E|S®

AW45-EVI-M
AW90-EVI-M
AWC45-90-M

DC Inverter Air to Water Heat Pump

User's manual

Before operating this product, please read the instructions carefully and keep this manual for future use.

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1. Product Specifications

1-1. Specifications

Model information				
Model			AW45-EVI-M	AW90-EVI-M
Performance				
Min/max heating capacity (1)		kW	13.7~43.7	27.4~89.6
El. heating power input min/max (1)		W	3325~12077	6650~24254
C.O.P min/max (1)		W/W	3.62~4.42	3.68~4.50
Min/max heating capacity (2)		kW	13.6~43.2	28.2~89.5
El. heating power input min/max (2)		W	4156~14308	8212~28300
C.O.P min/max (2)		W/W	2.99~3.38	3.16~3.48
SCOP - Average climate, low temperature		W	4.12	4.2
Energy class			A++	A++
Min/max cooling capacity (3)		kW	17.7~32.0	36.4~66.0
El. coolimg power input min/max (3)		W	3491~11771	6982~23742
E.E.R. min/max (3)		W/W	2.72~5.09	2.8~5.19
Min/max cooling capacity (4) (A35/W7)		kW	11.2~29.9	23.4~61.2
El. cooling power input min/max (4)		W	3529~11640	6880~23450
E.E.R. min/max (4)		W/W	2.57~3.3	2.61~3.4
SEER - Cooling		W	/	/
Min/max ambient working temp. in heating mode		°C	-25-45	-25-45
Min/max ambient working temp. in cooling mode		°C	20-45	20-45
Max flow temp. in heating mode		°C	55	55
Min flow temp. in heating mode		°C	10	10
Min flow temp. in cooling mode		°C	5	5
Sound power level	Outdoor unit	dB (A)	66	69
	Indoor unit	dB (A)	/	/
Electrical heaters				
Heating cable - condense water		W	/	/
Compressor heater		W	30	30*2
Anti - Freeze el. heater	Power supply	V / Hz /	/	/
Anti - Freeze el. heater	Rated power	W	/	/
Power supply				
Power supply - Outdoor unit	Outdoor unit	V / Hz / Ph	400V/50Hz/3ph	400V/50Hz/3ph
	Fuse Outdoor unit	A	3p/40A/C	3p/80A/C
Power supply - Indoor unit	Indoor unit	V / Hz / Ph	/	/
	Fuse Indoor unit	A	/	/
/				
Fan	Quantity	pcs	1	2
	Airflow	m^3/h	13500	13500*2
	Rated power	W	800	800*2
	Blade diameter	mm	760	760*2
Plate heat exchanger	Water press. drop	kPa	80	100
	Piping connection	Inch	2"Inner gorve	Dn65 Flange
Refrigerant	type	/	R410A	R410A
	chrage	kg	8kg	8kg*2
	GWP	/	1890	3780
	t CO_2 Equiv.	/	0	0
Compressor	Manufacturer	/	SIAM	SIAM
	type	/	Inverter+EVI	Inverter+EVI
	Compressor oil	type	FVC68D	FVC68D
	Comp. oil volume	L	2.3	2.3*2

1. Product Specifications

Model			AW45-EVI-M	AW90-EVI-M
Hydraulics				
Minimum water flow		m^3/h-l/s	5m^3/h	10m^3/h
Nominal water flow		m^3/h	8m^3/h	16m^3/h
Hydraulic connections		Size	2”Inner gorve	Dn65 Flange
Flow switch	Manufacturer		Hengsen	Hengsen
Flow switch	type		SLG-01	SLG-01
Dimensions and weight				
Dimensions net (L x D x H)	Outdoor unit	mm	1010*1160*1650	2160*1200*1650
	Indoor unit	mm	385*476*150	385*476*150
Dimensions Brutto (L x D x H)	Outdoor unit	mm	1030*1180*1750	2180*1220*1750
	Indoor unit	mm	400*490*180	400*490*180
Net weight	Outdoor unit	kg	300	600
	Indoor unit	kg	9	9
Brutto weight	Outdoor unit	kg	370	680
	Indoor unit	kg	10	10

(1) Heating condition: water inlet/outlet temperature: 30 °C/35°C, Ambient temperature: DB 7 °C /WB 6 °C ;

(2) Heating condition: water inlet/outlet temperature: 40°C/45°C, Ambient temperature: DB 7 °C /WB 6 °C ;

(3) Cooling condition: water inlet/outlet temperature: 23 °C/18°C, Ambient temperature: DB 35 °C /WB 24 °C ;

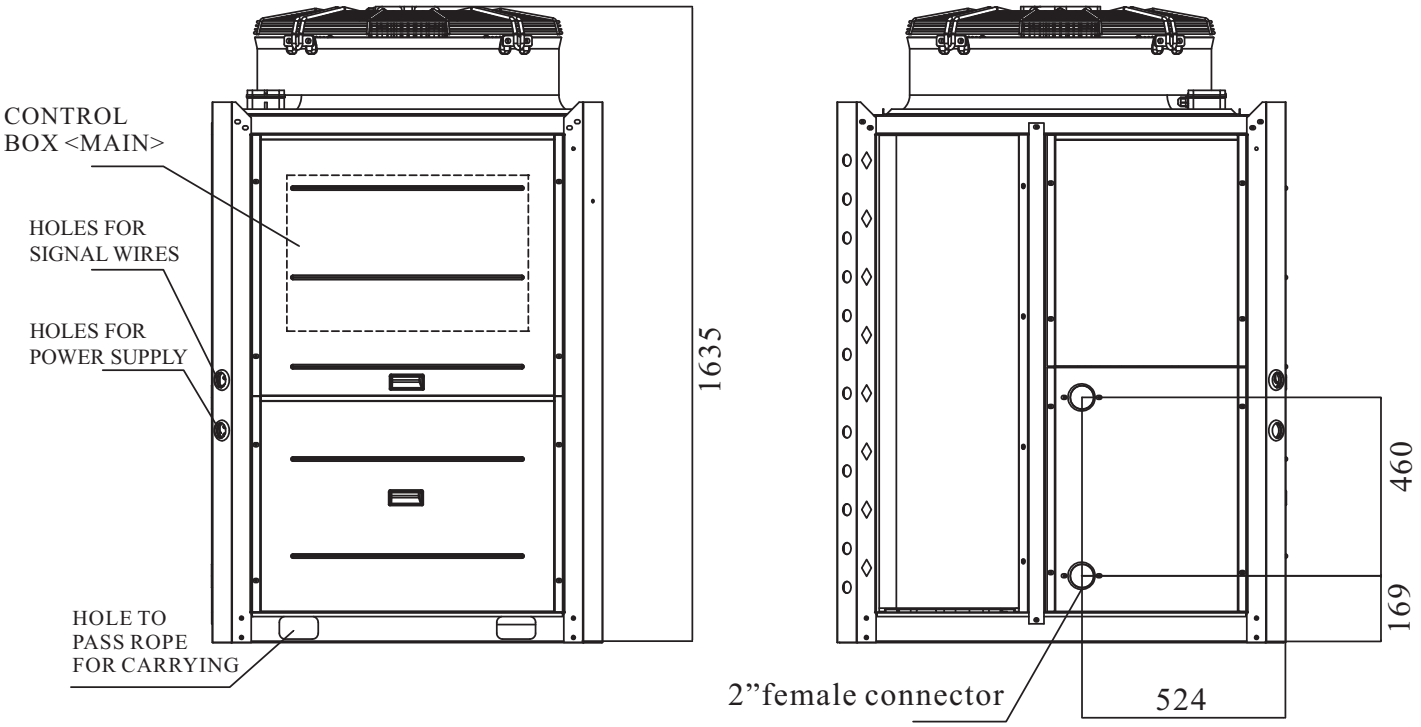
(4) Cooling condition: water inlet/outlet temperature: 12°C/7°C, Ambient temperature: DB 35 °C /WB 24 °C.

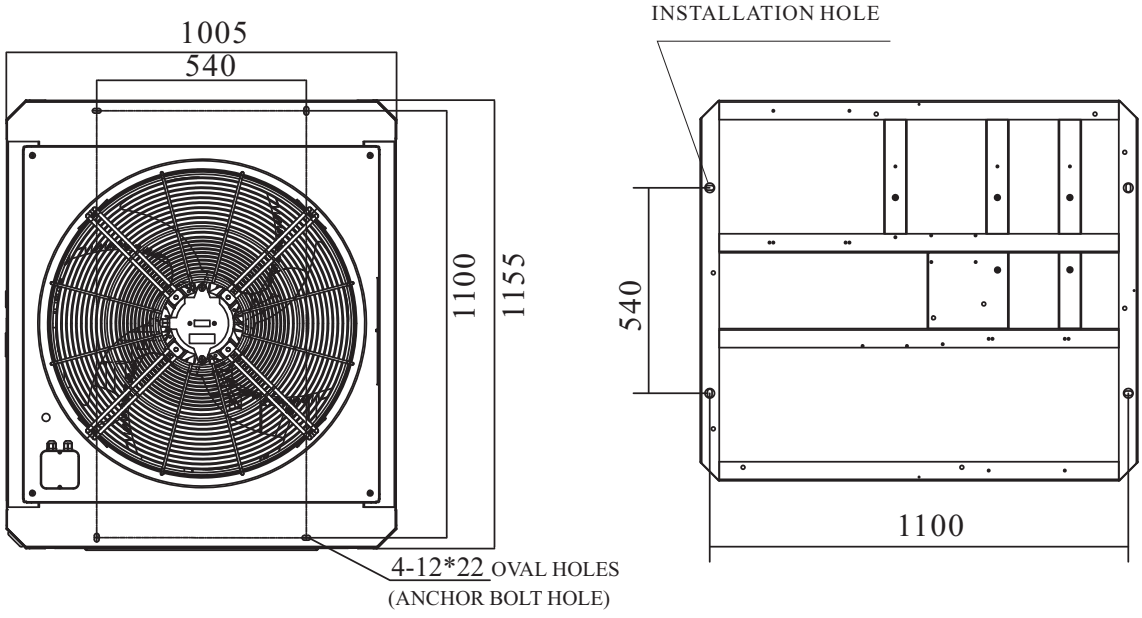
1. Product Specifications

1-2. External Dimensions

AW45-EVI-M

Unit:mm

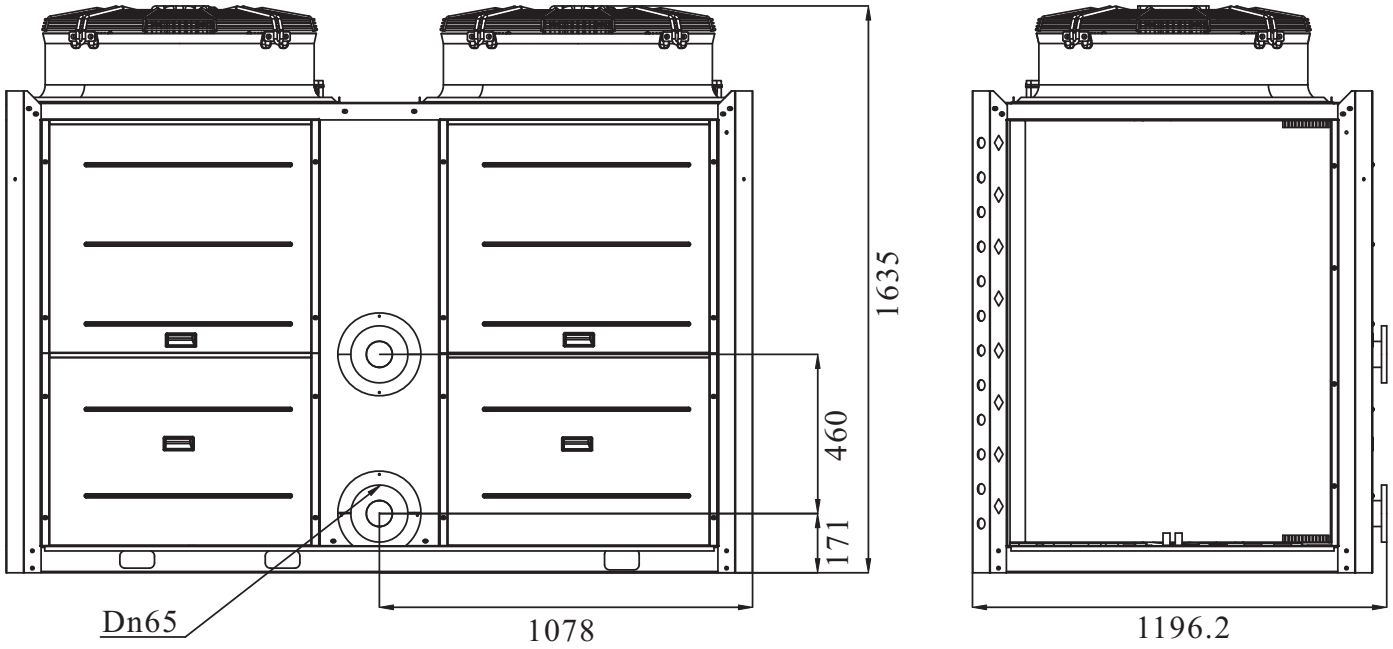


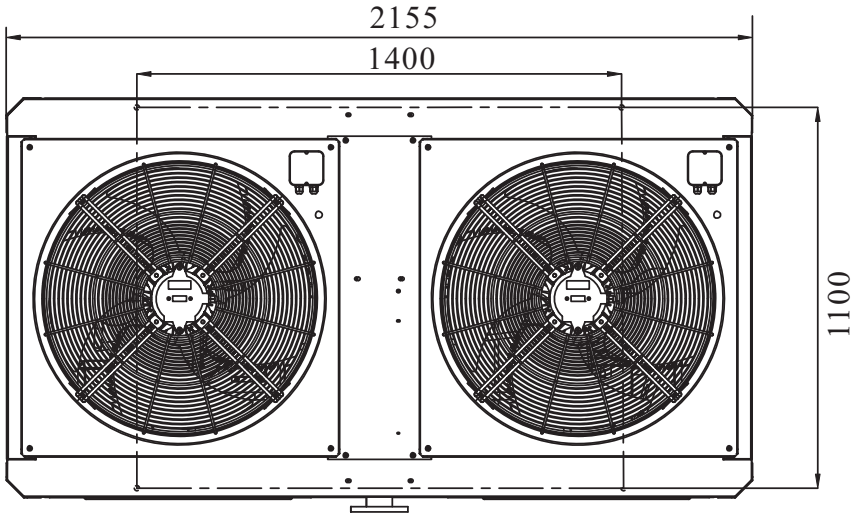


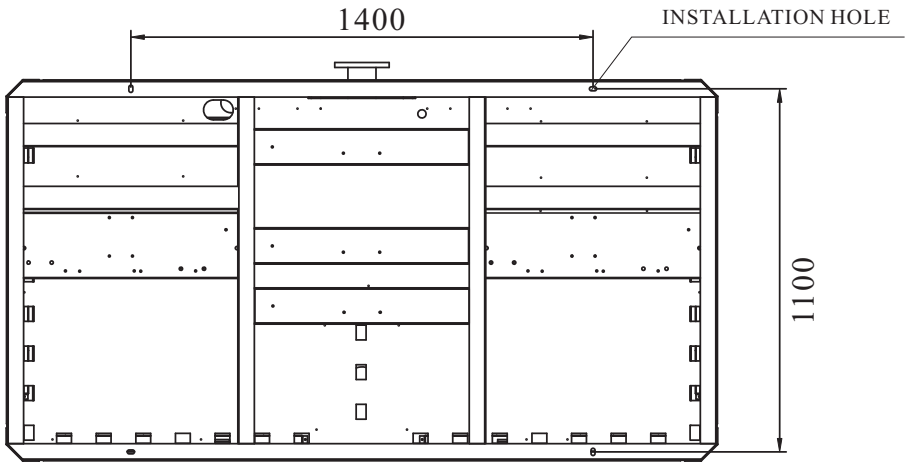
1. Product Specifications

AW90-EVI-M

Unit:mm

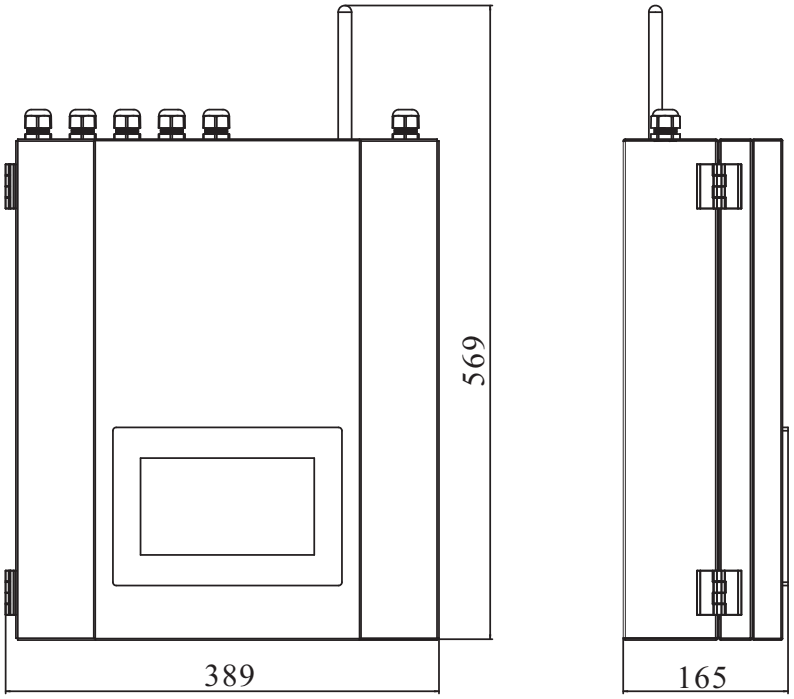


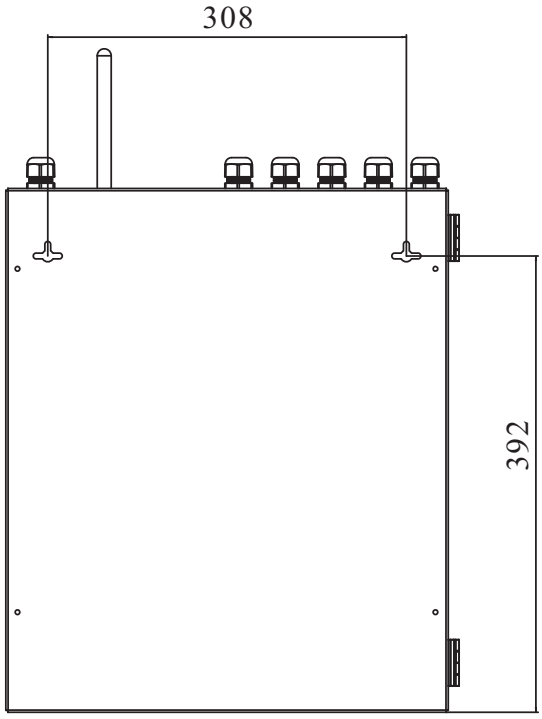




1. Product Specifications

AWC45-90-M

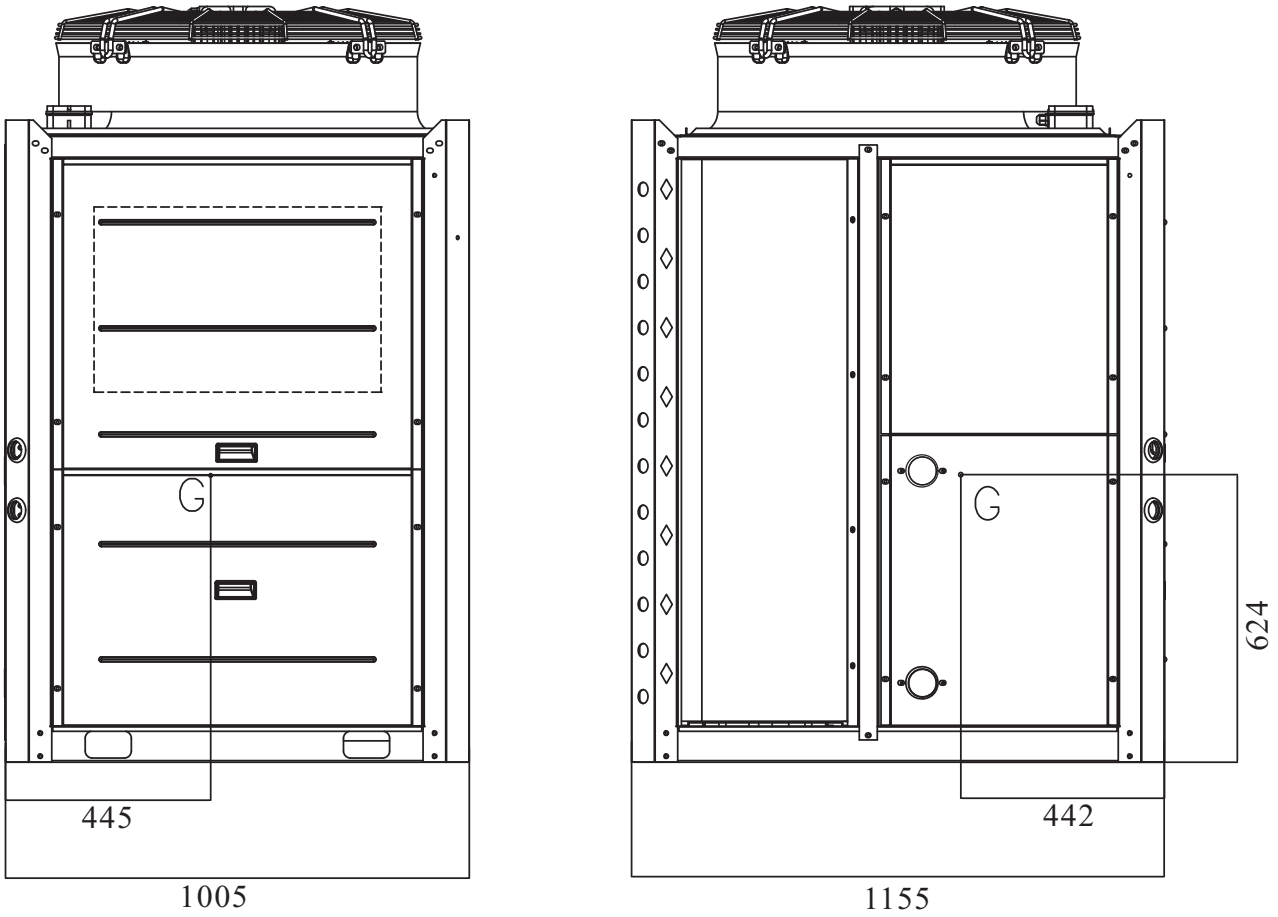




1. Product Specifications

1-3. Center of Gravity

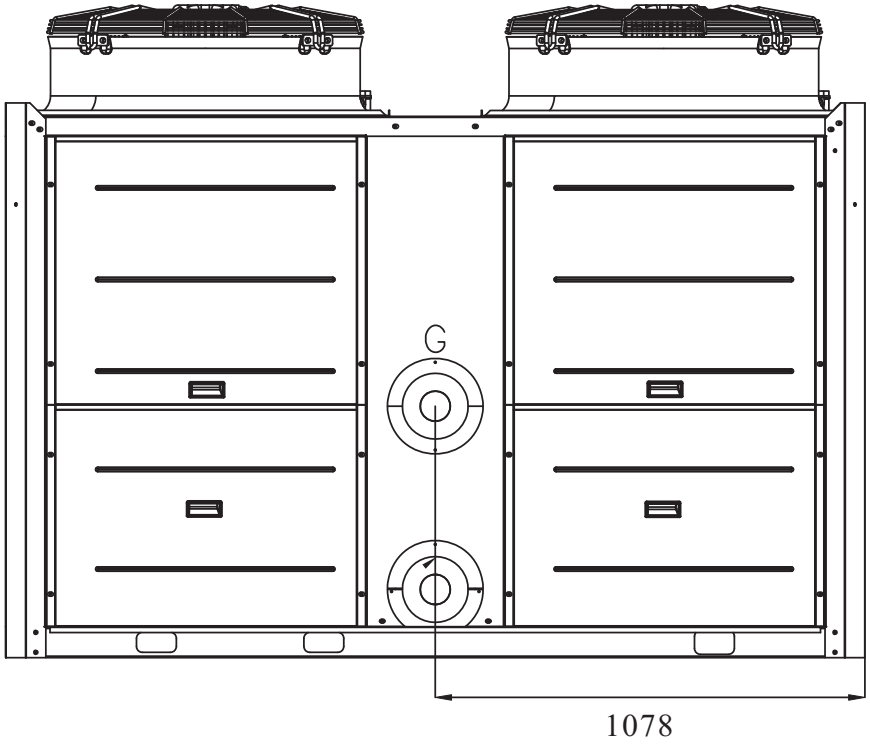
AW45-EVI-M

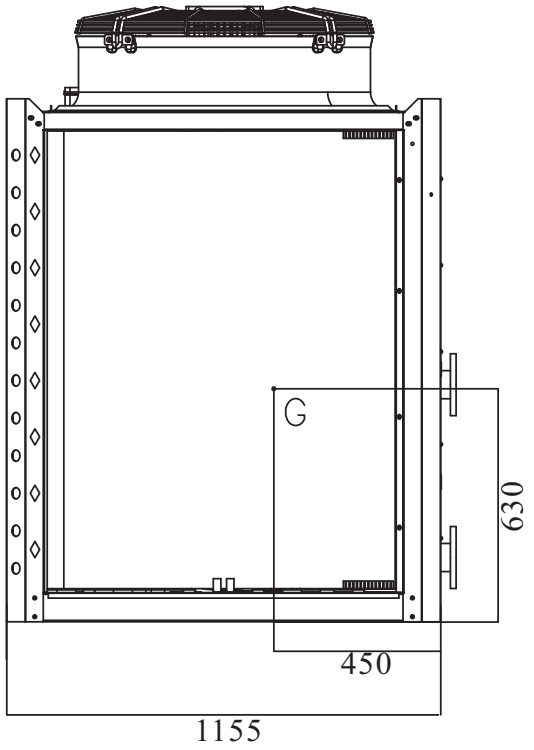


1. Product Specifications

1-3. Center of Gravity

AW90-EVI-M

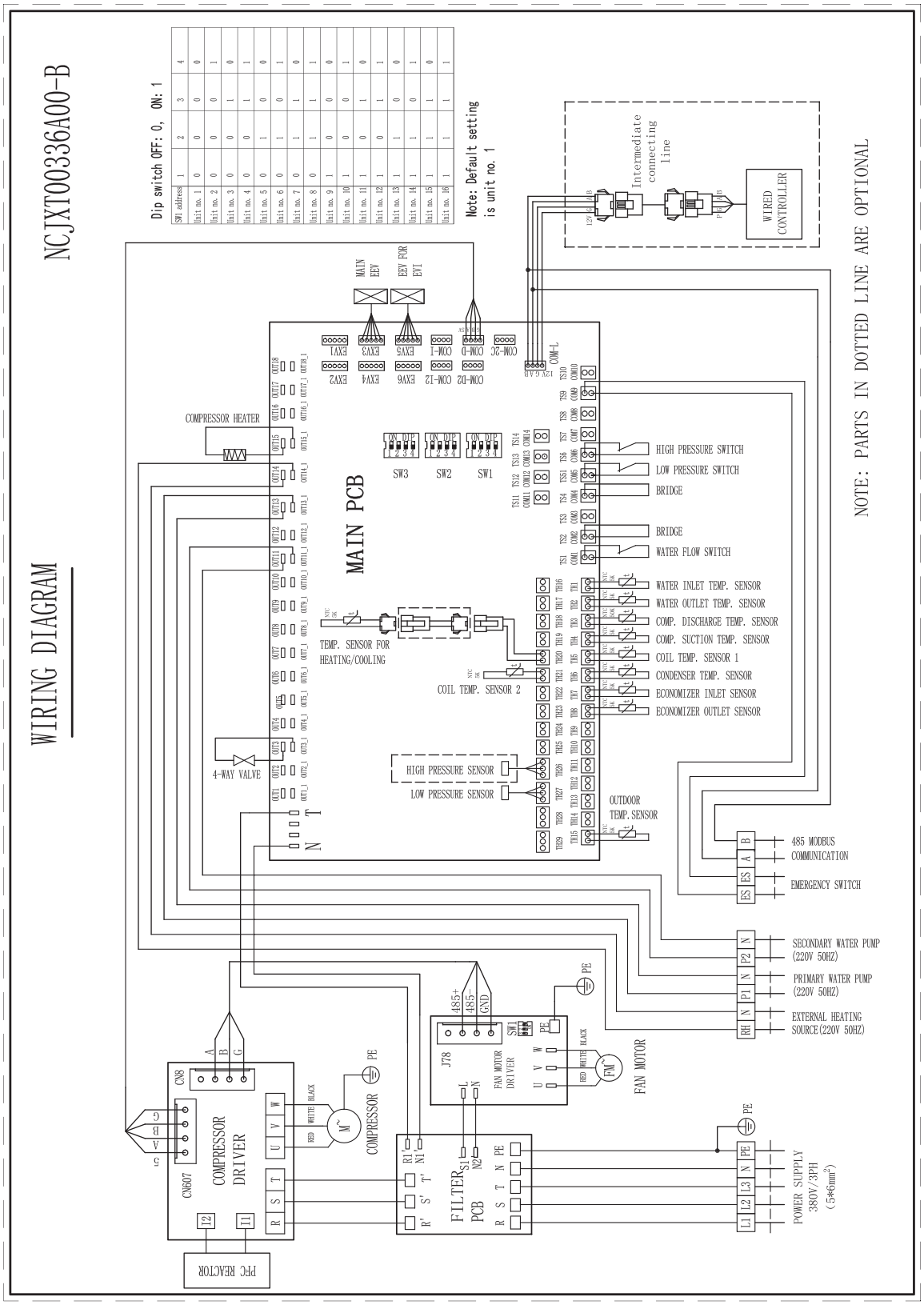




2. Product Data

2-1.Electrical Wiring Diagrams

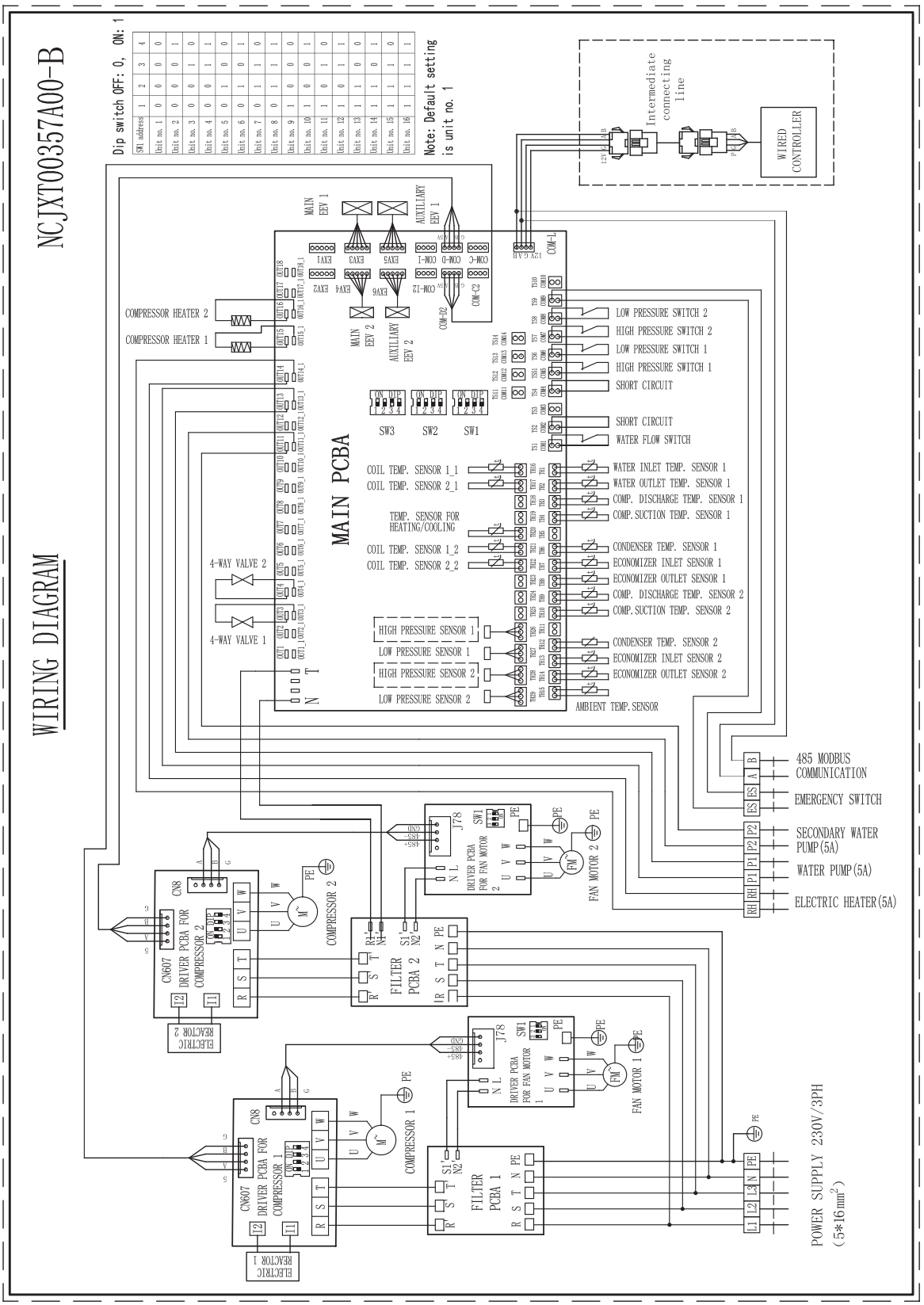
AW45-EVI-M



TAKE CARE!
The specifications are subject to change without prior notice.
For actual specifications of the unit, please refer to the specification stickers on the unit.

2. Product Data

AW90-EVI-M



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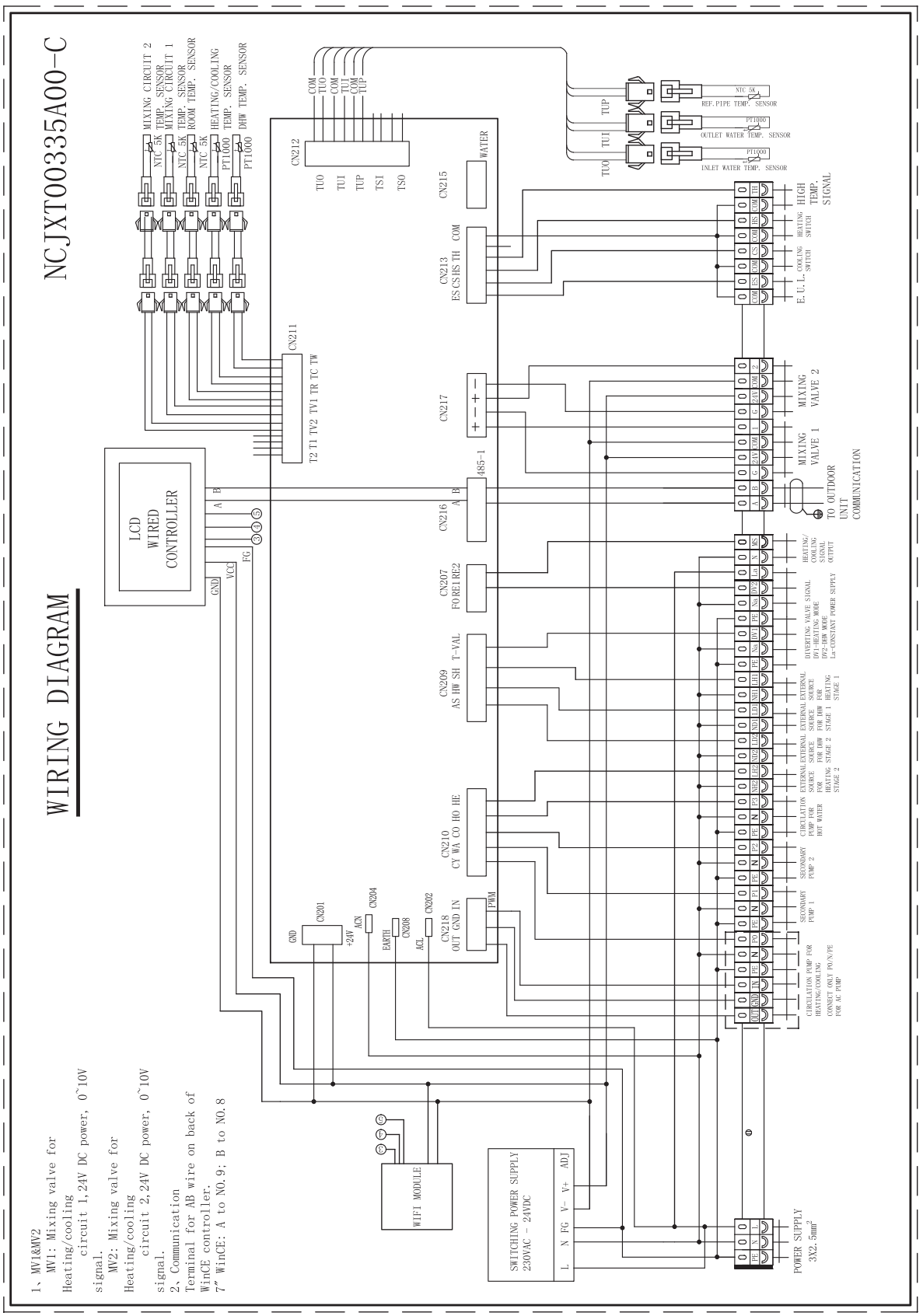
AWC45-90-M



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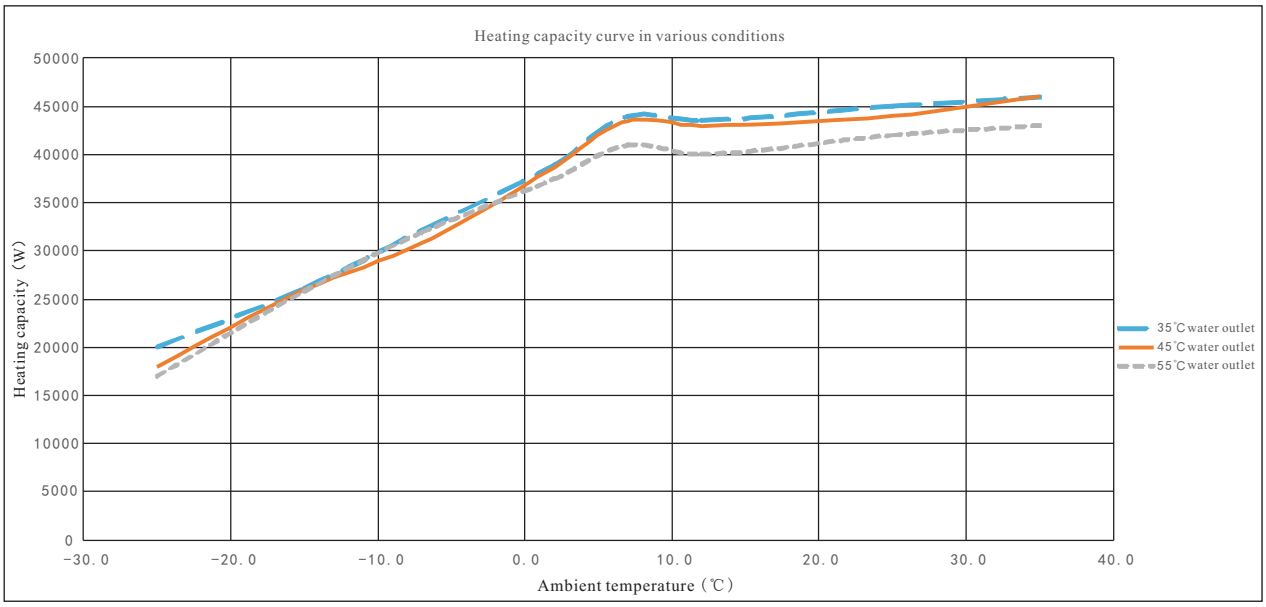
For actual specifications of the unit, please refer to the specification stickers on the unit.

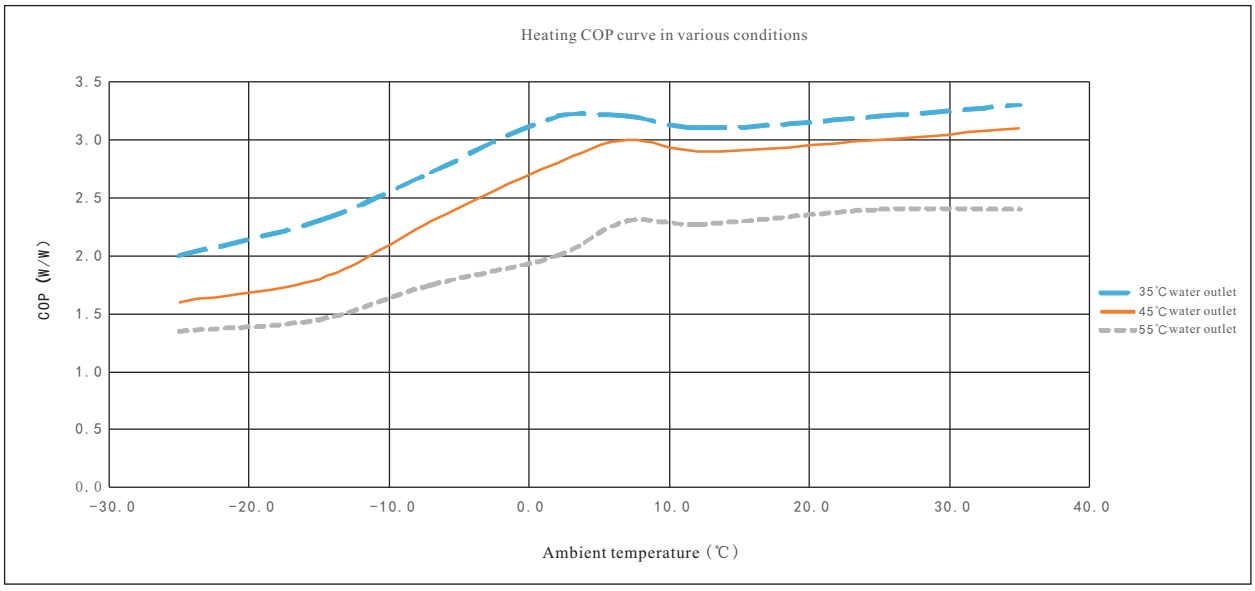
2. Product Data

2-2. Capacity tables

2-2-1. Heating capacity curve in various conditions

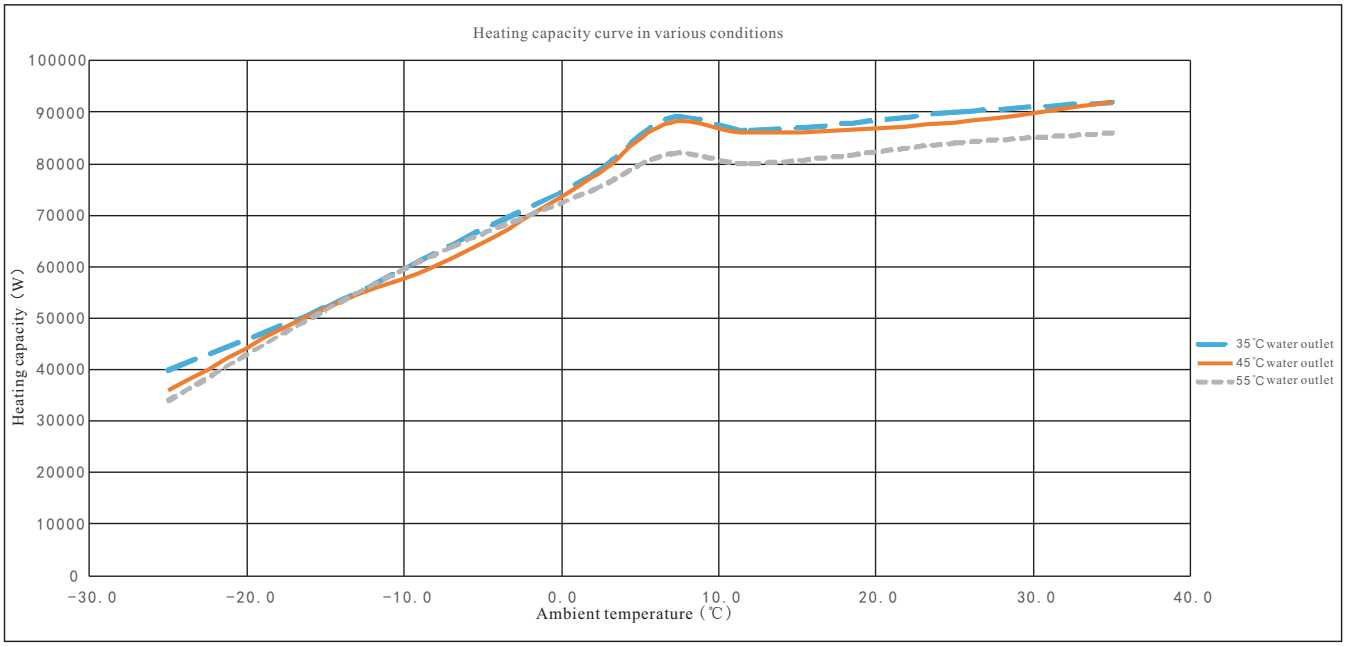
AW45-EVI-M

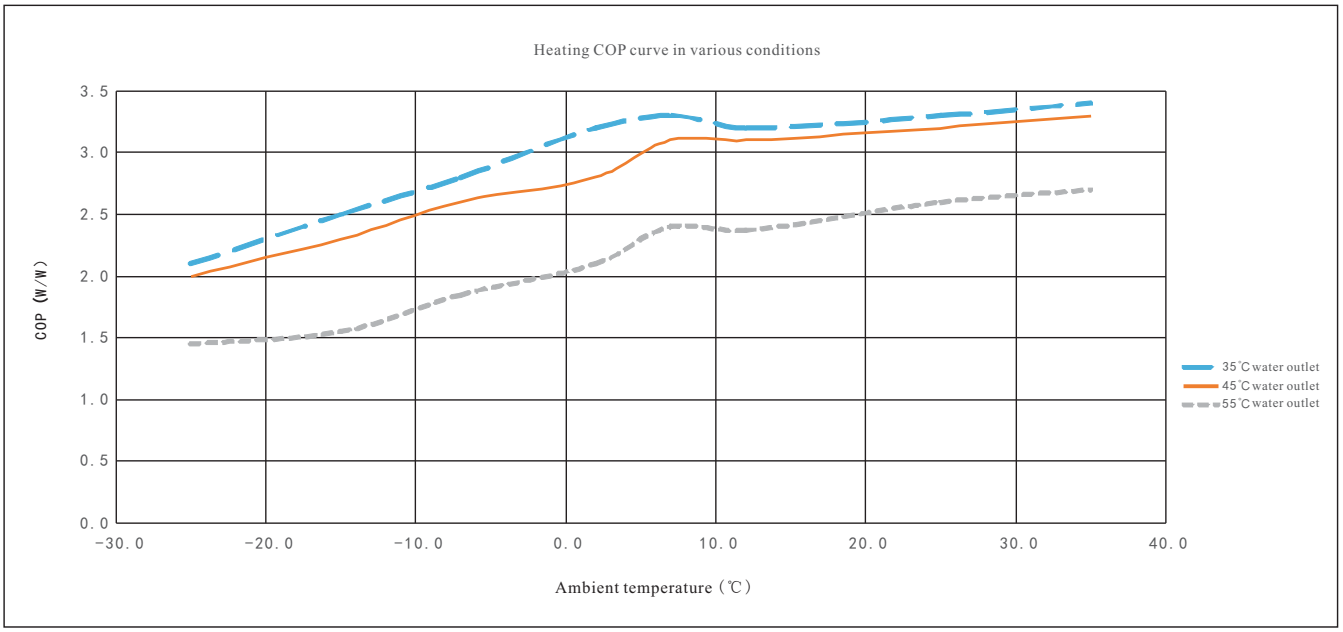




2. Product Data

AW90-EVI-M

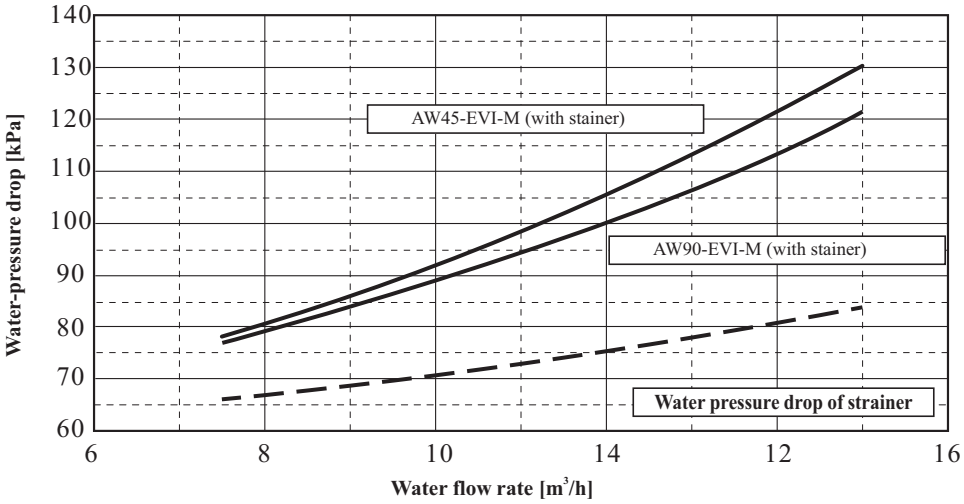




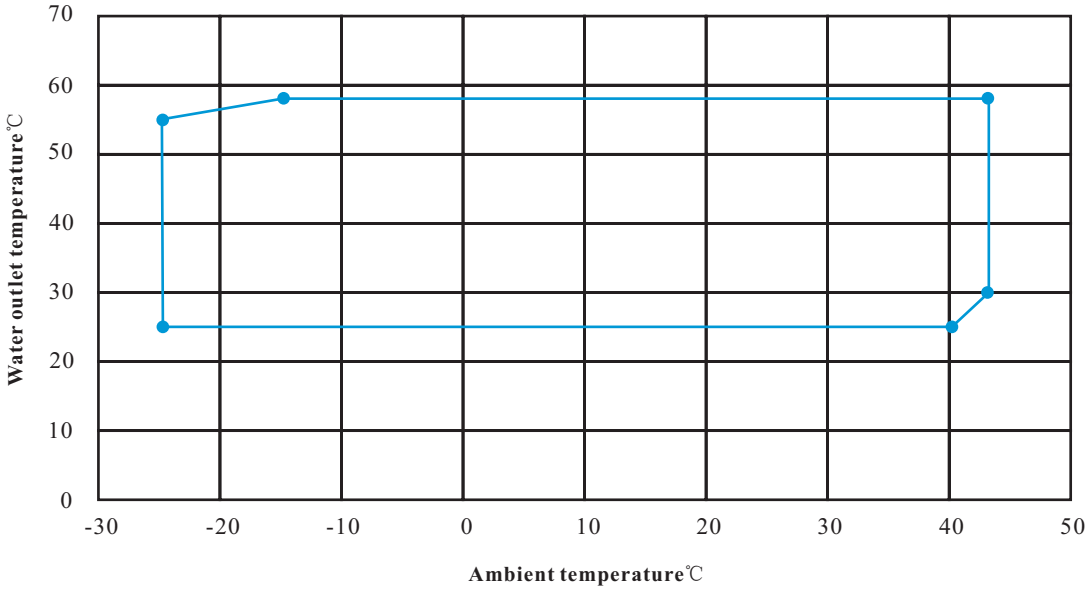
2. Product Data

2-2-2. Water pressure drop

AW45-EVI-M
AW90-EVI-M



2-2-3. Operation temperature range



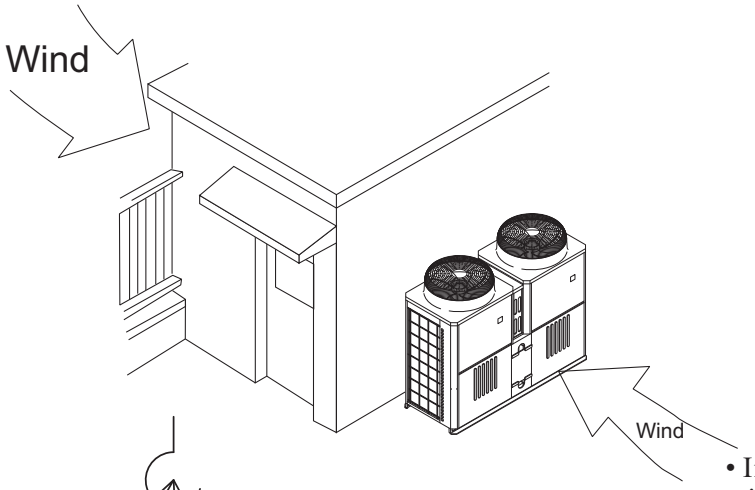
3. Installation

3.1. Selecting the Installation Site

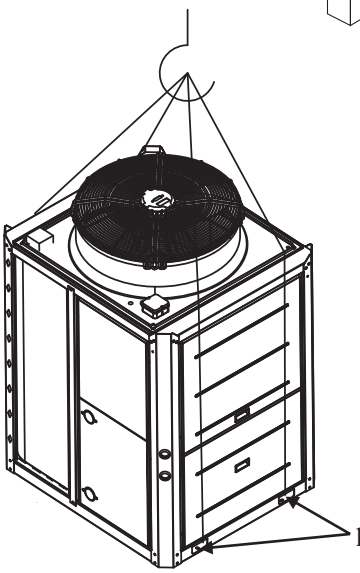
3.1.1 Installation Conditions

Select a installation site that meets the following conditions:

- Unit can have free air circulation.
- The noise from the unit will not be a problem.
- No strong winds.
- Condense water from the unit can be drained.
- Unit has open space as shown in the drawing 3.1.2.
- Stand of the unit must be at least 50cm high in cold areas, to avoid snow accumulation.



• Install the outdoor unit in a place where is no strong and direct wind.



Pass two ropes through four holes of the heat pump and lift it with hook.

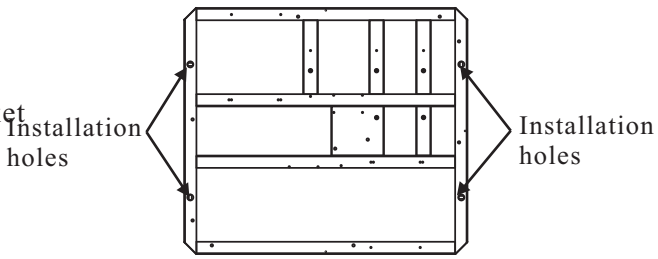
Lift of the unit : Rope used for lifting the unit should bear at least 3 times the weight of the unit. Hook should be fixed to the unit, and lifting angle must over 60°

Note : Don't stay under the unit when unit is being lifting up. Add soft material between rope and unit to avoid unit damage.

1.Fix the outdoor unit on the bracket.

2. Four screws pass through four holes of bracket and of the bottom plate installation holes.

3.Tighten nuts with a wrench.

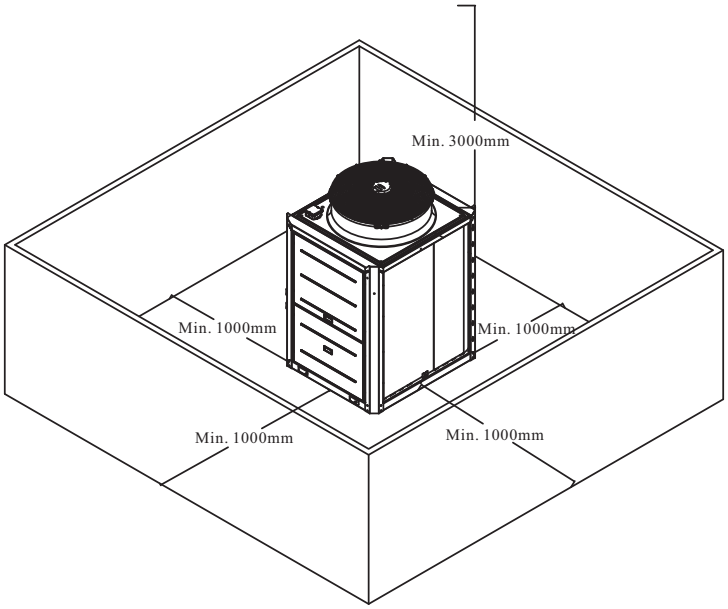


3. Installation

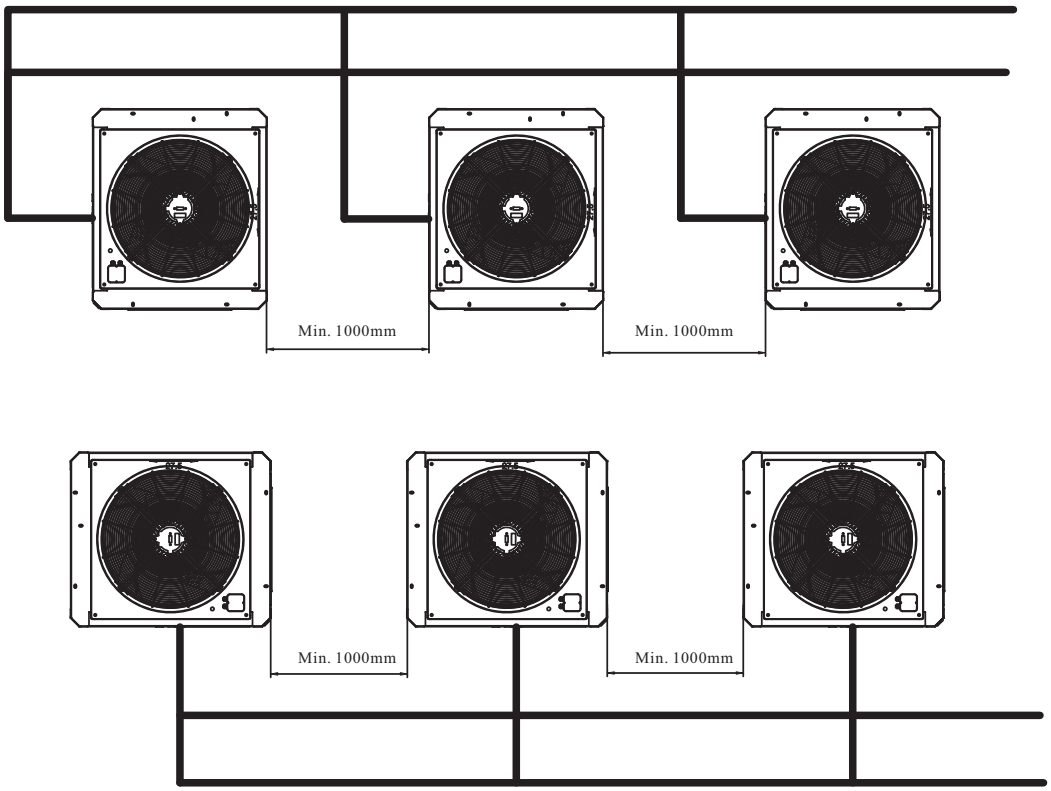
3.1.2. Installation space requirements

1.Single unit installation

Secure enough space around the unit as shown in the figures below.



side-by-side installation



3.2. Unit Installation

The unit must be installed on flat concrete blocks, or a dedicated mounting bracket.

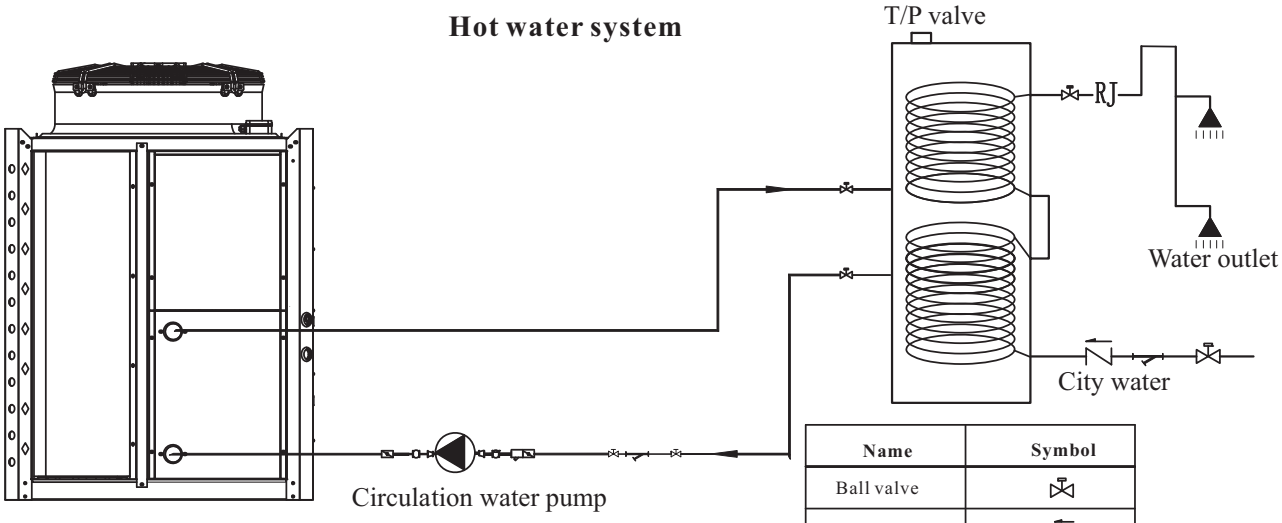
4. System Design

4.1. Water Pipe Installation

4.1.1. Caution for water pipe installation

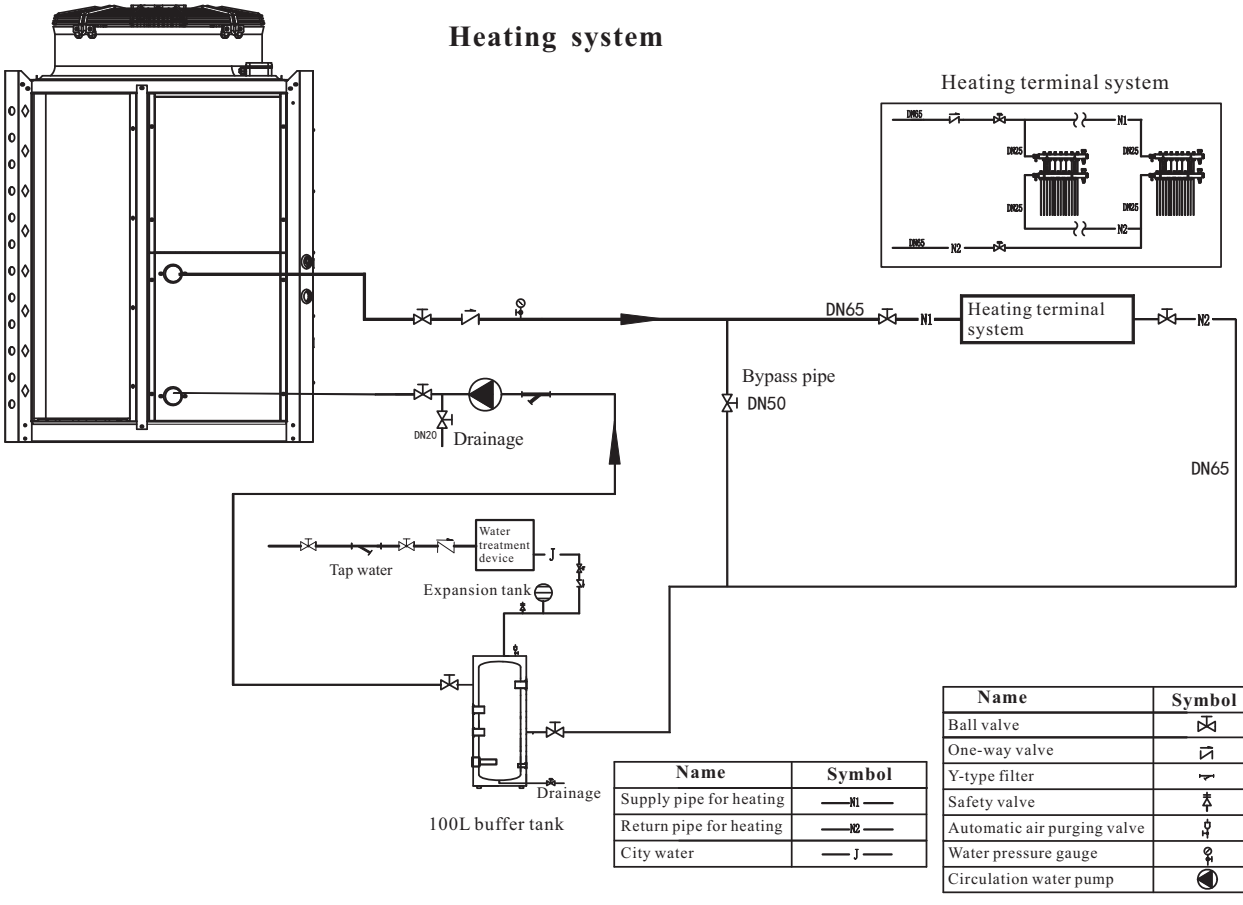
The installation should be done by qualified installer. Before installation, please make sure the power supply is cut off.

Hot water system



Name	Symbol
Ball valve	
One-way valve	
Y-type filter	
Water pump	

Heating system

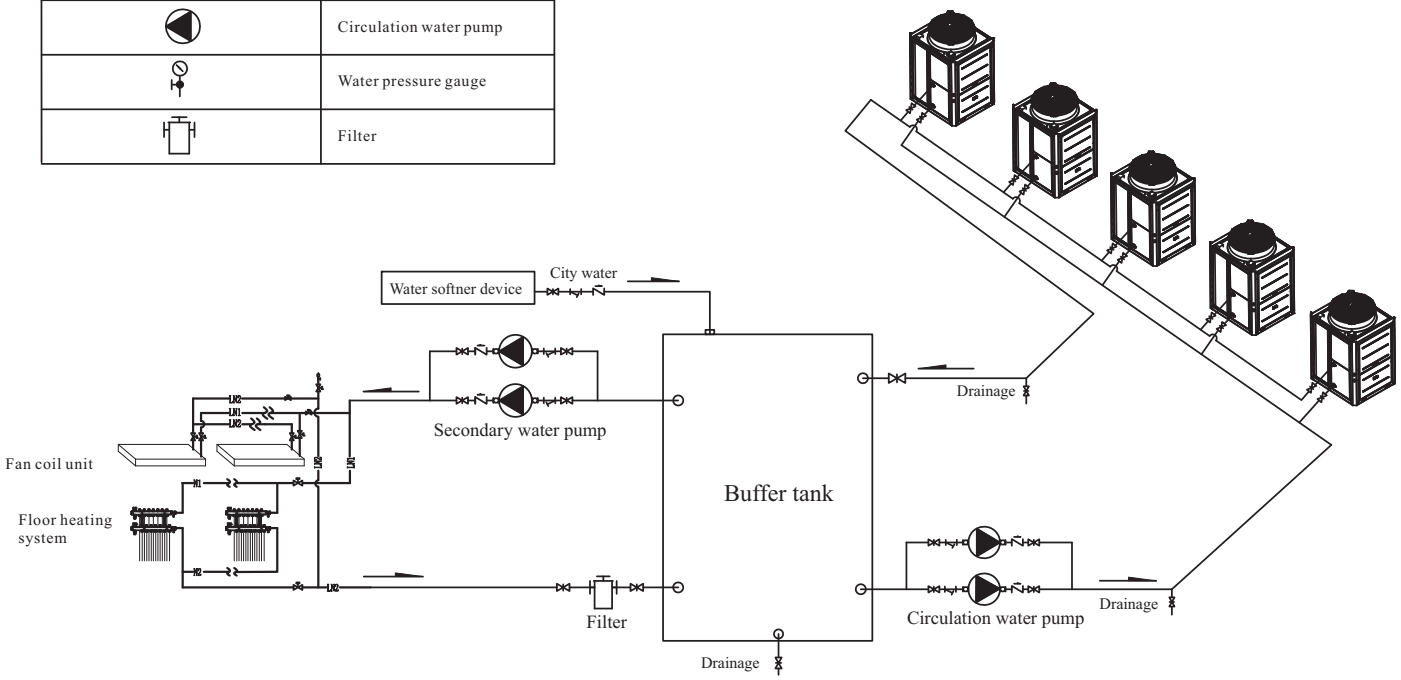


Name	Symbol
Supply pipe for heating	N1
Return pipe for heating	N2
City water	J

Name	Symbol
Ball valve	
One-way valve	
Y-type filter	
Safety valve	
Automatic air purging valve	
Water pressure gauge	
Circulation water pump	

4. System Design

Symbol	Name
	Ball valve
	Check valve
	Y-type filter
	Flexible rubber connection
	Circulation water pump
	Water pressure gauge
	Filter



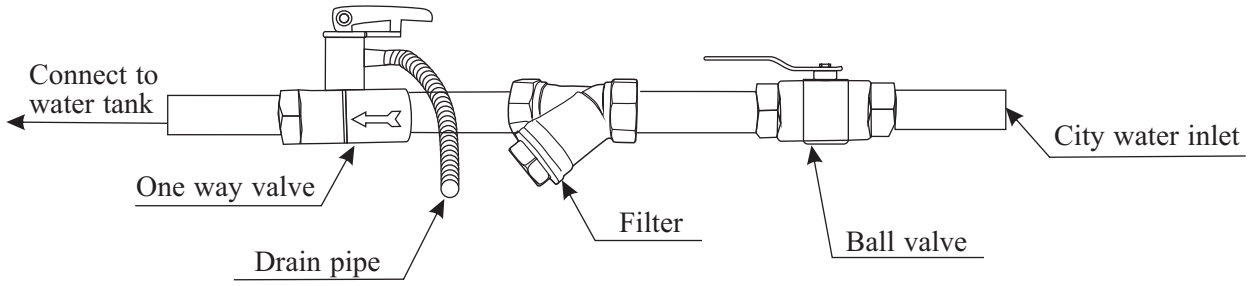
Attention: Maximum 16 units can be connected in Parallel.

4. System Design

4.1.2. Installing the water pipes

Installing the Filter

A mesh filter must be installed in front of the water inlet of the unit and water tank, to keep the water quality and collect impurity contained in the water. Take care to keep the water filter mesh towards the bottom. Ball valve is recommended to be installed at both sides of the filter, so as to clean or change the filter in a easier way.



4-2. Ensuring enough water in the water circuit

4.2.1.Required amount of water

Buffer tank is to be included in the system,

It should be installed between heat pump and distribution system,in order to:

1) Ensure heat pump unit has stable and enough water flow rate.

2) Store heat to minimize fluctuation of system heating/cooling load.

3) Extend the water volume of distribution system for proper working of heat pump unit.

Model	Minimum amount of water (ℓ)
AW45-EVI-M	360
AW90-EVI-M	720

4-3. Inlet/Outlet pipe connection size and material

The table below shows the inlet/outlet pipe connection size

Inlet/Outlet pipe connection size

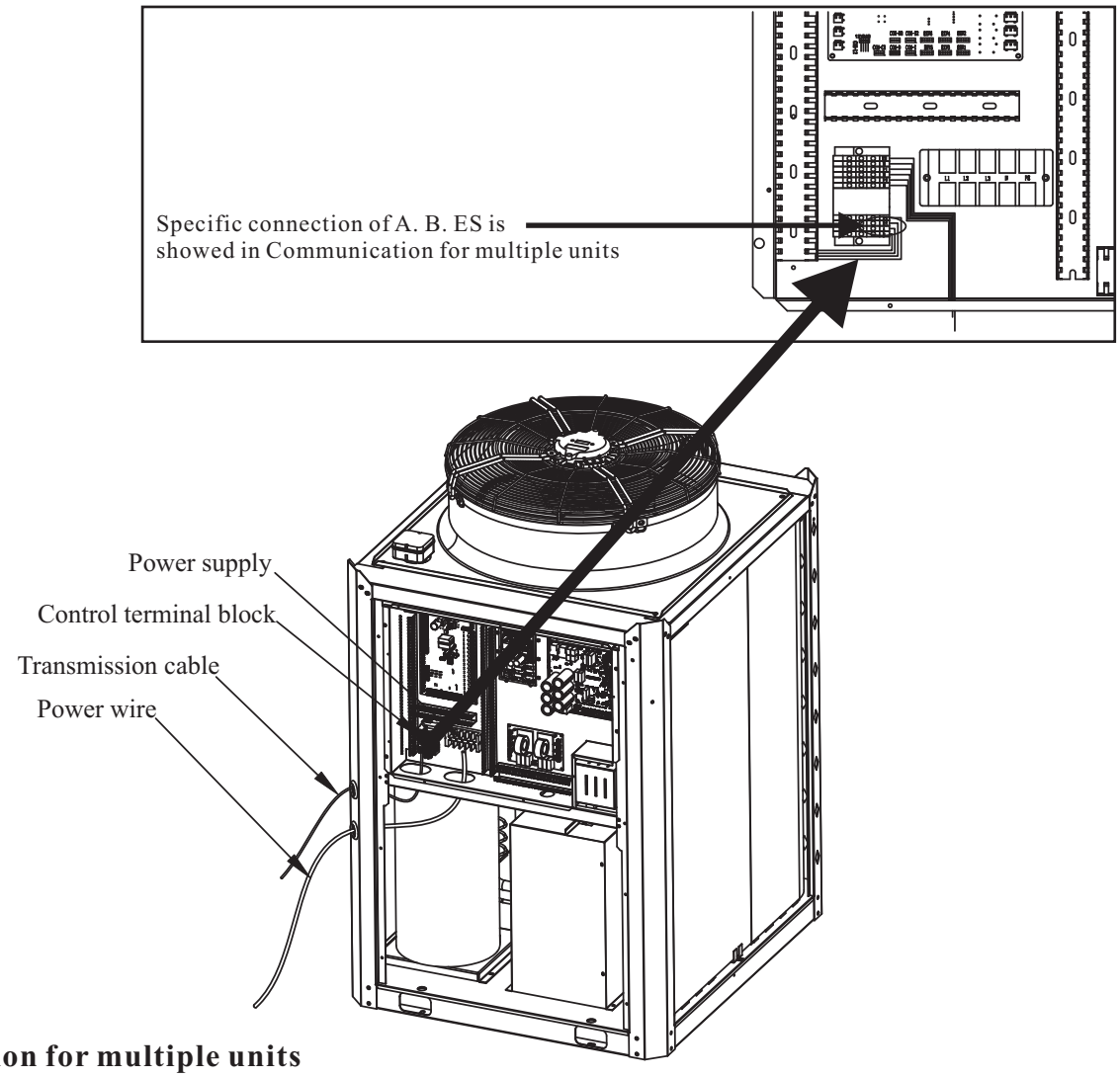
Model	Inlet pipe connection	Outlet pipe connection
AW45-EVI-M	2”Female screw	2”Female screw
AW90-EVI-M	Dn65Flange	Dn65Flange

5. Wiring Design

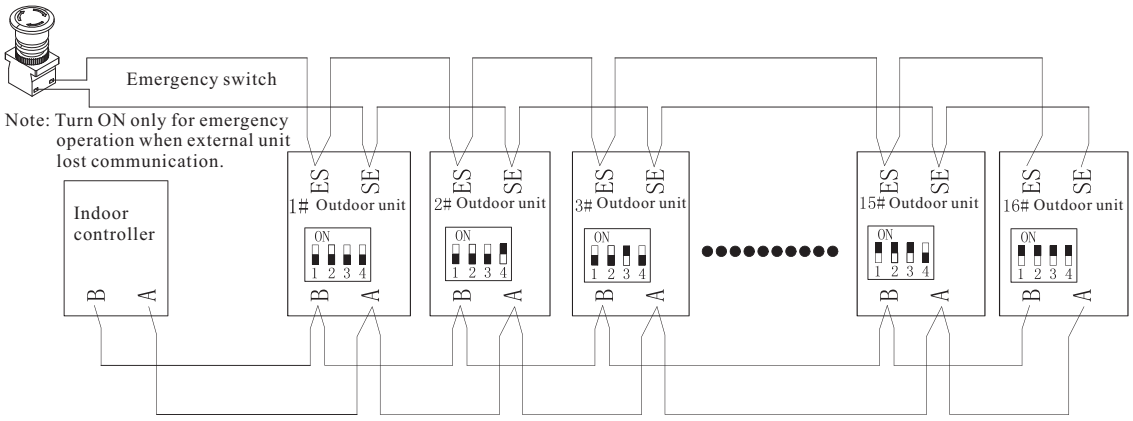
5-1. Connect to power supply

(1)Terminal Block Arrangement

To remove the front panel of the control box, unscrew the four screws and pull the panel forward and then down.

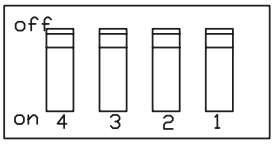


Communication for multiple units



5. Wiring Design

Dip switch (SW1) is used to set the system number.



S W1

When multiple units work together, please set the dip switch as follows.

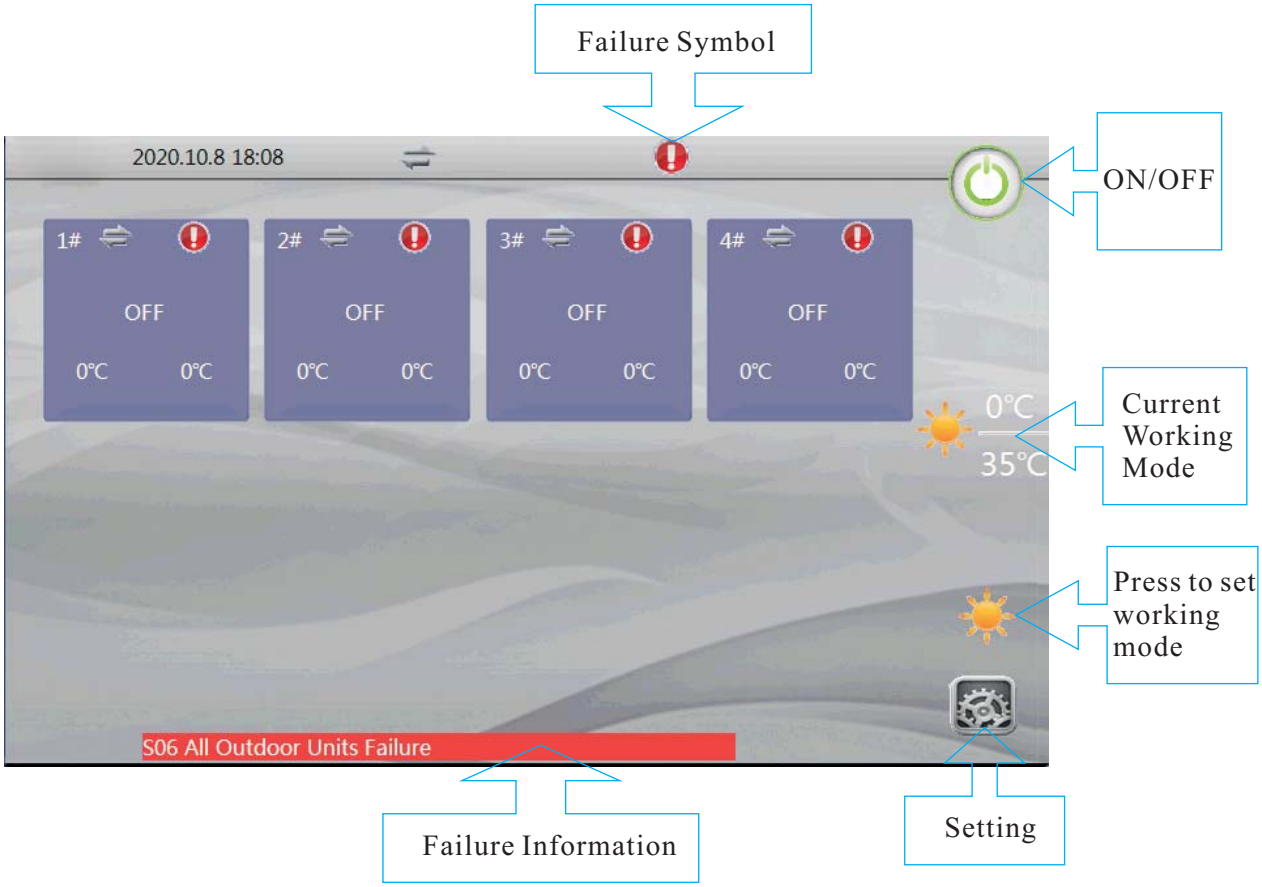
The Dip switch is detected only once when the unit is powered on. Please power the unit once again after reset the dip switch.
The value of dip switch: OFF=0,ON=1.

Dip switch setting for Sw1

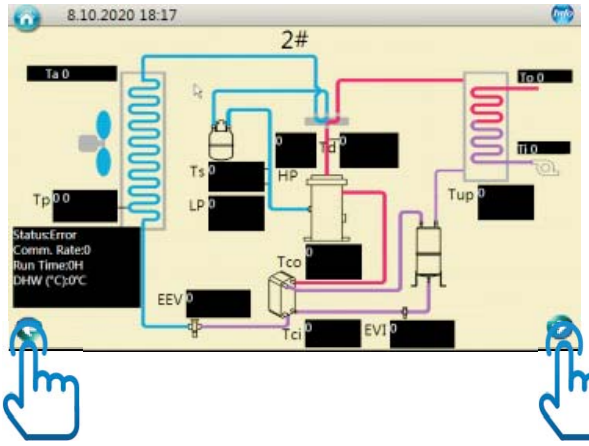
System number	SW1-1	SW1-2	SW1-3	SW1-4
#1	0	0	0	0
#2	0	0	0	1
#3	0	0	1	0
#4	0	0	1	1
#5	0	1	0	0
#6	0	1	0	1
#7	0	1	1	0
#8	0	1	1	1
#9	1	0	0	0
#10	1	0	0	1
#11	1	0	1	0
#12	1	0	1	1
#13	1	1	0	0
#14	1	1	0	1
#15	1	1	1	0
#16	1	1	1	1

6. Touchscreen Panel Overview

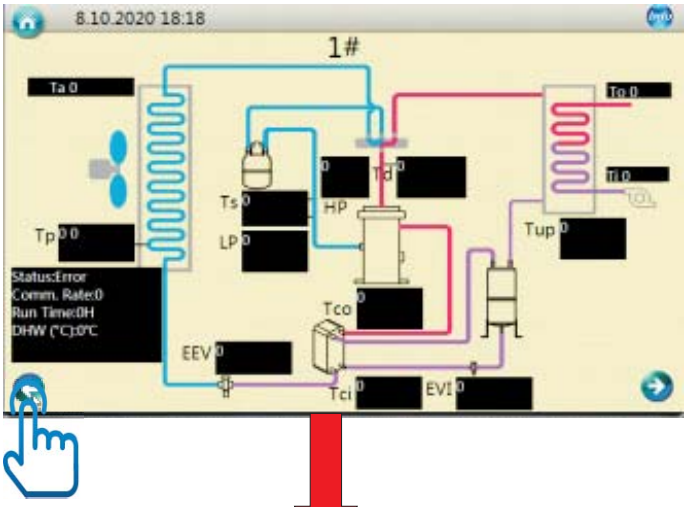
1. Main Page

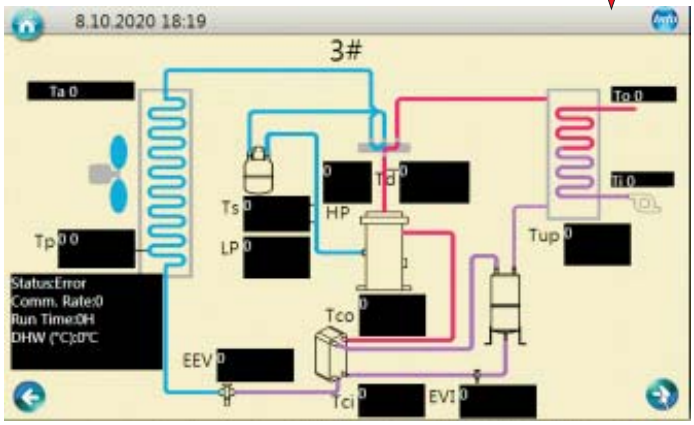


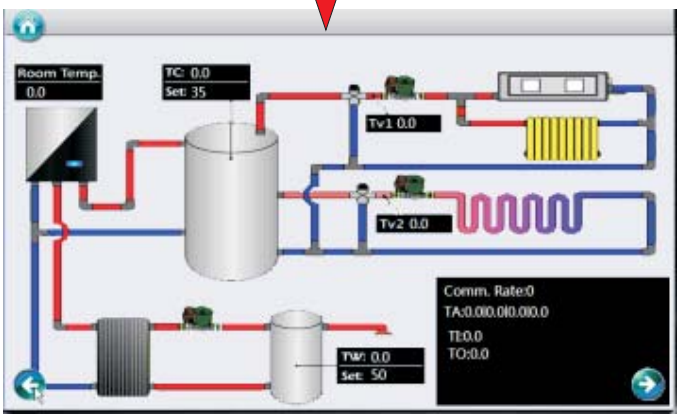
6. Touchscreen Panel Overview



View System detailed running statue.







6. Touchscreen Panel Overview

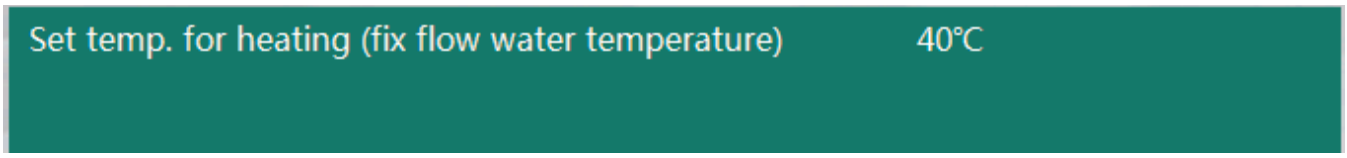
1. Main Page

2. Zone 1

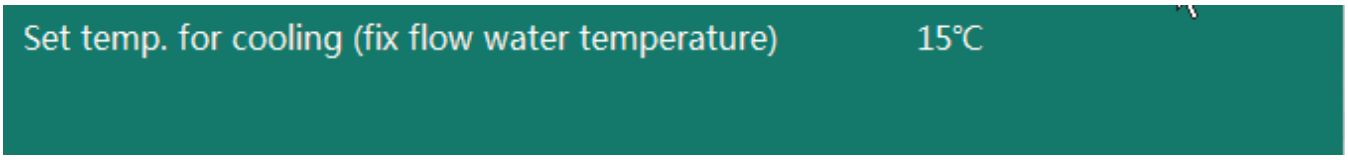
Click to make the settings for distribution system Zone 1.

6. Touchscreen Panel Overview

2. Zone 1



If the heating curve feature is DISABLED, a fixed heating water temperature can be set via this parameter.



If the cooling curve feature is DISABLED, a fixed cooling water temperature can be set via this parameter.

These two parameters should only be configured by the installer to configure a safe set temperature range for circuit 1.

Set whether you would like the heating curve feature to be used. If this box is left unchecked, the system can follow a fixed water temperature that is set.
If this box is checked, you will be able to create a custom heating curve by setting the parameters in next page.

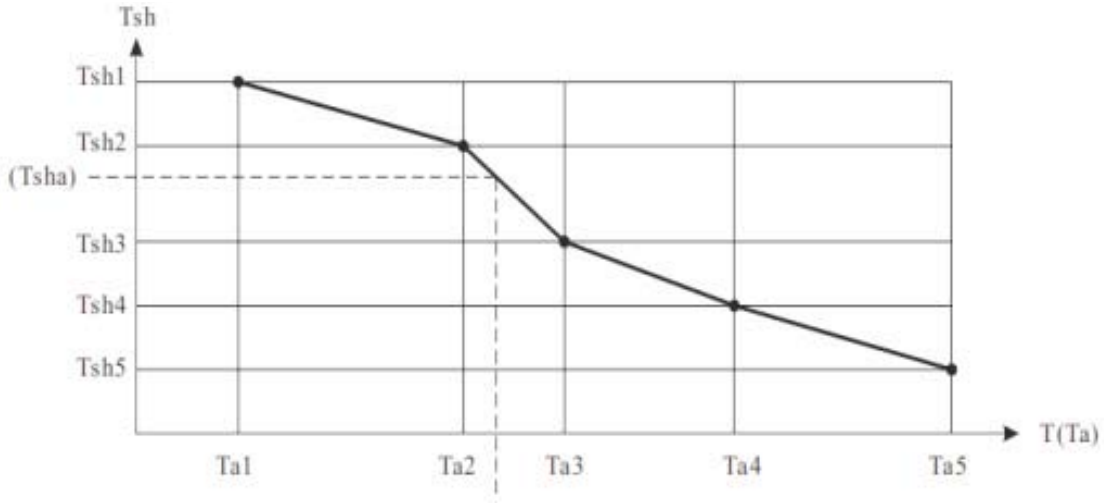
6. Touchscreen Panel Overview

System 1 heating curve parallel move	0°C

Adjust the heating curve setting for heating & cooling Zone 1, based on the set heating curve (parallel move).

Water / Outdoor temp. 1 - HC1	50°C
Water / Outdoor temp. 2 - HC1	45°C
Water / Outdoor temp. 3 - HC1	40°C
Water / Outdoor temp. 4 - HC1	35°C
Water / Outdoor temp. 5 - HC1	30°C

What a custom heating curve looks like (Tsh = Set Heating Temperature, Ta = Ambient Temperature):



Set 5 different set water temperature, based on 5 different outdoor ambient temp values (set in “Heating Configuration” menu), to generate a heating curve set for Zone 1.

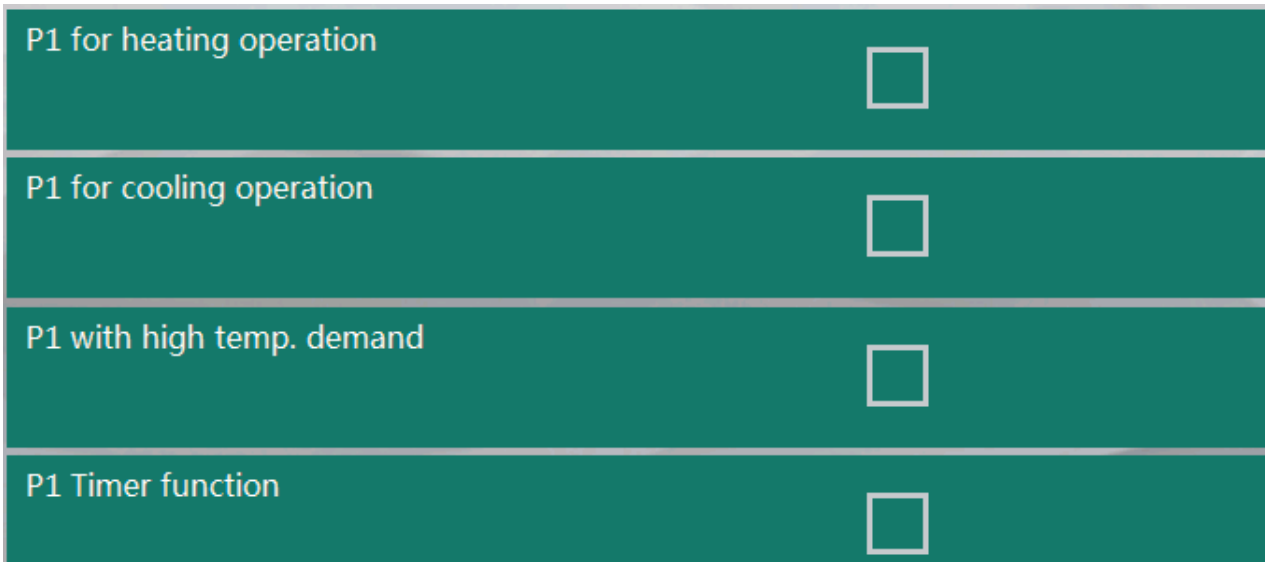
6. Touchscreen Panel Overview

Activate Cooling Curve function, if needed. If not, a fixed set temperature for cooling can be set in page 1.

Set 3 different set water temperature, based on 3 different outdoor ambient temp value (set in “Cooling Configuration” menu), to generate a cooling curve set for Zone 1.

6. Touchscreen Panel Overview

Check this box if a mixing valve is connected. If not, leave this unchecked.



These parameters are used for setting the functionalities of the external circulation pumps P1 for Zone 1.

If Zone 1 is used for heating operation, “P1 for heating operation” should be activated.
If Zone 1 is used for cooling operation, “P1 for cooling operation” should be activated.
If Zone 1 needs to work when system get a “high temp. demand” signal only (or say this is a high temp. circuit), “P1 with high temp. demand” should be activated.
If Zone 1 should work only in the set time period, “P1 Timer function” should be activated.

6. Touchscreen Panel Overview

If “P1 Timer function” is activated, P1 will only work in the time period set in “P1 Timer” menu.

If “buffer tank” menu (see in menu “System Configuration) is activated, P1 will always work if system had demanding, so to circulate the energy between buffer tank and distribution system.
If “buffer tank” menu is not activated, P1 should stop working after compressor stops.

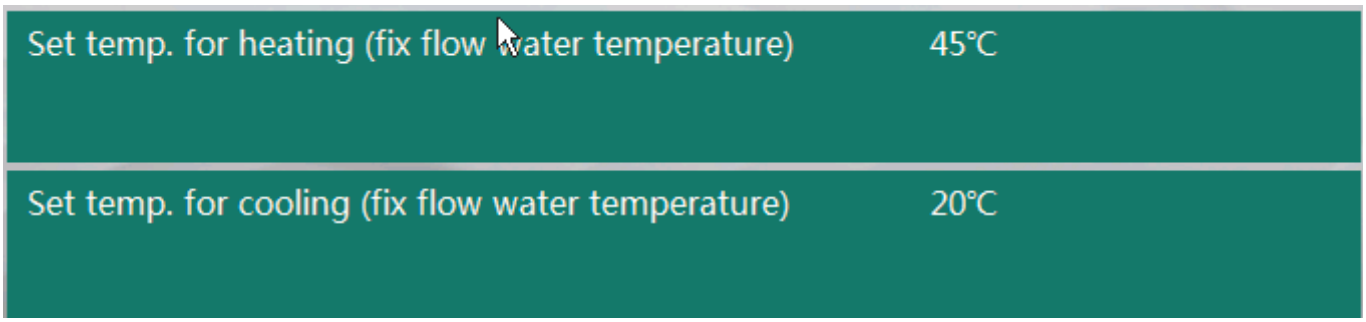
If P1 needs to work occasionally so to read the temperature in the system, “P1 Interval working mode” should be activated. After activated, P1 will work for “P1 ON duration” time everytime, after it stops for “P1 OFF duration”.

6. Touchscreen Panel Overview

3. Zone 2

Click to make the settings for distribution system Zone 2.

If you need a dual water temperature setting, please tick this item.



If the heating/cooling curve feature is DISABLED, a fixed heating/cooling water temperature can be set via this parameter.

These two parameters should only be configured by the installer to configure a safe set temperature range for circuit 1.

6. Touchscreen Panel Overview

Heating curve 2 (HC2)	☐

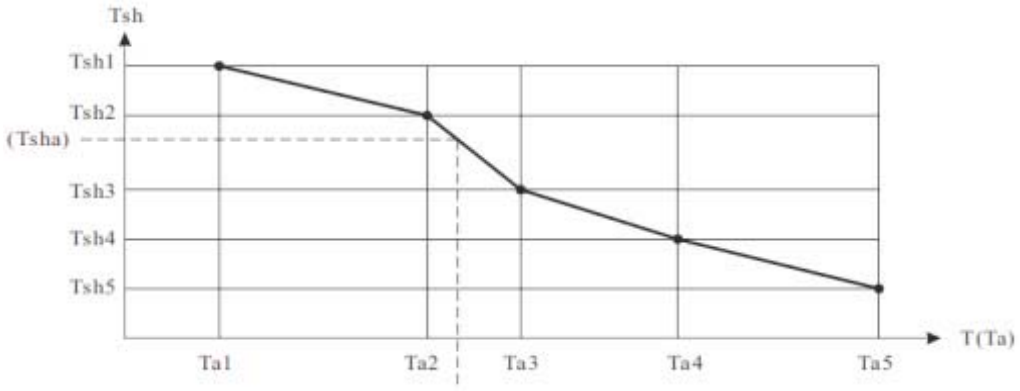
Set whether you would like the second heating curve feature to be used.
If this box is left unchecked, the system can follow a fixed water temperature that is set; If this box is checked, you will be able to create a custom heating curve by setting the parameters following.

System 2 heating curve parallel move	0°C

Adjust the heating curve setting for heating & cooling Zone 1, based on the set heating curve (parallel move).

Water / Outdoor temp. 1 - HC2	50°C
Water / Outdoor temp. 2 - HC2	45°C
Water / Outdoor temp. 3 - HC2	40°C
Water / Outdoor temp. 4 - HC2	35°C
Water / Outdoor temp. 5 - HC2	30°C

What a custom heating curve looks like (Tsh = Set Heating Temperature, Ta = Ambient Temperature):



Set 5 different set water temperature, based on 5 different outdoor ambient temp values (set in “Heating Configuration” menu), to generate a heating curve set for Zone 2.

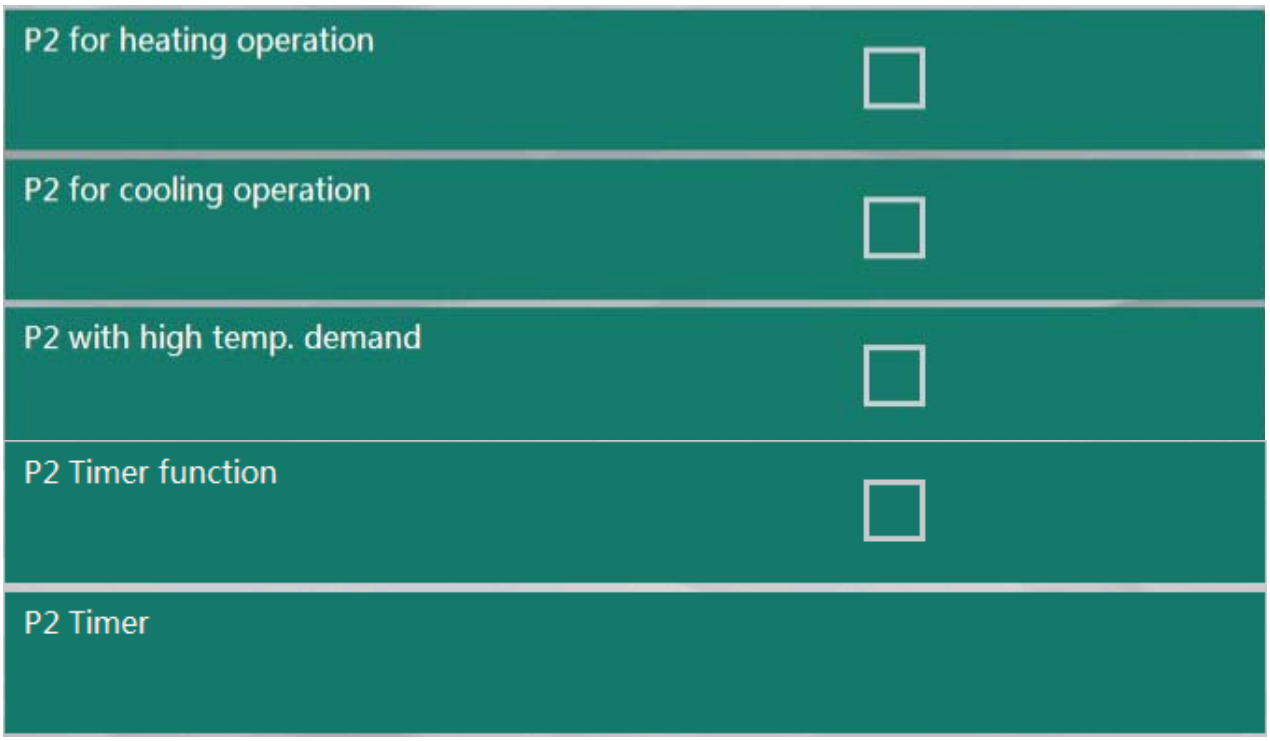
6. Touchscreen Panel Overview

Activate Cooling Curve 2 function, if needed.
If not, a fixed set temperature for cooling can be set in page 11.

Set 3 different set water temperature, based on 3 different outdoor ambient temp values (set in “Cooling Configuration” menu), to generate a cooling curve set for Zone 2.

6. Touchscreen Panel Overview

Check this box if a mixing valve is connected. If not, leave this unchecked.



These parameters are used for setting the functionalities of the external circulation pumps P2 for Zone 2.

If Zone 2 is used for heating operation, “P2 for heating operation” should be activated.
If Zone 2 is used for cooling operation, “P2 for cooling operation” should be activated.
If Zone 2 needs to work when system get a “high temp. demand” signal only (or say this is a high temp. circuit), “P1 with high temp. demand” should be activated.
If Zone 2 should work only in the set time period, “P2 Timer function” should be activated.
If “P2 Timer function” is activated, P2 will only work in the time period set in “P2 Timer” menu.

P2 Interval working mode	☐
P2 ON duration	1
P2 OFF duration	6

If “buffer tank” menu (see in menu “System Configuration) is activated, P2 will always work if system had demanding, so to circulate the energy between buffer tank and distribution system.
If “buffer tank” menu is not activated, P2 should stop working after compressor stops.
If P21 needs to work occasionally so to read the temperature in the system, “P2 Interval working mode” should be activated. After activated, P2 will work for “P2 ON duration” time everytime, after it stops for “P2 OFF duration”.

DHW Setpoint	50℃

This option sets the upper limit for the desired sanitary hot water temperature.

DHW Restart ΔT	5℃

The system begins working in DHW again once the temperature drops below the set temperature minus this ΔT temperature.

4. D.H.W

Click to check the information of the system.

Activate or not, the Timer function for DHW mode. Once activated, unit is only allowed to work in DHW mode in set time period, with set temperature.

6. Touchscreen Panel Overview

DHW Timer 1	
DHW Set temp. - Timer 1	50°C
DHW Timer 2	
DHW Set temp. - Timer 2	51°C
DHW Timer 3	
DHW Set temp. - Timer 3	52°C

Three groups of timer setting and temperature setting, for DHW mode, if needed.

Unit will only work in DHW mode in the set timer ON period. In conflict time period, it will take higher set value as the set value for this time period for DHW mode.

DHW Pump interval working mode	☐
DHW Pump ON duration	1min
DHW Pump OFF duration	6min

After reach the set temperature for DHW, DHW pump should stop working, till water temperature drops down below DHW restart set point.

However, if DHW pump needs to circulate water occasionally to read the water temperature, “DHW Pump interval working mode” should be activated, which will make DHW pump work for “DHW Pump ON duration” time after stops for every “DHW Pump OFF duration” time.

6. Touchscreen Panel Overview

5. Information

Click to check the information of the system.

6. Heating Configuration

Click to set basic setting for heating operation.

This is to configure a difference in temperature at which the unit restarts, after stops due to reach the set temp.

Activate or not, the Timer function for heating mode. Once activated, unit is only allowed to work in heating mode in set time period, with set temperature.

6. Touchscreen Panel Overview

Heating timer 1	
Heating set temp. - Timer 1	40℃
Heating timer 2	
Heating set temp. - Timer 2	41℃
Heating timer 3	
Heating set temp. - Timer 3	42℃

Three groups of timer setting and temperature setting, for heating mode, if needed.

Unit will only work in heating mode in the set timer ON period. In conflict time period, it will take higher set value as the set value for this time period for heating mode.

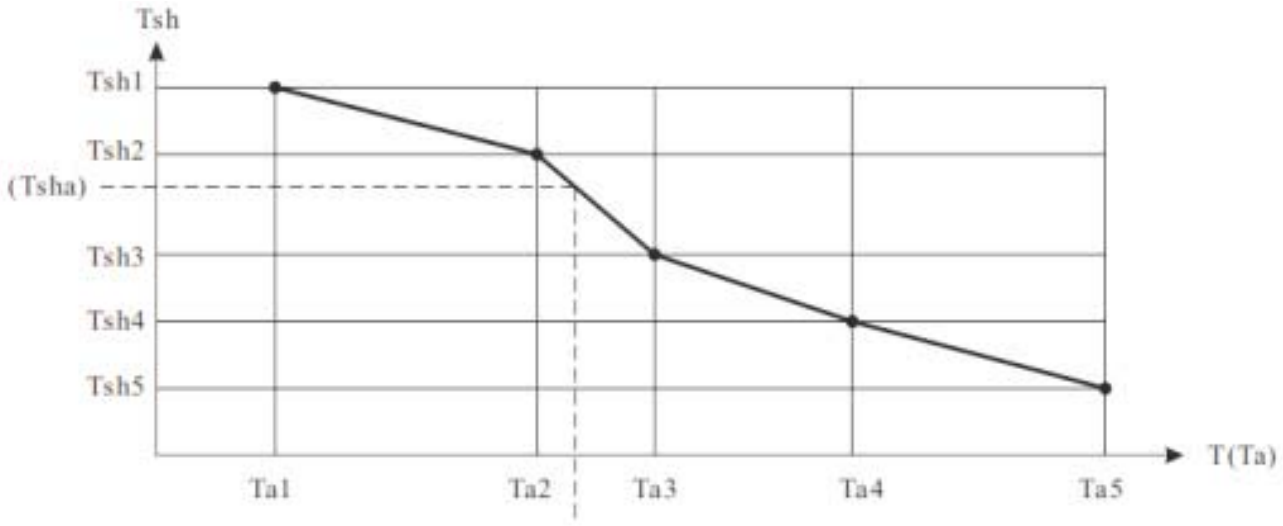
Pump interval working mode in heating	☐
Pump ON duration in heating	1min
Pump OFF duration in heating	6min

This is setting for unit circulation pump.
If this function is not activated, unit circulation pump will keeps on working.
If this function is activated, unit circulation pump will stop working after compressor stops, but work for “Pump ON duration in heating” time after stops for every “Pump OFF duration in heating” time.

6. Touchscreen Panel Overview

Outdoor temp. 1 - HC	-25°C
Outdoor temp. 2 - HC	-15°C
Outdoor temp. 3 - HC	-5°C
Outdoor temp. 4 - HC	5°C
Outdoor temp. 5 - HC	15°C

What a custom heating curve looks like (Tsh = Set Heating Temperature, Ta = Ambient Temperature):



Set 5 different outdoor ambient temperature value, for 5 different water temp set value (set in “Zone 1” menu), to generate a heating curve set for Zone 1.

7. Cooling Configuration

Click to set basic setting for cooling operation.

This is to configure a difference in temperature at which the unit restarts, after stops due to reach the set temp.

Activate or not, the Timer function for cooling mode. Once activated, unit is only allowed to work in cooling mode in set time period, with set temperature.

6. Touchscreen Panel Overview

Cooling timer 1	
Cooling set temp. - Timer 1	15°C
Cooling timer 2	
Cooling set temp. - Timer 2	16°C
Cooling timer 3	
Cooling set temp. - Timer 3	17°C

Three groups of timer setting and temperature setting, for cooling mode, if needed.

Unit will only work in cooling mode in the set timer ON period. In conflict time period, it will take higher set value as the set value for this time period for cooling mode.

6. Touchscreen Panel Overview

Pump interval working mode in Cooling	☐
Pump ON duration in cooling	1min
Pump OFF duration in cooling	6min

This is setting for unit circulation pump.
If this function is not activated, unit circulation pump will keeps on working.
If this function is activated, unit circulation pump will stop working after compressor stops, but work for “Pump ON duration in heating” time after stops for every “Pump OFF duration in heating” time.

Outdoor temp. 1 - CC	16℃
Outdoor temp. 2 - CC	26℃
Outdoor temp. 3 - CC	36℃

Set 3 different set water temperature, based on 3 different outdoor ambient temp values (set in “Cooling Configuration” menu), to generate a cooling curve set for Zone 2.

8. Advanced Setting

Click to set for more advanced setting.

Permission level	End User

For the safety purpose, some parameters can only be adjusted under the installer's permission level. This can be configured within this menu, by inputting a correct password.

Control panel backlight light	Allways ON

Set a time limit for the touchscreen backlight. You can also set it to always be on.

Language	English

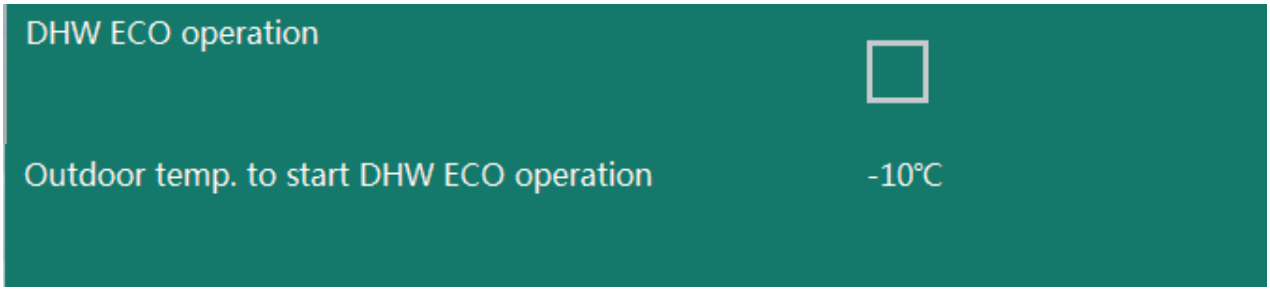
For setting the system language.

Time	16.10.2020 08:39

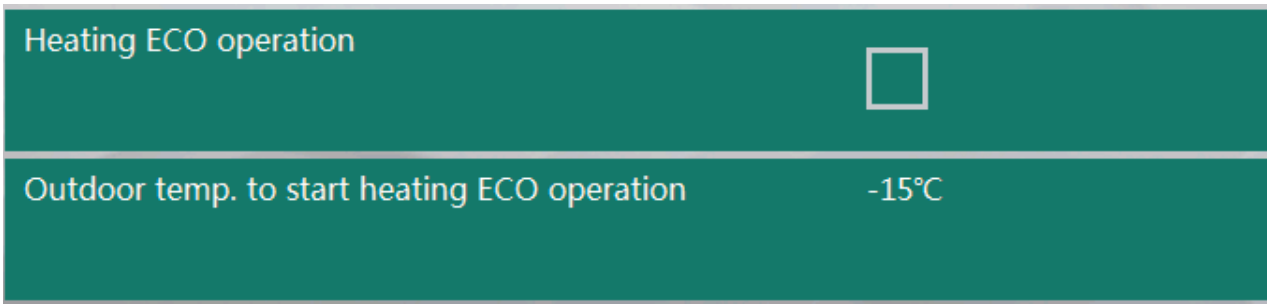
For setting the system clock date and time.

6. Touchscreen Panel Overview

ECO Operation



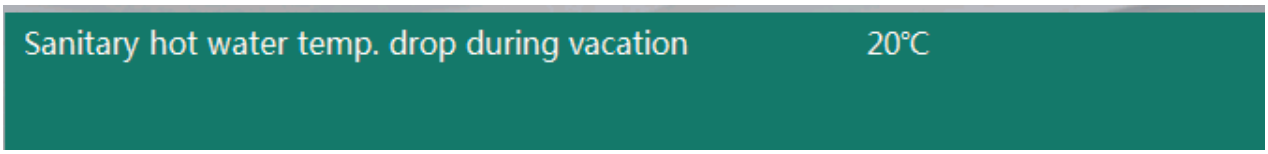
Heat Pump always try to finish its DHW work as soon as possible, to concentrate in heating or cooling operation. However, when outdoor ambient temperature is higher than a certain value, unit capacity would be more than enough, if it still works in high speed. Thus it would be wiser to lower the running speed at this moment for DHW. By activating this menu, compressor speed will be lowered to 50% for DHW production when outdoor ambient temperature is higher than set value “Outdoor temp. to start DHW ECO operation”, for better efficiency.



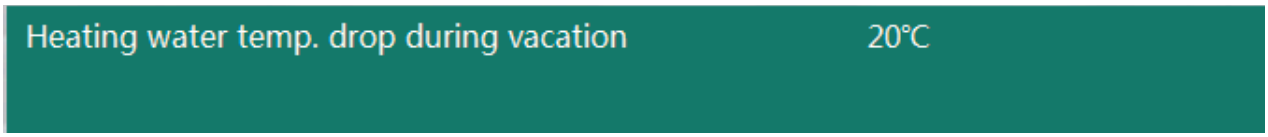
Heat pump efficiency drops when outdoor air temperature drops. If outdoor air temperature is lower than a certain value, may more economic to use the external Heating Backup Heater(HBH) heating source for heating. If so, by activate "DHW ECO Operation" and set a proper setting of "Ambient Temperature to Start Heating ECO Operation", unit will stop compressor from working for heating but gives a "ON(close)" signal to external HBH heater when actual outdoor air temperature is lower than the set value.

Vacation Mode

During periods when users are away from home for extended lengths of time, this mode can serve to reduce the preset temperatures for both sanitary hot water, as well as for house heating, in order to save energy.



Use this parameter to set the desired drop in temperature of sanitary hot water for when the vacation mode function is active.This number is based on the standard domestic hot water value set.



Use this parameter to set the desired drop in temperature of the water used for heating for when the vacation mode function is active. This number is based on the standard heating value set.

Set the date for when vacation mode begins.

Set the date for when vacation mode ends.

6. Touchscreen Panel Overview

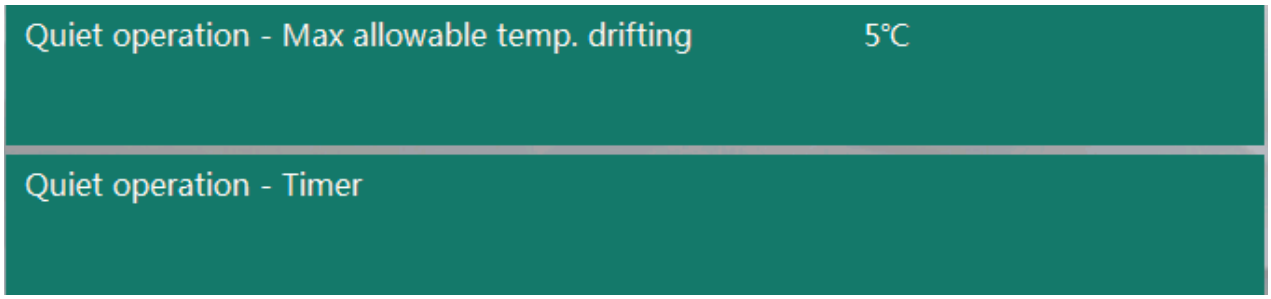
Reduce Mode&Quiet Operation

During periods of low demand, such as typical sleep or working hours, the system can operate based on a reduction of the set heating value in order to deliver better efficiency and cost savings.

This parameter can be used to set the amount of temperature drop (in heating modes) or temperature rise (in cooling modes) in Reduced Mode. This drop/rise is based on the standard temperature that is set at the time of the setpoint operation.

This parameter can be used to set the schedule of when the heating setpoint reduction can take place. Each day of the week is individually customizable with separate time blocks. The feature will only work during the times that are set here.

Turn On or OFF Quiet operation, for a better noise level during the set time period.



When the unit is in quiet mode, its functional output may decrease due to both the fan and compressor operating at a restricted speed. Therefore, if the temp. begins to fluctuate outside of the ΔT value set here, the unit will automatically exit the quiet operation mode to ensure that the allowable temperatures are delivered.

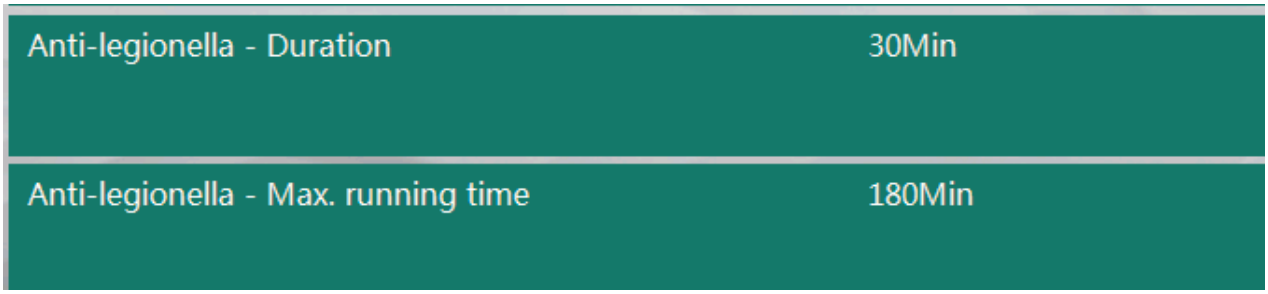
This parameter can be used to set the scheduling of when the quiet operation mode takes place.

6. Touchscreen Panel Overview

Anti-legionella

If the user will be drawing hot water directly from the hot water tank (HWT), then it will be required to heat the water within the tank to over 60℃ at least once a week, for legionella prevention purposes. Please follow all local regulations regarding the proper usage of this function.

This parameter can be used to set the value at which the system will heat the water to in order to achieve proper legionella prevention. Please follow all local regulations regarding this practice.



Set the duration of the anti-legionella operation. The time entered here will be how long the unit will keep the temperature set “Anti-legionella-Set point”, in order to ensure that all bacteria in the shower water tank have been killed.

Set an absolute end time (operational ceiling limit) for the anti-legionella function, even if it has not been fully completed.

This parameter can be used to set the times and days of the week that the operation takes place.

6. Touchscreen Panel Overview

Room Temp. Effect on Curve

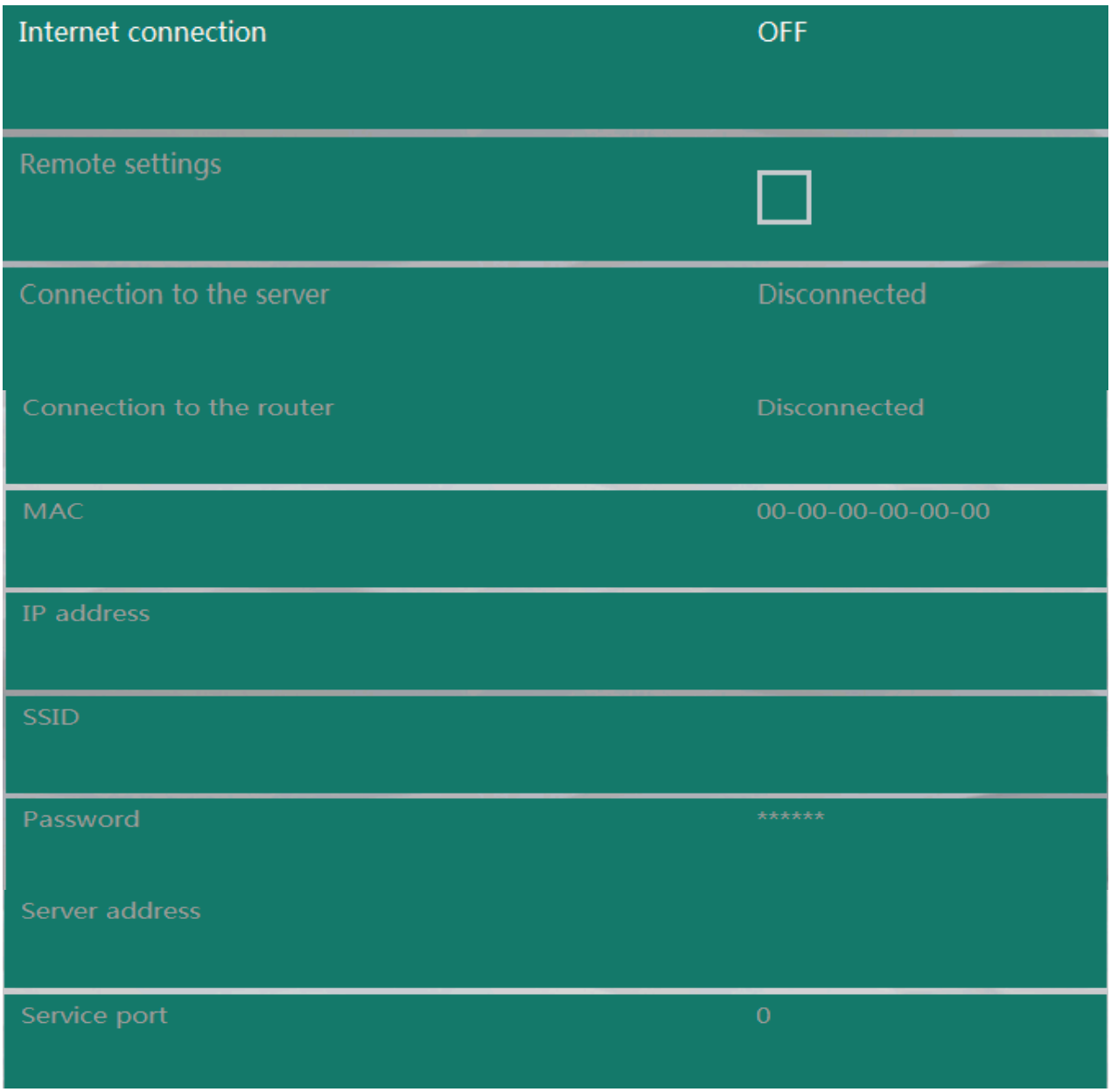
If activated this function, it will compare the current room temperature with below set “Ideal Room Temperature”, and deduct the difference in the current value set for water temperature, in order to compensate the gap, in both HEATING and COOLING modes.

Set the ideal room temperature in heating operation.

Set the ideal room temperature in cooling operation.

6. Touchscreen Panel Overview

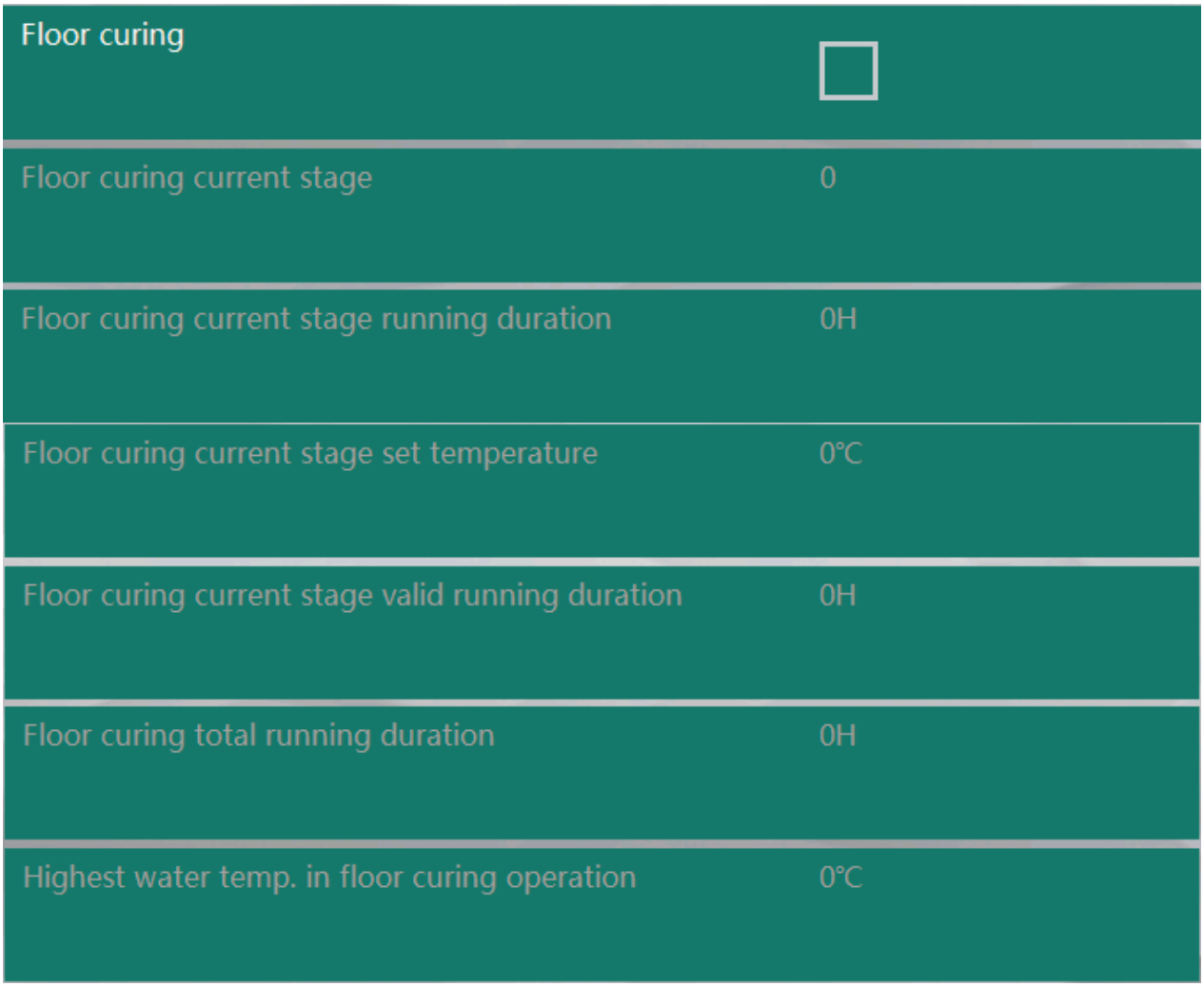
Internet Connection--WI-FI



Information of unit internet connection.

6. Touchscreen Panel Overview

Floor Curing



After initial installation, or when a long period of unit inactivity has passed, the floor-heating system may have become damp within the concrete. Most of the heating capacity of the heat pump unit is consumed to dry up and evaporate the water in the concrete. The floor curing function is used to dry up the floor, to ensure the safe operation of the heat pump system.

Floor Curing Toggle this feature ON or OFF. This feature and the settings that follow will only be active if the checkbox is marked. When floor curing function is activated, it will run automatically the pre-set program, until the complete function is finished successfully (if not, a warning information will be shown on the screen. All the running data during the process will be recorded and can be viewd.

6. Touchscreen Panel Overview

System Setting

Set the system cascade unit quantity.

Set the working modes need for this installation.

Used by the installer to save his setting, and load the saved setting.

9. System Configuration

Click to set for more advanced setting.

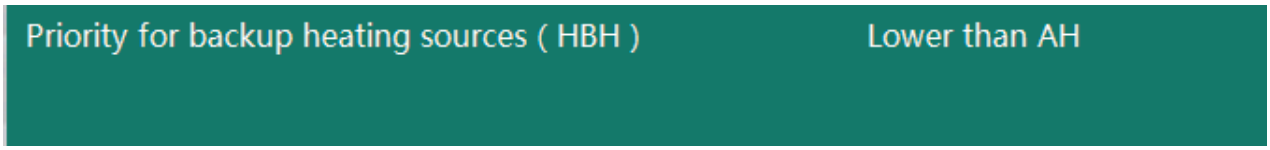
Electrical Utility Lock

Unit has anti-freezing protection. Set whether P1/P2 should be also activated, during anti-freezing operation.

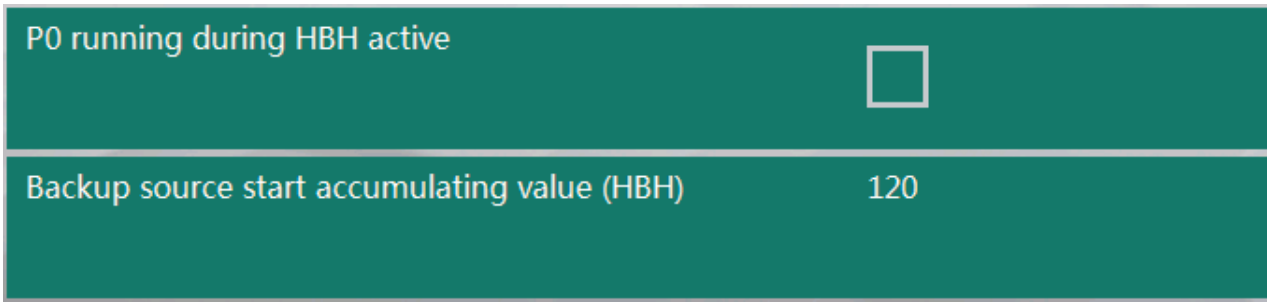
Some electricity companies offer a special rate to households that lower their power consumption during predetermined “peak times”. During these times, companies will send a signal to all houses, to receive feedback signals on whether or not certain electrical equipments are ON or OFF. Actiave this function, and set the signal type according to local regulation.

HBH(Heating Backup Heater)

Our system can control two external heating source. One is default to have, called “AH”, Auxilary Heater. One is an option, called HBH. Use this menu to set whether system has two-stage external heating source.



This provides options regarding the priority enforcement of HBH compared against the unit's AH. If the heat pump can't provide enough power when the system is operating in heating mode, it will turn on the AH or HBH automatically, according to whichever is set to have the higher priority. If the output power is still not enough after the AH or HBH has begun working, then the unit will turn on the lower priority backup heating source as well.

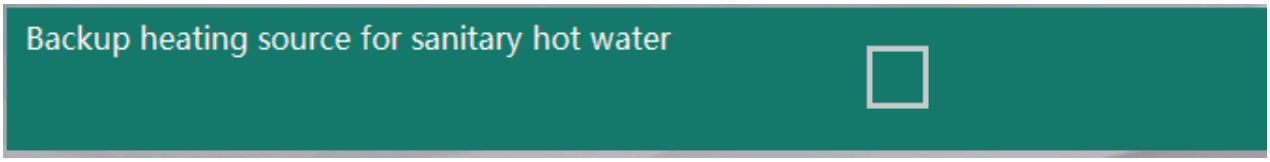


Set whether unit circulation pump need to work, when HBH is working.

This is used to adjust how quickly the backup heating sources activate when the heat pump cannot provide sufficient power when in heating mode. The greater the value set, the longer it takes for the backup heating sources to begin working when the heat pump’s capacity is not enough.

6. Touchscreen Panel Overview

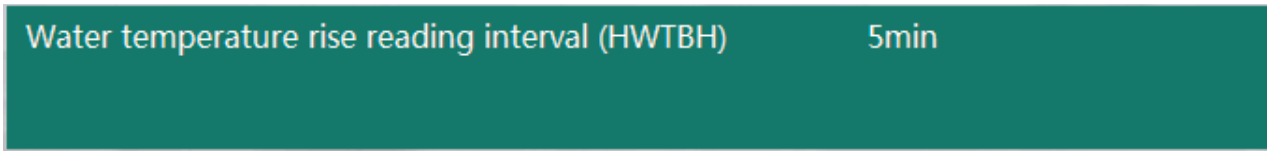
HWTBH = Hot Water Tank Backup Heater



Set whether the system contains a HWTBH. Toggle this feature ON or OFF.

This provides options regarding the priority enforcement of HWTBH compared against the unit's AH. If the heat pump can't provide enough power when the system is operating in hot water mode, it will turn on the AH or HWTBH automatically, according to whichever is set to have the higher priority. If the output power is still not enough after the AH or HWTBH has begun working, then the unit will turn on the lower priority backup heating source as well.

Set whether unit circulation pump need to work, when HWTBH is working.



The purpose of this parameter is to set the frequency of checks on the increase in temperature when the system is working in DHW mode. If the temperature is increasing too slowly during the interval of time set here, then the unit will activate other heating sources for the DHW operation. The smaller the value set, the more likely the unit is to activate AH or HWTBH for a faster DHW heating experience.

6. Touchscreen Panel Overview

Others

This parameter sets whether the unit should turn on the backup heating system automatically when the heat pump fails to work. Toggle this feature ON or OFF.
Note:If this function is activated, then all users should be occasionally checking the working status of the heat pump unit, to ensure full functionality.

Configure how many minutes are spent switching (from start to finish) between the sanitary hot water and the heating/cooling circuit, and the way of powering by the motorized diverting valve.
Note: This parameter must comply with the capabilities of the motorized diverting valve, else the unit may not be able to work properly due to an insufficient water flow rate.

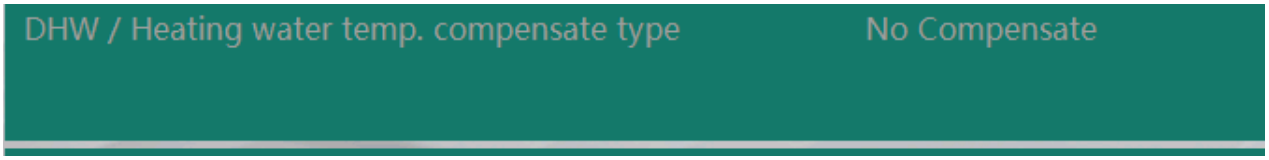
Used for air purging. Once activated, unit and external pump will be turned ON, while the diverting valve will be switched to such circuit for air purging.

Activate to output a signal during set working period, if needed, for controlling other devices.

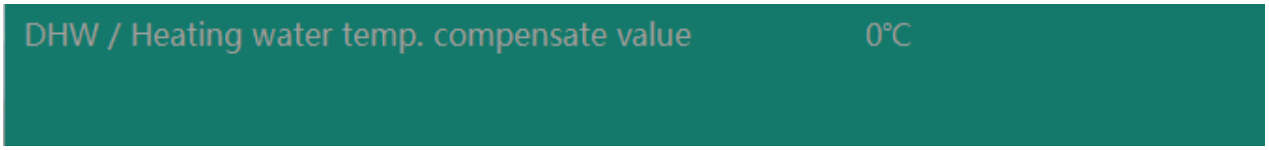
Set whether the system has buffer tank. It will affect the working of external pump P1/P2.

Sensor calibration

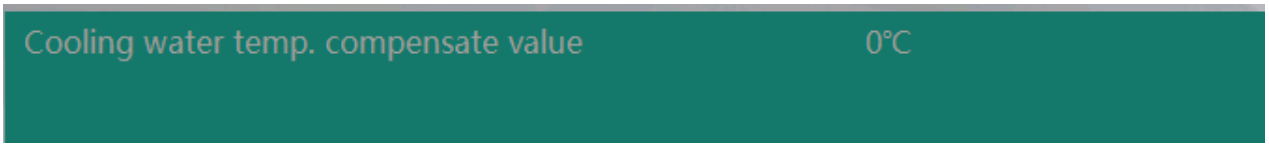
This is to configure a difference in temperature at which the unit will stop further operation.



Sensor calibration function.



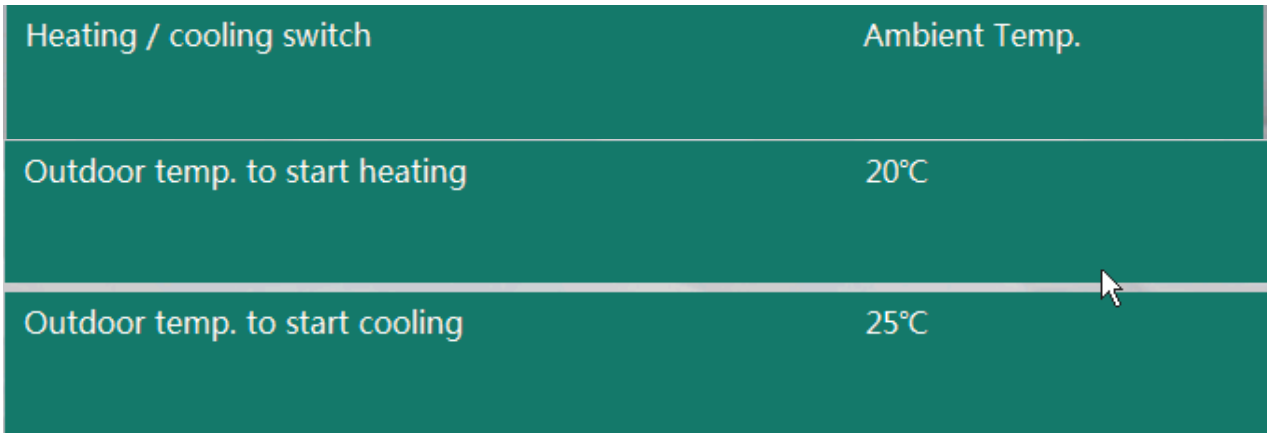
DHW/Heating Sensor calibration value.



Cooling Sensor calibration value.

6. Touchscreen Panel Overview

Reset all setting to factory default setting.



This function's purpose is to set the conditions under which the unit starts cooling or heating automatically, according to:

• If set to "Ambient Temp." the system will automatically choose to enter a cooling or heating operation based on the outdoor ambient temperature, compared with the parameters set in below menus.

• If set to "External Signal Control", an external room thermostat or central control system in the building can control the cooling or heating requirements by connecting it to the respective signal ports. The signals are binary (simple 0 or 1). If the cooling port receives the signal, the system switches to cooling. The same goes for heating. Otherwise, the system will stay in standby mode.

• If set to "Ambient Temp. + External Signal Control", the unit will take both the ambient temperature and the external signal into consideration for the heating or cooling mode selection.

Note:If the parameter is set to OFF, the auto-switch function will not be active. If this is the case, ensure that the Heating Water Circuit and Cooling Water Circuit are not set to ON simultaneously, as the system cannot determine the actual requirements due to mode conflict. To avoid mode conflict when in "External Signal Control" mode, please ensure that the external signal will not be activated at the cooling and heating ports at the same time.

Reset all setting to factory default setting.

7. Failure code list

Failure from indoor PCB

Failure List	Failure Code	Possible Reasons
Communication failure between indoor PCB and operation panel	S01	Check whether communication cable between indoor PCB and operation panel is connected.
Communication failure between outdoor PCB and operation panel	S02	Check whether the outdoor PCB communication cable is connected.
Water Outlet Temp. Sensor Failure	S03	Check whether the outdoor temp. sensor is loose or broken.
Water Inlet Temp. Sensor Failure	S04	Check whether the indoor temp. sensor is loose or broken.
Outdoor PCB Failure	S05	Outdoor PCB is failed.
Communication failure of all outdoor PCB	S06	Check whether communication cables between all outdoor PCB and operation panel are connected.
Ambient temp. sensor failure	S07	Check whether all the outdoor PCB ambient temp. sensors are connected well.
All Outdoor PCB Failure	S08	Check whether all the outdoor PCB fail.
DHW Temp. Sensor Failure	S09	Check whether the DHW temp. sensor is loose or broken.
Heating/Cooling Temp. Sensor Failure	S10	Check whether the heating/cooling temp. sensor is loose or broken.
Room Temp. Sensor Failure	S11	Check whether the room temp. sensor is loose or broken.
Floor curing operation failure	S12	The floor curing process is failed.
3-way valve 1 operation failure	S13	The 3-way valve cannot be adjusted normally.
3-way valve 2 operation failure	S14	The 3-way valve cannot be adjusted normally.
3-way valve 1 temp. sensor failure	S15	Check whether the 3-way valve 1 temp. sensor is loose or broken.
3-way valve 2 temp. sensor failure	S16	Check whether the 3-way valve 2 temp. sensor is loose or broken.

7. Failure code list

Failure from outdoor PCB

Failure List	System1	System2	Possible Reasons
Ambient Temp. Sensor Failure	F01		Check whether the ambient temp. sensor is loose or broken.
Water Outlet Temp. Sensor Failure	F02		Check whether water outlet temp. sensor is loose or broken.
Water Inlet Temp. Sensor Failure	F03		Check whether water inlet temp. sensor is loose or broken.
Compressor Discharge Temp. Sensor Failure	F04	F40	Check compressor discharge temp. sensor is loose or broken.
Compressor Suction Temp. Sensor Failure	F05	F41	Check compressor suction temp. sensor is loose or broken.
Outdoor Evaporator Coil Temp. Sensor Failure	F06	F42	Check outdoor evaporator coil temp. sensor is loose or broken.
Indoor Evaporator Coil Temp. Sensor Failure	F07	F43	Check indoor evaporator coil temp. sensor is loose or broken.
Economizer Inlet Temp. Sensor Faliure	F08	F44	Check economizer inlet temp. sensor is loose or broken.
Economizer Outlet Temp. Sensor Faliure	F09	F45	Check economizer outlet temp. sensor is loose or broken.
High Pressure Sensor Failure	F10	F46	Check high pressure sensor is loose or broken.
Low Pressure Sensor Failure	F11	F47	Check low pressure sensor is loose or broken.
Coil temp. sensor 2 for defrosting failure	F12	F48	Check coil temp. sensor 2 is loose or broken.
DC Fan Motor Failure	F13	F49	Check whether fan motor or driver PCB for fan motor are is broken, or the cable connection is well or not.
Temp. sensor for heating/cooling TH20 failure	F14		Check temp. sensor for heating/cooling Th20 is loose or broken.
Communication failure between main PCB and driver PCB for compressor	E01	E40	Check whether the cable between driver PCB for compressor and main PCB is loose or broken, or main PCB or driver PCB is broken.
Communication failure between main PCB and driver PCB for fan motor	E02	E41	Check whether the cable between driver PCB for fan motor and main PCB is loose or broken, or main PCB or driver PCB is broken.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Too High Compressor Discharge Temp. Failure Over 3 Times	E03	E42	1.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			2.Check whether the water flow rate is not enough in hydraulic system.
			3.Check whether the plate heat exchanger is blocked.
			4.Check whether the filter in refrigerant system is blocked.
			5.Check whether the refrigerant is leaking.
Too High Pressure Failure Over 3 Times	E04	E43	1.Check whether there is too much refrigerant in the system.
			2.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			3.Check whether the water flow rate is not enough in hydraulic system.
			4.Check whether the plate heat exchanger is blocked.
			5.Check whether the EEV is blocked.
			6.Check whether heat exchange is not enough because outdoor heat exchanger is blocked or fan motor stops.
Evaporating Pressure Too Low Protection Over 3 Times	E05	E44	1.Check whether the filter in cooling system is blocked.
			2.EEV has no action.
			3.Check whether the EEV is blocked.
			4.Check whether the refrigerant is leaking.
Defrosting Failed Over 3 Times	E06	E45	1.Check whether the model can meet the heating demand.
			2.Check whether coil temp. and inlet water temp. are connected reversely.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Anti-Freezing Protection in Cooling Over 3 Times	E07	E46	1.Check whether the filter in cooling system is blocked.
			2.EEV has no action.
			3.Check whether the EEV is blocked.
			4.Check whether the refrigerant is leaking.
			5.Check whether the water flow rate is not enough in hydraulic system.
Compressor Miss or Wrong Phase	E08	E47	1.Check whether the compressor cable is loose or not well connected.
			2.Check whether the power cable in three phrase is connected wrongly.
IPM Modular Failure	E09	E48	Check whether IPM Module of Fan Motor driver PCB is failed.
Temp. Abnormal of IPM Module of Fan Motor Driver PCB	E10	E49	Check whether IPM Module of Fan Motor driver PCB is failed.
Communication Failure Between Operation Panel and Main PCB	E11		Check whether cable of the operation panel is loose or broken.
Water Flow Switch Protection	P01		1.Check whether water resistance is big, and the water flow rate is not enough in hydraulic system.
			2.Check whether the water flow switch is broken.
			3.Check whether the water system is blocked.
			4.Check whether the water pump is broken.
Anti-Freezing Protection-Stage 1	P02		Check whether the ambient temp. or water outlet temp. are too low.
Anti-Freezing Protection-Stage 2	P03		Check whether the ambient temp. or water outlet temp. are too low.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Too High Water Outlet Temp. Protection in Heating	P04		1.Check whether the water outlet temp. are too high in heating.
			2.Check whether the water flow rate is not enough in hydraulic system.
			3.Check whether there is air in hydraulic system.
Too Low Water Outlet Temp. Protection in Cooling	P05		1.Check whether the water outlet temp. are too low in cooling.
			2.Check whether cooling capacity is more than the cooling demand.
Compressor Discharge Temp. Too High	P06	P40	1.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			2.Check whether the water flow rate is not enough in hydraulic system.
			3.Check whether the plate heat exchanger is blocked.
			4.Check whether the filter in cooling system is blocked.
			5.Check whether the refrigerant is leaking.
Protection for Too Big Difference Between Water Inlet and Outlet Temp.	P07		Check whether the water flow rate is not enough in hydraulic system.
Protection for Defrosting Failure	P08	P42	1.Check whether heating capacity matches with heating demand.
			2.If water temp. is high enough, but this failure happens in defrosting, check whether the coil temp. and water inlet temp. sensor are installed reversely.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Anti-Freezing Protection in Cooling	P09	P43	1.Check whether the filter in cooling system is blocked.
			2.EEV has no action.
			3.Check whether the EEV is blocked.
			4.Check whether the refrigerant is leaking.
			5.Check whether the water flow rate is not enough in hydraulic system.
High Pressure Switch Protection	P10	P44	1.Check whether there is too much refrigerant in the system.
			2.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			3.Check whether the water flow rate is not enough in hydraulic system.
			4.Check whether the plate heat exchanger is blocked.
			5.Check whether the EEV has no action.
			6.Check whether heat exchange is not enough because outdoor heat exchanger is blocked or fan motor stops.
Low Pressure Switch Protection	P11	P45	1.Check whether the filter in cooling system is blocked.
			2.Check whether the EEV has no action.
			3.Check whether the EEV is blocked.
			4.Check whether the refrigerant is leaking.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Too High Pressure Protection	P12	P46	1.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			2.Check whether the water flow rate is not enough in hydraulic system.
			3.Check whether the plate heat exchanger is blocked.
			4.Check whether the filter in cooling system is blocked.
Too Low Pressure Protection	P13	P47	1.Check whether the water flow rate is not enough in hydraulic system.
			2.Check whether the plate heat exchanger is blocked.
			3.Check whether the refrigerant is leaking.
Too High Voltage Potection	P14	P48	Check whether input voltage is too high.
Too Low Voltage Potection	P15	P49	Check whether input voltage is too low.
Too High Current Potection	P16	P50	Check whether water temp. is too high, driver PCB for compressor is broken, or compressor is broken.
Too Low Current Potection	P17	P51	Check whether refrigerant is not enough, or leakage, or comopressor is broken,or driver PCB for comopressor is broken.
Protection for Overload Compressor	P18	P52	Check whether water temp. is too high, driver PCB for compressor is broken, or compressor is broken.
Fan Motor Overload	P19	P53	Check whether fan motor is broken, driver PCB for fan motor is broken, or cable in between is loose.

7. Failure code list

Failure List	System1	System2	Possible Reasons
Limited Lock	P20		Time of usage is up. Please connect installer.
Too High Outdoor Coil Temp. Protection	P21	P54	1.Check whether there is gas in the refrigerant system and whether the vacuum is done completely.
			2.Check whether outdoor fan motor stops in cooling.
			3.Check if the outdoor coil fan is blocked.
			4.Check whether the water flow rate is not enough in hydraulic system.
Too High Indoor Coil Temp. Protection	P22	P55	1.Check whether the filter in heating system is blocked.
			2.EEV has no action.
			3.Check whether the EEV is blocked.
			4.Check whether the refrigerant is leaking.
			5.Check whether the water flow rate is not enough in hydraulic system.

NOTES

Thank you for choosing our quality product.
Please read this manual carefully before use and
follow the instructions to operate the unit in order
to prevent damages on the device or injuries to staff.

Specifications are subject to change with product
improvements without prior notice. Please refer to the
specification sticker on the unit for upgraded specifications.

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