

# SUNSYSTEM®

**EVI DC inverter heat pump  
for heating and cooling -  
split system  
(with Wi-Fi control)**



**TECHNICAL PASPORT.  
INSTALLATION AND OPERATION MANUAL**

Version 0.2

Dear clients, before using the device, familiarize yourself with this instruction for installation, storage and operation. We hope that the appliance you have purchased will contribute to creating coziness in your home and reducing energy costs. The purpose of this technical description and operating instructions is to familiarize you with the product and the conditions for its correct installation and operation. Compliance with the instructions in this instruction is in the interest of the buyer and is one of the warranty conditions.

**EVI DC** Inverter Air Source Heat Pump is specially designed for domestic hot water, home heating and cooling.

**EVI DC** Inverter Air Source heat pumps transfer heat from the ambient air to water, providing high-temperature hot water up to 60°C. The unique high-temperature heat pump is widely used for house warming. With innovative & advanced technology, the heat pump can operate very well at -30°C ambient temperature with high output temperatures up to 60°C, which ensures the compatibility with normal sized radiator based systems without supplementation. Compared with traditional oil/LPG boilers, **EVI DC** Inverter heat pump produces up to 50% less CO<sub>2</sub> whilst saves 80% running cost. Our heat pumps are not only highly efficient, but also easy and safe to operate.


## **GENERAL FEATURES:**


### **1. General Features**


1. Low running costs and high efficiency
  - A high coefficient of performance (COP) of up to 5 results in lower running costs compared with traditional ASHP technology.
  - No immersion heater supplement is required.
2. Reduced Capital Costs
  - Simple installation
3. High Comfort Levels
  - High storage temp. results in increased hot water availability.
4. No potential danger of any inflammable, gas poisoning, explosion, fire, electrical shock which are associated with other heating systems.
5. A digital controller is incorporated to maintain the desired water temperature.
6. Long-life and corrosion resistant composite cabinet stands up to severe climates.
7. Panasonic compressor ensures outstanding performance, ultra energy efficiency, durability and quiet operation.
8. Self-diagnostic control panel monitors and troubleshoots heat pump operations to ensure safe and reliable operation.
9. Intelligent digital controller with friendly user interface and blue LED back light.
10. Separate isolated electrical compartment prevents internal corrosion and extends heat pump life.
11. The heat pump can operate down to ambient air temperature of -30°C.


## 1. BASIC INSTRUCTIONS AND WARNINGS


 Before starting the installation process, read the entire instruction.


 The installation of the device must strictly follow the instructions, otherwise the warranty is void.


 Any modification or replacement of the original parts with others automatically voids the warranty given by the manufacturer. Use of the device in environments and conditions other than those described in this manual automatically voids any claims made.


 Improper execution of electrical bonding that does not conform to good practice may result in injury.


 Electrical wiring must be performed by a qualified electrician.


 The device must not be placed in an aggressive environment that could damage it (dusty rooms, explosive substances in the air, open air, etc.).


 In order to be sure of the correct operation of the relief valve, periodic annual checks of its operation should be made. If necessary clean it of limescale and make sure it is not blocked.


 A 0.8 MPa (8 bar) safety valve must be connected to the inlet of the water container, which guarantees that the pressure will not exceed the nominal one. It is forbidden to place a shut-off valve between the water container and the safety valve.


 The boiler is intended for drinking water storage, so it must necessarily comply with the valid national regulations for drinking water, or in case of damage the validity of the warranty will be void.


 The device should never be operated without water in the water tank.


 The power cable has a standard tip, which must be connected to a standard outlet (16A; 230V). The outlet must have a separate power supply from the mains and there must be no other connected consumers on this circuit.


 The device can be used by 1 person familiar with the product's operating instructions. Children over 8 years old and people with disabilities can use the device only under the supervision of an instructed person.


 During operation, it is forbidden to move, lift, clean or repair the device.


 The installation of the device must be carried out according to the current standards by an authorized specialist.

 The device must not be blocked or objects placed on it. If the temperature exceeds 85°C during operation, contact a service center immediately.

 Make sure the device does not pose a threat to anyone. Access to children and uninstructed persons should be restricted.

 Do not place the unit in a room where it cannot be removed.

 Service and maintenance may only be performed by an authorized service technician. In case of damage, first contact the technician who installed the device.

 Never clean the device with preparations containing sand, soda, acids, alcohols. Clean only with a damp cotton cloth, making sure that the appliance is disconnected from the mains.

## 2. HEAT PUMP ENERGY SAVING TIPS

If you do not plan to use hot water for a

prolonged period, then you might choose to turn the heat pump off or decrease the temp. setting of the control several degrees to minimize energy consumption.

We offer the following recommendations to help conserve energy and minimize the cost of operating your heat pump without sacrificing comfort.

**2.1.** A maximum water temp. of 60°C is recommended.

**2.2.** It is recommended to turn off the heat pump when ambient air temp. is less than -30°C or if on vacation for longer than a week.

**2.3.** To save energy, it is recommended that the heat pump is operated during daytime when the ambient temperature is higher.

**2.4.** The heat pump must be installed outdoors. To use the risk of freezing, always use a solution of propylene glycol as a heat carrier.

### **3. HEAT PUMP INSTALLATION**

**3.1.** The following items are needed and are to be supplied by the installer for all heat pump installations:

**3.1.1.** Plumbing fittings.

**3.1.2.** Level surface for proper drainage.

**3.1.3.** Ensure that a suitable electrical supply line is provided. See the rating plate on the heat pump for electrical specifications. Please take a note of the specified current rating. No junction box is needed at the heat pump; Connections are made inside of the heat pump electrical compartment. Conduit may be attached directly to the heat pump jacket.

**3.1.4.** It is advised to use PVC conduit for the electrical supply line.

**3.1.5.** Use an additional water circulation pump in case of low flow.

**3.1.6.** It is necessary to install a magnetic filter at the inlet of the heat carrier in the heat pump.

**3.1.7.** The plumbing should be insulated to reduce its heat loss.

**Note:** We recommend installing shut-off valves

*on the inlet and outlet water connections for ease of serviceability.*

#### **3.2. Installation details:**

Prevailing local conditions, such as the proximity and height of walls and proximity to public access areas, must be taken into account in any installation. The heat pump must be positioned to provide clearance on all sides for maintenance and inspection.

**3.2.1.** The place to install the heat pump must have good ventilation and the air inlet/outlet must not be obstructed.

**3.2.2.** The installation site must have good drainage and be built on a solid foundation.

**3.2.3.** Do not install the unit in areas accumulated with pollutants such as aggressive gas (chlorine or acid), dust, sand and leaves, etc.

**3.2.4.** For easier and better maintenance and troubleshooting, there should be no objects and walls closer than 1 m around the unit and no obstructions within 2 meters, vertically, of the air ventilation unit.

**3.2.5.** The heat pump must be mounted with shock-resistant bushings to prevent vibration and/or imbalance.

**3.2.6.** Although the controller is waterproof, care should be taken to avoid direct sunlight and high temperature. In addition, the heat pump must be placed in such a way as to ensure good visibility of the controller.

**Note:** We recommend installing shut-off valves on the inlet and outlet water connections for ease of service.

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**3.3.7.** Plumbing pipes must be installed with adequate support to prevent possible damage due to vibration. The running water pressure must be maintained above 196 kpa. Otherwise, a booster pump must be installed.

**3.3.8.** The acceptable operating voltage range should be within  $\pm 10\%$  of the rated voltage.



**The heat pump unit must be grounded for safety purposes.**

**3.3.9.** If the copper pipes length(between outdoor unit and indoor unit) is within 5 meter no need

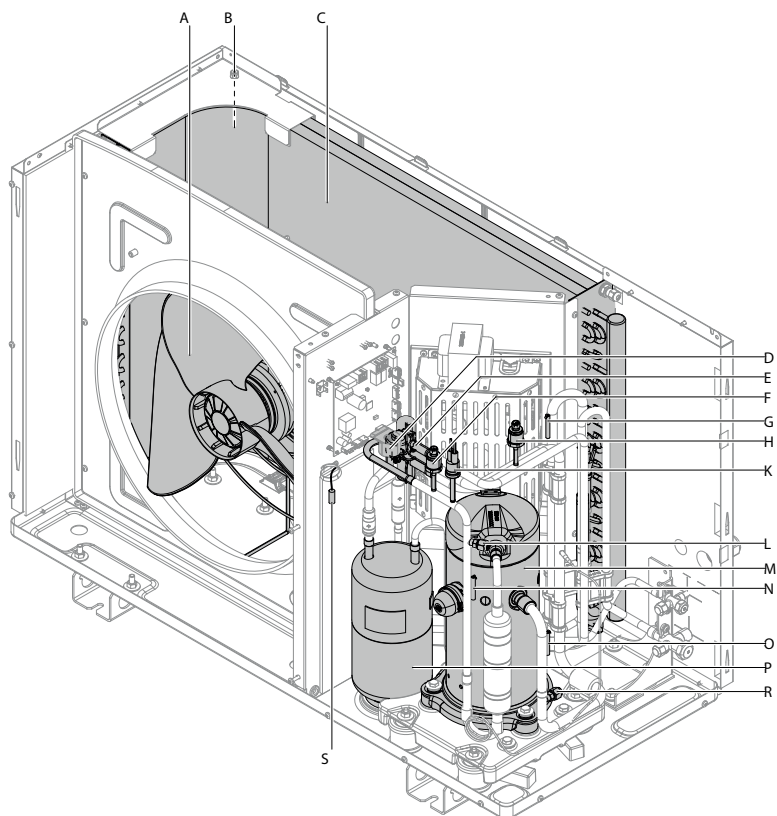
extra refrigerant added,

**(a)** But if the copper pipe length is above 5m, the added refrigerant volume will be 60g/m for SUNSYSTEM SPLIT R32-0126-1PH; 120g/m for SUNSYSTEM SPLIT R32-0220-3PH. The max copper pipe length is 10meter for SUNSYSTEM SPLIT R32-0126-1PH, 15meter for SUNSYSTEM SPLIT R32-0220-3PH.

**(b)** The height difference between outdoor unit and indoor unit is max 5meter for SUNSYSTEM SPLIT R32-0126-1PH; Max 8meter for SUNSYSTEM SPLIT R32-0220-3PH.

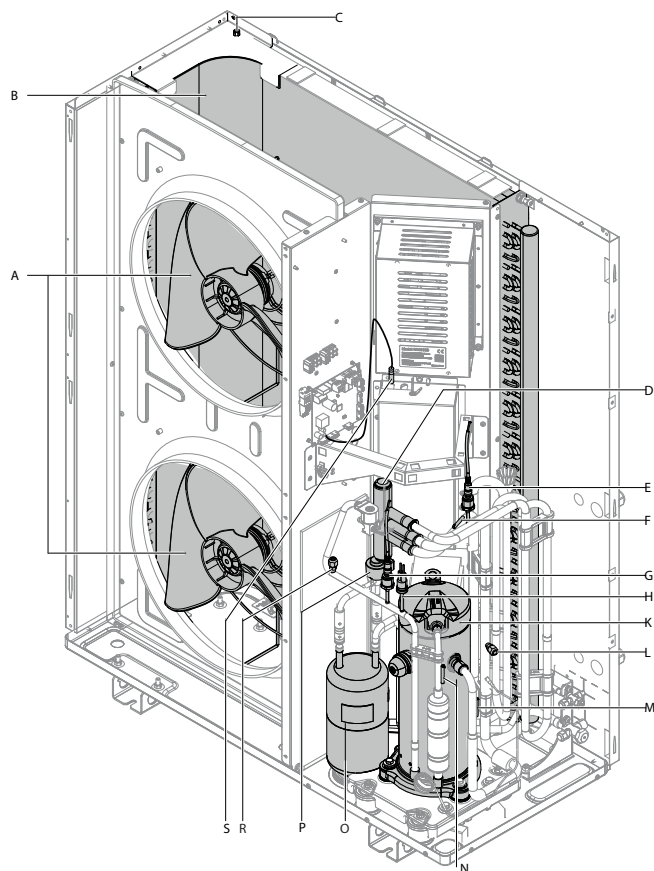
## 4. PREPARATION FOR INSTALLATION

### 4.1. Outdoor unit with 1 fan - components



COMPONENTS			
A	Fan	K	High pressure safety relay
B	Air inlet temperature sensor	L	High pressure side Schrader type valve
C	Heat exchanger (evaporator)	M	Compressor
D	Electronic expansion valve	N	Hot gas temperature sensor
E	4-way diverter valve	O	Low pressure compressor gas temperature sensor
F	High pressure sensor	P	Refrigerant receiver
G	Gas temperature sensor low pressure evaporator	R	Low pressure side Schrader type valve
H	Low pressure sensor	S	Temperature sensor regulator of the refrigeration circuit

## 4.2. Outdoor unit with 2 fans - components



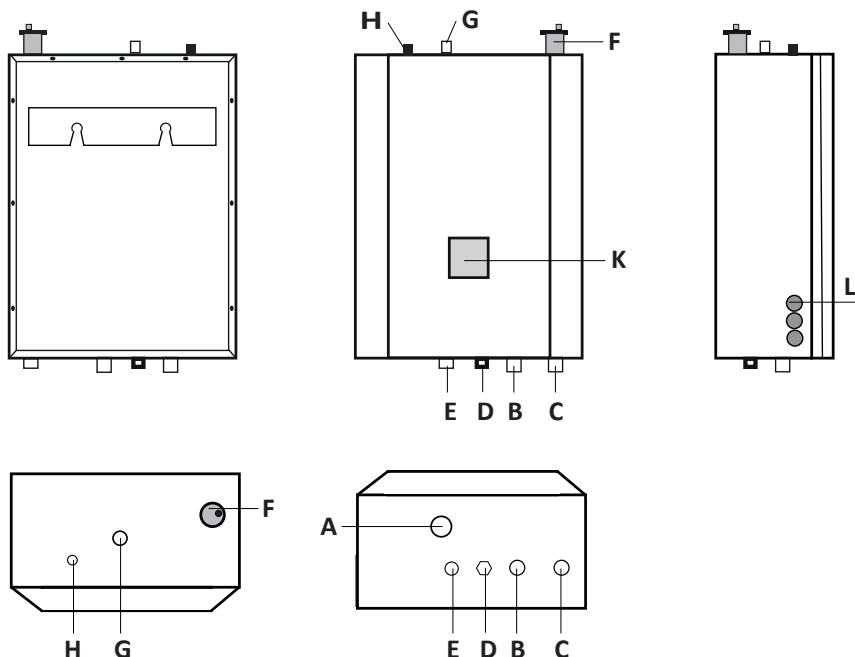
### COMPONENTS

A	Fan	K	Compressor
B	Heat exchanger (evaporator)	L	Low pressure side Schrader type valve
C	Air inlet temperature sensor	M	Compressor
D	4-way diverter valve	N	Low pressure compressor gas temperature sensor
E	Low pressure sensor	O	Refrigerant receiver
F	Gas temperature sensor low pressure evaporator	P	Electronic expansion valve
G	High pressure sensor	R	High pressure side Schrader type valve
H	High pressure safety relay	S	Temperature sensor regulator of the refrigeration circuit

### 4.3. Indoor unit - components

## SUNSYSTEM SPLIT R32-0126-1PH

## SUNSYSTEM SPLIT R32-0220-3PH

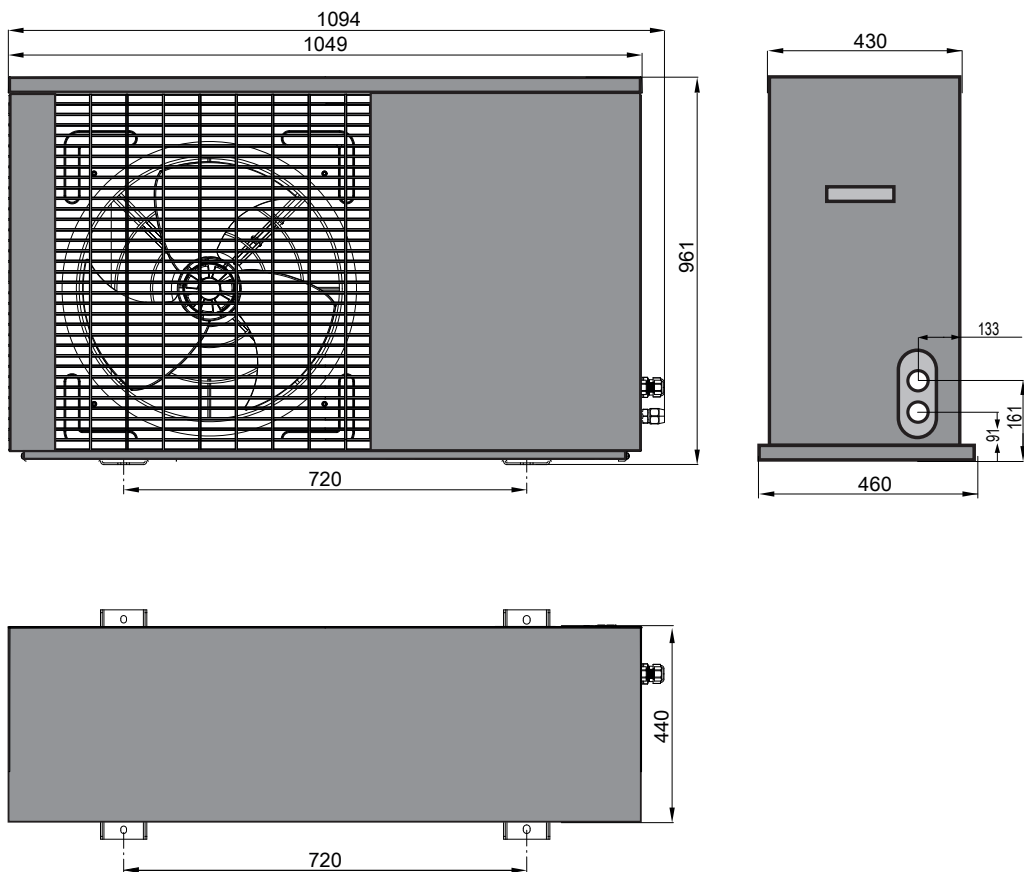


COMPONENTS			
A	Water inlet	F	Safety valve
B	Outlet water (DHW)	G	Refrigerant R32 - Input
C	Heating water outlet DN25	H	Refrigerant R32 - Outlet
D	Water drain hole	K	Controller
E	Safety valve soft pipe	L	Cable holes

## 5. INSTALLATION

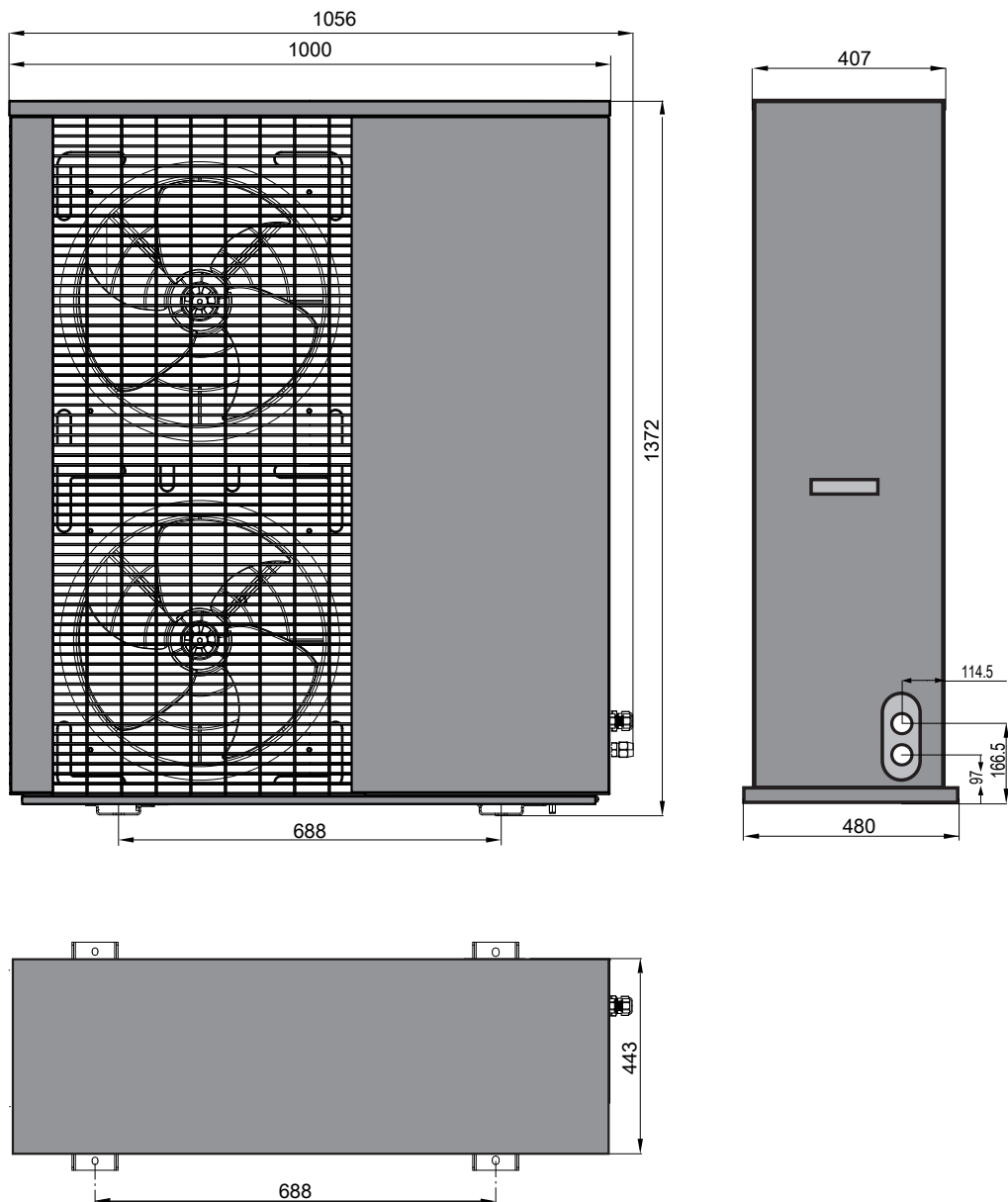
### 5.1. Outdoor unit with 1 fan - dimensions.

## SUNSYSTEM SPLIT R32-0126-1PH



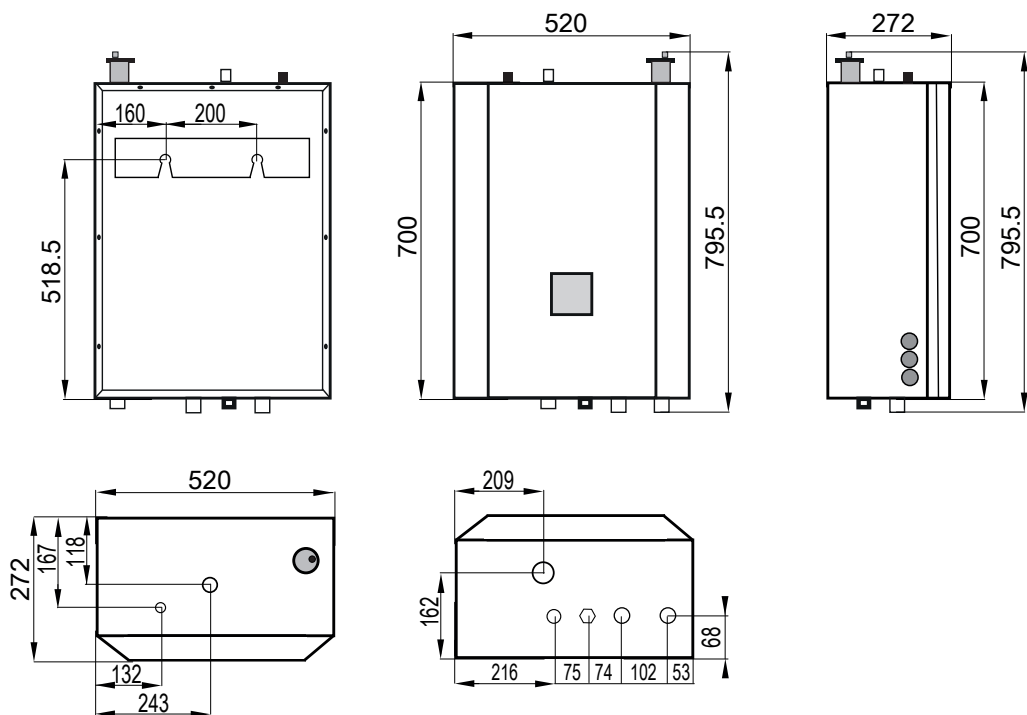
## 5.2. Outdoor unit with 2 fans - dimensions.

### SUNSYSTEM SPLIT R32-0220-3PH



### 5.3. Indoor unit - dimensions.

## SUNSYSTEM SPLIT R32-0126-1PH SUNSYSTEM SPLIT R32-0220-3PH



### 5.4. Installation location.

	Choose a place with good air circulation so that the cooled air can flow in and the warm air can flow out.
	Do not install in room corners, niches or between walls. This can lead to „mixing“ between the blown air and the intake air.
	In heating mode, „mixing“ leads to re-suction of the cooled blown air. This can lead to reduced efficiency of the heat pump and problems with defrosting. Avoid „mixing the air flows“.
	In cooling mode, „mixing“ results in re-suction of the heated blown air. This can lead to accidents due to high pressure. Avoid „mixing of air flows“.

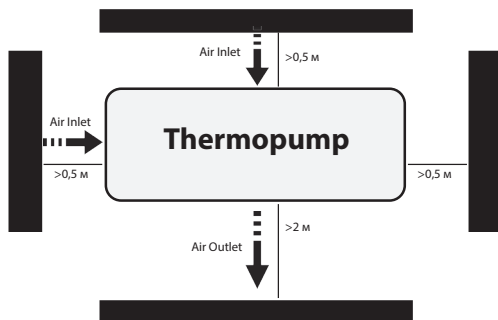
When installing in a location exposed to the wind, the influence of the wind in the area of the fans must be prevented. A strong wind can interfere with the airflow through the evaporator.

Keep a minimum distance of 3m to walkways, drainpipes or sealed surfaces. Due to the cooling of the air in the blowing area, there is a risk of ice formation at outside temperatures below 10 °C.

For easier and better maintenance and troubleshooting, there should be no objects and walls around the equipment that are closer than 1 m and no obstacles above it within 2 meters, vertically, of the air ventilation device

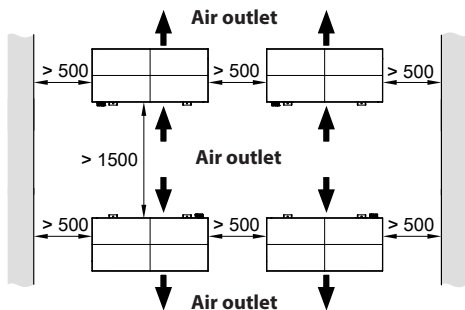
### 5.5. Minimum distances during installation.

#### 5.5.1. Minimum distances in mm for 1 outdoor unit with 1 and 2 fans:

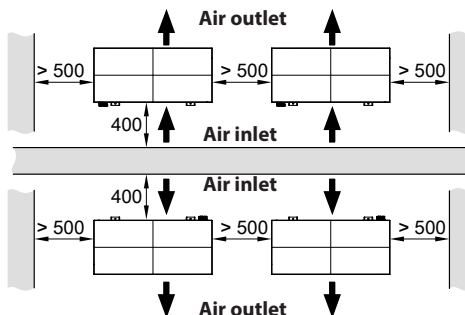


#### 5.5.2. Minimum distances in mm for a cascade of heat pumps (max. 5 outdoor units):

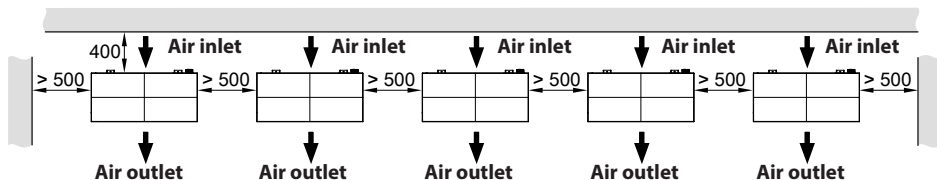
##### a) Opposite placement without partition wall :



##### b) Opposite placement with partition wall :



**b) Arrangement in a row:**

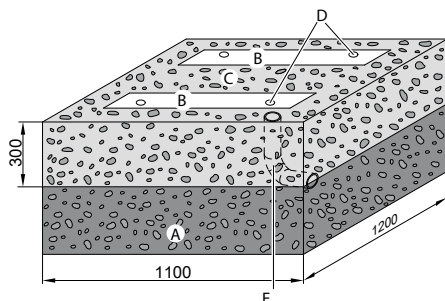


**5.6. Types of installations**

**5.6.1. Floor installation.**

**a) Foundations.**

Install the foundation brackets on 2 horizontal strip foundations. We recommend making a concrete foundation according to the following figure below. The specified layer thicknesses are average values. These values must be agreed with the local conditions. Observe the construction and technical rules.



**Designations:**

*A/ Frost protection for the foundation (compacted gravel, e.g. 0 to 32/56 mm), layer thickness;*

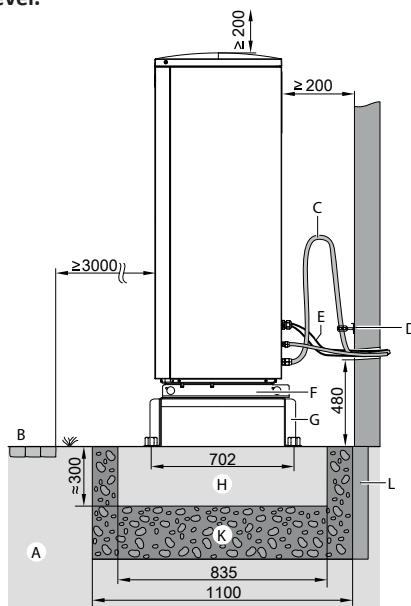
*B/Strip foundation;*

*C/ Gravel layer for percolation of condensate;*

*D/Bracket attachment points;*

*E/ Only with cable passage below the level of ground: Sewer pipe DN 125 with cover and 3 pipe elbows 30°, cable entry seal with end sleeve.*

**b) Installation of a floor with a bracket, running the pipelines above ground level.**



**Designations:**

*A/ Land;*

*B/ Path, terrace;*

*C/ Pipe elbow for compensation of vibrations in the hot gas pipeline;*

*D/ Pipe clamps with EPDM backing;*

*E/ Modbus indoor/outdoor unit connection cable and outdoor unit network connection cable;;*

*F/ Holes in the bottom cover for free condensate drainage: Do not close the openings.;*



Do not close the openings.;

G/ Brackets for floor mounting;

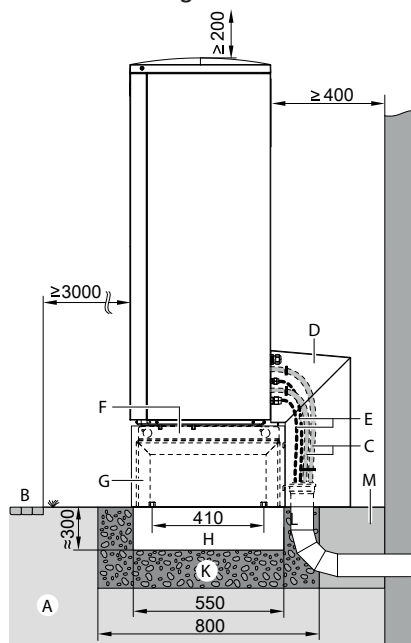
H/ Strip foundation;

K/ Frost protection for the foundation (compacted gravel, e.g. 0 to 32/56 mm), layer thickness;

L/ Sewer pipe DN 125 with cover and 3 pipe elbows 30°, cable passage seal with end sleeve;

M/ Elastic separation layer between the foundation and the building.

**e) Floor installation with console and designer cladding:** Running the installations below ground level.



A/ Land;

B/ Path, terrace;

C/ Refrigerant piping;

D/ Design cover for the connection to the floor;

E/ Modbus indoor/outdoor unit connection cable and outdoor unit network connection cable.;

F/ Holes in the bottom cover for free condensate drainage: Do not close the openings.;

G/ Designer cover with console;

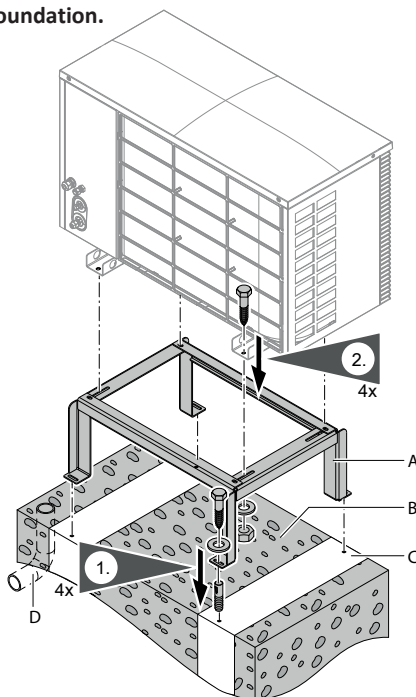
H/ Strip foundation;

K/ Frost protection for the foundation (compacted gravel, e.g. 0 to 32/56 mm), layer thickness;

L/ Sewer pipe DN 125 with cover and 3 pipe elbows 30°, cable passage seal with end sleeve;

M/ Elastic separation layer between the foundation and the building.

**f) Installation of the outdoor unit on a foundation.**



A/ Brackets for floor mounting;

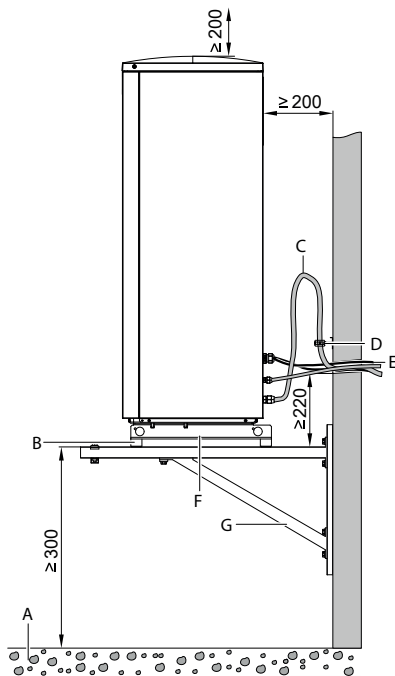
B/ Gravel layer for percolation of condensate;

C/ Concrete foundation;

D/ Pipe type KG DN125 (only when running pipelines below ground level).

### 5.6.2. Wall mounting.

a) Wall mounting with a set of wall mounting brackets.



A/ Gravel layer for percolation of condensate;

B/ Vibration isolation;

C/ Pipe elbow for compensation of vibrations in the hot gas pipeline;

We recommend vibration mounting elbow, especially for pipelines < 5 m.;

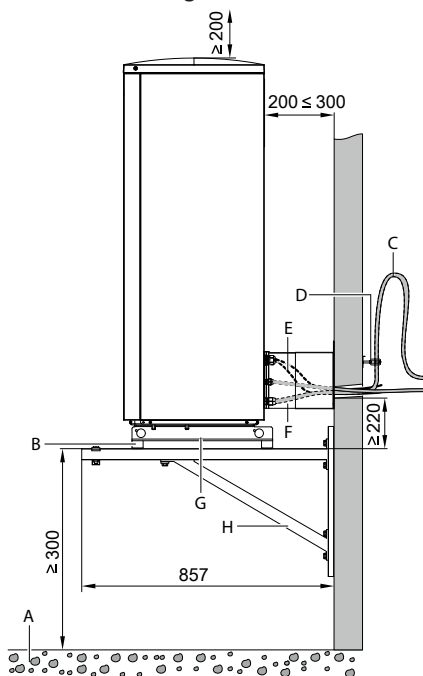
D/ Pipe clamps with EPDM backing;

E/ Modbus indoor/outdoor unit connection cable and outdoor unit network connection cable.;

F/ Holes in the bottom cover for free condensate drainage: Do not close the openings.;

G/ Bracket for wall mounting.

b) Wall mount with wall mount bracket kit and designer trim.



A/ Gravel layer for percolation of condensate;

B/ Vibration isolation;

C/ Pipe elbow for compensation of vibrations in the hot gas pipeline;

We recommend vibration mounting elbow, especially for pipelines < 5 m.;

D/ Pipe clamps with EPDM backing;

E/ Modbus indoor/outdoor unit connection cable and outdoor unit network connection cable.;

F/ Design cover for the wall connection;

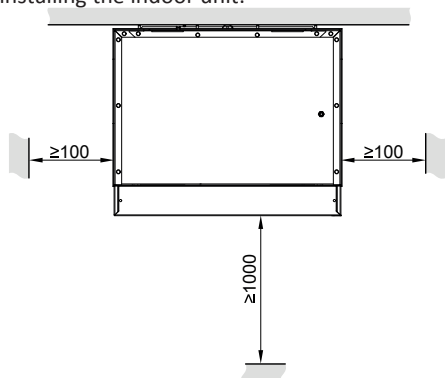
G/ Holes in the bottom cover for free condensate drainage: Do not close the openings.;

H/ Bracket for wall mounting.

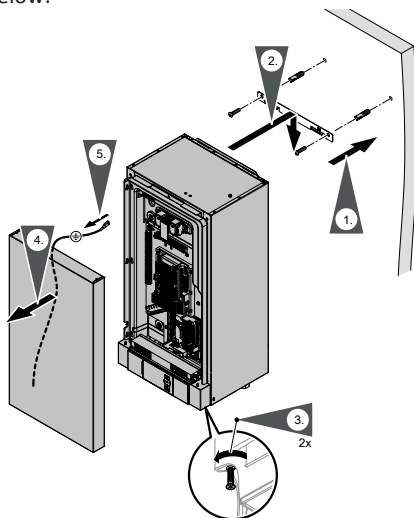
### 5.6.3. Installation of the indoor unit on a wall:

The installation room must be dry and protected from frost. Room requirements:

- a) Ambient temperatures 0 to 35 °C;
- b) Maximum 70 % relative humidity (corresponding to an absolute air humidity of about 25 g water vapor/kg dry air at 35 °C);
- c) Avoid dust, gases, vapors in the installation room;
- d) minimum distances when installing the indoor unit:

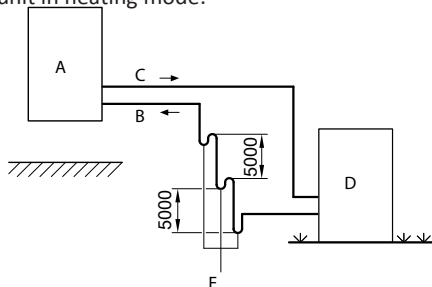


- e) the installation of the indoor unit is carried out according to the instructions below:



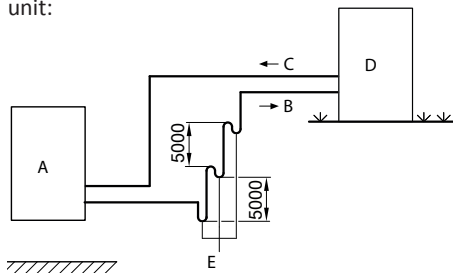
### 5.7. Connecting the refrigerant piping.

- a) Indoor unit above the outdoor unit in heating mode:



- A/ Indoor unit;
- B/ Hot gas pipeline (hot gas);
- C/ Pipeline for liquid (liquid);
- D/ Outdoor unit;
- E/ Oil trap.

- b) Indoor unit below the outdoor unit:

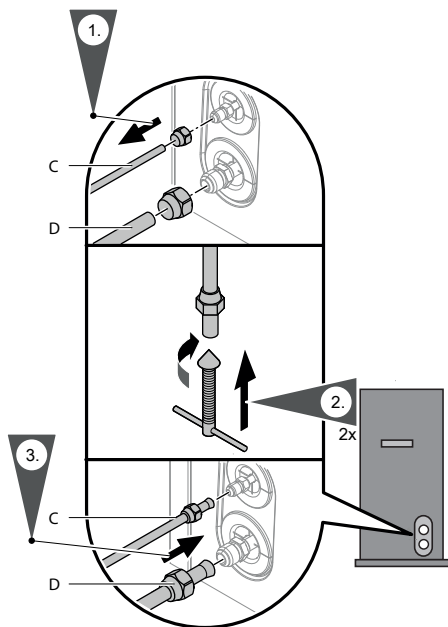


- A/ Indoor unit;
- B/ Pipeline for hot gas (low pressure gas);
- C/ Pipeline for liquid (liquefied gas);
- D/ Outdoor unit;
- E/ Oil trap.

- c) Pipe lengths:

- Maximum height difference between indoor unit and outdoor unit: 15 m.
- Minimum length of pipelines: 3 m.

### 5.7.1. Outdoor unit: Refrigerant piping connection.



C ) Pipeline for the liquid

D) Piping for the hot gas

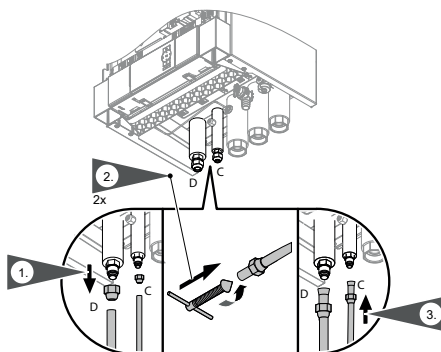


Contamination or moisture in the refrigerant piping cause the device to malfunction. So keep the pipe openings down or temporarily plug them.

#### Tightening torques for refrigerant piping

Pipeline	Conect	Tightening torque in Nm
Pipeline for the liquid $\varnothing 6$ mm	$\frac{5}{8}$ UNF $\frac{7}{16}$ UNF	33 ÷ 42 14 ÷ 18
Pipeline for the hot gas $\varnothing 12$ mm	$\frac{5}{8}$ UNF $\frac{3}{4}$ UNF	63 ÷ 77 50 ÷ 62
Pipeline for the liquid $\varnothing 10$ mm	$\frac{5}{8}$ UNF	33 ÷ 42
Pipeline for the hot gas $\varnothing 16$ mm	$\frac{5}{8}$ UNF	63 ÷ 77

### 5.7.2. Indoor unit: Refrigerant piping connection.



C ) Pipeline for the liquid

D) Piping for the hot gas



Contamination or moisture in the refrigerant piping cause the device to malfunction. So keep the pipe openings down or temporarily plug them.

#### Tightening torques for refrigerant piping

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Pipeline for the hot gas $\varnothing 12$ mm	$\frac{7}{8}$ UNF $\frac{3}{4}$ UNF	63 ÷ 77 50 ÷ 62
Pipeline for the liquid $\varnothing 10$ mm	$\frac{5}{8}$ UNF	33 ÷ 42
Pipeline for the hot gas $\varnothing 16$ mm	$\frac{7}{8}$ UNF	63 ÷ 77

### 5.8. Drainage and Condensation

Condensation will occur from the evaporator when the unit is running and drain at a steady rate, depending upon ambient air temp. and humidity. The more humid the ambient conditions, the more condensation will occur. The bottom of the unit acts as a tray to catch rainwater and condensation.

Keep the drain holes, located on the bottom pan of the unit base, clear from debris at all times.

### 5.9. Other options for installing heat pumps:

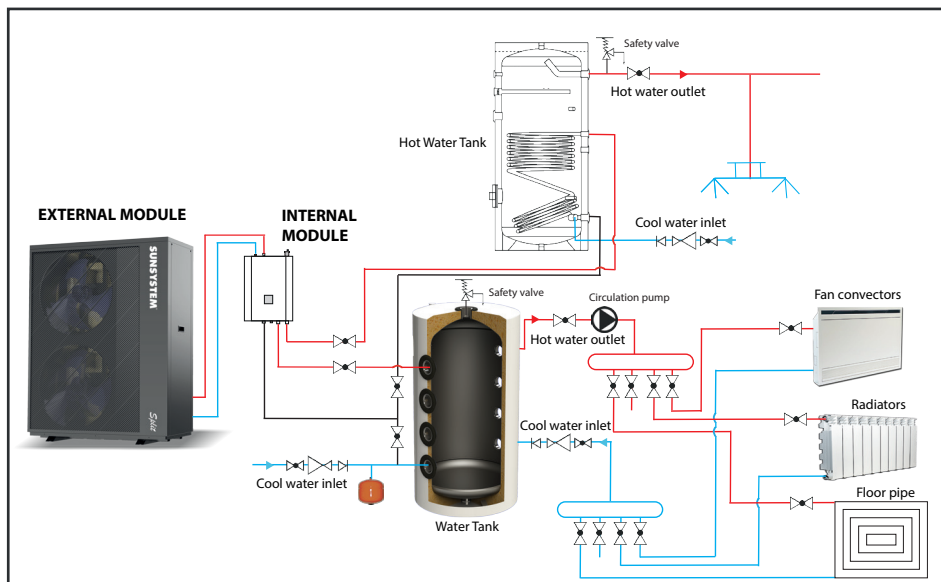
#### 5.9.1. For central heating systems and DHW.

- By setting the control panel, the operating modes are set: in hot water mode, in heating or cooling mode;

- When both the heating (or cooling) temperature and the hot water temperature do not reach the set value, the priority will be to reach the hot water temperature;

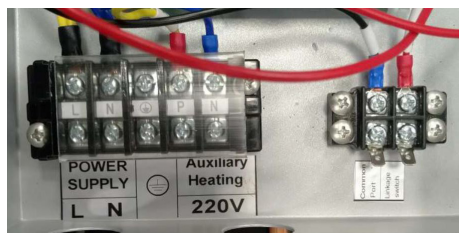
a) The DHW water tank with the coil must be specially adapted to the requirements.

b) The power of the coil must be equal to or greater than the nominal heating power of the heat pump.



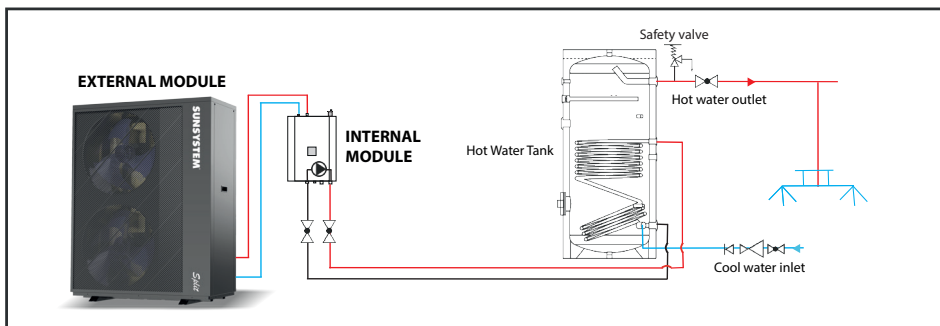
**Diagram 2. Assembly diagram of a heat pump for central heating and DHW**

c) The capacity of the circulation pump must be high enough. The actual water flow provided by the pump, after taking into account the resistance of the installation, must not be less than the water flow indicated on the rating plate.



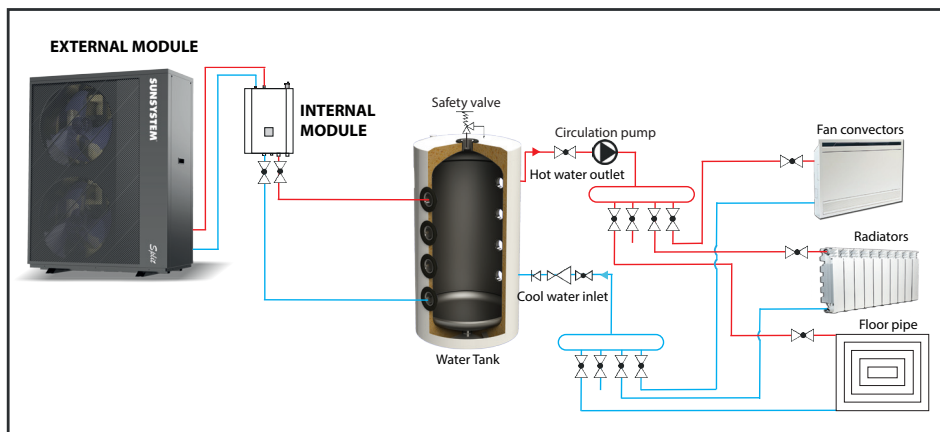
**Scheme 3. Electrical binding**

### 5.9.2. For hot water installation only.



**Diagram 4. Assembly diagram of a hot water installation**

### 5.9.3. For heating and cooling installation.



**Diagram 5. Assembly diagram of a heat pump for heating and cooling**

a) The inlet water temperature setting. from the heating or cooling mode can be adjusted by the target temperature setting interface

b) The pressure of the circulation pump must be large enough. Its actual water flow cannot be less than the water flow on the nameplate.

### 5.10. Water connections.

Quick Connect fittings are recommended to be installed on the water inlet and outlet connections. It is recommended to use stainless steel or PPR pipes for the heat pump plumbing. The water inlet and outlet connection to the heat pump accepts stainless steel or PPR pipe fittings.

### 5.10.1. Plumbing Installation Requirements:

1. When water pressure exceeds 490Kpa, please use reducing valve to reduce the water pressure below 294Kpa.
2. Each part connected to unit needs to be connected with method of loose joint and installed with intermediate valve.
3. Ensure that all plumbing has been properly completed and then proceed to do a water leakage and pressure test.
4. All the pipelines and pipe fittings must be insulated to prevent heat loss.
5. Install a drain valve at the lowest point of the system to enable the system to be drained during freezing conditions (winterizing).
6. Install a check valve on the water outlet connection in order to prevent back siphoning when water pump stops.
7. In order to reduce the back pressure, the pipes should be installed horizontally.
8. And minimize the elbows (90 degrees connections). If a higher flow rate is required, install a bypass valve.



It is mandatory to install a magnetic filter at the inlet of the heat carrier in the heat pump.

## 6. ELECTRICAL CONNECTIONS



**Risk of electrical shock or electrocution.** Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.



**Label all wires prior to disconnection** when servicing the heat pump. Wiring errors can cause improper and dangerous operation. Check and ensure proper operation after servicing.

### 6.1. Power supply.

a). If the supply voltage is too low or too high, it can cause damage and/or result in unstable operation of the heat pump unit, due to high in rush currents on start up.

b)The minimum starting voltage should be above 90% of rated voltage. The acceptable operating voltage range should be within  $\pm 10\%$  of the rated voltage.

c)Ensure the cable specifications meet the correct requirements for the specific installation. The distance between the installation site and mains power supply will affect the cable thickness.

Follow the local electrical standards to select the cables, circuit breakers and isolator breakers.

### 6.2. Grounding and Over Current Protection.

In order to prevent electrical shock in case of leakage from unit, install the heat pump according to local electrical standard.

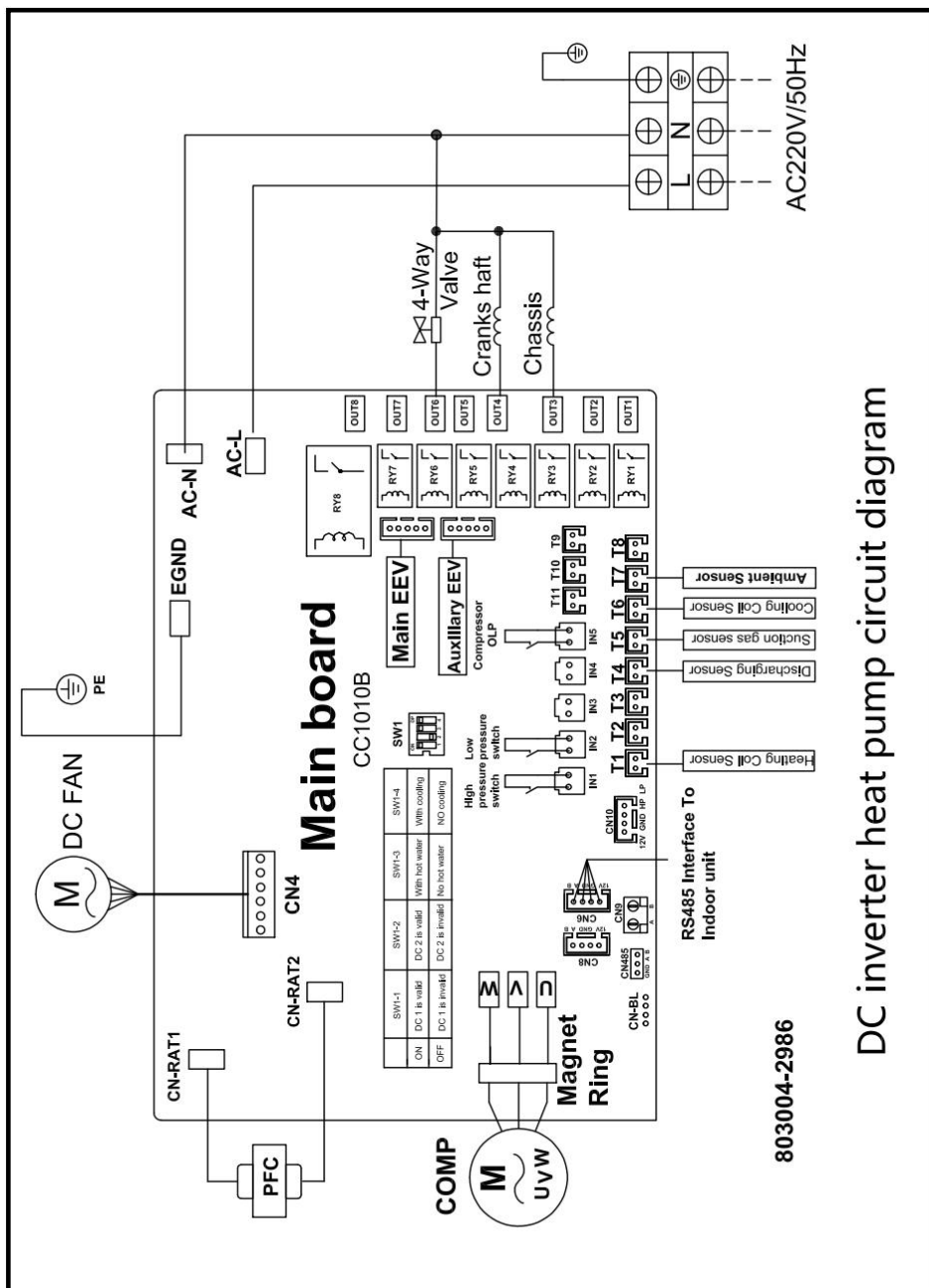
a). Do not interrupt the voltage supply to the heat pump frequently as this may result a shorter life expectancy of the heat pump.

b). When installing over current protection, ensure that the correct current rating is met for this specific installation.

c). If an additional auxiliary heater is need to be controlled by the heat pump controller, the relay (or power) of the aux-heater must be connected to the relevant output of the controller.

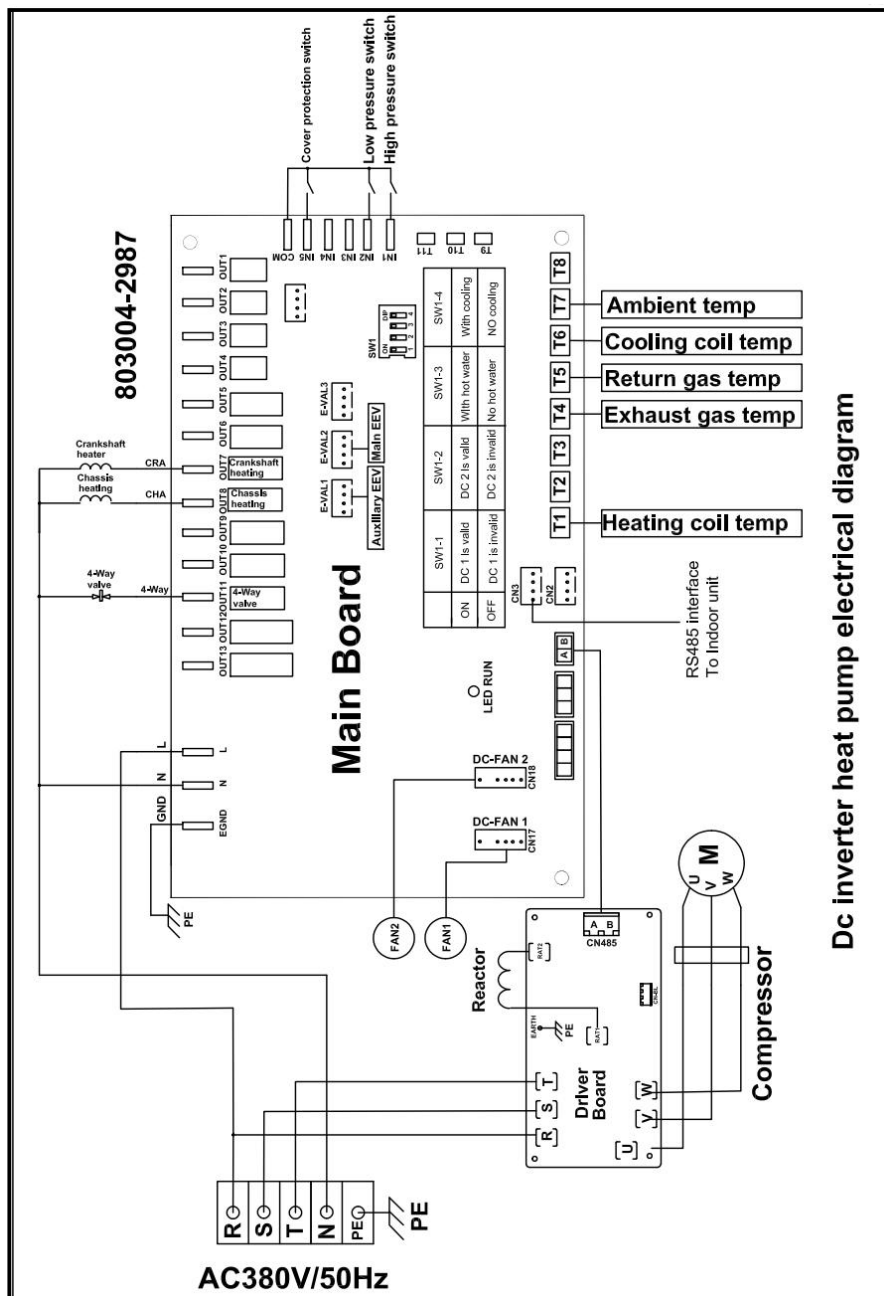
### 6.3.. Electrical Wiring Diagram.

#### 6.3.1. Single phase system (SUNSYSTEM SPLIT R32-0126-1PH). External body.

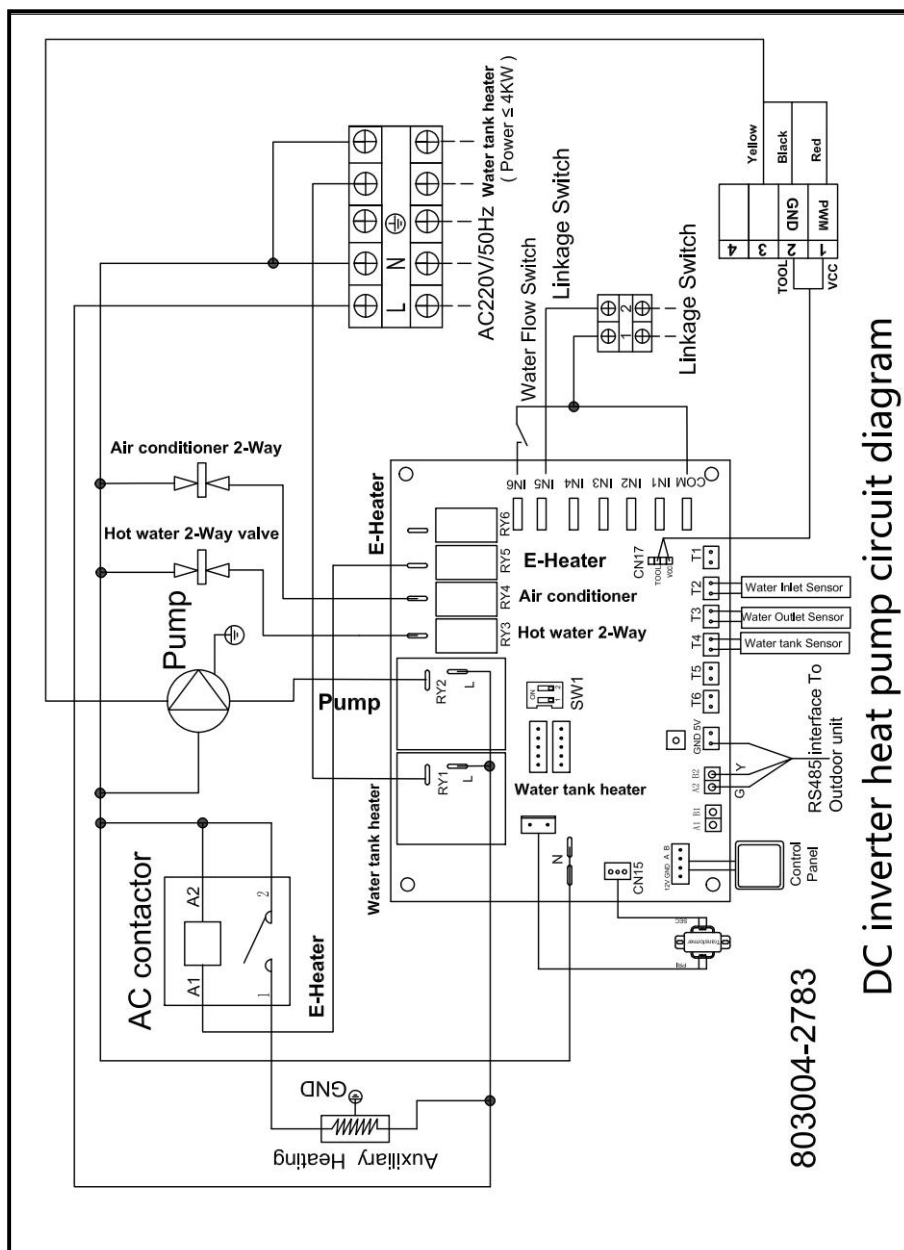


DC inverter heat pump circuit diagram

### 6.3.2. Three phase system (SUNSYSTEM SPLIT R32-0220-3PH). External body.



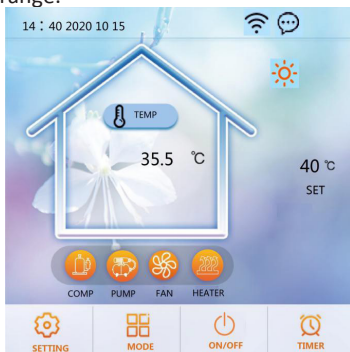
6.3.3. Inner body (SUNSYSTEM SPLIT R32-0126-1PH). Single phase system.



## 7. OPERATION OF THE HEAT PUMP

### 7.1. Controller panel.

When the heat pump is off, all buttons are gray, and when on and running, all buttons are orange.



### 7.2. Display Icon.

Mode	Meaning
	Heating mode
	Hot water mode
	Cooling mode
	Heating and Hot water Mode (Hot water function as priority)
	Cooling and Hot water Mode (Hot water function as priority)
	Vacation mode
	Compressor working
	Water pump working
	Fan motor working
	Electric heating working
	Error showing

### 7.3. Definition of Buttons.

Buton	Description	Function
	On/Off	turn on or turn off the heat pump.
	Mode	switch the operating mode of the heat pump.
	Timer	set timer switch and working weekdays.
	Settings	query running parameters, check and set system parameters, error code records, Wifi connection, etc.
	Set	set water tank target temperature at only hot water mode, or return water temperature at only heating/only cooling mode.
	WT SET	Set water tank target temperature at heating+hot water mode or cooling+hot water mode.
	AC SET	Set return water target temperature of heating/cooling at heating+hot water mode/cooling+hot water mode)
	Temp.	display real-time water tank temperature at only hot water mode, or real-time return water temperature of heating/cooling at only heating/only cooling mode.
	WC TEMP. AC TEMP.	<b>WT TEMP:</b> display real-time water tank temperature at heating+hot water or cooling+hot water mode. <b>AC TEMP:</b> display real-time return water temperature of heating/cooling at heating+hot water or cooling+hot water mode.

Buton	Description	Function
	Status	Check the running parameters of the heat pump
	Faulty	Record the most recent error codes
	WiFi	Wifi settings
	System parameters	Check and set the system parameters of the heat pump
	Factory parameters	Check and set the factory parameters(Do not advise to amend the factory parameters.

## 7.4. Wire Controller Operation

### 7.4.1. Start/stop the heat pump.

In the main interface, press ON/OFF button for around 1 seconds to turn on or turn off the heat pump.

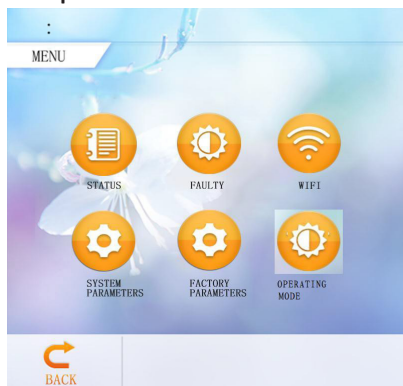
### 7.4.2. Running mode setting:

- When the heat pumps is ON and in the main interface, press MODE button for around 1 seconds to switch the running modes. (5 modes optional: heating only, cooling only, DHW only, heating + hot water, cooling + hot water)

- Under heating + hot water mode or cooling + hot water mode, the hot water function will be met as priority.

- Under heating or cooling mode, the TEMP icon in the interface shows the real-time return water temp. Under hot water mode, TEMP icon shows the real-time water tank temperature.

### 7.4.3. Operate mode selection.

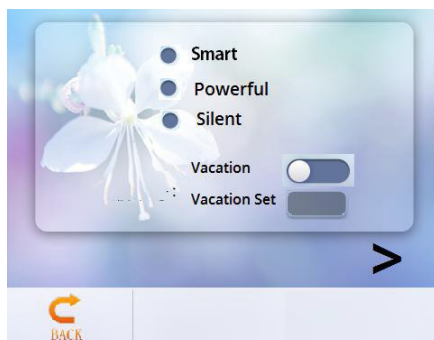


Click **"OPERATING MODE"** on the Setting interface to enter Operating mode selection interface:

- **Operating mode description:** In the normal mode, Heat pump has Smart, Powerful, & Silent

- **Vacation mode description:** When this mode is enabled, The heat pump runs in heating mode only, with a Target temperature of vacation Set;

### 7.4.4. Silent Time



Click **">"** in the **"OPERATING MODE"** Interface to enter Timing silent interface, The unit will runs as Silent Mode during the scheduled mute time.



#### 7.4.7. Timer settings.

In the main interface, press **TIMER** button to enter timing setting interface.

-In the WEEK column, users can select which weekdays to perform timer switch. When the weekday button (From MON. to SUN.) turns orange, the timer will perform on that day. When the weekday button turns gray, the timer will not perform on that day.

-In the TIMER column, users can set 4 pairs of timer at maximum.

-The timer is invalid when the turn on time equals the turn off time in the same timer.

#### 7.4.8. Operation parameter query.

Press **"SETTING"** in the main interface to enter setting interface. Then press **"STATUS"** to enter **Parameter Query** to check the operation status of heat pumps. The list as below:



#### 7.4.5. Set Target Water temperature.

In the main interface, press **SET** button to enter Target temp. setting interface(as below). Typing the target temp. value, then press **"Enter"** to save and exit, or press **"Esc"** to exit without saving.



#### 7.4.6. Clock settings.

In the main interface, press to enter the clock setting interface as shown below.

- Press the date (Year/Month/Day column) or hour (Hour:Minute column) , the keyboard will occur to input the value. Press the weekday (Weekday column) to switch from Mon. to Sun.

- Press **CONFIRM** button to save and exit, or press **CANCEL** button to exit without saving.

	Description	Remark
01	Water inlet temperature	-30~99°C
02	Water outlet temperature	-30~99°C
03	Ambient temperature	-30~99°C
04	Exhaust gas temperature	-0~125°C
05	Return gas temperature	-30~99°C
06	Evaporator coil temperature	-30~99°C
07	Inlet temp. of economizer	-30~99°C
08	Outlet temp. of economizer	-30~99°C
09	Cooling coil temperature	-30~99°C
10	Water tank temperature	-30~99°C
11	Opening of main expansion valve	
12	Opening of assistant expansion valve	
13	Compressor current	
14	Heat sink temperature	
15	DC bus voltage value	
16	Compress actual frequency	
17	Low pressure gauge pressure value (R410)	Bar
18	High pressure gauge pressure value (R410)	Bar
19	Wind speed of DC fan 1	
20	Wind speed of DC fan 2	
21	Low pressure conversion temperat.	
22	High pressure conversion temperat.	
23	DC pump speed	

### 7.4.9. System parameters query & settings.

Press **“SETTING”** in the main interface to enter setting interface, then press **“SYSTEM PARAMETERS”** to enter parameter query and setting. Below lists shows the code, definition, range and default value.



Code	Description	Range	Default
P01	Temperature difference of return water and cooling target temperature	2~18°C	2°C
P02	Temperature difference of return water and hot target temperature	2~18°C	5°C
P03	Hot water setting temperature	28~60°C	50°C
P04	Cooling setting temperature	7~30°C	12°C
P05	Heating setting temperature	15~50°C	35°C
P06	Setting temp. of exhaust gas too high protection (TP4)	50~125°C	120°C
P07	Setting temp. of exhaust gas too high recover (tp0)	50~125°C	95°C
P08	Water temperature compensation	-5~15°C	(inlet/ outlet water & water tank)
P09	Defrosting frequency	30-120HZ	60HZ
P10	Defrosting period	20MIN~90MIN	45MIN
P11	Defrosting enter temperature	-15~-1°C	-3°C
P12	Defrosting time	5MIN~20MIN	10MIN
P13	Defrost exit temperature	1~40°C	20°C
P14	Defrosting environment and evaporator coil temp. difference 1	0~-15°C	5°C
P15	Defrosting environment and evaporator coil temp. difference 2	0~-15°C	5°C
P16	Ambient temperature for defrosting	0~-20°C	17°C
P17	High temperature disinfection cycle days	0~30 days	7
P18	High temperature disinfection start time	0~23:00	23
P19	High temperature disinfection sustaining time	0~90min	30
P20	High temperature disinfection setting temperature	0~-90°C	70°C
P21	Heat pump's setting temperature for high temperature disinfection	40~-60°C	53°C

Code	Description	Range	Default
	Celsius/Fahrenheit switch	0-Celsius / 1-Fahrenheit	0
P22	Heating target temperature automatic adjustment enable	0~1 (0 is not enabled, 1 is enabled) (only applicable at heating mode)	0
P23	Heating compensation temperature point (ambient temperature)	0-40	20
P24	Target temperature compensation coefficient	1~30 (1 corresponds to actual 0.1)	1
P25	Compressor's Frequency operation mode after constant Tem.	0-Decrease Frequency after constant Temp./ 1-Non Decrease Frequency after constant Temperature	0
P26	Pipeline E-Heater enable ambient temperature	-20~20°C	0
P27	Water Tank E-Heater. Entry time	0-60 min	30
	Language	0-English/ 1-Bulgarian	0
F01	Heat Pump Function	1 Heating only 2 Heating+Cooling 3 Heating+DHW 4 Heating+Cooling+DHW	4
PF02	Circulation pump status after reaching target temperature	0 Intermittent 1 All time 2 Stop at constant Temp.	1
F03	Circulation pump on-off cycle after reaching set temperature	1~120min	30 (OFF30min ON3min)
F04	DC circulation pump mode	0 - No start 1-Auto start 2-Manual start	1
F06	DC water pump manual speed	10~100%	50
F08	Minimum speed of DC circulation pump	10~100%	40

#### 7.4.10. High Temperature Antisepsis Function: (when hot water function is selected).

High temperature Antisepsis cycle is once every 7 (P17) days;  
- When entering the high temperature Antisepsis, the water tank electric heater will be forced to turn on.

- During the Antisepsis process, if the water tank temperature  $> 60^{\circ}\text{C}$  (the maximum settable temperature), then the compressor will not start, but only start electric heating; if the water tank temperature  $\leq 55^{\circ}\text{C}$ , both the compressor and electric heater will start.

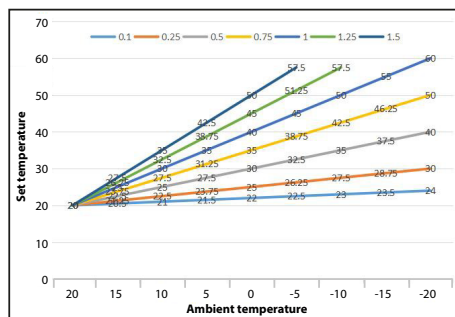
- When the water tank temperature  $\geq 65^{\circ}\text{C}$  (P20) and the protection temperature lasts for 15 minutes (P19)  $\geq 65^{\circ}\text{C}$ , exit the high temperature Antisepsis;

- After entering high temperature Antisepsis, if the temperature of the hot water tank does not reach  $65^{\circ}\text{C}$  after 1 hour, the high temperature Antisepsis program will be forced to exit;

#### 7.4.11. Target Temperature Auto Adjustment Logic ( Under Heating Mode).

- The target temperature under heating mode can be automatically adjusted according to the ambient temperature.

- Entry conditions. When Parameter P22=1 enables automatic adjustment mode of heating target temperature.



**Scheme 7. Target temp. range with automatic temperature**

The target temperature range of automatic temperature adjustment is  $20\text{--}60^{\circ}\text{C}$

#### 7.4.12. Auxiliary Electric Heater for Water Tank.

Start conditions (all below conditions must be met at the same time):

- 1) In hot water mode;
- 2) The compressor runs for P27(30) minutes;
- 3) There is a demand for hot water, and the temperature of the water tank is  $\leq 55^{\circ}\text{C}$ ;
- 4) The pump is running

Exit condition (only need to meet any one of the below conditions):

- 1) When the heat pump is performing cooling mode / hot water mode;
- 2) When there is no demand for hot water or constant temperature control;
- 3) The water tank temperature sensor has a fault alarm;

- When it is under defrosting / forced defrosting / secondary antifreeze , the electric heating is forced to turn on;

- When there is high-pressure failure / low-pressure failure / exhaust temperature sense failure / excessive exhaust protection stop, and if compressor is locked and cannot be started, then the electric heating will be started instead of the compressor after 5 minutes.

#### 7.4.13. Auxiliary Electric Heater for Space heating.

Enable condition:

- 1) Under Heating mode;
- 2) Ambient Temperature  $< 26(0^{\circ}\text{C})$  Ambient Temp. Sensor Fault;
- 3) There has Heating Demand, Inlet Water Temp.  $\leq$  Heating Set Temp. (P05) - Restart difference(P01);
- 4) Water pump during Working States;

When the above conditions are met, The Electric Heater will turn on.

Shut-down condition:

- 1) Under Cooling or Hot Water Mode;
- 2) Without Heating Demand or Constant Temp. Control;
- 3) Inlet Water Temp. Sensor Failure or Alarm;
- 4) Ambient Temperature  $>0^{\circ}\text{C}$  (P26)+1;
- 5) Water Flow Failures;
- 6) Circulation pump shut-down;

**E-heater be shut-down when any of above conditions met**

## 8. GENERAL OPERATING GUIDE

### 8.1. Initial Start-up Precautions. First boot-strap and Running state checks.

1. To ensure the power same as the product nameplate required power.
2. Unit electrical connections: Check if power supply wire track and connection is ok; if ground wire is properly connected; Check if water pump and other chain device is properly connected;
3. Water pipe and pipe: water pipe and pipe must be washed two and three times, ensure clean and no any pollution;
4. Check water system: If the water is enough and no any air, ensure no leakage;
5. First boot-strap or starting up again after long time stop, ensure power on ahead and heating at least 12 hours for crankcase (local loop temp. is zero). Water pump start up first, last a while, fan start up, compressor start up, unit regular work.
6. Running checks (according to the following data to check if the unit running is normal)

After unit normal running, check the following item:

- a) Input and output water temperature;
- b) cycle water flow of the side;
- c) running electric current of compressor and fan;
- d) high and low pressure value when

heating running.



**Refrain from using this heat pump if any electrical components have been in contact with water. Immediately call a qualified service technician to inspect the heat pump.**



**Keep all objects clear above the heat pump. Blocking air flow could damage the unit and may void the warranty.**

## 9. USERS GUIDE

### 9.1. Rights and Responsibility.

**9.1.1.** To ensure you have the service in guarantee period, only the professional server and technology staff can install and repair the unit. If you infract this request and cause any loss and damage, our company will not be claimed any responsibility.

**9.1.2.** After receiving the unit, check if have damage on shipment and all parts are complete; any damage and lack of parts please notice the dealer in written.

### 9.2. User Guide.

**9.2.1.** All safety protection device are set in unit before leaving factory, don't adjust by yourself.

**9.2.2.** Unit have enough refrigerant and lubricating oil, don't fill or replace them; if need fill owing to leak, please refer to the quantity on nameplate (if refill refrigerant, need re-vacuum).

**9.2.3.** External water pump must connect with the message of unit, or else easy show various water lack alarm.

**9.2.4.** Regular clean water system according to maintenance request.

**9.2.5.** Pay attention to antifreeze when the environment temp. is less than zero in winter.

### 9.2.6. Safety Precautions:

- a) User can't self-install the unit, ensure agent or specialized install company to do, or else maybe cause safety accident and affect the use effect.
- b) When install or use the unit, please check if the power is corresponding with unit power.
- c) The main power switch of unit should install leakage protector; the power cord must meet unit power request and national standard and local Fire & Safety Regulations.
- d) Unit must have ground wire; don't use the unit if no ground wire; forbid connect the ground wire to null line or water pump.
- e) The main power switch of unit should set much higher 1.4 meter (child don't touch it), to prevent child play and cause danger.
- f) More than 52°C hot water can cause damage, hot and cold water must be mixed then use it.
- g) When unit is soaking, please contact the factory or maintain department, you can use it again after maintain.
- h) Forbid insert any tools into fan fence of unit, fan is dangerous. (child special care).
- i) Don't use the unit if turn off the fan fence.
- j) To avoid electric shock or cause fire, don't store and use fixture, oil paint and petrol etc. combustible gas or liquid around the unit; don't throw the water or other liquid on the unit and don't touch the unit by wet hand.
- k) Don't adjust the switch, valve, controller and internal data except company server or authorized staff.
- l) If safety protection device often start up, please contact factory or local dealer.

## 10. GENERAL MAINTENANCE

### 10.1. Controller Error Codes.

If there's error in the heat pumps, the error code and error definition will be displayed in the main interface, and saved the record in **FAULTY** column inside the **SETTING** interface.

The following Common Error Codes will be displayed on the controller panel:

Error Code	Definition of Error or Protection
Er 03	Water flow failure
Er 04	Antifreeze in winter
Er 05	High pressure fault
Er 06	Low pressure fault
Er 09	Communication failure
Er 10	Communication failure of frequency conversion module (alarm when communication between outer board and drive board is disconnected)
Er 12	Exhaust temperature too high protection
Er 14	Water tank temperature sensor fault
Er 15	Water inlet temperature sensor fault
Er 16	Evaporator coil temperature sensor fault
Er 18	Exhaust temperature fault
Er 20	Abnormal protection of frequency conversion module
Er 21	Ambient temperature sensor fault
Er 23	Cooling outlet water temperature supercooling protection
Er 26	Heat sink temperature fault
Er 27	Outlet water temperature sensor fault
Er 29	Return gas temperature sensor fault
Er 32	Heating too high outlet water temperature protection
Er 33	Coil temperature too high
Er 34	The temperature of frequency conversion module is too high
Er 42	Cooling coil temperature sensor failure
Er 62	Inlet temperature fault of economizer
Er 63	Outlet temperature failure of economizer
Er 64	DC fan 1 fault
Er 66	DC fan 2 fault
Er 67	Low pressure switch failure
Er 68	High pressure switch failure
Er 69	Too low pressure protection
Er 70	Too high pressure protection

When there's **Er 20** error in the system, it will display below detailed error code from 1 to 348. Among them, 1~128 are in the first class, when will be displayed as priority, 257~384 are in the second class, which will be displayed only when error 1~128 don't appear. If 2 or more than 2 error occurs simultaneously in the same class, then it will display the sum of the error number. For example, when 16 and 32 exist at the same time, then it will display error code 48 (16+32=48).

**Detailed error code list for Er 20:**

code	Name	Description	Solution suggestion
<b>1</b>	IPM Over-current	IPM Module problem	Replace inverter module
<b>2</b>	Compressor synchronous abnormal	Compressor failure	Replace compressor
<b>4</b>	reserved	-	-
<b>8</b>	Compressor output-phase absent	Compressor wiring disconnected or poor contact	Checking compressor input circuit
<b>16</b>	DC bus low voltage	Input too low voltage, PFC module failure	Inspect the input voltage, replace module
<b>32</b>	DC bus high voltage	Input voltage too high, PFC Module failure	Replace inverter module
<b>64</b>	Radiator over temperature	Main unit fan motor failure, air duct blockage	Inspect fan motor, air duct
<b>128</b>	Radiator temperature error	Radiator sensor short circuit or open circuit fault	Replace inverter module
<b>257</b>	Communication failure	Inverter module doesn't receive order from main controller	Inspect the communication wiring between main controller and inverter module
<b>258</b>	AC Input phase absent	Input phase absent (Three phase module is effective)	Inspection input circuit
<b>260</b>	AC Input over-current	Input three phase imbalance (three phase module is effective)	Inspection input three phase phase voltage
<b>264</b>	AC Input low voltage	Input low voltage	Inspect input voltage
<b>272</b>	Compressor high pressure failure	Compressor high pressure failure (reserved)	
<b>288</b>	IPM too high temperature	Main unit fan motor failure, air duct blocked	Inspect fan motor and air duct
<b>320</b>	Compressor peak current too high	Compressor line current too high, the driver program doesn't match with compressor	Replace inverter module
<b>384</b>	PFC module over-temperature	PFC Module too high temperature	

## 10.2. Common Faults and Debugging

Common Faults and Debugging		
Error Status	Possible Reason	Solution
<b>Heat pump not running</b>	Power fault Wiring loose  Fuse blow fused Thermal Overloaded protector off  Low pressure too low	Put off the power switch, check the power supply find out the causes and repair  Replace the fuse blow test the voltage and current
<b>Water pump is working but without water cycle or water pump high noise</b>	Lack of water in the system  With air in the water system The valves are not all open Filter is dirty and blocked	Check the system replenishment Device and replenish the system Discharge the air in the water system Open the water system valve Clean the water filter
<b>Low heating capacity</b>	Lack of refrigerant  Bad heat preservation of water system Dry filter blocked Bad heat dissipation of air heat exch. Not enough water flow	Leakage detecting and supply refrigerant  Reinforce the heat preservation of water system Change the dry filter Clean the air heat exchanger Clean the water filter
<b>Compressor not working</b>	Power failure  Contactor of compressor damage; wiring loose Compressor overheat protection outlet water temperature too high; Not enough water flow  Compressor overload protector tripped	Find out the causes and solve the power failure.  Change the contactor of compressor. Find out the loose point and repair. Check the unit pressure and exhaust gas temp. Reset the outlet water temp. Clean the water filter and discharge the air in the system Check the running current and whether overload protector damage
<b>Compressor running noise too high</b>	Liquid refrigerant enter the compressor The inner parts of comp. damage Too Low voltage	Check the expansion valve whether out of effect Replace the compressor Check Power Voltage
<b>Fan not working</b>	The fastening screw of the fan loose Fan motor damage Contactor damage	Reinforce the screw Replace the fan motor Replace the contactor
<b>Compressor running but heat pump not heating</b>	Refrigerant is all leaking out  Compressor fault Compressor reversal	Check leakage and charging the refrigerant  Replace the compressor Exchange the phase order of compressor
<b>Low water flow protection</b>	Not enough water flow in the system Water switch fault	Clean the water filter and discharge the air in the system Check the water switch and replace it

## 11. WIFI CONNECTION AND OPERATION


### 11.1. APP Download.


Please go to "Google Play Store" or "Apple App Store" and search "Smart Life" or "Tuya Smart" then download. See below figures.

#### *WIFI Connect Method 1: bluetooth mode:*

##### **The 1st step:**

By default, it can be connected within 10s after the first power-on, and it needs to be connected by pressing buttons after 10 seconds. (10s is the delay for wifi to enter low power consumption).

Manually enter the smart distribution mode: select "**SMART MODE**" or "**AP MODE**" on the WIFI interface of the wired controller, click "**WIFI RESET**" to enter the smart distribution mode, the  icon on the main interface flashes, and the mobile phone can start to configure the network.

Exit the network configuration status after 3 minutes, the  icon stops flashing, and the WIFI module is no longer networked. If you want to configure the network again, you need to click the "**WIFI RESET**" button on the WIFI interface again.

##### **The 2nd step:**

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

##### **The 3rd step:**

Open the "**Smart Life**" APP, login and enter the main interface, click „+“ in the upper right corner or "**Add Device**" on the interface, the Interface shows Findings "**Discovering devices**". Click "**Add**" To Entering "Add Device" Interface, click „+“, then Select WIFI in the Network selection interface, Input & Confirm the Correct Wifi Password, Click "**Next**" to Start Matching Wifi.


##### **The 4th step:**


When the connection is successful and the system prompts "**Added successfully**", then the network configuration is successful. Click "**Done**" to entry Homepage.

#### *WIFI Connect Method 2: intelligent network distribution mode:*

##### **The 1st step:**

By default, it can be connected within 10s after the first power-on, and it needs to be connected by pressing buttons after 10 seconds. (10s is the delay for wifi to enter low power consumption).

Manually enter the smart distribution mode: select "**SMART MODE**" or "**AP MODE**" on the WIFI interface of the wired controller, click "**WIFI RESET**" to enter the smart distribution mode, the  icon on the main interface flashes, and the mobile phone can start to configure the network.

Exit the network configuration status after 3 minutes, the  icon stops flashing, and the WIFI module is no longer networked. If you want to configure the network again, you need to click the "**WIFI RESET**" button on the WIFI interface again.


##### **The 2nd step:**

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


##### **The 3rd step:**

Open the "**Smart Life**" APP, login and enter the main interface, click „+“ in the upper right corner or "**Add Device**" on the interface to enter the device type selection, and select "Water Heater" in the "Large Home Appliance" to enter the add device interface.


##### **The 4th step:**

After selecting the water heater, enter the "**Add Device**" interface, confirm that the wired controller has selected the intelligent network distribution mode, and after the  icon is in the fast flashing state, click "**Confirm indicator rapidly blink**".

Enter the WIFI connection interface, use the WIFI password to which the mobile phone is connected (try it as WIFI, connect to the mobile phone), and click "**Next**" to directly enter the connection link of the system.



**Remarks:** When the wired controller's WIFI module is connected to the WIFI hotspot, the  icon flashes fast.

#### The 5th step:

When the "Scan devices", "Register on Cloud", and "Initialize the device" are all completed, the connection is successful and the system prompts "Added successfully", then the network configuration is successful. In this interface, you can change the device name at , select the device installation location (living room, master bedroom...), and then click "Done" to directly enter the main interface of the device operation.

### WIFI Connect Method 3: AP distribution network mode:

#### The 1st step:

Select "AP MODE" on the WIFI interface of the wired controller, click "WIFI RESET" to enter the smart distribution mode, the  icon on the main interface flashes, and the mobile phone can start to configure the network. Exit the network configuration status after 3 minutes, the  icon stops flashing, and the WIFI module is no longer networked. If you want to configure the network again, you need to click the "WIFI RESET" button on the WIFI interface again.

#### The 2nd step:

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


#### The 3rd step:

Open the "Smart Life" APP, login and enter the main interface, click „+“ in the upper right corner or "Add Device" on the interface to enter the device type selection, and select "Water Heater" in the "Large Home Appliance" to enter the add device interface.

#### The 4th step:

After entering the add device interface, click "AP Mode" in the upper right corner, enter

the


AP mode add device interface, confirm that the AP network configuration mode is selected ( icon flashes), click "Next" and the indicator light flashes slowly.

Pop up the WIFI connection interface, enter the WIFI password that the mobile phone is connected to (must be the same as the WIFI connected to the mobile phone), click "Next", and the "Connect your mobile phone to the device's hotspot" pops up, follow the prompts and click "Go to Connect".

Enter the mobile phone's WIFI connection interface, find the connection of SmartLife\_XXX, as shown in the figure: SmartLife\_E4A1, return to the "Smart Life" APP, and the APP will automatically enter the device connection state.

#### The 5th step:

When the "Scan devices", "Register on Cloud", and "Initialize the device" are all completed, the connection is successful and the system prompts "Added successfully", then the network configuration is successful. In this interface, you can change the device name

at , select the device installation location (living room, master bedroom...), and then click "Done" to directly enter the main interface of the device operation.

## 11.2. Software function operation.

### 11.2.1. Interface Introduction.

After the device is successfully bound, enter the "My house Heat Pump" (device name can be modified) operation page.

Click "My house Heat Pump" in "All Devices" in the main interface of "Smart Life" APP to enter the "My house Heat Pump" device's operation page.



Click "Work mode" on the main interface of the equipment operation to switch mode, and the mode selection interface will pop up as shown in the figure below, just click the mode you need to select.

### 11.2.2. Water Temperature Setting.

In the Setting interface, click "Water Temp. Setting" to set the Desired Temperature And Return difference Temperature.

### 11.2.3. High Temperature Antisepsis Function: (when hot water function is selected).

- High temperature Antisepsis cycle is once every 7 days (Cancel this function when the selection is 0);
- When entering the high temperature Antisepsis, the water tank electric heater will be forced to turn on.
- During the Antisepsis process, if the water tank temperature > 60°C (the maximum settable temperature), then the compressor will not start, but only start electric heating; if the water tank temperature ≤ 55°C, both the compressor and electric heater will start.
- When the water tank temperature ≥ 70°C and the protection temperature lasts for 30 minutes ≥ 65°C, exit the high temperature Antisepsis;
- After entering high temperature Antisepsis, if the temperature of the hot water tank does not reach 65°C after 1 hour, the high temperature Antisepsis program will be forced to exit;

### 11.2.4. Target Temperature Auto Adjustment Logic ( Under Heating Mode).

- The target temperature under heating mode can be automatically adjusted according to the ambient temperature.

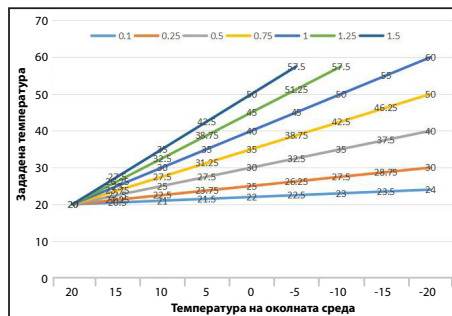
#### Entry conditions:

- When Parameter enables automatic adjustment mode of heating target temperature.

#### Calculation formula of heating target temperature:

$Pset$  (heating target temperature) = 20°C + (Target temperature compensation coefficient ÷ 10) \* (Heating compensation point - current ambient

temperature).



- The above different curves stands for the different value of Target temperature compensation coefficient.
- (When Target temperature compensation coefficient=1, the actual value is 0.1)
- The target temperature range of automatic temperature adjustment is 20-60°C.

### 11.2.5. Auxiliary Electric Heater for Water Tank.

**Start conditions** (all below conditions must be met at the same time)

- 1) In hot water mode;
- 2) The compressor runs for start time for electric heating of water tank (30) minutes;
- 3) There is a demand for hot water, and the temperature of the water tank is ≤ 55°C;
- 4) The pump is running

**Exit condition** (only need to meet any one of the below conditions):

- 1) When the heat pump is performing cooling mode / hot water mode;
- 2) When there is no demand for hot water or constant temperature control;
- 3) The water tank temperature sensor has a fault alarm;
- When it is under defrosting / forced defrosting / secondary antifreeze , the electric heating is forced to turn on;
- When there is high-pressure failure / low-pressure failure / exhaust temperature sense failure / excessive exhaust protection stop, and if compressor is locked and cannot

be started, then the electric heating will be started instead of the compressor after 5 minutes.

### 11.2.6. Auxiliary Electric Heater for Space heating.

#### Enable condition:

- 1) Under Heating mode;
- 2) Ambient Temp. < Ambient Temp for starting electric heating (°C) or Ambient Temp. Sensor Fault;
- 3) There has Heating Demand, Inlet Water Temp. ≤ Heating Set Temp. (P05) - Restart difference (P01);
- 4) Water pump during Working States.

When the above conditions are met, The Electric Heater will turn on.

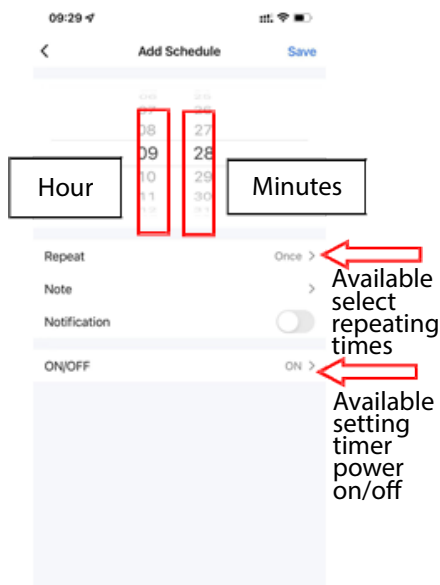
#### Shut-down condition:

- 1) Under Cooling or Hot Water Mode
- 2) Without Heating Demand or Constant Temp. Control
- 3) Inlet Water Temp. Sensor Failure or Alarm
- 4) Ambient Temp. > (0°C) (Ambient Temp for starting electric heating) + 1
- 5) Water Flow Failures
- 6) Circulation pump shut-down

### 11.2.7. Timer settings.

In the Setting interface, click "timing" to enter timer setting, click to add timer.

In the timer setting, slide the hour/minute up and down to set the timer time, and set the repeating week and on/off, press the upper right corner to save, as shown in the below Fig,



### 11.2.8. Device removal.

#### APP removal

Click in the upper right corner of device operation main interface to enter device details interface, and click "Remove Device" interface to enter the intelligent network configuration mode. Corresponding indicator light does not flash, and the network can be reconfigured within 3 minutes. If it exceeds 3mins, it will exit the distribution network.

## 12. TECHNICAL PARAMETERS OF THE HEATING AND COOLING SPLIT SYSTEM HEAT PUMP - EVI DC

TECHNICAL PARAMETERS		
Model: -	SUNSYSTEM SPLIT R32-0126-1PH	SUNSYSTEM SPLIT R32-0220-3PH
Nominal heating power	10	18
Heating mode: ambient temperature +7°C/water (input - output) 30-35°C		
Output heating power (kW)	6.5-12.6	10.5-22.0
COP	4.21-4.62	4.23-4.63
Electrical power consumed (kW)	1.41-2.99	2.27-5.20
Heating mode: ambient temperature +7°C/water (input - output) 47-55°C		
Output heating power (kW)	9,51	17,2
COP	3,14	2,82
Electrical power consumed (kW)	3,03	6,1
DHW mode: ambient temperature +7°C/water (inlet-outlet) 15-55°C		
Power supplied for DHW (kW)	5.5-10.5	8.8-17.5
COP	3.07-3.86	3.12-3.93
Electrical power consumed (kW)	1.42-3.42	2.24-5.61
Cooling mode: ambient temperature +35°C/water (inlet-outlet) 12-7°C		
Output power cooling at +35 °C/water 7°C (kW)	4.2-8.2	7.2-14.2
EER at +35°C (cooling water 7°C)	2.43-3.23	2.56-3.32
Electrical power consumed (kW)	1.30-3.33	2.17-5.55
Energy efficiency class (35°C)	A+++	A+++
Energy efficiency class (55°C)	A++	A++
Refrigerant	R32	
Power supply type	monophasic	three-phase
Weight (kg)	100	155
Connector to water pipe	1" DN 25	1" DN 25
Flow rate of the heat carrier (m3/h)	1,65	3
Power of the integrated electric heater (kW)	3 kW	4 kW
External body dimensions (W x H x L) (mm)	1030x475x970	1000x480x1380
Internal body dimensions (W x H x L) (mm)	700x500x272	700x500x272
Sound pressure level of outdoor unit dB(A)	<53	<58
Liquid/gas pipe diameter (mm)	9.52/15.88	9.52/15.88
Pipeline length (m)	5	5
Height difference indoor/outdoor unit (m)	4	7
Refrigerant (R32) (kg)	1,6	2,7
Operating range outdoor temperature (°C)	-30+43	-30+43
Output temp. of water during heating (°C)	20-55	20-55
Output temp. of water on cooling (°C)	7-35	7-35
Power supply voltage	230V/1Ph/50-60Hz	400V/3Ph/50-60Hz
Cooling capacity:	60-90m²/155-235m³	130-170m²/340-430m³
Heating capacity:	60-90m²/155-235m³	130-170m²/340-430m³
Origin		



## CONTENT

1.	BASIC INSTRUCTIONS AND WARNINGS.....	3
2.	HEAT PUMP ENERGY SAVING TIPS .....	3
3.	HEAT PUMP INSTALLATION .....	4
4.	PREPARATION FOR INSTALLATION .....	6
5.	INSTALLATION .....	9
6.	ELECTRICAL CONNECTIONS .....	21
7.	OPERATION OF THE HEAT PUMP.....	25
8.	GENERAL OPERATING GUIDE .....	32
9.	USERS GUIDE .....	32
10.	GENERAL MAINTENANCE.....	33
11.	WIFI CONNECTION AND OPERATION.....	37
12.	TECHNICAL PARAMETERS.....	42