
G	Cooling pipe temperature	-9～99℃	Actual value
H	EEV steps	0-480N	Actual value

3.2 Parameter setting:

Select  and click  to enter setting.

Click  and  to check the parameter P0-P16. Click  to enter setting.

Data	Name	Range	Setting
p0	Water setting temp.	Heating: 6～41℃ Cooling: 6～35℃ Auto: 6～41℃	Adjustable
p2	Entry into defrosting time period	30～90Min	Adjustable
p3	Terms of enter defrosting function	0～-30℃	Adjustable
p4	Terms of exit defrosting	2～30℃	Adjustable
p5	Time of exit defrosting	1～12Min	Adjustable
p6	Heating only / Heating & Cooling	0-1	Adjustable （Default: 1）0= Heating only 1= Heating&Cooling
p7	EEV value	0～1	Adjustable（Default: 1）0=Invalid 1=Adjustable
p8	Over heating in Heating mode	-15～15	Adjustable（Default: 3）
p9	Over cooling in Cooling mode	-15～15	Adjustable（Default: -2）
p10	EEV step adjust	18～94	Adjustable（Default: 70）
p11	Inlet water temp. calibration	-9.9～9.9 ℃	Adjustable
p14	Return to factory set	0-1	0
p16	Wifi & MODBUS	0-1	0=WiFi 1=MODBUS

Remark: 1.p0-p16 are factory data and are not available for the end users. Press  long for 15s to enter the each parameter setting.

2.P0 could only be adjustable based on the P6 of ‘1’

3. Adjust the parameter P14 to ‘1’ for the factory rest.

3.3 Error code query:

Select  and click  to enter setting. If the system is OK, click  will not enter malfunction.

3.4 Timer setting:

Select the  and click  to enter timer setting.

The digits for HOURS or MINUTES will flash at its setting stage, click the up or down buttons to adjust the time you require.

Click  again and enter timer setting. Click  and  to select timer on or timer off. Click  to turn on and off and click  and  to change the time setting. Long press  for 3s to save the setting and exit. If the timer setting is on,  will show in the main interface.

3.5 Exit

Click  to exit the manual.

7. Troubleshooting

7.1 Error code display on controller

Malfunction	Error code	Reason	Solution
Inlet water temperature sensor failure	PP1	The sensor in open or short circuit	Check or change the sensor
Outlet water temperature sensor failure	PP2	The sensor in open or short circuit	Check or change the sensor
Heating condenser sensor failure	PP3	The sensor in open or short circuit	Check or change the sensor
Gas return sensor failure	PP4	The sensor in open or short circuit	Check or change the sensor
Ambient temperature sensor failure	PP5	The sensor in open or short circuit	Check or change the sensor
Temperature difference between water inlet and outlet is too much	PP6	Water flow volume not enough ,water pressure difference is too low	Check the water flow volume, backwash filter & check baskets
Cooling outlet water temperature is too low	PP7	Water flow volume is not enough	Check the water flow, backwash filter & check baskets
First grade antifreeze protection in Winter	PP7	Ambient temperature or water inlet temperature is too low	Water pump will run automatically for first grade antifreeze
Second grade antifreeze protection in Winter	PP7	Ambient temperature or water inlet temperature is too low	Heat pump will start heating for second grade antifreeze
Cooling condenser sensor failure	PP8	The sensor in open or short circuit	Check or change the sensor
High pressure protection	EE1	1. Refrigerant is too high 2. Air flow is not enough	1. Discharge redundant refrigerant from HP gas system 2. Clean the air exchanger
Low pressure protection	EE2	1. Refrigerant is low 2. Water flow is not enough 3. Filter jammed or pump jammed	1. Check if there is any gas leakage ,re-fill the refrigerant 2. Clean the air exchanger 3. Check filter & pump
Flow switch closed	EE3 or ‘ON’	Low water flow, wrong flow direction, or flow switch failure.	Check if the water flow is enough and flow in right direction, or check flow switch itself.
Power supply connections wrong (for 3 phase unit)	EE4	Wrong connection	Check the connection of power cable
Inlet and outlet water temperature difference malfunction	EE5	Water flow volume is not enough ,water pressure difference is too low	Check the water flow rate, backwash filter & empty baskets
Communication failure	EE8	Wire connection is not good	Check the wire connection

7.2 Other Malfunctions and Solutions (no display on LED controller)

Malfunctions	Observing	Reasons	Solution
Heat pump is not running/ compressor is on but fan is off	LED controller shows no display.	No power supply	Check cable and circuit breaker if it is connected
	LED wire controller. displays the actual time.	Heat pump under standby status	Startup heat pump to run.
	LED wire controller displays the actual water temperature.	1. Water temperature is reaching to setting value, HP under constant temperature status. 2. Heat pump just starts to run. 3. Under defrosting.	1. Verify water temperature setting. 2. Startup heat pump after a few minutes. 3. LED wire controller should display "Defrosting".
Water temperature is cooling when HP runs under heating mode	LED wire controller displays actual water temperature and no error code displays.	1. Chosen the wrong mode. 2. Figures show defects. 3. Controller defect.	1. Adjust the mode to proper running mode. 2. Replace the defect LED controller, and then check the status after changing the running mode, verifying the water inlet and outlet temperature. 3. Replace or repair the heat pump unit
Short running	LED displays actual water temperature, no error code displays.	1. Fan NOT running. 2. Air ventilation is not enough. 3. Refrigerant is not enough.	1. Check the cable connections between the motor and fan, if necessary, it should be replaced. 2. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation. 3 Replace or repair the heat pump unit.
water stains	Water stains on heat pump unit.	1. Concreting. 2. Water leakage.	1. No action. 2. Check the titanium heat exchanger carefully for any leaks.
Too much ice on evaporator	Too much ice on evaporator.		1. Check the location of heat pump unit, and eliminate all obstacles to make good air ventilation. 2. Replace or repair the heat pump unit.

8. WIFI operation

8.1. Heat-Pump with WIFI function

Thank you for using the heat pump with WIFI module, you can remotely control your pool heat pump from your smart phone. The controller information could syncs to “Alsavo Pro” APP via an internet connection (WIFI or 3G/4G). For the first time connection, your smart phone and the WIFI controller must be under the same WIFI network. From then on, your smart phone can use the 3G/4G network to control pool heat pump remotely.

By “Alsavo Pro” APP, you can turn heat pump on or off, adjust water temperature, change mode, timer setting, parameter setting and malfunction checking. It’s right at your finger tips.

”Alsavo pro” APP is compatible with Android system (6.10 version or above) and IOS system (8.0 version or above). Currently ten languages(English, Swedish, French, Spanish, Italian, Czech, Polish, German, Russian, Chinese) is available.

Several heat pumps with WiFi controller could connect to one phone’s app, and several phones’ app could connect one heat pump.

8.2. “Alsavo Pro” APP Operation

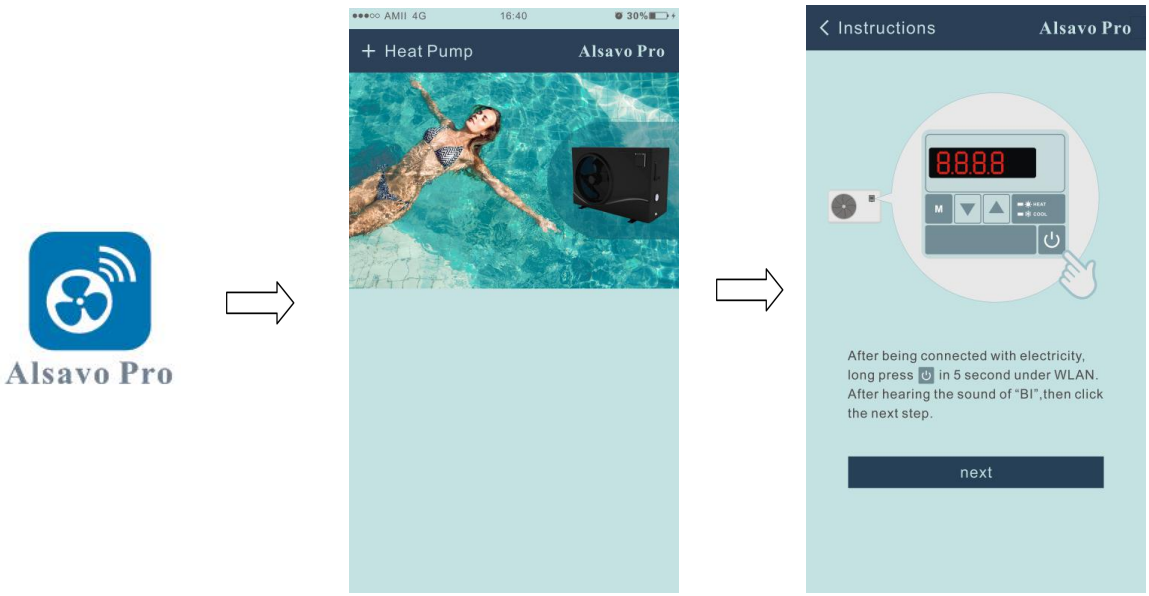
2.1 Firstly download the ”Alsavo Pro” APP from App store or Google play in your smart phone.

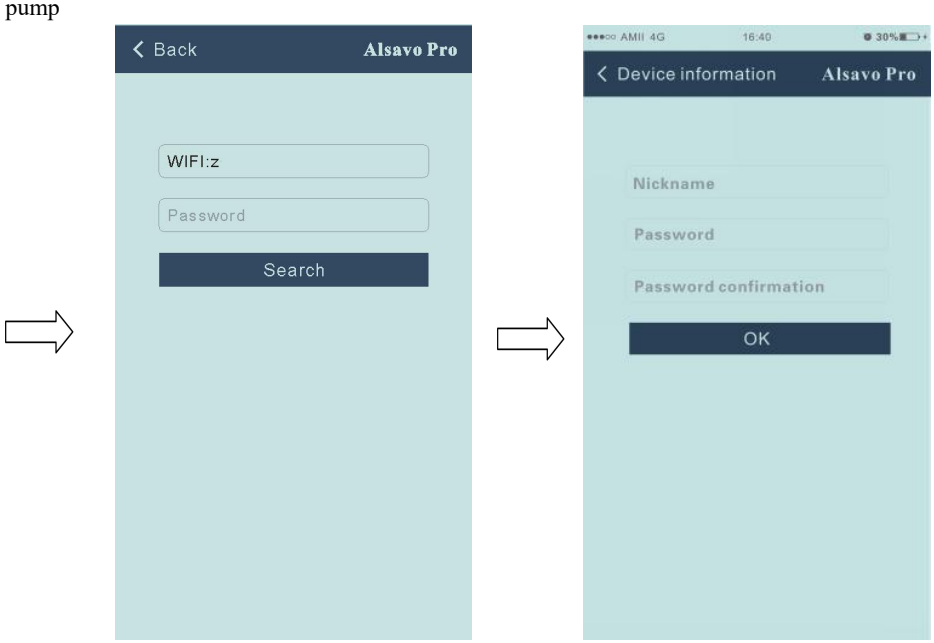
2.2 Open the “Alsavo Pro” app, then Click “+” on the upper left and select the “New device”. Then Click “Next” and Enter the current WIFI password to connect. Then press "⏻" 5S on the display no matter it’s ON or OFF until 📶 is flashing. Or you can press "⏻" 5S on the display firstly, then enter the current WIFi password.

If the connection is successful, 📶 stops flashing ,then on.

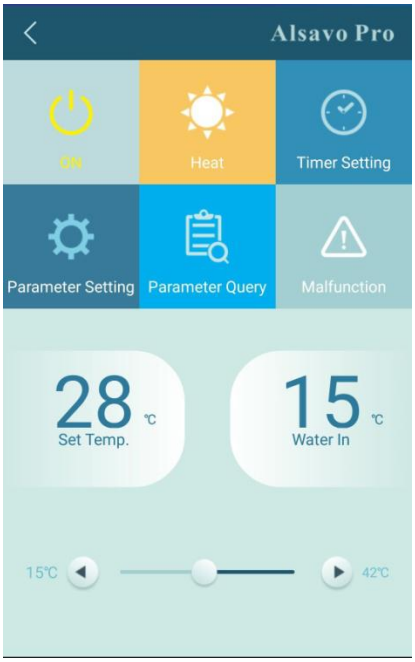
If the connection fails, the APP will indicate “Failed to connect device”.

"Nickname and password" interface only appear one time when new heat pump first successful connection. You can name and encrypt this unit.(If unsteady WIFI network,this interface may be missing. You will miss a chance to name and encrypt it. In this case, default password “123456” is available.).
If someone’s app is in the same WIFI network as yours, his app could automatically identify your heat pump. And he can operate your heat pump after inputting your password.





2.3 The main interface



1) Turn ON/OFF

Click the “ ” to turn on or off the heat pump.

2) Switch the mode

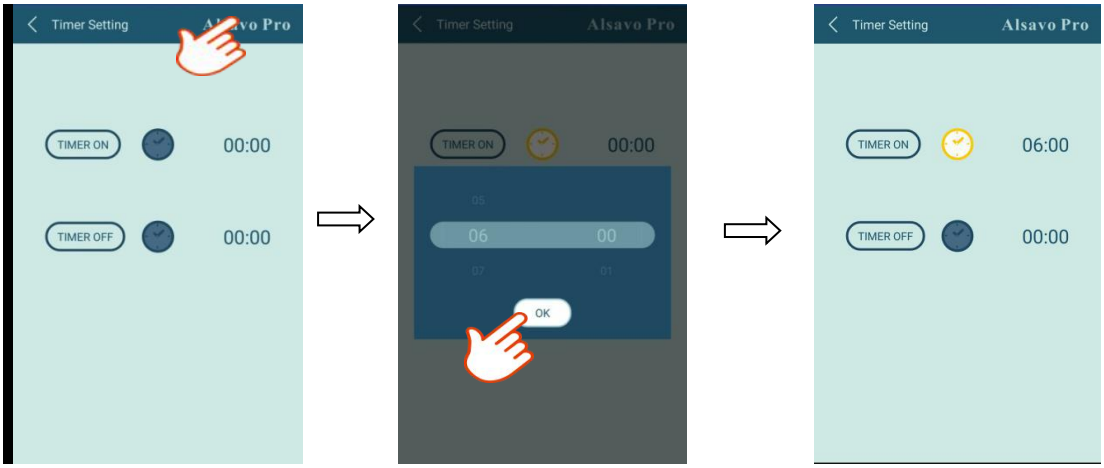
There are there modes (Auto mode, cooling or heating) for the ON/OFF unit. Click its icons to switch(Auto mode , heating , cooling)

3) Timer Setting

Click at first time,it turns .Then choose desired time in “timer on”， lastly click “OK” to confirm.

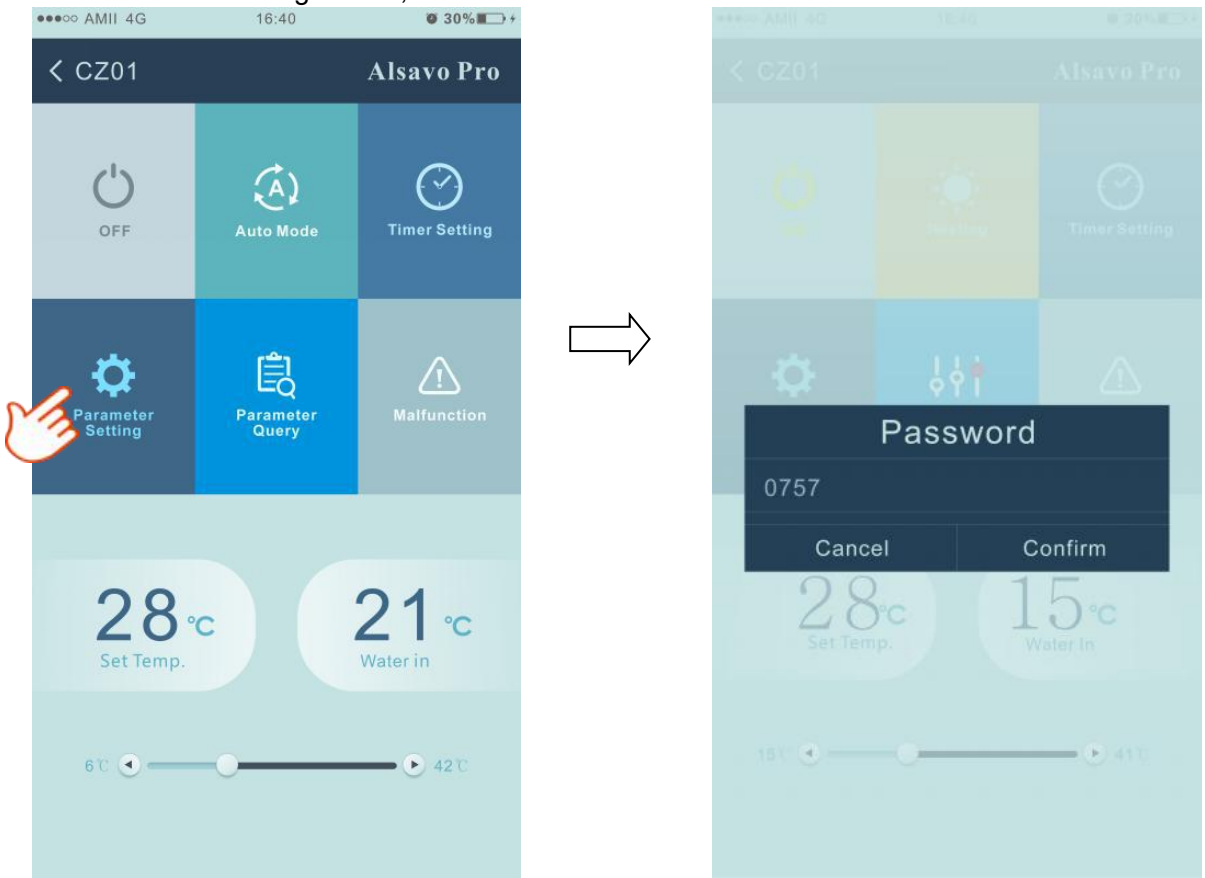
Click“ ” again,timer on will be disable.

“Timer off” setting is the same as “timer on”.



4) Parameter setting

Click Parameter Setting , then enter the Password “0757”.



Parameter setting:

Name	Range	Setting
Entry into defrosting time period	30～90Min	Adjustable
Terms of enter defrosting function	0～-30℃	Adjustable

Terms of exit defrosting	2～30℃	Adjustable
Time of exit defrosting	1～12Min	Adjustable
Inlet water temp. calibration	-9.9～9.9 ℃	Adjustable
Temperature unit		℃ or ℉

When do the re-set to factory default setting, pop-up tips whether you want to reset it.

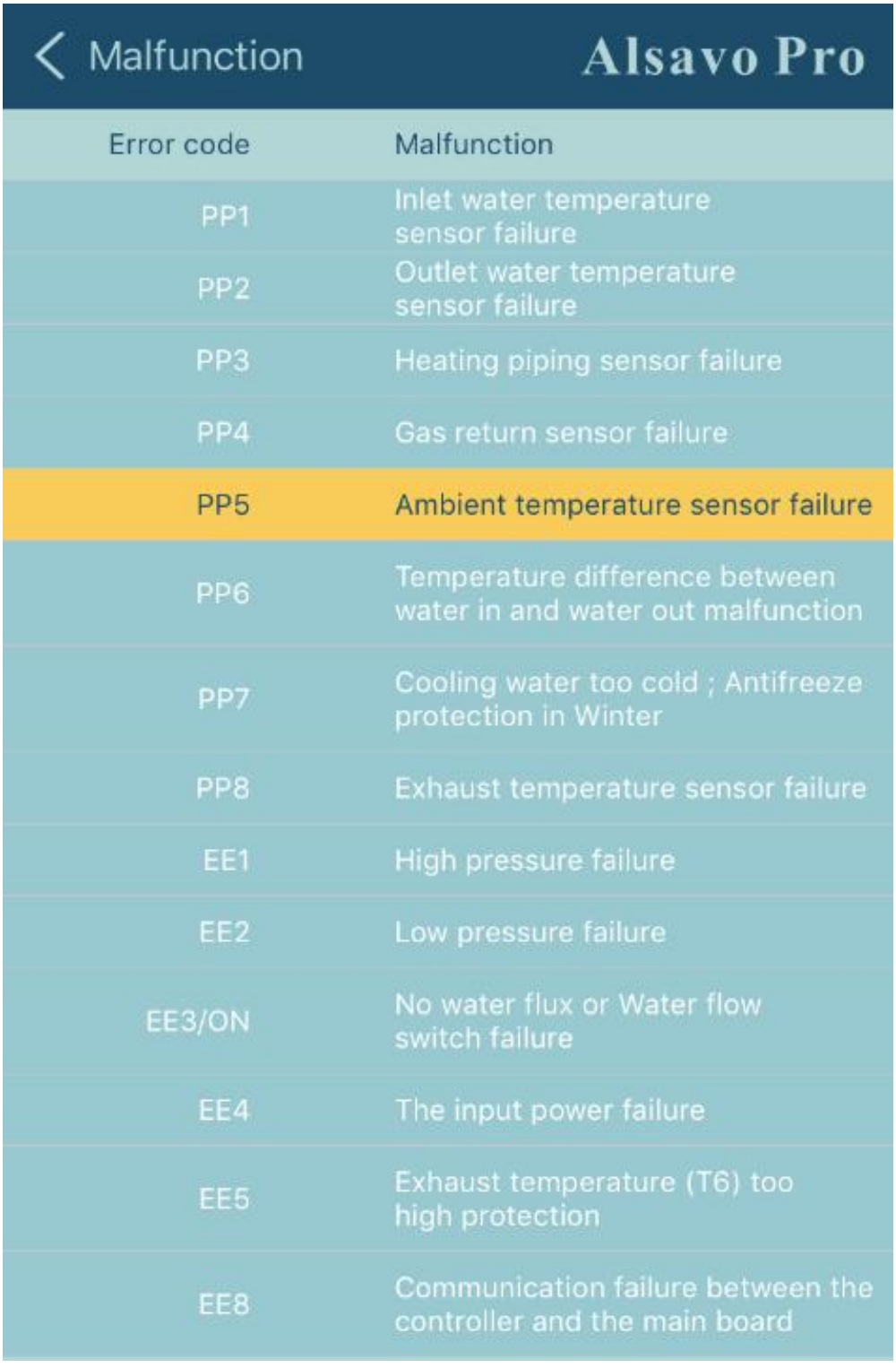
5) Parameter setting

Click Parameter query 

< Parameter Query	Alsavo Pro
Water In	24°C
Water Out	42°C
Heating pipe temperature	24°C
Gas return temperature	0°C
Ambient temperature	0°C
Exhaust temperature	0°C
Water temperature setting under cooling mode	7°C
Water temperature setting under Heating mode	41°C
Entry into defrosting time period	40Minute
Terms of Entry defrosting function	-7°C
Terms of Exit defrosting	20°C
Time of Exit defrosting	12Minute
Mode selection of Electronic expansion valve	0
Superheat for heating target	3°C
Superheat for cooling target	-2°C
Manual adjustment steps of electronic expansion valve	90
Actual steps of electronic expansion valve	90
Inlet water temperature calibration	0.0°C

6) Malfunction

If error occurs, the Malfunction icon  turns red  . Click it to check the Error.



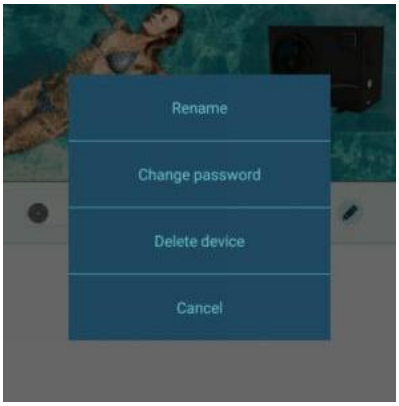
7) Set the desired temperature

You can set the target water temperature by adjusting the slider or press “ ” or ” ”.
The setting water temperature on the controller display correspondingly changes after letting go. When the setting water temperature on the display changes, it will be synchronously updated to the APP.

8)Check device information.
In the main interface, click the upper right “Alsavo Pro”. The Device info will show up.

9)Revise the heat pump info in the homepage

Click “ ” , you could rename, change its password and delete the device.



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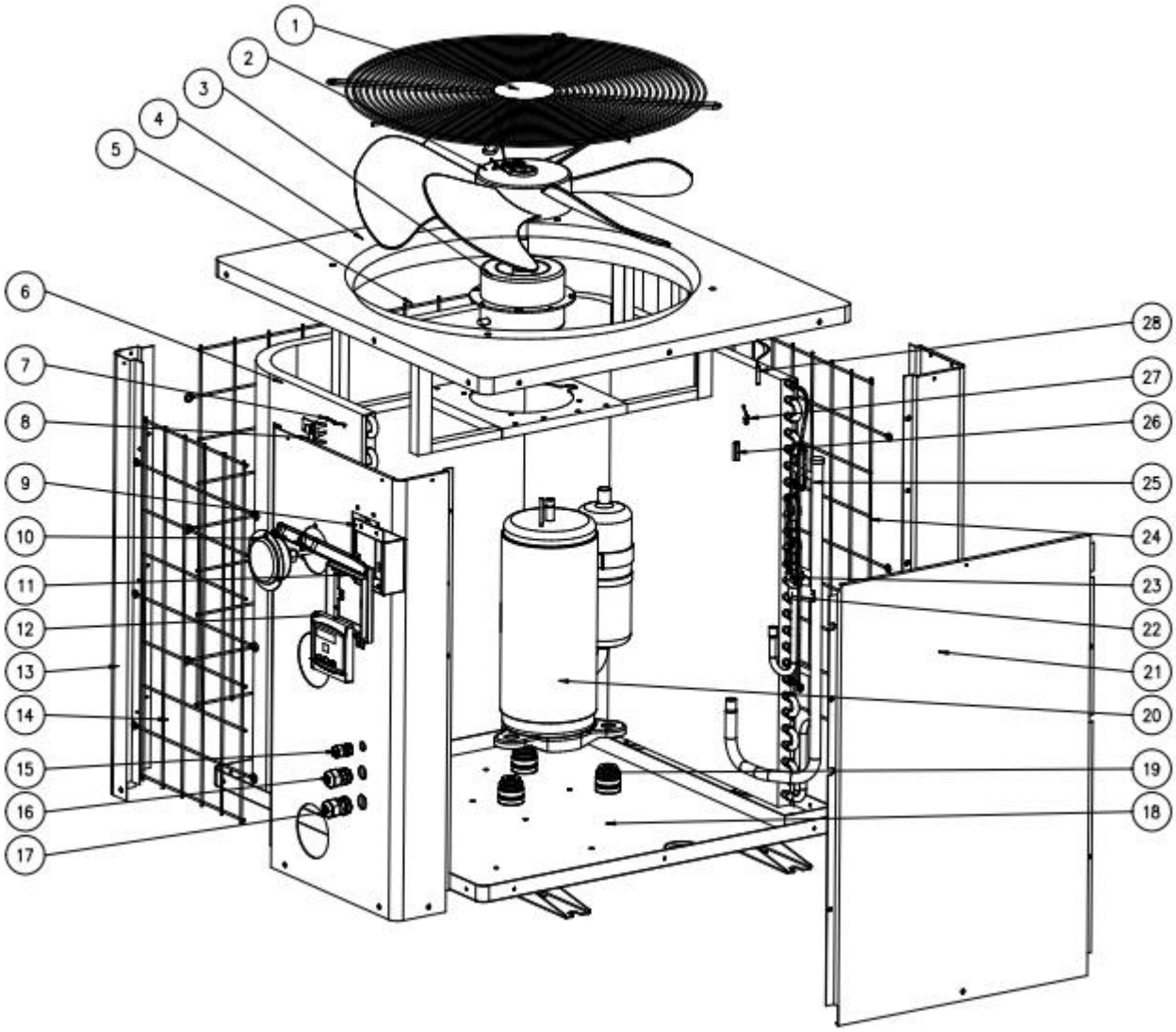
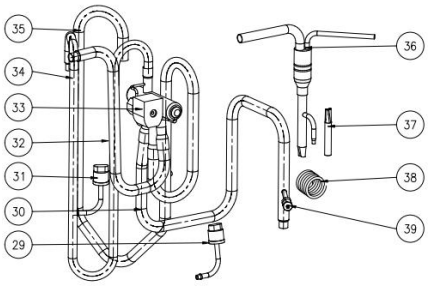
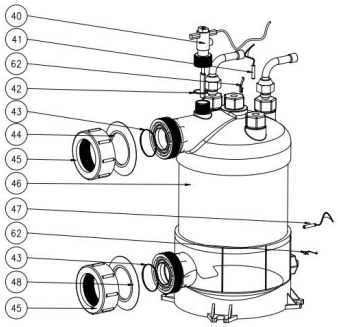
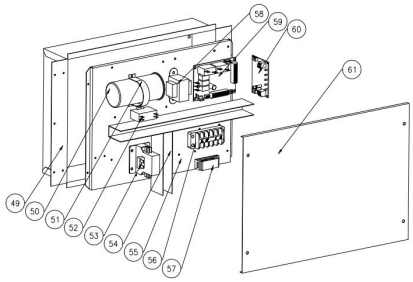
9. Exploded Diagram

Model: KT135CV-TOP/KT175CV-TOP









NO	Part Name	NO	Part Name

1	Ventilation grid	32	Pipe(4 way valve to exchanger)
2	Fan blade	33	4 way valve
3	Fan motor	34	Exhaust pipe
4	Top cover	35	Gas return pipe
5	Back grill	36	Pipe(exchanger to capillary)
6	Evaporator	37	Pipe
7	Ambient temp. sensor	38	Capillary
8	Sensor clip	39	Suction valve
9	Controller box	40	Water flow switch
10	Pressure gauge	41	Water out temp. sensor
11	Waterproof box	42	Seal ring for flow switch
12	Controller	43	O type seal ring
13	Pillar	44	Red rubber ring
14	Left grill	45	Water connection
15	Cable connector	46	Titanium heat exchanger
16	Cable connector	47	Water in temp. sensor
17	Cable connector	48	Blue Rubber ring
18	Base tray	49	Electric box
19	Compressor damping feet	50	Compressor capacitance
20	Compressor	51	Clip
21	Service panel	52	Fan capacitance
22	Rubber fixing block	53	AC contactor
23	Distribution pipe	54	N/A
24	Right grill	55	Scale panel
25	Collective pipe	56	5-seat terminal
26	Sensor casing tube	57	Wire fixing clip
27	Sensor clip	58	Transformer
28	Coil temp. sensor	59	PCB
29	Low pressure switch	60	Wifi Module PCB
30	Pipe(4 way valve to collective pipe)	61	Electric box cover
31	High pressure switch	62	Sensor clip

10. Maintenance

(1) You should check the water supply system regularly to avoid any air entering the system and occurrence of low water flow, because it would reduce the performance and reliability of HP unit.

(2) Clean your pools and filtration system regularly to avoid damage of the unit as a result of a clogged/dirty filter causing reduction in water flow.

(3) You should discharge the water from bottom of water pump if HP unit is intended to be shut down for a long period (during the winter season).

(4) Upon start up after a long period of having the HP switched off, you should check the unit is full of water before the unit starts to run again.

(5) When the unit is running, there will always be a little water discharge under the unit – this is normal.

(6) Refrigerant pressure

For checking the unit under running model, make sure there is refrigerant pressure gauge which shows working condition of unit. The following mapping table shows the number of refrigerant pressure and unit working condition. If there is big difference between them, the machine is probably malfunctioning.

R410A pressure and temperature mapping table

Unit Condition	Power Off					Running				
Ambient (℃)	-5~5	5~15	15~25	25~35		/	/	/	/	/
Water temp (℃)	/	/	/	/		10~15	15~20	20~25	25~30	30~35
Pressure gauge (kg/cm2)	6.8~9.3	9.3~12.5	12.5~16.4	16.4~21		13~18	15~19	16~23	19~28	21~35

KlimaTeknik Top Heat pump

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