

HPS-22CH65AERI/O1 R32 HPS-28CH84AERI/O1 R32 HPS-34CH100AERI/O1 R32

HPS-42HM84AERI/I1 HPS-84HM155AERI/I1

EN

User manual

Air conditioning



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# **IMPORTANT NOTE**

Thank you very much for purchasing our product,

Before using your unit, please read this manual carefully and keep it for future reference.

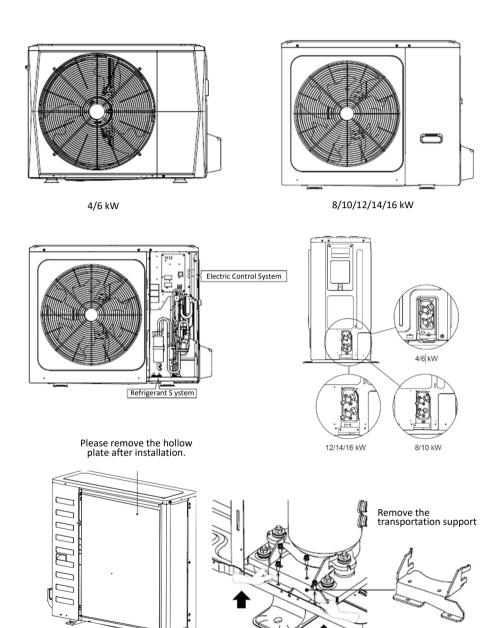


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Note: All the pictures in this manual are just schematic diagrams, the actual is the standard

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12/14/16 kW

# **SAFETY PRECAUTIONS**

The precautions listed here are divided into the following types. They are quite important, so be sure to follow them carefully.

Meanings of DANGER, WARNING, CAUTION and NOTE symbols.

# i INFORMATION

- Read these instructions carefully before installation. Keep this manual in a handy for future peference.
- Improper installation of equipment or accessories may result in electric shock, short-circuit, leakage, fire or other damage to the equipment. Be sure to only use accessories made by the supplier, which are specifically designed for the equipment and make sure to get installation done by a professional.
- All the activitie described in this manual must be carried out by a licensed technician. Be sure to wear adequate personal protection equipment such as gloves and safety glasses while installation the unit or carrying out maintenance activities.
- Contact your dealer for any furthur assistance



Caution: Risk of fire / flammable materials.

# **⚠** WARNING

Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

# **⚠** DANGER

Indicates an imminently hazardous situation which if not avoided, will result in death or serious injury.

#### **⚠** WARNING

Indicates a potentially hazardous situation which if not avoided, could result in death or serious injury.

#### **CAUTION**

Indicates a potentially hazardous situation which if not avoided, may result in minor or moderate injury.



Indicates situations that could only result in accidental equipment or property damage.

	WARNING	This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
T	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
î	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

#### **↑** DANGER

- Before touching electric terminal parts, turn off power switch.
- When service panels are removed, live parts can be easily touched by accident.
- Never leave the unit unattended during installation or servicing when the service panel is removed.
- Do not touch water pipes during and immediately after operation as the pipes may be hot and could burn your hands. To avoid injury, give the piping time to return to normal temperature or be sure to wear protective gloves.
- Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electrical shock.
- Before touching electrical parts, turn off all applicable power to the unit.

#### **⚠** WARNING

- Tear apart and throw away plastic packaging bags so that children will not play
  with them. Children playing with plastic bags face danger of death by suffocation.
- Safely dispose of packing materials such as nails and other metal or wood parts that could cause injuries.
- Ask your dealer or qualified personnel to perform installation work in accordance with this manual. Do not install the unit yourself. Improper installation could result in water leakage, electric shocks or fire.
- Be sure to use only specified accessories and parts for installation work. Failure to use specified parts may result in water leakage, electric shocks, fire, or the unit falling from its mount.
- Install the unit on a foundation that can withstand its weight. Insufficient physical strength may cause the equipment to fall and possible injury.
- Perform specified installation work with full consideration of strong wind, hurricanes, or earthquakes. Improper installation work may result in accidents due to equipment falling.
- Make certain that all electrical work is carried out by qualified ersonnel according
  to the local laws and regulations and this manual using a separate circuit.
   Insufficient capacity of the power supply circuit or improper electrical construction
  may lead to electric shocks or fire.
- Be sure to install a ground fault circuit interrupter according to local laws and regulations. Failure to install a ground fault circuit interrupter may cause electric shocks and fire.
- Make sure all wiring is secure. Use the specified wires and ensure that terminal connections or wires are protected from water and other adverse external forces.
   Incomplete connection or affixing may cause a fire.
- When wiring the power supply, form the wires so that the front panel can be securely fastened. If the front panel is not in place there could be overheating of the terminals, electric shocks or fire.
- After completing the installation work, check to make sure that there is no refrigerant leakage.
- Never directly touch any leaking refrigerant as it could cause severe frostbite.Do
  not touch the refrigerant pipes during and immediately after operation as the
  refrigerant pipes may be hot or cold, depending on the condition of the refrigerant
  flowing through the refrigerant piping, compressor and other refrigerant cycle
  parts. Burns or frostbite are possible if you touch the refrigerant pipes. To avoid
  injury, give the pipes time to return to normal temperature or, if you must
  touchthembe sure to wear protective gloves.
- Do not touch the internal parts (pump, backup heater, etc.) during and immediately after operation. Touching the internal parts can cause burns. To avoid injury, give the internal parts time to return to normal temperature or, if you must touch them, be sure to wear protective gloves.

# **↑** CAUTION

- · Ground the unit.
- Grounding resistance should be according to local laws and regulations.
- Do not connect the ground wire to gas or water pipes, lightning conductors or telephone ground wires.
- Incomplete grounding may cause electric shocks.
  - Gas pipes: Fire or an explosion might occur if the gas leaks.
  - Water pipes: Hard vinyl tubes are not effective grounds.
  - Lightning conductors or telephone ground wires: Electrical threshold may rise abnormally if struck by a lightning bolt.
- Install the power wire at least 3 feet (1 meter) away from televisions or radios to prevent interference or noise.
- (Depending on the radio waves, a distance of 3 feet (1 meter) may not be sufficient to eliminate the noise.)
- Do not wash the unit. This may cause electric shocks or fire. The appliance must be installed in accordance with national wiring regulations. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not install the unit in the following places:
  - Where there is mist of mineral oil, oil spray or vapors. Plastic parts may deteriorate, and cause them to come loose or water to leak.
  - Where corrosive gases (such as sulphurous acid gas) are produced. Where corrosion of copper pipes or soldered parts may cause refrigerant to leak.
  - Where there is machinery which emits electromagnetic waves.
     Electromagnetic waves can disturb the control system and cause equipment malfunction.
  - Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables such as paint thinner or gasoline are handled. These types of gases might cause a fire.
  - Where the air contains high levels of salt such as near the ocean.
  - Where voltage fluctuates a lot, such as in factories.
  - In vehicles or vessels.
  - Where acidic or alkaline vapors are present.
- This appliance can be used by children 8 years old and above and persons with reduced physical, sensory or mental
- capabilities or lack of experience and knowledge if they are supervised or given instruction on using the unit in a
- safe manner and understand the hazards involved. Children should not play with the unit. Cleaning and user
- maintenance should not be done by children without supervision.
- Children should be supervised to ensure that they do not play with the appliance.

# **↑** CAUTION

- If the supply cord is damaged, it must be replaced by the manufaturer or its service agent or a similarly qualified person.
- DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste seperatelly for special treatment is necessary. Do not dispose of electrical appliances as municipal waste, use seperate collection facilities. Contact your local goverment for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substance can leak into the groudwater and get into the food chain, damaging your health and well-being.
- The wiring must be performed by professional technicians in accordance with national wiring regulation and this circuit diagram. An all-pole disconnection device which has at least 3mm seperation distance in all pole and a residual current device (RCD) with the rating not exceeding 30mA shall be incorporated in the fixed wiring according to the national rule.
- Confirm the safety of the installation area ( walls, floors, etc. ) without hidden dangers such as water, electricity, and gas.Before wiring/pipes.
- Before installation, check whether the user's power supply meets the electrical
  installation requirements of unit (including reliable grounding, leakage, and wire
  diameter electrical load, etc.). If the electrical installation requirements of the
  product are not met, the installation of the product is prohibited until the product
  is rectified.
- When installing multiple air conditioners in a centralized manner, please confirm
  the load balance of the three-phase power supply, and multiple units are
  prevented from being assembled into the same phase of the three-phase power
  supply.
- Product installation should be fixed firmly, Take reinforcement measures, when necessary.

# **◯** NOTE

#### **About Fluorinated Gasses**

- This air-conditioning unit contains fluorinated gasses. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself. Compliance with national gas regulations shall be observed.
- Installation, service, maintenance and repair of this unit must be performed by a certified technician.
- Product uninstallation and recycling must be performed by a certified technician.
- If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended

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# **ACCESSORIES**

# Accessories supplied with the unit

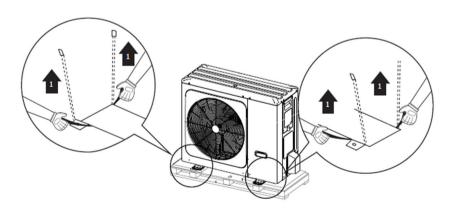
Installation Fittings					
Name	Shape	Quantity			
Outdoor unit installation & owners manual (this book)		1			
Techinal data manual		1			
Water outlet connection pipe assembly		1			
Energy label	2	1			

# **BEFORE INSTALLATION**

#### **Before installation**

Be sure to confirm the model name and the serial number of the unit.

# Handling



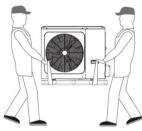
Handle the unit using the sling to the left and the handle to the right. Pull up both sides of the sling at the same time to prevent discinnection of the sling from the unit







While handling the unit keep both sides of the sling level. Keep your back straight



After mounting the unit, remove the sling from the unit by pulling 1 side of the sling.

# **⚠** CAUTION

- To avoid injury, do not touch the air inlet and aluminum fins of the unit.
- Do not use the grips in the fan grills to avoid damage.
- The unit is top heavy! Prevent the unit from falling due to improper inclination during handling.

# IMPORTANT INFORMATION FOR THE REFRIGERANT

#### Before installation

This product has the fluorinated gas, it is forbidden to release to air.

Refrigerant type: R32; Volume of GWP: 675.

**GWP=Global Warming Potential** 

Model	Factory charged refrigerant volume in the unit		
iviouei	Refrigerant/kg	Tonnes CO2 equivalent	
4kW	1.50	1.02	
6kW	1.50	1.02	
8kW	1.65	1.11	

10kW	1.65	1.11		
Model	Factory charged refrigerant volume in the unit			
Wiodei	Refrigerant/kg	Tonnes CO2 equivalent		
1-phase 12kW	1.84	1.24		
1-phase 14kW	1.84	1.24		
1-phase 16kW	1.84	1.24		
1-phase 12kW	1.84	1.24		
1-phase 14kW	1.84	1.24		
1-phase 16kW	1.84	1.24		

#### **CAUTION**

- Frequency of Refrigerant Leakage Checks
  - Equipment that contains less than 3 kg of fluorinated greenhouse gases or hermetically sealed equipment, which is labelled accordingly and contains less than 6 kg of fluorinated greenhouse gases shall not be subject to leak checks.
  - For unit that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO2 equivalent or more, but of less than 50 tonnes of CO2 equivalent, at least every 12 months, or where a leakage detection system is installed, at least every 24 months.
  - This air-conditioning unit is a hermetically sealed equipment that contains fluorinated greenhouse gases.
  - Only certificated person is allowed to do installation, operation and maintenance.

# **INSTALLATION SITE**

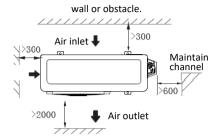
#### **⚠** WARNING

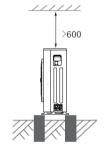
- Be sure to adopt adequate measures to prevent the unit from being used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunction, smoke or fire. Please instruct the customer to keep the area around the unit clean.
- Select an installation site where the following condition sare satisfied and one that meets with your customer's approval.
  - Places that are well-ventilated.
  - Places where the unit does not disturb next-door neighbors.
  - Safe places which can bear the unit's weight and vibration and where the unit can be installed at an even level.
  - Places where there is no possibility of flammable gas or product leak.

- The equipment is not intended for use in a potentially explosive atmosphere.
- Places where servicing space can be well ensured.
- Places where the units' piping and wiring lengths come within the allowable ranges.
- Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked drain pipe).
- Places where rain can be avoided as much as possible.
- Do not install the unit in places often used as a work space. In case of construction work (e.g. grinding etc.) where a lot of dust is created, the unit must be covered.
- Do not place any object or equipment on top of the unit (top plate)
- Do not climb, sit or stand on top of the unit.
- Be sure that sufficient precautions are taken in case of refrigerant leakage according to relevant local laws and regulations.
- Don't install the unit near the sea or where there is corrosion gas.
- When installing the unit in a place exposed to strong wind, pay special attention to the following:
  - Strong winds of 5 m/sec or more blowing against the unit's air outlet causes a short circuit (suction of discharge air), and this may have the following consequences:
  - Deterioration of the operational capacity.
  - Frequent frost acceleration in heating operation.
  - Disruption of operation due to rise of high pressure.
  - Motor burnout.
  - When a strong wind blows continuously on the front of the unit, the fan can start rotating very fast until it breaks.

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In normal condition, refer to the figures below for installation of the unit





4/6/8/10/12/14/16 kW (unit: mm)

# $\bigcirc$ NOTE

- Make sure there is enough space to do the installation. Set the outlet side at a right angle to the direction of the wind.
- Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
- If water does not easily drain from the unit, mount the unit on a foundation of concrete blocks, etc. (the height of the foundation should be about 100 mm.(in Fig:6-3)
- When installing the unit in a place frequently exposed to snow, pay special attention to elevate the foundation as high as possible.

# $\bigcirc$ NOTE

 If you install the unit on a building frame, please install a waterproof plate (field supply) (about 100mm, on the underside of the unit) in order to avoid drain water dripping. (See the picture in the right).



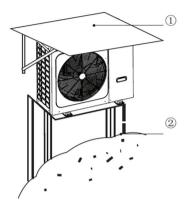
# Selecting a location in cold climates

Refer to "Handling" in section "Before installation"

# **□** NOTE

When operating the unit in cold climates, be sure to follow the instructions described below.

- To prevent exposure to wind, install the unit with its suction side facing the wall.
- Never install the unit at a site where the suction side may be exposed directly to wind.
- To prevent exposure to wind, install a baffle plate on the air discharge side of the unit.
- In heavy snowfall areas, it is very important to select an installation site where the snow will not affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is not affected by the snow (if necessary construct a lateral canopy).



- 1 Construct a large canopy.
- (2) Construct a pedestal.

Install the unit high enough off the ground to prevent it from being buried in snow.

#### **Prevent Sunshine**

As the outdoor temperature is measured via the outdoor unit air thermistor, make sure to install the outdoor unit in the shade or a canopy should be constructed to avoild direct sunlight, so that it is not influenced by the sun's heat, otherwise protection may be possible to the unit.

#### **⚠** WARNING

Uncovered scene, anti-snow shed must be installed:

- To prevent rain and snow from hitting the heat exchanger, resulting in poor heating capacity of the unit, after long time accumulation, the heat exchanger freezes;
- (2) To prevent the outdoor unit air thermistor from being exposed to the sun ,resulting in failure to boot:
- (3) To prevent freezing rain.

# **INSTALLATION PRECAUTIONS**

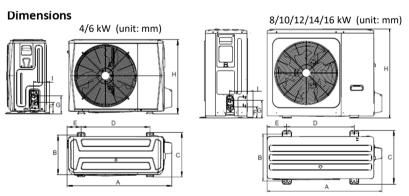


Fig 6-1 Fig 6-2

Model	Α	В	С	D	E	F	G	Н	- 1
4/6kW	1008	375	426	663	134	110	170	712	160
8/10/12/14/16 kW	1118	456	523	656	191	110	170	865	230

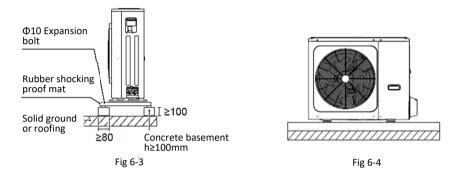
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#### **Installation requirements**

Check the strength and level of the installation ground so that the unit may not cause any vibrations or noise during the operation.

In accordance with the foundation drawing in the figure, fix the unit securely by means of foundation bolts. (Prepare four sets each of  $\Phi$ 10 Expansion bolts, nuts and washers which are readily available in the market.)

Screw in the foundation bolts until their length is 20 mm from the foundation surface.



#### **Drain hole position**

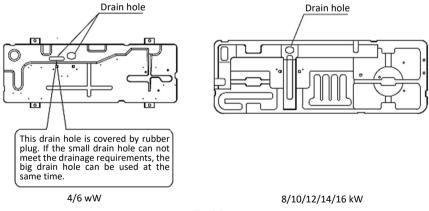


Fig. 6-5

# **CAUTION**

It's necessary to install an electrical heating belt if water can't drain out in cold weather even the big drain hole has opened.

It is suggested to site the unit with the base electric heater.

#### Installation space requirements

#### In case of stacked installation

1) In case obstacles exist in front of the outlet side

2) In case obstacles exist in front of the air inlet

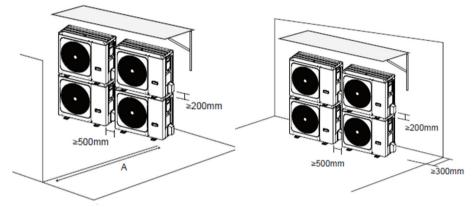


Fig. 6-6

Unit	A(mm)
4~16kW	≥2000



It's necessary to install the water outlet connection pipe assembly if the unit is mounted on the top of each other, preventing condensate flow to the heat exchanger.

# In case of multiple-row installation (for roof top use, etc.)

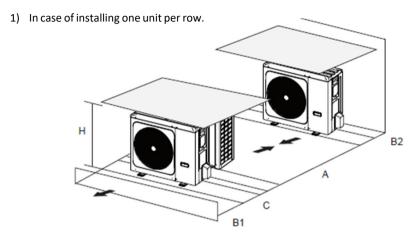
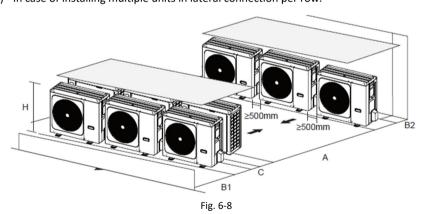


Fig. 6-7

Unit	A(mm)	B1(mm)	B2(mm)	C(mm)
4~16kW	≥3000	≥2000	≥150	≥600

1) In case of installing multiple units in lateral connection per row.



Unit	A(mm)	B1(mm)	B2(mm)	C(mm)
4~16kW	≥3000	≥2000	≥300	≥600

# INSTALL THE CONNECTING PIPE

Check whether the difference in height between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:

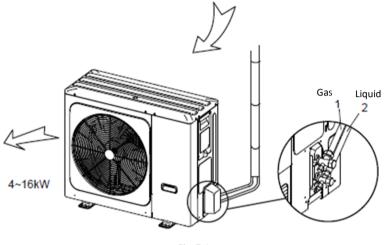


Fig. 7-1

# **□** CAUTION

- Please pay attention to avoid the components where it is connecting to the connecting pipes.
- To prevent the refrigerant piping from oxidizing inside when welding, it is necessary to charge nitrogen, or oxide will chock the circulation system.
- Back out pipe:Undersurface outlet pipe: the knock out should from inside to outside, and then piping and wiring through this.Pay attention to the piping, the fat connecting pipe should out from the largest hole, otherwise the pipes will be rubbed. Please do the moth proofing for the knocked out hole, to avoid the pest processing into and destroy the components.Please wipe off the piping support rubber blanket beside the inner outlet pipe cover of the machine while back side getting out pipes.

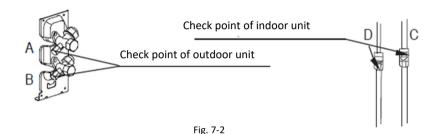
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#### **Leakage Detection**

Use soap water or leakage detector to check every joint whether leak or not (Refer to Fig.7-2 ).

#### Note:

A is high pressure side stop valve
B is low pressure side stop valve
C and D is connecting pipes interface of indoor and outdoor units



#### **Heat Insulation**

Do the heat insulation to the pipes of gas side and liquid side separately. The temperature of the pipes of gas side and liquid side when cooling, for avoiding condensation please do the heat insulation fully.

- The gas side pipe should use closed cell foamed insulation material, which the fireretardant is B1 grade and the heat resistance over 120 °C.
- 2) When the external diameter of copper pipe≤Φ12.7mm, the thickness of the insulating layer at least more than 15mm; When the external diameter of copper pipe≥Φ15.9mm, the thickness of the insulating layer at least more than 20mm.
- 3) Please use attached heat-insulating materials do the heat insulation without clearance for the connecting parts of the indoor unit pipes.

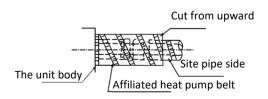
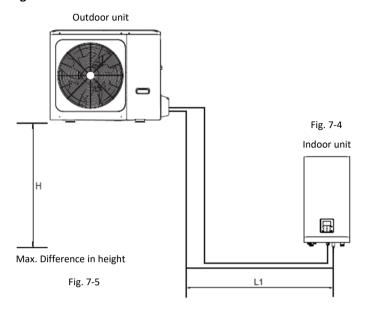


Fig. 7-3

#### **Connecting method**





The largest level difference between indoor unit and outdoor unit should not exceed 20m (if the outdoor unit is above) or 15m (if the outdoor unit is below). Additionally: (i) If the outdoor unit is above and the level difference is greater than 20m, it is recommended that an oil return bend with dimensions as specified in Figure 7-4 is set every 5m in the gas pipe of the main pipe; and (ii) if the outdoor unit is below and the level difference is more than 15m, the liquid pipe of the main pipe should be increased one size.

# 1) Size of pipes of Gas side and Liquidside

MODEL	Refrigerant	Gas side/Liquid side
4/6kW	R32	Ф15.9 / Ф6.35
8/10kW	R32	Ф15.9 / Ф9.52
1-phase 12/14/16kW	R32	Ф15.9 / Ф9.52
3-phase 12/14/16kW	R32	Ф15.9 / Ф9.52

#### 2) Connection method

	Gas side	Liquid side
4-16 kW outdoor unit	Flaring	Flaring
Indoor unit	Flaring	Flaring

MODELS	4-16 kW
Max.piping length (H+L1)	30m
Max difference in height (H)	20m

#### Remove Dirt or Water in the Pipes

- Make sure there is no any dirt or water before connectiong the piping to the outdoor and indoor units.
- 2) Wash the pipes with high pressure nitrogen, never use refrigerant of outdoor unit.

#### **Airtight Testing**

Charge pressured nitrogen after connecting indoor/outdoor unit pipes to do airtight testing



Pressured nitrogen [4.3MPa (44kg/cm²) for R32] should be used in the airtight testing. Tighten high/low pressure valves before charging pressured nitrogen. Charge pressure nitrogen from the connector on the pressure valves.

The airtight testing should never use any oxygen, flammable gas or poisonous gas.

#### Air Purge with Vacuum Pump

- 1) Using vacuum pump to do the vacuum, never using refrigerant to expel the air.
- 2) Vacuuming should be done from liquid side

#### Refrigerant Amount to be Added

Calculate the added refrigerant according to the diameter and the length of the liquid side pipe of the outdoor unit/indoor unit connection.

If the length of the liquid side pipe is less than 15 meters it is no need to add more refrigerant, so than calculating the added refrigerant the length of the liquid side pipe must subtract 15 meters

Refrigerant to be		Total liquid pi	pipe length L(m)		
added	MODEL	≤15m	>15m		
Total additional	4 / 6 kW	Og	(L-15)×20g		
refrigerant	8 /10/12/14/16 kW	0g	(L-15)×38g		

# **OUTDOOR UNIT WIRING**

#### **⚠** WARNING

A main switch or other means of disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local laws and regulations. Switch off the power supply before making any connections. Use only copper wires. Never squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections. All field wiring and components must be installed by a licensed electrician and must comply with relevant local laws and regulations.

The field wiring must be carried out in accordance with the wiring diagram supplied with the unit and the instructions given below.

Be sure to use a dedicated power supply. Never use a power supply shared by another appliance.

Be sure to establish a ground. Do not ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete grounding may cause electrical shock.

Be sure to install a ground fault circuit interrupter (30 mA). Failure to do so may cause electrical shock. Be sure to install the required fuses or circuit breakers.

#### Precautions on electrical wiring work

 Fix cables so that cables do not make contact with the pipes (especially on the high pressure side).

- Secure the electrical wiring with cable ties as shown in figure so that it does not come in contact with the piping, particularly on the high-pressure side.
- Make sure no external pressure is applied to the terminal connectors.
- When installing the ground fault circuit interrupter make sure that it is compatible with the inverter (resistant to high frequency electrical noise) to avoid unnecessary opening of the ground fault circuit interrupter.

**□** NOTE

The ground fault circuit interrupter must be a high- speed type breaker of 30 mA (<0.1s)

 This unit is equipped with an inverter. Installing a phase advancing capacitor not only will reduce the power factor improvement effect, but also may cause abnormal heating of the capacitor due to high-frequency waves. Never install a phase advancing capacitor as it could lead to an accident.

•

#### Precautions on wiring of power supply

- Use a round crimp-style terminal for connection to the power supply terminal board. In case it cannot be used due to unavoidable reasons, be sure to observe the following instructions.
  - Do not connect different gauge wires to the same power supply terminal.
     (Loose connections may cause overheating.)
  - When connecting wires of the same gauge, connect them according to the figure below.







- Use the correct screwdriver to tighten the terminal screws. Small screwdrivers can damage the screw head and prevent appropriate tightening.
- Over-tightening the terminal screws can damage the screws.
- Attach a ground fault circuit interrupter and fuse to the power supply line.
- In wiring, make certain that prescribed wires are used, carry out complete connections, and fix the wires so that outside force cannot affect the terminals

#### Safety device requirment

 Select the wire diameters (minimum value) individually for each unit based on the table 8-1 and table 8-2, where the rated current in table 9-1 means MCA in table 9-2. In case the MCA exceeds 63A, the wire diameters should be selected according to the national wiring regulation.

Select circuit breaker that having a contact separation in all poles not less than 3 mm providing full disconnection, where MFA is used to select the current circuit breakers and residual current operation breakers:

Rated current of	Nominal cross-sectional area (mm <sup>2</sup> )					
appliance:(A)	Flexible cords	Cable for fixed wiring				
≤3	0.5 and 0.75	1 and 2.5				
>3 and ≤6	0.75 and 1	1 and 2.5				
>6 and ≤10	1 and 1.5	1 and 2.5				
>10 and ≤16	1.5 and 2.5	1.5 and 4				
>16 and ≤25	2.5 and 4	2.5 and 6				
>25 and ≤32	4 and 6	4 and 10				
>32 and ≤50	6 and 10	6 and 16				
>50 and ≤63	10 and 16	10 and 25				

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	Οι	ıtdoo	r Unit		Pov	Fig. 8-1 Power Current		Com	pressor	Compressor	
System	Voltage (V)	Hz	Min. (V)	Max. (V)	MCA (A)	TOCA (A)	MFA (A)	MSC (A)	RLA (A)	KW	FLA (A)
4kW	220-240	50	198	264	12	18	25	1	11.50	0.10	0.50
6kW	220-240	50	198	264	14	18	25	-	13.50	0.10	0.50
8kW	220-240	50	198	264	16	19	25	-	14.50	0.17	1.50
10kW	220-240	50	198	264	17	19	25	-	15.50	0.17	1.50
12kW	220-240	50	198	264	25	30	35	1	23.50	0.17	1.50
14kW	220-240	50	198	264	26	30	35	1	24.50	0.17	1.50
16kW	220-240	50	198	264	27	30	35	1	25.50	0.17	1.50
12kW 3-PH	380-415	50	342	456	10	14	16	-	9.15	0.17	1.50

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14kW 3-PH	380-415	50	342	456	11	14	16	1	10.15	0.17	1.50
16kW 3-PH	380-415	50	342	456	12	14	16	-	11.15	0.17	1.50

**□** NOTE

MCA: Max. Circuit Amps. (A)

TOCA: Total Over-current Amps. (A)

MFA: Max. Fuse Amps. (A)
MSC: Max. Fuse Amps. (A)

FLA: In nominal cooling or heating test condition, the input Amps of compressor

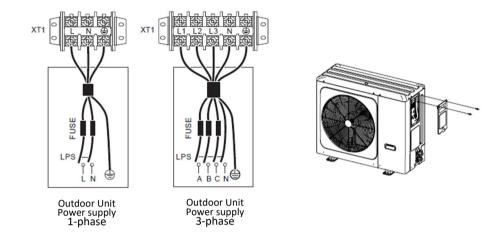
where MAX. Hz can operate Rated Load Amps. (A);

**KW:** Rated Motor Output **FLA:** Full Load Amps. (A)

#### Remove the switch box cover

Unit (kW)	4 kW	6 kW	8 kW	10 kW	12 kW	14 kW	16 kW	12kW- 3-PH	14kW- 3-PH	16kW- 3-PH
Maximum overcurrent protector (MOP) (A)	18 A	18 A	19 A	19 A	30 A	30 A	30 A	14 A	14 A	14 A
Wiring size (mm <sup>2)</sup>	4.0 mm <sup>2</sup>	4.0 mm <sup>2</sup>	4.0 mm <sup>2</sup>	4.0 mm <sup>2</sup>	6.0 mm <sup>2</sup>	6.0 mm²	6.0 mm <sup>2</sup>	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>

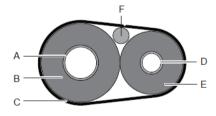
Stated values are maximum values (see electrical data for exact values).





The ground fault circuit interrupter must be a high-speed type breaker of 30 mA (<0.1s). Please use 3-core shielded wire.

#### To finish the outdoor unit installation

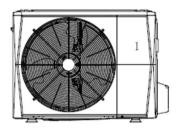


А	Gas pipe
В	Gas pipe insulation
С	Finishing tipe
D	Liquid pipe
Е	Liquid pipe insulation
F	Interconnection cable

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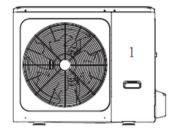
# **OVERVIEW OF THE UNIT**

#### Disassembling the unit



4/6 kW

Door 1: To access to the compressor and electrical parts



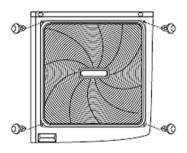
8/10/12/14/16 kW

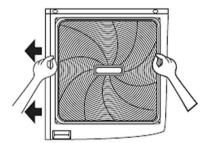
Door 1: To access to the compressor and electrical parts

# **↑** WARNING

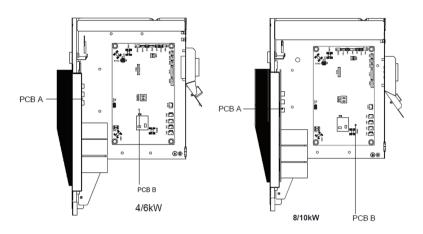
- Switch off all power i.e. unit power supply and backup heater and domestic hot water tank power supply (if applicable) before removing doors 1.
- Parts inside the unit may be hot.

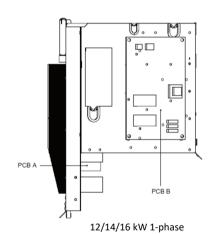
Push the grill to the left until it stops, then pull its right edge, so you can removed the grill. You can also reverse the procedure. Be careful to avoid hand injury.



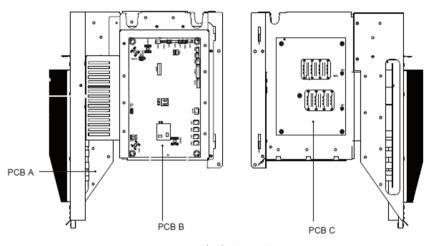


# **Electronic control box**





ENG VIVAX



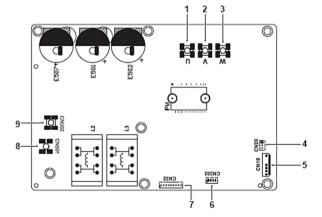
12/14/16kW 3-phase



The picture is for reference only, please refer to the actual product.

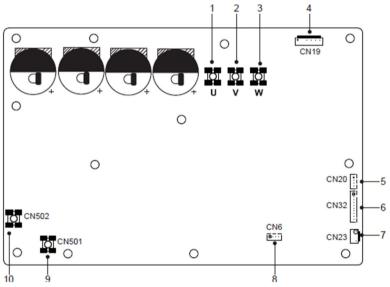
# 4~16kW 1-phase units

1) **PCB A**, 4-10 kW Inverter module



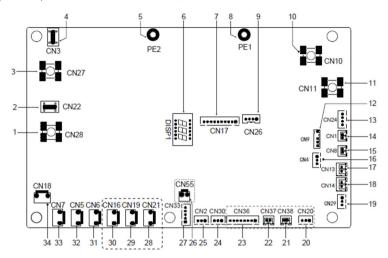
Coding	Assembly unit	Coding	Assembly unit
1	Compressor connection port U	6	Reserved(CN302)
2	Compressor connection port V	7	Port for communication with PCB B(CN32)
3	Compressor connection port W	8	Input port N for rectifier bridge(CN502)
4	Output port for +12V/9V(CN20)	9	Input port L for rectifier bridge(CN501)
5	Port for fan(CN19)	/	1

# 2) PCB A, 12-16 kW Inverter module



Coding	Assembly unit	Coding	Assembly unit
1	Compressor connection port U	6	Port for communication with PCB B(CN32)
2	Compressor connection port V	7	Port for high pressure switch (CN23)
3	Compressor connection port W	8	Reserved(CN6))
4	Port for fan(CN19)	9	Input port N for rectifier bridge (CN501)
5	Output port for +12V/9V(CN20)	10	Input port N for rectifier bridge (CN502)

#### 3) PCB B, 4-16 kW Main Control Board

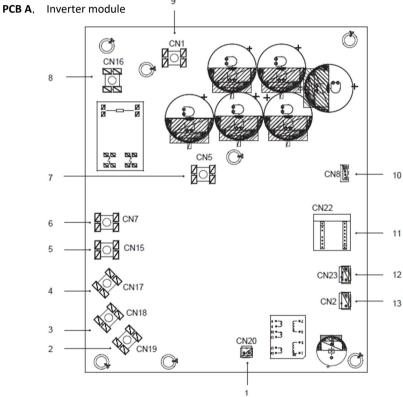


Coding	Assembly unit	Coding	Assembly unit
1	Output port L to PCB A(CN28)	18	Port for low pressure switch (CN14)
2	Reserved(CN22)	19	Port for communication with hydro-box control board (CN29)
3	Output port N to PCB A(CN27)	20	Reserved(CN20)
4	Reserved(CN3)	21	Reserved(CN38)
5	Port for ground wire(PE2)	22	Reserved(CN37)
6	Digital display(DSP1)	23	Reserved(CN36)
7	Port for communication with PCB A(CN17)	24	Port for communication(reserved,CN30)
8	Port for ground wire(PE1)	25	Port for communication(reserved,CN2)
9	Reserved(CN26)	26	Reserved(CN55)
10	Input port for neutral wire(CN10)	27	Port for electrical expansion valve(CN33)
11	Input port for live wire(CN11)	28	Reserved(CN21)
12	Port for outdoor ambient temp. sensor and condenser temp.sensor(CN9)	29	Reserved(CN19)
13	Input port for +12V/9V(CN24)	30	Port for chassis electrical heating tape(CN16)(optional)

14	Port for sunction temp.sensor(CN1)	31	Port for 4-way valve(CN6)
15	Port for discharge temp.sensor(CN8)	32	Port for SV6 valve(CN5)
16	Port for pressure sensor(CN4)	33	Port for compressor eletric heating tape 1(CN7)
17	Port for high pressure switch (CN13)	34	Port for compressor eletric heating tape 2(CN18)

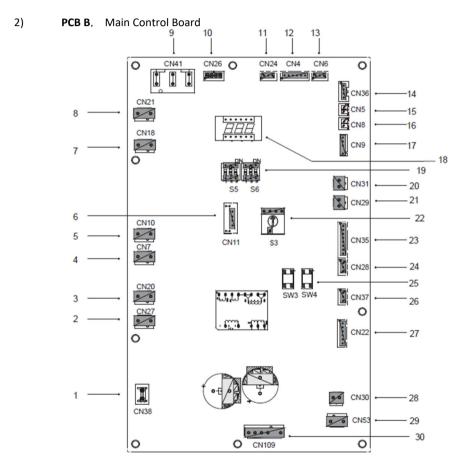
# 12~16kW 1-phase units

1) PCB A, Inverter r



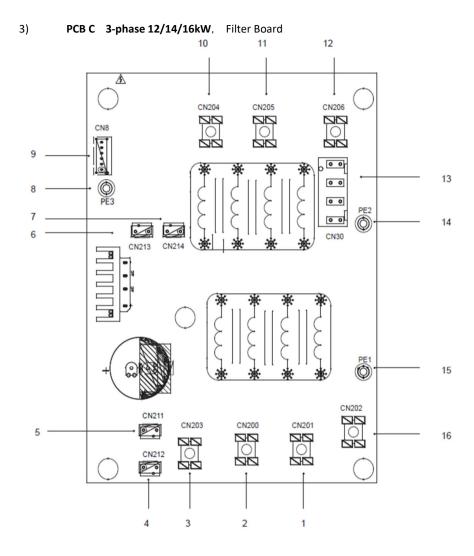
Coding	Assembly unit	Coding	Assembly unit
1	Output port for +15V(CN20))	8	Power Input port L1(CN16)
2	Compressor connection port W(CN19)	9	Input port P_in for IPM module(CN1)
3	Compressor connection port V(CN18)	10	Port for communication with PCB B (CN8)

4	Compressor connection port U(CN17)	11	PED board(CN22)
5	Power Input port L3(CN15)	12	Port for high pressure switch (CN23)
6	Power Input port L2(CN7)	13	Port for communication with PCB C(CN2)
7	Input port P_out for IPM module(CN5)		



Coding	Assembly unit	Coding	Assembly unit
1	Port for ground wire(CN38)	16	Port for temp.sensor Tp(CN8)
2	Port for 2-way valve 6(CN27)	17	Port for outdoor ambient temp. sensor and condenser temp.sensor(CN9)

3	Port for 2-way valve 5(CN20)	18	Digital display(DSP1)
4	Port for eletric heating tape2(CN7)	19	DIP switch(S5,S6)
5	Port for eletric heating tape1(CN10)	20	Port for low pressure switch(CN31)
6	Reserved(CN11)	21	Port for high pressure switch and quick check(CN29)
7	Port for 4-way valve(CN18)	22	Rotary dip switch(S3)
8	Reserved(CN21)	23	Port for temp.sensors(TW_out, TW_in, T1, T2,T2B)(CN35)(Reserved)
9	Power supply port from PCB C(CN41)	24	Port for communication XYE(CN28)
10	Port for communication with Power Meter(CN26)	25	Key for force cool✓(S3,S4)
11	Port for communication with hydrobox control board (CN24)	26	Port for communication H1H2E(CN37)
12	Port for communication with PCB C(CN4)	27	Port for electrical expansion valve(CN22)
13	Port for pressure sensor(CN6)	28	Port for fan 15VDC power supply(CN30)
14	Port for communication with PCB A(CN36)	29	Port for fan 310VDC power supply(CN53)
15	Port for temp.sensor Th(CN5)	30	Port for fan(CN109)



Coding	Assembly unit	Coding	Assembly unit
1	Power supply L2(CN201)	9	Port for communication with PCB B (CN8)
2	Power supply L3(CN200)	10	Power filtering L3(L3')
3	Power supply N(CN203)	11	Power filtering L2(L2')
4	Power supply port of 310VDC(CN212)	12	Power filtering L1(L1')

5	Reserved(CN211)	13	Power supply port for main control board(CN30)
6	Port for FAN Reactor(CN213)	14	Port for ground wire(PE2)
7	Power supply port for Inverter module(CN214)	15	Port for ground wire(PE1)
8	Ground wire(PE3)	16	Power supply L1(L1)

# **TEST RUNNING**

Operate according to "key points for test running" on the electric control box cover.

#### **CAUTION**

- Test running can not start until the outdoor unit has been connected to the power for 12 hours.
- Test running can not start until all the valves are affirmed open.

# PRECAUTIONS ON REFRIGERANT LEAKAGE

When the refrigerant charge in appliance is more than 1.842kg, following requirments should be complied with.

Requirments for charge limits in unventilated areas:

The maximum refrigerant charge in appliance shall be in accordance with the following:

$$m_{\text{max}} = 2.5 \text{ x (LFL)}^{5/4} \text{ x } 1.8 \text{ x (A)}^{1/2}$$

or the required minium floor area Amin to install an appliance with refrigerant charge mc shall be in accordance with following:

$$A_{min} = (m_c / (2.5 \times (LFL)^{5/4} \times 1.8))^2$$

where

m<sub>max</sub> is the allowable maximumm charge in a room, in kg

A is the room area, in m<sup>2</sup>

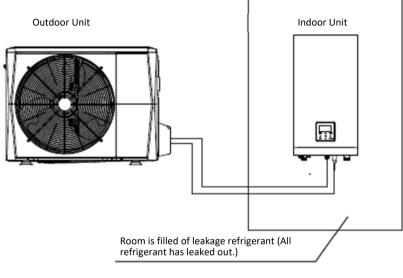
 $\begin{array}{ll} A_{min} & \text{is the required minimum room area ,in } m^2 \\ \\ m_c & \text{is the refrigerant charge in appliance, in kg} \end{array}$ 

LFL is the lower flammable limit in kg/m<sup>3</sup>, the value is 0.306 for R32

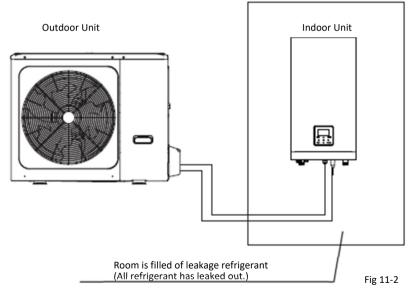
refrigerant

 Install mechanical ventilator to reduce the refrigerant thickness, under critical level. (ventilate regularly).

 Install leak alarm facility related to mechanical ventilator if you can not regularly ventilate.



4/6kW Fig 11-1



8/10/12/14/16 kW

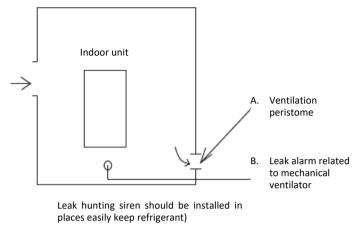


Fig 11-3

# **TURN OVER TO CUSTOMER**

The owner's manual of indoor unit and owner's manual of outdoor unit must be turned over to the customer. Explain the contents in the owner's manual to the customers in details.

### **↑** WARNING

- Ask your dealer for installation of the heat pump. Incomplete installation performed by yourself may result in a water leakage, electric shock, and fire.
- Ask your dealer for improvement, repair, and maintenance.
- Incomplete improvement, repair, and maintenance may result in a water leakage, electric shock, and fire.
- In order to avoid electric shock, fire or injury, or if you detect any abnormality such as smell of fire, turn off the power supply and call your dealer for instructions.
- Never let the indoor unit or the remote controller get wet. It may cause an electric shock or a fire.
- Never press the button of the remote controller with a hard, pointed object. The remote controller may be damaged.
- Never replace a fuse with that of wrong rated current or other wires when a fuse blows out. Use of wire or copper wire may cause the unit to break down or cause a fire.
- It is not good for your health to expose your body to the air flow for a long time.
- Do not insert fingers, rods or other objects into the air inlet or outlet.
   When the fan is rotating at high speed, it will cause injury.
- Never use a flammable spray such as hair spray, lacqueror paint near the unit. It may cause a fire.
- Never put any objects into the air inlet or outlet. Objects touching the fan at high speed can be dangerous.

 Do not dispose this product as unsorted municipal waste.
 Collection of such waste separately for special treatment is necessary.



dispose electrical not of appliances as unsorted municipal waste. use separate collection facilities. Contact vou local information government for regarding the connection systems available.

- If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundeater and get into the food chain, damaging your health and well-being.
- To prevent refrigerant leak, contact your dealer.
- When the system is installed and runs in a small room, it is required to keep the concentration of the refrigerant, if by any chance coming out, below the limit. Otherwise, oxygen in the room may be affected, resulting in a serious accident.
- The refrigerant in the heat pump is safe and normally does not leak. If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas
- Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit. Do not use the heat pump until a service person confirms that the portion where the refrigerant leaks is repaired.

#### **⚠** CAUTION

- Do not use the heat pump for other purposes.
- In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.
- Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord.
- Otherwise, an electric shock and injury may result.
- In order to avoid electric shock or fire, make sure that an earth leak detector is installed.
- Be sure the heat pump is grounded.
- In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to gas or water pipe, lightning conductor or telephone earth wire.
- In order to avoid injury, do not remove the fan guard of the outdoor unit.
- Do not operate the heat pump with a wet hand.
- An electric shock may happen.
- Do not touch the heat exchanger fins
- These fins are sharp and could result in cutting injuries.
- Do not place items which might be damaged by moisture under the indoor unit.
- Condensation may form if the humidity is above 80%, the drain outlet is blocked or the filter is polluted.
- After a long use, check the unit stand and fitting for damage.

- If damaged, the unit may fall and result in injury.
- To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the heat pump.
- Arrange the drain hose to ensure smooth drainage. Incomplete drainage may cause wetting of the building, furniture etc.
- Never touch the internal parts of the controller.
- Do not remove the front panel. Some parts inside are dangerous to touch, and a machine trouble may happen.
- Never do the maintenances work by yourself.
- Please contact your local dealer to do the maintenances work.
- Never expose little children, plants or animals directly to the air flow.
- Adverse influence to little children, animals and plants may result.
- Do not allow a child to mount on the outdoor unit or avoid placing any object on it.
- Falling or tumbling may result in injury.
- Do not operate the heat pump when using a room fumigation - type insecticide.
- Failure to observe could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals.
- Do not place appliances which produce open fire in places exposed to the air flow from the unit or under the indoor unit.
- It may cause incomplete combuston

- or deformation of the unit due to the heat.
- Do not install the heat pump at any place where flammable gas may leak out.
- If the gas leaks out and stays around the heat pump, a fire may break out.
- The appliance is not intended for use by young children or infirm persons without supervision.
- Young children should be supervised to ensure that they do not play with the appliance.
- The outdoor unit window-shades should be periodic cleaning in case of being jammed.
- This window-shapes is heat dissipation outlet of components, if being jammed will cause the components shorten their service life spans because of overheated for a long time.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

# OPERATION AND PERFORMANCE

#### **Protection Equipment**

This Protection Equipment will enable the Heat Pump to stop when the Heat Pump is to be directed running compulsively.

The protection equipment may be activated in following conditions:

#### **Cooling Operation**

 The air inlet or air outlet of outdoor unit is blocked.  Strong wind is Continuously blowing to the air outlet of the outdoor unit.

#### **Heating Operation**

- Too much rubbish adhere to the filter in the water system
- The air outlet of indoor unit is choked
- Mishandling in operation:
   If mishandling happens because of lighting or mobile wireless, please shut off the manual power switch, and turn on again, then push the ON/OFF button

### **№** NOTE

When the protection equipment starts, please shut down the manual power switch, and restart operation after problem is solved.

#### **About Power Cut**

- If power is cut during operation, stop all the operation immediately
- Power comes again. If the autorestant function is set on, then the unit will auto-restart.

#### Heating capacity

- The heating operation is a heatpump process that heat will be absorbed from outdoor air and released to indoor water. Once the outdoor temperature is decreased, heating capacity decreased corredpindingly.
- Other heating equipment is suggested to be used together when outdoor temperature is too low.

 In some extreme cold upland that buy the indoor unit equipped with electrical heater will obtain better performance. (Refer to indoor unit owner's manual for details)

#### **⚠** NOTE

The motor in outdoor Unit will continue running for 60 seconds for to remove residual heat when the outdoor Unit recoeiving OFF command during heating operation.

If the heat pump malfunction occurs because of disturb, please reconnect the heat pump to power, then turn on it again.

#### **Compressor protection feature**

 A protection feature prevents the heat pump from being activated for approximately several minuites when it restarts immediately after operation.

#### Cooling and heating operation

- The the indoor unit in the same system can not run cooling and heating at the same time.
- If the Heat Pump Administrator has set running mode, then the heat pump can not run on modes other than the presetted. Standby or No Priority will be displayed in the Control Panel.

#### Features of heating operation

 Water will not become hot immediately at the beginning of the heating operation, 3~5 minutes ago (depends on the indoor and outdoor temperature), until the indoor heat exchanger become hot, then becomes hot.  During operation, the fan motor in the outdoor unit may stop running under high temperature.

#### Defrost in the heating operation

- During heating operation, outdoor unit sometimes will frost. To increase efficiency, the unit will start defrosting automatically (about 2~10 minutes), and then water will be drained out from outdoor unit.
- During defrosting, the fan motors in the outdoor unit will stop running.

# **Error codes**

When a safety device is activated, an error code will be displayed on the user interface. A list of all errors and corrective actions can be found in the table below.

Reset the safety by turning the unit OFF and back ON.

In case this procedure for resetting the safety is not successful, contact your local dealer.

ERROR CODE	MALFUNCTION OR PROTECTION	FAILURE CAUSE AND CORRECTIVE ACTION						
ΕI	Phase loss or neutral wire and live wire are connected reversely(only for three phase unit).	Check the power supply cables should be conneted stable, aviod phase loss.     Check whether the sequence of neutral wire and live wire are connected reversely.						
<i>E</i> 5	The condenser outlet refrigerant temperature sensor (T3)error.	1. The T3 sensor connector is loosen. Reconnect it. 2. The T3 sensor connector is wet or there is water in. remove the water, make the connector dry. Add waterproof adhesive 3. The T3 sensor failure, change a new sensor.						
<i>E</i> 6	The ambient temperature sensor (T4) error.	<ol> <li>The T4 sensor connector is loosen. Reconnect it.</li> <li>The T4 sensor connector is wet or there is wat in. remove the water, make the connector dry. Add waterproof adhesive</li> <li>The T4 sensor failure, change a new sensor.</li> </ol>						
<i>E</i> 9	Suction temperature sensor(Th) error	1. The Th sensor connector is loosen. Re connect it. 2. The Th sensor connector is wet or there is water in. remove the water, make the connector dry. Add waterproof adhesive 3. The Th sensor failure, change a new sensor.						
ER	Discharge temperature sensor(Tp) error	1. The Tp sensor connector is loosen. Re connect it. 2. The Tp sensor connector is wet or there is water in. remove the water, make the connector dry. Add waterproof adhesive 3. The Tp sensor failure, change a new sensor.						

HO	Communication fault between indoor unit and outdoor unit	wire doesn't connect between main control board PCB B and main control board of hydraulic module. connect the wire.     Communication wire sequence is not right. Reconnect the wire in the right sequence.     Whether there is a high magnetic field or high power interfere, such as lifts, large power transformers, etc To add a barrier to protect the unit or to move the unit to the other place.
HI	Communication error between inverter module PCB A and main control board PCB B	1. Whether there is power connected to the PCB and driven board. Check the PCB indicator light is on or off. If Light is off, reconnect the power supply wire.  2. if light is on, check the wire connection between the main PCB and driven PCB, if the wire loosen or broken, reconnect the wire or change a new wire.  3. Replace a new main PCB and driven board in turn.
HY	Three times P6 protect	The sum of the number of times LO and L1 appear in an hour equals three.See LO and L1 for fault handling methods
H5	The DC fan failure	1. Strong wind or typhoon below toward to the fan, to make the fan running in the opposite direction. Change the unit direction or make shelter to avoid typhoon below to the fan.  2. fan motor is broken, change a new fan motor.
Н7	Main circuit voltage failure	1. Whether the power supply input is in the available range. 2. Power off and power on for several times rapidly in short time. Remain the unit power off for more than 3 minutes than power on. 3. the circuit defect part of Main control board is defective. Replace a new Main PCB.
H8	Pressure sensor failure	Pressure sensor connector is loosen, reconnect it.     Pressure sensor failure. change a new sensor.

HF	The main control board PCB B EEprom failure	1. The EEprom parameter is error, rewrite the EEprom data. 2. EEprom chip part is broken, change a new EEprom chip part. 3. Main PCB is broken, change a new PCB.
НН	H6 displayed 10 times in 2 hours	Refer to H6
HP	Low pressure protection Pe<0.6) occured 3 times in an hour	Refer to PO
PO	Low pressure protection	<ol> <li>System is lack of refrigerant volume. Charge the refrigerant in right volume.</li> <li>When at heating mode or DHW mode, the outdoor heating exchanger is dirty or something is block on the surface. Clean the outdoor heating exchanger or remove the obstruction.</li> <li>The water flow is too low in cooling mode.increase the water flow.</li> <li>Electrical expansion valve locked or winding connector is loosen. Tap-tap the valve body and plug in/ plug off the connector for several times to make sure the valve is working correctly.</li> </ol>
PI	High pressure switch protection	Heating mode, DHW mode:  1. The water flow is low; water temp is high, whether there is air in the water system. Release the air.  2. Water pressure is lower than 0.1Mpa, charge the water to let the pressure in the range of 0.15~0.2Mpa.  3. Over charge the refrigerant volume. Recharge the refrigerant in right volume.  4. Electrical expansion valve locked or winding connector is loosen. Tap-tap the valve body and plug in/ plug off the connector for several times to make sure the valve is working correctly. And install the winding in the right location DHW mode: Water tank heat exchanger is smaller  Cooling mode:  1. Heat exchanger cover is not removed. Remove it.  2. Heat exchanger is dirty or something is block on the surface. Clean the heat exchanger or remove the obstruction

P3	Compressor overcurrent protection	The same reason to P1.     Power supply voltage of the unit is low, increase the power voltage to the required range
PY	High discharge temperature protection	1. The same reason to P1. 2. TW_out temp.sensor is loosen Reconnect it. 3. T1 temp.sensor is loosen. Reconnect it. 4. T5 temp.sensor is loosen. Reconnect it
P9	DC fan motor protect	Contact your local dealer
Pd	High temperature protection of refrigerant outlet temp of condenser	<ol> <li>Heat exchanger cover is not removed. Remove it.</li> <li>Heat exchanger is dirty or something is block on the surface. Clean the heat exchanger or remove the obstruction.</li> <li>There is no enough space around the unit for heat exchanging.</li> <li>Fan motor is broken, replace a new one</li> </ol>
<i>[</i> 7	Transducer module temperature too high protect	1. Power supply voltage of the unit is low, increase the power voltage to the required range.  2. The space between the units is too narrow for heat exchange. Increase the space between the units.  3. Heat exchanger is dirty or something is block on the surface. Clean the heat exchanger or remove the obstruction.  4. Fan is not running. Fan motor or fan is broken, Change a new fan or fan motor.  5. Water flow rate is low, there is air in system, or pump head is not enough. Release the air and reselect the pump.  6. Water outlet temp.sensor is loosen or broken, reconnect it or change a new one.

FI	DC generatrix voltage is too low	<ol> <li>Check the power supply.</li> <li>If the power supply is OK, and check if LED light is OK, check the voltage PN, if it is 380V, the problem usually comes from the main board. And if the light is OFF, disconnect the power, check the IGBT, check those dioxides, if the voltage is not correct, the inverter board is damaged, change it.</li> <li>And if those IGBT are OK, which means the inverter board is OK, power form rectifier bridge is not correct, check the bridge. (Same method as IGBT, disconnect the power, check those dioxides are damaged or not).</li> <li>Usually if F1 exist when compressor start, the possible reason is main board. If F1 exist when fan start, it may be because of inverter board</li> </ol>
ЬН	PED PCB failure	<ol> <li>After 5 minutes of power-off interval, power on again and observe whether it can be recovered;</li> <li>If it can't be restored, replace PED safety plate, power on again, and observe whether it can be restored;</li> <li>If it can not be recovered, the IPM module board should be replaced.</li> </ol>

	ERROR CODE	MALFUNCTION OR PROTECTION	FAILURE CAUSE AND CORRECTIVE ACTION
	LO	Module protection	
	LI	DC generatrix low voltage protection	
	L2	DC generatrix high voltage protection	Check the Heat pump     system pressure;
P6	LY	MCE malfunction	<ol> <li>Check the phase resistance of compressor;</li> <li>Check the U、V、W power line connection sequence between the</li> </ol>
	L5	Zero speed protection	inventer board and the compressor;  4. Check the L1、L2、L3 power line connection between the inventer
	L8	Speed difference >15Hz protection between the front and the back clock	board and the Filter board ; 5. Check the inventer board.
	L9	Speed difference >15Hz protectiaon between the real and the setting speed	

# **TECHNICAL SPECIFICATIONS**

Model (Capacity mark)	4 kW	6 kW	8 kW	10 kW			
Power supply		220-240	V~ 50Hz				
Rated power input	2200W	2600W	3300W	3600W			
Rated current	10.5A	12.0A	14.5A	16.0A			
Norminal capacity		Refer to the t	echnical data				
Dimensions (W×H×D)[mm]	1008*7	12*426	1118*8	65*523			
Packing (W×H×D)[mm]	1065*8	10*485	1190*9	70*560			
Fan motor		DC motor /	Horizontal				
Compressor		DC inverter	dual rotary				
Heat exchanger		Fin-	coil				
Refrigerant							
Туре		R32	2				
Quantity	15	00 g	165	50g			
Weight							
Net weight	60	Okg	78.5	kg			
Gross weight	65	.5kg	921	(g			
Connections							
Gas side	ф15	5.9	ф15	5.9			
Liquid side	ф6.	35	ф9.52				
Drain connection		DN	32				
Max. piping length		30	m				
Max. differance in height when outdoor unit is upside		20	m				
Refrigerant to be added	20g	/m	388	g/m			
Operation ambient	t temperature range	е					
Heating mode		-25~+3	35°C				
Cooling mode		-5~+4	3°C				
Domestic hot water mode		-25~+4	13°C				

Model (Capacity mark)	12 kW	14 kW	16 kW	12 kW 3-phase	14 kW 3-phase	16 kW 3-phase							
Power supply	22	20-240V~	50Hz	380-415V 3N~ 50Hz									
Rated power input	5400 W	5700 W	6100W	5400W	5700W	6100W							
Rated current	14.5A	25.0A	26.0A	9.0A	10.0A	11.0A							
Norminal capacity			Refer t	o the technic	al data								
Dimensions (W×H×D)[mm]	1	.118*865	*523		1118*865*	523							
Packing (W×H×D)[mm]	1	1190*970*560 1190*970*560											
Fan motor			DC n	notor / Horizo	ontal								
Compressor		DC inverter dual rotary											
Heat exchanger				Fin-coil									
Refrigerant													
Туре	R32												
Quantity		1840	S	1840g									
Weight													
Net weight		100kg	Ş		116kg								
Gross weight		113.5k	g		129.5kg								
Connections													
Gas side		ф15.9		ф15.9									
Liquid side		ф9.52		ф9.52									
Drain connection				DN32									
Max. piping length				30m									
Max. differance in height when outdoor unit is upside				20m									
Refrigerant to be added				38g/m									
Operation ambient	t tempera	ture rang	е										
Heating mode				-25~+35°C									
Cooling mode				-5~+43°C									
Domestic hot water mode				-25~+43°C									

# INFORMATION SERVICING

#### 1) Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minmised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

#### 2) Work procedure

Works shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

#### 3) General work area

All mintenance staff and others working in the local area shall be instructed on the nature of work being carried out. work in confined sapces shall be avoided. The area around the work space shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

#### 4) Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. no sparking, adequately sealed or intrinsically safe.

#### 5) Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry power or CO2 fire extinguisher adjacent to the charging area.

#### 6) No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. NO SMOKING signs shall be displayed.

#### 7) Ventilated area

Ensure that the area is in the open or that it it adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

#### 8) Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer s maintenance and service guidelines shall be followed. If in doubt consult the manufacturer s technical department for assistance. The following checks shall be applied to installations using flammable refrigerants:

The charge size is in accordance with the room size within which the refrigerant containing parts are installed; The ventilation machinery and outlets are operating adequately and are not obstructed;

If an indirect refrigerating circuit is being used, the secondary circuits shall be checked for the presence of refrigerant; marking to the equipment continues to be visible and legible.

Marking and signs that are illegible shall be corrected;

Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

#### 9) Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, and adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

That there no live electrical components and wiring are exposed while charging, recovering or purging the system; That there is continuity of earth bonding.

#### 10) Repairs to sealed components

- a) During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- b) articular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

#### NOTE

The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Instrinsically safe components do not have to be isolated prior to working on them.

#### 11) Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinscially safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

#### 12) Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

#### 13) Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

#### 14) Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants. Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed. Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipework. If a leak is suspected ,all naked flames shall be removed or extinguished. If a leakage of refrigernat is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated(by means of shut off valves) in a part of the system remote from the leak . Oxygen free nitrogen(OFN) shall then be purged through the system both before and during the brazing process.

#### 15) Removal and evacuation

When breaking into the refrigerant circuit to make repairs of for any other purpose conventional procedures shall be used, However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- Remove refrigerant;
- Purge the circuit with inert gas; Evacuate;
- · Purge again with inert gas;
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be flushed with OFN to render the unit safe. This process may need to be repeated several times.

Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system.

When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not closed to any ignition sources and there is ventilation available.

#### 16) Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them
- Ensure that apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
   Replacement parts shall be in accordance with the manufacturer s specifications
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant. Label the system when charging is complete(if not already).
- Extreme care shall be taken not to overfill the refrigeration system.
- Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

#### 17) Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken.

In case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically
- c) Before attempting the procedure ensure that:
- Mechanical handling equipment is available, if required, for handling refrigerant cylinders; All personal protetive equipment is available and being used correctly;
- The recovery process is supervised at all times by a competent person;
   Recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturer s instructions.
- h) Do not overfill cylinders. (No more than 80% volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

#### 18) Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

#### 19) Recovery

When removing refrigerant from a system, either for service or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When tranferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct numbers of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant(i.e special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order.

Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order.

Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to retruning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

#### 20) Transportation, marking and storage for units

Transport of equipment containing flammable refrigerants Compliance with the transport regulations Marking of equipment using signs Compliance with local regulations

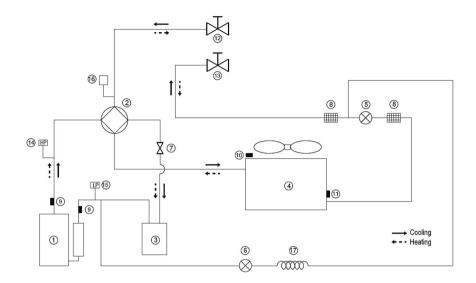
Disposal of equipment using flammable refrigerants Compliance with national regulations Storage of equipment/appliances

The storage of equipment should be in accordance with the manufacturer's instructions. Storage of packed (unsold) equipment

Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

# **ANNEX A: Refrigerant cycle**



Item	Description	Item	Description
1	Compressor	10	Outdoor temperature sensor
2	4-Way Valve	11	Outdoor exchanger sensor
3	Gas-liquid separator	12	Stop valve (gas)
4	Air side heat exchanger	13	Stop valve (liquid)
5	Electronic expansion Valve	14	High Pressure Switch
6	Single-way electromagnetic valve	15	Low Pressure Switch
7	Pipe joint	16	Pressure valve
8	Filter	17	Capillary
9	Discharge line sensor		

ANNEX B: Electrically controlled wiring diagram 4~10kW

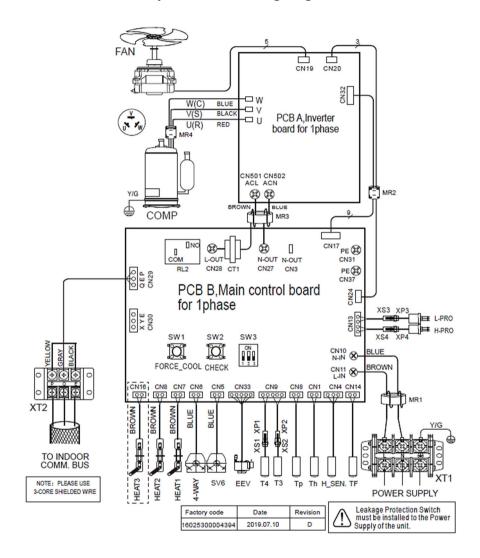


Table1: The environment temperature curve of the low temperature setting for heating

ENG

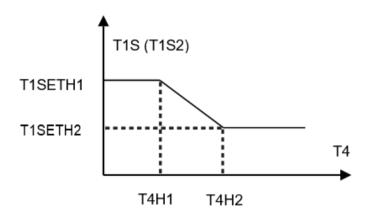
T4	≤ -20	- 19	- 18	- 17	- 16	- 15	- 14	- 13	- 12	- 11	- 10	-9	-8	- 7	-6	-5	-4	- 3	-2	- 1	0
1-T1S	38	38	38	38	37	37	37	37	37	37	36	36	36	36	36	36	36	35	35	35	35
2- T1S	35	35	35	35	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	32
3- T1S	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	32	32	31
4- T1S	35	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	31
5- T1S	33	33	33	33	32	32	32	32	32	32	32	32	31	31	31	31	31	31	31	31	30
6- T1S	31	31	31	31	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28
7 -T1S	29	29	29	29	29	29	29	28	28	28	28	28	28	28	28	28	28	28	28	28	27
8- T1S	29	29	29	29	28	28	28	28	28	28	28	28	27	27	27	27	27	27	27	27	26
T4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		≥ 20
1-T1S	35	35	35	35	34	34	34	34	34	33	33	33	33	33	33	33	32	32	32	32	32
2- T1S	32	32	32	32	32	32	32	31	31	31	31	31	31	31	31	30	30	30	30	30	30
3- T1S	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30
4- T1S	31	31	31	31	31	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28	28
5- T1S	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28	28	28	28	28	28
6- T1S	28	28	28	28	28	28	28	27	27	27	27	27	27	27	27	26	26	26	26	26	26
7 -T1S	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26
8- T1S	26	26	26	26	26	26	26	25	25	25	25	25	25	25	25	24	24	24	24	24	24

Table 2 The environment temperature curve of the high temperature setting for heating

T4	≤ -20	- 19	- 18	- 17	- 16	- 15	- 14	- 13	- 12	- 11	- 10	-9	-8	- 7	-6	-5	-4	- 3	-2	- 1	0
1-T1S	55	55	55	55	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	52
2- T1S	55	55	54	54	54	54	53	53	53	53	52	52	52	52	51	51	51	51	50	50	50
3- T1S	55	54	54	53	53	53	52	52	52	51	51	50	50	50	49	49	49	48	48	48	47
4- T1S	50	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	47
5- T1S	50	50	49	49	49	49	48	48	48	48	47	47	47	47	46	46	46	46	45	45	45
6- T1S	45	45	45	45	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	42
7 -T1S	45	45	44	44	44	44	43	43	43	43	42	42	42	42	41	41	41	41	40	40	40
8- T1S	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	37
Т4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		≥ 20
1-T1S	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	50	50	50	50	50	50
2- T1S	50	49	49	49	49	48	48	48	48	47	47	47	47	46	46	46	46	45	45	45	45
3- T1S	47	46	46	46	45	45	45	44	44	44	43	43	43	42	42	41	41	41	40	40	40
4- T1S	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	45	45	45	45	45	45
5- T1S	45	44	44	44	44	43	43	43	43	42	42	42	42	41	41	41	41	40	40	40	40
6- T1S	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40	40	40	40	40	40
7 -T1S	40	39	39	39	39	38	38	38	38	37	37	37	37	36	36	36	36	35	35	35	35
8- T1S	37	37	37	37	37	37	37	36	36	36	36	36	36	36	36	35	35	35	35	35	35

#### The automatic setting curve

The automatic setting curve is the ninth curve, this is the calculation:



State:In the setting the wired controller, if T4H2<T4H1, then exchange their value; if T1SETH1<T1SETH2, then exchange their value.

Table3 The environment temperature curve of the low temperature setting for cooling

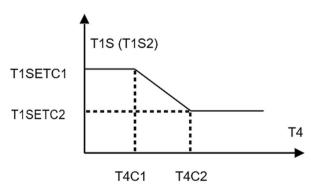
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
1 - T1S	18	11	8	5
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
2 - T1S	17	12	9	6
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
3- T1S	18	13	10	7
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
4- T1S	19	14	11	8
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
5 - T1S	20	15	12	9
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
6 - T1S	21	16	13	10
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
7 -T1S	22	17	14	11
T4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
8 - T1S	23	18	15	12

Table4 The environment temperature curve of the high temperature setting for cooling

Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
1 - T1S	22	20	18	16
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
2 - T1S	20	19	18	17
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
3- T1S	23	21	19	17
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
4- T1S	21	20	19	18
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
5 - T1S	24	22	20	18
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
6 - T1S	22	21	20	19
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
7 -T1S	25	23	21	19
Т4	-10 ≤ T4 <15	15 ≤ T4 <22	22 ≤ T4 <30	30 ≤ T4 <46
8 - T1S	23	22	21	20

The automatic setting curve

The automatic setting curve is the ninth curve, this is the calculation



State: In the setting the wired controller, if T4C2<T4C1, then exchange their value; if T1SETC1<T1SETC2, then exchange their value.

VIVAX

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Note: All the pictures in this manual are just schematic diagrams, the actual is the standard

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# **GENERAL SAFETY PRECAUTIONS**

#### About the documentation.

#### **⚠** DANGER

Indicates a situation that results in death or serious injury.

# ⚠ DANGER RISK OF ELECTROCUTION

Indicates a situation that results in death or serious injury.

# **↑** CAUTION

Indicates a situation that could result in minor or moderate injury.

# **↑** CAUTION

Indicates a situation that could result in minor or moderate injury.

# **↑** CAUTION

DO NOT rinse the unit. This may cause electric shocks or fire.

#### ♠ WARNING

Indicates a situation that could result in death or serious injury.

# ⚠ DANGER: RISK OF BURNING

Indicates a situation that could result in burning because of extreme hot or cold temperatures.

# $\bigcirc$ NOTE

Indicates a situation that could result in death or serious injury.

### **○** NOTE

Indicates a situation that could result in equipment or property damage.

# i INFORMATION

Indicates useful tips or additional information.

#### For the user

If you are not sure how to operate the unit, contact your installer.

The appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children must be supervised to ensure that they do not play with the product.

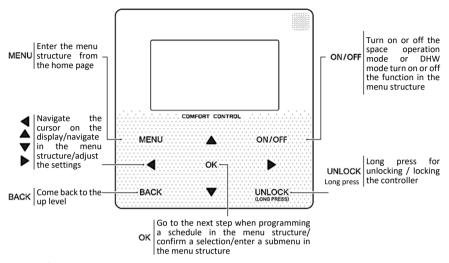
OFF | 🚱

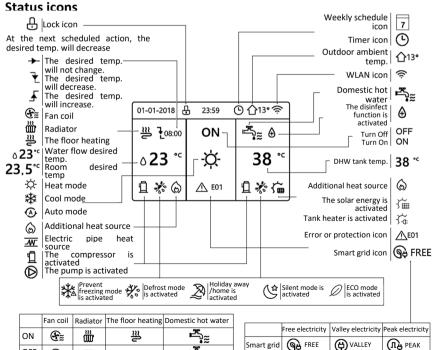
am'

\_

# A GLANCE OF THE USER INTERFACE

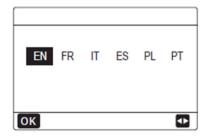
# The appearance of the wired controller





# **USING HOME PAGES**

When you turn on the wired controller, the system will enter the language selection page, You can choose your preferred language, then press **OK** to enter the home pages. If you don't press **OK** in 60 seconds, the system will enter in the currently selected language.



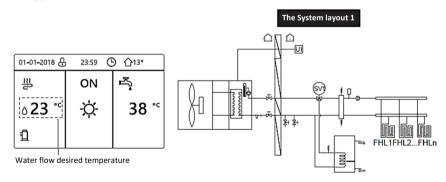
You can use the home pages to read out and change settings that are meant for daily usage. What you can see and do on the home pages is described where applicable. Depending on the system layout, the following home pages may be possible:

- Room desired temperature (ROOM)
- Water flow desired temperature (MAIN)
- DHW tank actual temperature (TANK) DHW=domestic hot water.

#### **Home Page 1**

If the WATER FLOW TEMP. is set YES and ROOM TEMP. is set NON. (See "FOR SERVICEMAN" > "TEMP. TYPE SETTING" in "Installation and owner's manual (M-thermal split indoor unit)").

The system has the function including floor heating and domestic water, home page 1 will appear.



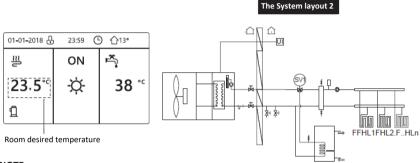
#### NOTE

All the pictures in the manual are used to explain, the actual pages in the screen may have some difference.

#### Home Page 2

If the WATER FLOW TEMP. is set NON and ROOM TEMP. is set YES (See "FOR SERVICEMAN" > "TEMP. TYPE SETTING" on "Installation and owner's manual (M-thermal split indoor unit)").

The system has the function including floor heating and domestic hot water, home page 2 will appear:



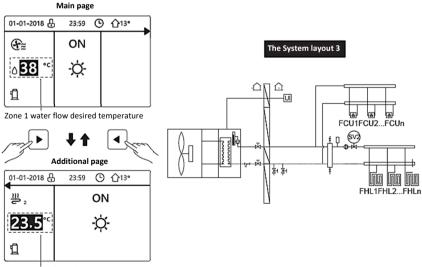
#### NOTE

The wired controller should be installed in the floor heating room to check the room temperature.

#### **Home Page 3**

If the DHW MODE is set NON (See "FOR SERVICEMAN" > "DHW MODE SETTING " in "Installation and owner's manual (M-thermal split indoor unit)", and if "WATER FLOW TEMP." is set YES, "ROOM TEMP." is set YES, (See "FOR SERVICEMAN" > "TEMP. TYPE SETTING" in "Installation and owner's manual (M-thermal split indoor unit)").

There will be main page and additional page. The system has the function including floor heating and space heating for fan coil, home page 3 will appear:

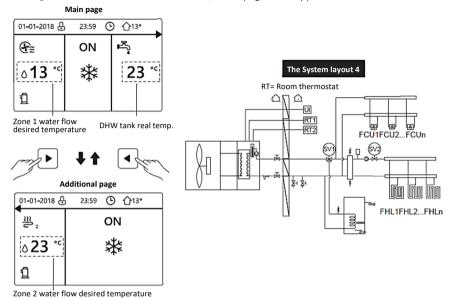


Zone 2 room desired temperature

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# **Home Page 4**

If the ROOM THERMOSTAT is set DOUBLE ZONE or DOUBLE ZONE is set YES. There will be main page and addition page. The system has the function including floor cooling, space cooling for fan coil and domestic hot water, home page 4 will appear:



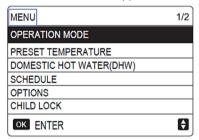
# **MENU STRUCTURE**

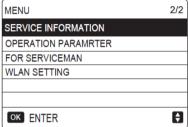
#### About the menu structure

You can use the menu structure to read out and configure settings that are NOT meant for daily usage. What you can see and do in the menu structure is described where applicable. For an overview of the menu structure, see " 7 Menu structure: Overview"

### To go to the menu structure

From a home page, press "**MENU**". Result: The menu structure appear





#### To go to the menu structure

Use"▼"、"▲" to scroll.

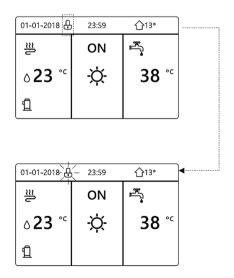
# **BASIC USAGE**

#### Screen Unlock

If the icon is on the screen, the controller is locked.

The following page is displayed:

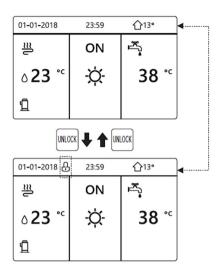
Press any key, the icon will flash. Long press the "UNLOCK" key. The icon will disappear, the interface can be controlled.



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The interface will be locked if there is no handing for a long time(about 120 seconds:it can be set by the interface, see "SERVICE INFORMATION".)

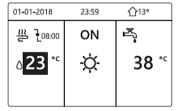
If the inerface is unlocked, long press "unlock", the interface will be locked.



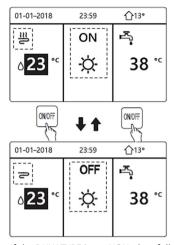
#### **Turning ON/OFF controls**

Use the interface to turn on or off the unit for space heating or cooling. The **ON/OFF** of the unit can be controlled by the interface if the ROOM THERMOSTAT is **NON**. (see "**ROOM THERMOSTAT SETTING**" in "**Installation and owner's manual (M-thermal split indoor unit)**")

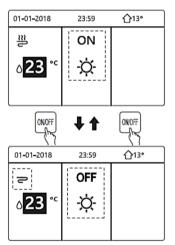
Press "◀"、 "▲" on home page, the black cursor will appear:



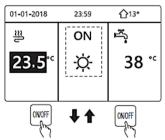
1) When the cursor is on the temperature of space operation mode side (Including heat mode 🌣 , cool mode 🅸 and auto mode 🏵 A ), press "ON/OFF" key to Turn On/Off space heating or cooling .

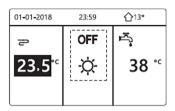


If the DHW TYPE is set NON, then following pages will display:



If the TEMP. TYPE is set ROOM TEMP., then following pages will display:

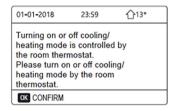




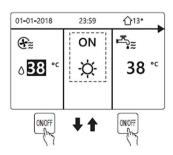
Use the room thermostat to turn on or off the unit for space heating or cooling.

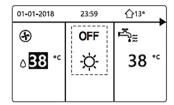
① The room thermostat is not SET NON (see "ROOM THERMOSTAT SETTING" in "Installation and owner's manual (M-thermal split indoor unit)").

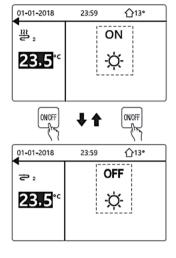
The unit for space heating or cooling is turned on or off by the room thermostat, press ON/OFF on the interface, the following page will display:



② The room thermostat is **SET DOUBLE ZONE** (see "ROOM THERMOSTAT SETTING" in "Installation and owner's manual (Mthermal split indoor unit)"). The room thermostat for fan coil is turned off, the room thermostat for the floor heating is turned on, and the unit is running, but the display is OFF. The following page is displayed:

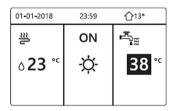






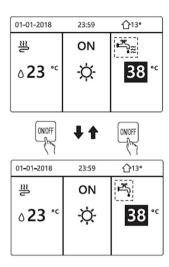
Use the interface to turn on or off the unit for DHW.

Press "▶"、"▼"on home page, the black cursor will appear:

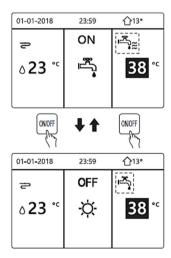


 When the cursor is on the temperature of DHW mode. Press "ON/OFF" key to turn on/off the DHW mode.

If the space operation mode is ON, then following pages will display:

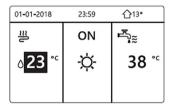


If the space operation mode is **OFF**, then following pages will display:

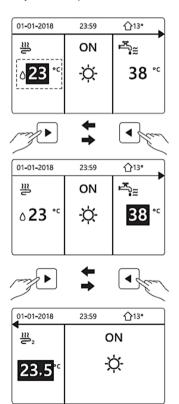


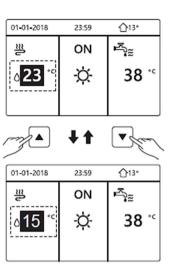
## Adjusting the temperature

Press "◀"、 "▲" on home page, the black cursor will appear:



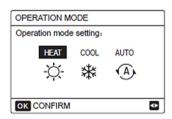
If the cursor is on the temperature, use the "◄". "▶" to select and use "▼". "▲" to adjust the temperature.:





## Adjusting space operation mode

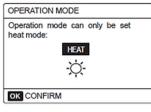
Adjusting space operation mode by interface Go to "MENU" > "OPERATION MODE". Press"OK", the following page will appear:

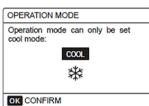


There are three modes to be selected including **HEAT, COOL** and **AUTO** mode. Use the "◄", "▶" to scroll, press "**OK**" to select.

Even you don't press OK button and exit the page by pressing **BACK** button, the mode would still be effective if the cursor had been moved to the operation mode.

If there is only **HEAT (COOL)** mode, the following page will appear:



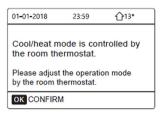


The operation mode can not be changed

Select	Then the space operation mode is
-Ö- HEAT	Always heating mode
<b>₩</b>	Always cooling mode
(A)	Automatically changed by the software based on the outdoor temperature (and depending on installer settings of the indoor temperature), and takes monthly restrictions into account.
AUTO	Note: Automatic changeover is only possible under certain conditions.  See the "FOR SERVICEMAN"> "AUTO MODE SETTING" in "Installation and
	owner's manual (M-thermal split indoor unit)".

Adjust space operation mode by the room thermostat, see "ROOM THERMOSTAT" on "Installation and owner's manual (M-thermal split indoor unit)".

Go to "MENU">"OPERATION MODE", if you press any key to select or adjust, the page will appear:



## **OPERATION**

## **Operation Mode**

See "Adjusting space operation mode":

## **Preset Temperature**

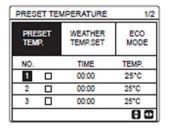
PRESET TEMPERATUER has PRESET TEMP.\
WEATHER TEMP. SET\ECO MODE 3 items.

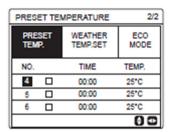
#### PRESET TEMP.

PRESET TEMP. function is used to set different temperature on different time when the heat mode or cool mode is on.

- PRESET TEMP. = PRESET TEMPERATRE
- The PRESET TEMP. function will be off in these conditions.
  - 1) AUTO mode is running.
  - 2) TIMER or WEEKLY SCHEDULE is running.
- Go to "MENU" > "PRESET TEMPERATURE" >"PRESET TEMP".
   Press "OK".

The following page will appear:





When double zone is activated, The **PRESET TEMP**. function only works for zone 1.

use " $\blacktriangleleft$ ", " $\blacktriangleright$ ", " $\blacktriangledown$ ", " $\blacktriangle$ " to scroll and use " $\blacktriangledown$ ", " $\blacktriangle$ " to adjust the time and the temperature.

When the cursor is on "■", as the following page:

PRESET TE	1/2	
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
NO.	TIME	TEMP.
1	00:00	25°C
2 🗆	00:00	25°C
3 🗆	00:00	25°C
OK ⊠ SELEC	СТ	₽Φ

You press "**OK**", and the "■" becomes " ■". The timer 1 is selected.

You press "OK" again, and the " ■ " becomes "■". The timer 1 is unselected.

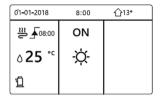
PRES	PRESET TEMPERATURE 1/2			
PRESET TEMP.		WEATHER TEMP.SET	ECO MODE	
NO.		TIME	TEMP.	
1	abla	08:00	35°C	
2	$\square$	12:00	25°C	
3	$\vee$	15:00	35°C	
OK (	CANCE	L	# 4	

Use " $\blacktriangleleft$ "," $\blacktriangleright$ "," $\blacktriangledown$ "," $\blacktriangle$ " to scroll and use " $\blacktriangledown$ "," $\blacktriangle$ " to adjust the time and the temperature.

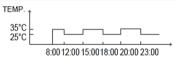
Six periods and six temperatures can be set.

#### For example:

Now time is 8:00 and temperature is 30°C. We set the **PRESET TEMP** as following table. The following page will appear:



NO.	TIME	TEMPER
1	8:00	35℃
2	12:00	25℃
3	15:00	35℃
4	18:00	25℃
5	20:00	35℃
6	23:00	25℃



## i INFORMATION

When the space operation mode is changed, the **PRESET TEMP**. is off automatically.

The PRESET TEMP. function can be used in the heat mode or cool mode. But if the operation mode is changed, the PRESET TEMP. function needs to be reset again.

The running preset temperature is invalid when the unit is OFF. It will run according to the next preset temperature when the unit turn on again.

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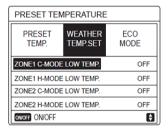
## **Water Temperature Set**

WEATHER TEMP. SET = WEATHER TEMPERATURE SET

WEATHER TEMP.SET function is used to preset the desired water flow temperature depending on the outside air temperature.During the warmer weather the heating is reduced.To save energy, the weather temp.set can decrease the desired water flow temperature when the outdoor air temperature increased in heating mode.

Go to "MENU" > "PRESET TEMPERATURE" > "WEATHER TEMP. SET". Press"OK".

The following page will appear:



## i INFORMATION

WEATHER TEMP. SET have four kinds of curves:

- 1. the curve of the high temperature setting for heating,
- 2. the curve of the low temperature setting for heating,
- 3. the curve of the high temperature setting for cooling.
- 4. the curve of the low temperature setting for cooling. It only have the curve of the high temperature setting for heating, if the high temperature is set for heating.

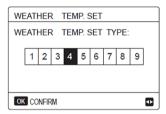
It only have the curve of the low temperature setting for heating, if the low temperature is set for heating.

It only have the curve of the high temperature setting for cooling, if the high temperature is set for cooling It only have the curve of the low temperature setting for cooling, if the low temperature is set for cooling.

See "FOR SERVICEMAN"> "COOL MODE SETTING" and > "HEAT MODE SETTING" in "Installation and owner's manual (M-thermal split indoor unit)".

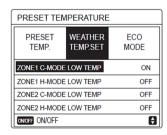
The desired temperature (T1S) can't be adjusted, when the temperature curve is set **ON**.

If you want to use heat mode in zone 1, you select "ZONE1 H-MODE LOW TEMP". If you want to use cool mode in zone 1, you select "ZONE1 C-MODE LOW TEMP". If you select "ON", the following page will appear:



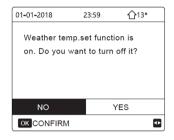
Use '◀". "▶' 'to scroll.

Press "OK" to select.

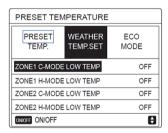


If the weather **TEMP.SET** is actived,the desired temperature can not be adjusted on the interface.Press the "▼", "▲" to adjust the temperature on home page.

The following page will appear:



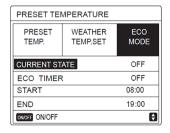
Move to "NO", press "OK" to come back to home page, move to "YES", press "OK" to reset the WEATHER TEMP. SET.



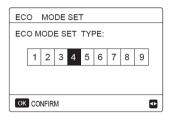
#### **ECO Mode**

ECO MODE is used to save energy. Go to "MENU" > "PRESET TEMPERATURE" > "ECO MODE".

Press "OK". The following page will appear:

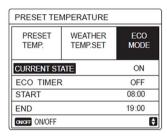


Press "ON/OFF". The following page will appear:

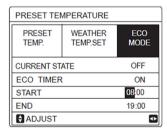


Use '◀ ", "▶"to scroll.

Press "**OK**" to select. The following page will appear:



Use "ON/OFF" to turn ON or OFF, and use "▼", "▲" to scroll.



When the cursor is on the "START" or on the "END", you can use " $\blacktriangleleft$ ","  $\blacktriangleright$  ","  $\blacktriangleright$  ","  $\blacktriangleright$  " to scroll and use " $\blacktriangledown$ ", " $\blacktriangle$ " to adjust the time.

## **i** INFORMATION

ECO MODE SET have two kinds of curves:

- the curve of the high temperature setting for heating,
- the curve of the low temperature setting for heating,
- It only have the curve of the high temperature setting for heating, if the high temperature is set for heating.
- See "FOR SERVICEMAN">"HEAT MODE SETTING" in "Installation and owner's manual (M-thermal split indoor unit)".
- The desired temperature (T1S) can't be adjusted, when the ECO mode is ON.
- You can selet the low or hige temperature setting for heating to see the "Table 1~2".
- If ECO MODE is ON and ECO TIMER is OFF, the unit run ECO mode all the time.
- If ECO MODE is ON and ECO TIMER is ON, the unit run ECO mode according to the start time and end time.

# DOMESTIC HOT WATER (DHW)

DHW mode typically consists of the following:

- 1) DISINFECT
- 2) FAST DHW
- 3) TANK HEATER
- 4) DHW PUMP

#### Disinfect

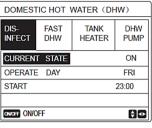
The DISINFECT function is used to kill the legionella.In disinfect function the tank temperature will be reached 65~70°C forcely.

The disinfect temperature is set in FOR SERCICEMAN.

See "FOR SERCICEMAN" > "DHW MODE" > "DISINFECT" in "Installation and owner's manual (M-thermal split indoor unit)".

Go to "MENU" > "DOMESTIC HOT WATER" > "DISINFECT".

Press "OK". The following page will appear





DOMESTIC HOT WATER (DHW)			
DIS- INFECT	FAST DHW	TANK HEATER	DHW PUMP
CURRENT STATE OFF			OFF
OPERATE DAY FRI			
START 23:00			
ON/OFF D			

Use "◀","▶ ", "▼ ", "▲" to scroll and use "▼", "▲" to adjust the parameters when setting "OPERATE DAY" and "START".

If the **OPERATE DAY** is set **FRIDAY** and the **START** is set **23:00**, the disinfect function will active on *23:00 Friday*.

If the disinfect function is running, the following page will appear:

01-01-2018 🕂	23:59	<b>☆</b> 13°
<u>≅</u>	ON	<b>~</b> }≋ ⊕
23,5°°	Ö-	38 ℃

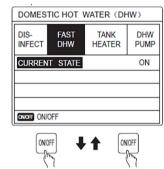
#### **Fast DHW**

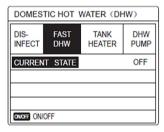
The FAST DHW function is used to force the system to operate in DHW mode.

The heat pump and the booster heater or addition heater will operate for DHW mode together, and the DHW desired temperature will be changed to 60°C.

Go to MENU> DOMESTIC HOT WATER >FAST DHW.

Press "OK"





Use "ON/OFF" key to select ON or "OFF".

## **i** INFORMATION

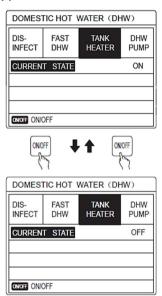
- invalid, and if CURRENT STATE is ON, the
- · FAST DHW function is effective.
- The FAST DHW function is once effective.

#### **TANK Heater**

The tank heater function is used to force the tank heater to heat the water in tank. In the same situation, the cooling or heating is required and the heat pump system is operating for cooling or heating, however there still is a demand for the hot water.

Also, even if the heat pump system fails, TANK HEATER can be used to heat water in tank.

Go to "MENU" > "DOMESTIC HOT WATER" > "TANK".



Use "ON/OFF" to select ON or OFF.
Use "BACK" to exit.

If TANK HEATER is effect, the following page will appear.



## **i** INFORMATION

If CURRENT STATE is OFF, TANK HEATER is invalid

If the T5 (sensor of tank) is fault , tank heater can't work.

#### **DHW Pump**

The DHW PUMP function is used to return water of the water net. Go to "MENU" > "DOMESTIC HOT WATER" > "DHW PUMP".

Press "OK".

The following page will appear:

DOMESTIC HOT WATER (DHW) 1/2			
DIS- INFECT	FAST DHW	TANK HEATER	DHW PUMP
NO.	START	NO.	START
<b>11</b> 🗆	00:00	T4 □	00:00
T2 🗆	00:00	T5 🗆	00:00
T3 🗆	00:00	T6 □	00:00
			(+) 42

DOMESTIC HOT WATER (DHW) 2/2			
DIS- INFECT	FAST DHW	TANK HEATER	DHW PUMP
NO.	START	NO.	START
17 🗆	00:00	T10 🗆	00:00
T8 □	00:00	T11 🗆	00:00
T9 🗆	00:00	T12 🗆	00:00
			♦ Φ

Move to " $\blacksquare$ ", press "OK" to select or unselect. ( $\square$  the timer is selected,  $\square$  the timer is unselected.)

DOMESTIC HOT WATER (DHW) 1/2			
DIS- INFECT	FAST DHW	TANK HEATER	DHW PUMP
NO.	START	NO.	START
<b>T1</b> ☑	00:00	T4 🗆	00:00
T2 🗆	00:00	T5 🗆	00:00
T3 🗆	00:00	T6 □	00:00
			<b>♦ •</b>

Use " $\blacktriangleleft$ ", " $\blacktriangleright$ ", " $\blacktriangledown$ ", " $\blacktriangle$ " to scroll and use " $\blacktriangledown$ ", " $\blacktriangle$ " to adjust the parameters.

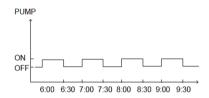
For example:you have set the parameter about the DHW PUMP (See "FOR SERVICEMAN">"DHW MODE SETTING" on "Installation and owner's manual (M-thermal split indoor unit)").

PUMP RUNNING TIME is 30 minutes.

#### Set as follows:

NO.	START
NO.	SIARI
1	6:00
2	7:00
3	8:00
4	9:00

The PUMP will run as follows:



#### **SCHEDULE**

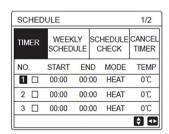
SCHEDULE menu contents as follows:

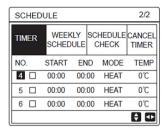
The following page will appear:

- 1) TIMER
- 2) WEEKLY SCHEDULE
- 3) SCHEDULE CHECK
- 4) CANCEL TIMER

#### **Timer**

If the weekly schedule function is on, the timer is off, the later setting is effective. If the Timer is activated,  $\odot$  is displayed on home page.





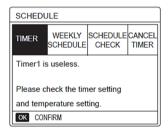
Use " $\blacktriangleleft$ ", " $\blacktriangleright$ ", " $\blacktriangledown$ ", " $\blacktriangle$ " to scroll and use " $\blacktriangledown$ ", " $\blacktriangle$ " to adjust the temperature.

Move to " $\blacksquare$ ", press "OK" to select or unselect. (( $\square$  the timer is selected,  $\square$  the timer is unselected.). six timers can be set.

If you want to cancel the **TIMER**, you move the cursor to "  $\square$ ",press "**OK**",the  $\square$  become  $\square$ , the timer is invalid.

If you set the start time later than the end time or the temperature out of range of the mode.

The following page will appear:

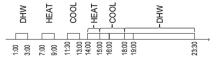


#### Example:

Six timer is set as following:

NO.	START	END	MODE	TEMP
T1	1: 00	3: 00	DHW	50℃
T2	7: 00	9: 00	HEAT	28℃
Т3	11: 30	13: 00	COOL	20℃
T4	14: 00	16: 00	HEAT	28℃
T5	15: 00	19: 00	COOL	20℃
Т6	18: 00	23: 30	DHW	50℃

The unit will run as following:



The operation of the controller at the following time:

TIME	The operatin of the controller
1:00	DHW mode is turned ON
3:00	DHW mode is turned OFF
7:00	HEAT MODE is turned ON
9:00	HEAT MODE is turned OFF
11:30	COOL MODE is turned ON
13:00	COOL MODE is turned OFF
14:00	HEAT MODE is turned ON
15:00	COOL MODE is turned ON and HEAT MODE is turned OFF
18:00	DHW MODE is turned ON and COOL MODE is turned OFF
23:30	DHW mode is turned OFF

## **i** INFORMATION

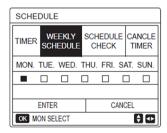
If the start time is same to the end time in one timer, the timer is invalid.

## **Weekly Schedule**

If the timer function is on and the weekly schedule is off, the later setting is effective. If WEEKLY SCHEDULE is activated, icon  $\Box$  is displayed on the home page.

Go to "MENU" > "SCHEDULE" > "WEEKLY SCHEDULE".

Press "OK". The following page will appear:



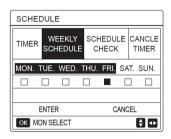
First select the days of the week you wish to schedule.

Use "◀", "▶" to scroll, press "**OK**" to select on unselect the day.

"MON" means that the day is selected,
"MON" means that the day is unselected:

## **i** INFORMATION

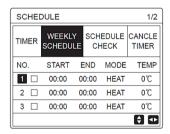
We must set two days at least when we want to enable WEEKLY SCHEDULE function.

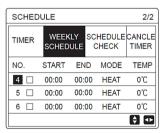


Use "◀" or "▶" to **SET**, press "**ENTER**".

The Monday to Friday are selected to be scheduled and they have the same schedule.

The following pages will appear:





Use " $\blacktriangleleft$ ", " $\blacktriangleright$ ", " $\blacktriangledown$ ", " $\blacktriangle$ " to scroll and adjust the time ,the mode and the temperature. Timers can be set, including start time and end time, mode and temperature.

The mode includes heat mode, cool mode and DHW mode.

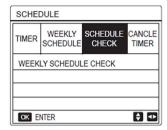
The setting method refer to timer setting. The end time must be later than the start time. Otherwise this will show that Timer is useless.

#### Schedule check

Schedule check can only check the weekly schedule.

Go to "MENU" > "SCHEDULE" > "SCHEDULE'
CHECK"

Press "OK". The following page will appear



WEEKLY SCHEDULE CHECK					
DAY	NO MO	DDE S	ET ST	ART EN	ND
				:00 00:0	
	T2 🗆 H	EAT (	°C 00	:00 00:0	00
MON				:00 00:0	
				:00 00:0	
	T5 □ H	EAT (	°C 00	:00 00:0	00
<b>+</b>	T6 □ H	EAT (	°C 00	:00 00:0	00

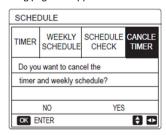
Press "▼"、"▲", the timer from Monday to Sunday will appear

#### **Cancel Timer**

Go to "MENU" > "SCHEDULE" > "CANCEL TIMER".

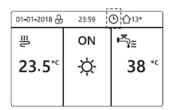
Press "OK".

The following page will appear:



Use "◀", "▶", "▼", "▲"to move to "YES", press "OK" to cancel timer. If you want to exit CANCEL TIMER, press "BACK".

If TIMER or WEEKLY SCHEDULE is activated, timer icon " (3) " or weekly schedule icon " (7) " will display on the home page.



If TIMER or WEEKLY SCHEDULE is canceled, timer icon " 🕒 " or weekly schedule icon " 🔽 " will disappear on the home page.

01-01-2018	23:59	<b>∆</b> 13°
ار	ON	
23,5°c	<del>.</del> ¤-	38 ℃

## i INFORMATION

You have to reset TIMER/WEEKLY SCHEDULE, if you change the WATER FLOW TEMP. to the ROOM TEMP. or you change the ROOM TEMP. to the WATER FLOW TEMP.

The TIMER or WEEKLY SCHEDULE is invalid, if ROOM THERMOSTAT is effect.

## **i** INFORMATION

- The ECO or COMFORT MODE has the highest priority, the TIMER or WEEKLY SCHEDULE has the second priority and the PRESET TEMP. Or WEATHER TEMP. SET has the lowest priority.
- The PRESET TEMP. or WEATHER TEMP.
   SET becomes invalid, when we set the
   ECO or COMFORT valid. We must reset
   the PRESET TEMP. or WEATHER TEMP.
   SET when we set the ECO or COMFORT invalid.
- TIMER or WEEKLY SCHEDULE is invalid when ECO or COMFORT is valid. TIMER or WEEKLY SCHEDULE is activated when the ECO or COMFORT is not running.

## i INFORMATION

- TIMER and WEEKLY SCHEDULE are on the same priority. The later setting function is valid. The PRESET TEMP. becomes invalid when TIMER or WEEKLY SCHEDULE is valid. The WEATHER TEMP. SET is not affected by the setting of TIMER or WEEKLY SCHEDULE.
- PRSET TEMP. and WATHER TEMP.SET are on the same priority. The later setting function is valid.

## **i** INFORMATION

All about the time set items (PRESET TEMP., ECO/COMFORT, DISINFECT, DHW PUMP, TIMER, WEEKLY SCHEDULE, SILENCE MODE, HOLIDAY HOME), the ON/OFF of the corresponding function can be activated from the start time to the end time.

## OPTIONS

OPTIONS menu contents as following:

- 1) SILENT MODE
- 2) HOLIDAY AWAY
- 3) HOLIDAY HOME
- 4) BACKUP HEATER

#### Silent Mode

The SILENT MODE is used to decrease the sound of the unit. However, it also decreases the heating/cooling capacity of the system. There are two silent mode levels.

The **level2** is more silent than **level1**, and the heating or cooling capacity is also more decreasing.

There are two method to use the silent mode:

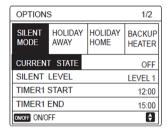
- 1) silent mode in all time;
- silent mode in timer.

Go to the home page to check if silent mode is activated. If the silent mode is activated,"

" will display on the home page.

Go to "MENU" > "OPTIONS" > "SILENT MODE".

Press "OK". The following page will appear:



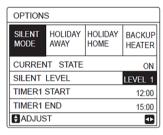
Use "ON/OFF" to select ON or OFF.

Description:

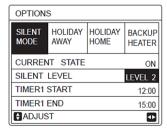
If CURRENT STATE is OFF, SILENT MODE is invalid.

When you select SILENT LEVEL, and press "OK" or "▶".

The following page will appear:



LEVEL 1

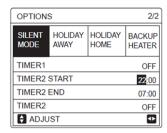


LEVEL 2

You can use " $\mathbf{\nabla}$ ", " $\mathbf{\Delta}$ " to select **level 1** or **level 2**.

Press "OK".

If the silent TIMER is selected, Press "**OK**" to enter, the following page will appear.



There are two timers for setting. Move to "
", press "OK" to select or unselect.

If the two time are both unselected, the silent mode will operate in all time. Otherwise, it will operate according as the time.

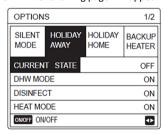
### **Holiday Away**

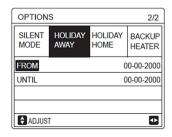
If the holiday away mode is activated, will display on the home page.

The holiday away function is used to prevent frozen in the winter during the outside holiday, and return the unit before the end of the holiday.

Go to "MENU" > "OPTIONS" > "HOLIDAY AWAY".

Press "OK". The following page will appear:





#### Usage example:

You go away during the winter.

The current date is 2018-01-31, two days later is 2018-02-02, it is the beginning date of the holiday.

If you are in the following situation:

In 2 days, you go away for 2 weeks during the winter.

You want to save energy, but prevent your house from freezing.

#### Then you can do the following:

- 1) Configure the holiday away the following settings:
- 2) Activate the holiday mode.

Go to "MENU" > "OPTIONS" > "HOLIDAY AWAY".

Press "OK".

Use "ON/OFF" to select "OFF" or "ON" and use "◀ ","▶ ", "▼", "▲" to scroll and adjust.

Setting	Value
Holiday Away	ON
From	2 February 2018
Until	16 February 2018
Operation Mode	Heating
Disinfect	ON

## **i** INFORMATION

If DHW mode in holiday away mode is ON, The disinfect set by user is invalid.

If holiday away mode is ON, The timer and weekly schedule are invalid except exit.

If the CURRENT STATE is OFF, the HOLIDAY AWAY is OFF.

If the CURRENT STATE is ON, the HOLIDAY AWAY is ON.

The remote control doesn't accept any orders when holiday away mode is ON.

## **i** INFORMATION

Disinfecting the unit on 23:00 of the last day if disinfect is ON.

When in holiday away mode, the climate related curves previously set is invalid, and the curves will automatically take effect after the holiday away mode is ends.

The preset temperature is invalid when in holiday away mode, but the preset value still display on the main page.

## **Holiday Home**

The holiday home function is used to deviate from the normal schedules without having to change them during the holiday at home.

During your holiday, you can use the holiday mode to deviate from your normal schedules without having to change them.

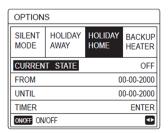
Period	Value
Before and after your holiday	Your normal schedules will be used
During your holiday	The configured holiday settings will be used

If the holiday home mode is activated, 2 will display on the home page.

Go to "MENU" > "OPTIONS" > "HOLIDAY HOME".

Press "OK".

The following page will appear:



VIVA ENG

Use "ON/OFF" to select "OFF" or "ON" and use " $\blacktriangleleft$  ", " $\blacktriangleright$  ", " $\blacktriangledown$ ", " $\blacktriangle$ " to scroll and adiust.

If the CURRENT STATE is OFF, the HOLIDAY HOME is OFF.

If the CURRENT STATE is ON. the HOLIDAY HOME is ON.

Use "▼". "▲" to adjust the date.

Before and after your holiday, your normal schedule will be used.

During your holiday, you save energy and prevent your house from freezing.



#### i INFORMATION

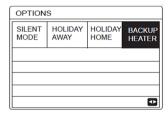
You have to reset Holiday away or Holiday home, if you change the operation mode of the unit.

## **Beckup Heater**

The BACKUP HEATER function is used to force the backup heater. Go to "MENU" > "OPTIONS" > "BACKUP HEATER".

Press "OK".

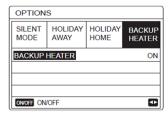
If IBH and AHS is set invalid by DIP switch on the main control board of hydraulic module. The following page will appear.



**IBH** = Indoor unit backup heater.

AHS = Additional heating source.

If IBH and AHS is set valid by DIP switch on the main control board of hydraulic module, the following page will appear:



Use "ON/OFF" to select "OFF" or "ON".



## **i** INFORMATION

If the operation mode is auto mode in space heating or cooling side, the buckup heater function can not be selected.

The BACKUP HEATER function is invalid when only ROOM HEAT MODE enabled.

#### **Child Lock**

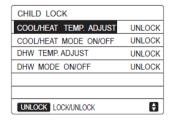
The CHILD Lock function is used to prevent children error operation. The mode setting and temperature adjusting can be locked or unlocked by using CHILD LOCK function.

Go to" MENU" > "CHILD LOCK".

The page is displayed:

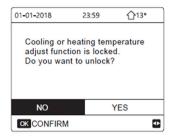


Input the corrent password, the following page will appear:



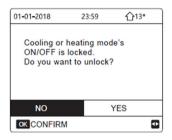
Use "▼"、 "▲" to scroll and "ON/OFF" to select LOCK or UNLOCK.

The cool/heat temperature can't be adjusted when the COOL/HEAT TEMP. ADJUST is locked. If you want to adjust the cool/heat temperature when cool/heat temperature is locked, the following page will appear:

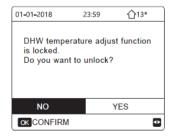


The Cool/Heat mode can't turn **ON** or **OFF** when the **COOL/HEAT MODE ON/OFF** is locked.

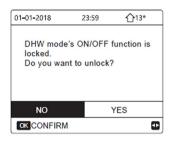
If you want to turn on or off the Cool/Heat mode when **COOL/HEAT MODE ON/OFF** is locked, the following page will appear:



The **DHW** temperature can't be adjusted when the **DHW TEMP. ADJUST** is locked.If you want to adjust the DHW temperature when **DHW TEMP. ADJUST** is **Locked**, the following page will appear:



The **DHW** mode can't turn on or off when the **DHW MODE ON/OFF** is locked.If you want to turn **ON** or **OFF** the DHW mode when **DHW MODE ON/OFF** is **Locked**, the following page will appear:



## SERVICE INFORMATION

#### About service information

Service information menu contents as following:

- 1) SERVICE CALL
- 2) ERROR CODE
- 3) PARAMETER
- 4) DISPLAY

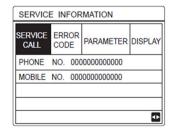
## How to go to service information menu

Go to "MENU" > "SERVICE INFORMATION".
Press "OK".

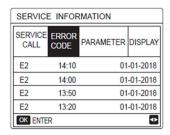
The following page will appear:

The service call can show the service phone or mobile nember. The installer can input the phone number.

See "FOR SERVICEMAN".



Error code is used to show when the fault or proction happen and show the mean of the error code.



Press **OK** the page will appear:

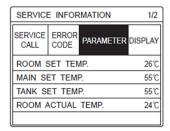
SERVICE INFORMATION 1/2			1/2
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
E2	14:10	01	-01-2018
E2	14:00	01	-01-2018
E2	13:50	01	-01-2018
E2	13:20	01	-01-2018
OK ENTE	R		<b>₽</b>

Press **OK** to show the mean of the error code:



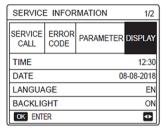


The parameter function is used to display the main parameter, there are two pages to show the parameter:



SERVICE INFORMATION		2/2	
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
MAIN ACTUAL TEMP.			26℃
TANK ACTUAL TEMP.		55℃	
SMART GRID RUNNING TIME		0 Hrs	

The DISPLAY function is used to set the interface:





Use "**OK**" to enter and use "◀", "▶", "▼", "▼", "▲" to scroll.

## **Operation Parameter**

This menu is for installer or service engineer reviewing the operation parameter.

At home page, go to "MENU" > "OPERATION PARAMETER".

Press " $\mathbf{OK}$ ". There are six pages for the operating parameter as following.

Use "▼ ", "▲" to scroll.

OPERATION PARAMETER	1/6
OPERATE MODE	COOL
CURRENT	12 A
COMPRESSOR FREQUNCY	24 Hz
COMP. RUN TIME1	54 MIN
COMP. RUN TIME2	65 MIN
COMP. RUN TIME3	10 MIN
	₽

		H
T1 LEAVING WATER TEMP.	25	°C
FREQUENCY LIMITED TYPE		0
IDU TARGET FREQUENCY	0	ΗZ
FAN SPEED 600	R/	MIN
EXPANSION VALVE	240	) P
COMP.RUN TIME4 1000	НС	UR
OPERATION PARAMETER		2/6

OPERATION PARAMETER	3/6	
T1B CIRCUIT2 WATER TEMP.	30 °C	
T2 PLATE F-OUT TEMP.	30 °C	
T2B PLATE F-IN TEMP.	45 °C	
T3 OUTDOOR EXCHANGE TEMP.	-7 °C	
T4 OUTDOOR AIR TEMP.	-7 °C	
T5 WATER TANK TEMP.	-7 °C	
	H	

OPERATION PARAMETER	4/6
Ta ROOM TEMP.	25 °C
Th COMP. SUCTION TEMP.	25 °C
Tp COMP. DISCHARGE TEMP.	25 °C
TW-O PLATE W-OUTLET TEMP	25 °C
TW-I PLATE W-INLET TEMP.	25 °C
P1 COMP. PRESSURE1	200 kPa
	A

OPERATION PARAMETER	5/6
T1S' C1 CLI. CURVE TEMP.	25 °C
T1S2' C2 CLI. CURVE TEMP.	25 °C
TF MODULE TEMP.	55 °C
SUPPLY VOLTAGE	230 V
POWER CONSUM.	1000 KWh
DC GENERATRIX VOLTAGE	420 V
	H

	( <del>)</del>
ODU SOFTWARE	00-00-2000\/00
IDU SOFTWARE	00-00-2000V00
HMI SOFTWARE	00-00-2000V00
HEAT PUMP CAPACTIY	11.52 KW
WATER FLOW	1.72 M3/H
DC GENERATRIX CURRENT	
OPERATION PARAMETE	R 6/6

## **i** INFORMATION

The power consumption parameter is optional.

if some parameter not be activated in the system, the parameter will show "--"

The heat pump capacity is for reference only, not used to judge the ability of the unit. The accuracy of sensor is ±1°C. The flow rates parameters are calculated according to the pump running parameters,the deviation is different at different flow rates,the maximum of deviation is 15%.

#### For Serviceman

#### **About For Serviceman**

FOR SERVICEMAN is used for installater and service engineer.

- Setting the function of equipment.
- Setting the parameters.

# How To Go To For Serviceman Go to "MENU" > "FOR SERVICEMAN". Press "OK".



The FOR SERVICEMAN is used for installer or service engineer. It is NOT instended the home owener alters setting with this menu.

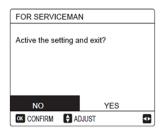
It is for this reason password protection is requierd to prevent unauthorised access to the service settings.

The password is 2 3 4

#### How To Exit For SERVICEMAN

If you have set all the parameter.

Press "BACK", the following page will appear:



Select "YES" and press "OK" to exit the FOR SERVICEMAN.

After exiting the FOR SERVICEMAN, the unit will be **Turned OFF**.

#### **Network Configuration Guidelines**

The wired controller realizes intelligent control with a built-in module, which receives control signal from the APP.

Before connecting the WLAN, please check for it if the router in your environment is active and make sure that the wired

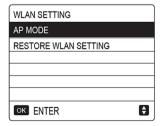
controller is well-connected to the wireless signal.

During the Wireless distribution process, the LCD icon " ?"

flashes to indicate that the network is being deployed. After the process is completed, the icon " \( \begin{align\*} \text{" will be constantly on.} \end{align\*} \)

#### Wired Controller Setting

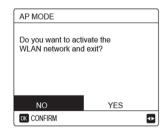
The wired controller settings include AP MODE and RESTORE WLAN SETTING.



Activate the WLAN by interface.

Go to "MENU"> "WLAN SETTING"> "AP MODF".

Press "OK", the following page will appear:



Use "◀", "▶" to move to "YES", press "OK" to select AP mode.

Select AP Mode correspondingly on the mobile device and continue the follow-up settings according to the APP prompts.

#### **CAUTION**

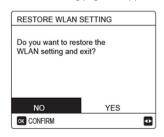
After enter Ap mode, if it's not connected with mobile phone, the LCD icon " 🛜 " will flash 10 minutes then disappear.

If it's connected with the mobile phone, the icon " " will be constantly display.

Restore WLAN setting by interface.

Go to "MENU"> "WLAN SETTING" > "RESTORE WLAN SETTING".

Press "OK", the following page will appear:



Use "◀" "▶" to move to "YES", press "OK" to restore WLAN setting.

Complete the above operation and wireless configuration is reset.

#### **Mobile Device Setting**

AP Mode is available for wireless distribution on mobile device side.

AP Mode connecting WLAN:

#### Install APP

1. Scan the following QR code to install the Smart Home APP.



 Please research "Msmartlife" in APP STORE or GOOGLE PLAY to install the APP.

#### Sign in/Sign up

Click the "+" button on the right side of the home page, register account according to the guide.



#### Add Home Appliances:

1. Choose the wired controller model, then go to add the device.



2. Operate the wired controller according to APP prompts



Wait for the home appliance to connect, and click "Finish".



- After the appliance is successfully connected, the LCD icon" " of the wired controller is constantly On, and the air conditioner can be controlled through the APP.
- If the network distribution process fails, or the mobile connection demands reconnection and replacement, operate "WLAN Factory Reset" on the wired controller, and then repeat the above process



## Warning and trouble-shooting for networking failures

When the product is connected to the network, please make sure that the phone is as close as possible to the product.

We only support 2.4GHz band routers at present.

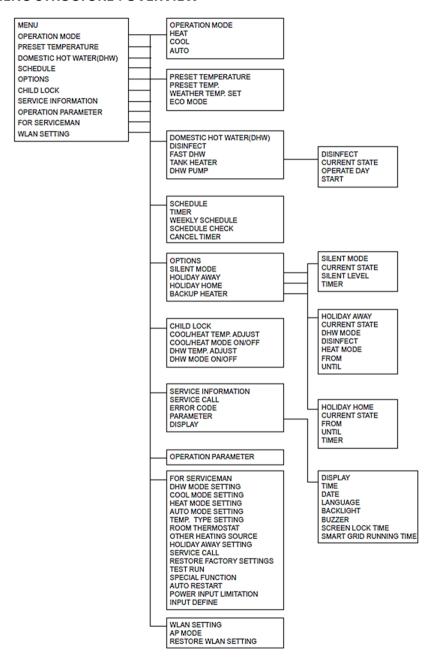
Special characters (punctuation, spaces, etc.) are not recommended as part of the WLAN name.

It is recommended that you connect no more than 10 devices to a single router lest home appliances are affected by weak or unstable network signal.

If the password of the router or WLAN is changed, clear all settings and reset the appliance.

The contents of APP might change in version updates and actual operation shall prevail.

## **MENU STRUCTURE: OVERVIEW**



FOR SERVICEMAN 1 DHW MODE SETTING 1 DHW MODE SETTING 1 1 DHW MODE 2 COOL MODE SETTING 2 COOL MODE SETTING 1.2 DISINFECT 2.1 COOL MODE 3 HEAT MODE SETTING 1.3 DHW PRIORITY 2.2 t T4 FRESH C 4 AUTO MODE SETTING 1.4 DHW PUMP 2.3 T4CMAX 5 TEMP. TYPE SETTING 1.5 DHW PRIORITY TIME SET 2.4 T4CMIN 6 ROOM THERMOSTAT 1.6 dT5 ON 2.5 dT1SC 7 OTHER HEATING SOURECE 1.7 dT1S5 2.6 dTSC 8 HOLIDAY AWAY SETTING 1.8 T4DHWMAX 2.7 t INTERVAL C 9 SERVICE CALL 1.9 T4DHWMIN 2.8 T1SetC1 10 RESTORE FACTORY SETTINGS 1.10 t INTERVAL DHW 2.9 T1SetC2 11TEST RUN 1.11 dT5\_TBH\_OFF 1.12 T4\_TBH\_ON 2.10 T4C1 12 SPECIAL FUNCTION 2.11 T4C2 13 AUTO RESTART 1.13 t TBH DELAY 2.12 ZONE1 C-EMISSION 14 POWER INPUT LIMITATION 1.14 T5S DI 2.13 ZONE2 C-EMISSION 15 INPUT DEFINE 1.15 t DI HIGHTEMP 1.16 t\_DI\_MAX 1.17 t\_DHWHP\_RESTRICT 4 AUTO MODE SETTING 1.18 t\_DHWHP\_MAX 4.1 T4AUTOCMIN 1.19 DHW PUMP TIME RUN 4.2 T4AUTOHMAX 1.20 PUMP RUNNING TIME 1.21 DHW PUMP DI RUN 5 TEMP. TYPE SETTING 3 HEAT MODE SETTING 5.1 WATER FLOW TEMP. 3.1 HEAT MODE 5.2 ROOM TEMP. 3.2t T4 FRESH H 5.3 DOUBLE ZONE 3.3 T4HMAX **3.4 T4HMIN** 3.5 dT1SH 6 ROOM THERMOSTAT 6.1ROOM THERMOSTAT 3.6 dTSH 3.7 t INTERVAL H 3.8 T1SetH1 7 OTHER HEATING SOURCE 3.9 T1SetH2 7.1 dT1\_IBH\_ON 3.10 T4H1 7.2 t IBH DELAY 3 11 T4H2 7.3 T4 IBH ON 3.12 ZONE1 H-EMISSION 7.4 dT1 AHS ON 3.13 ZONE2 H-EMISSION 7.5 t\_AHS\_DELAY 3.14 t DELAY\_PUMPI 7.6 T4\_AHS\_ON 8 HOLIDAY AWAY SETTING 8.1 T1S\_H.A.\_H 8.2 T5S H.A. DHW 9 SERVICE CALL PHONE NO MOBILE NO. 10 RESTORE FACTORY SETTINGS 11 TEST RUN 12 SPECIAL FUNCTION 13 AUTO RESTART 13.1 COOL/HEAT MODE 13.2 DHW MODE 14 POWER INPUT LIMITATION 14.1 POWER LIMITATION 15 INPUT DEFINE 15.1 CN12 ON/OFF REMOTE 15.2 CN35 SMART GRID 15.3 CN15 T1B

15.4 Ta PROBE

Table 1: The environment temperature curve of the low temperature setting for heating

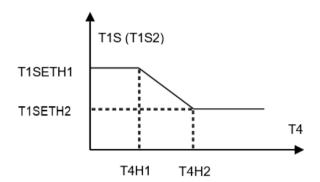
T4	≤ -20	- 19	- 18	- 17	- 16	- 15	- 14	- 13	- 12	-11	- 10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
1- T1S	38	38	38	38	38	37	37	37	37	37	37	36	36	36	36	36	36	35	35	35	35
2-T1S	37	37	37	37	37	36	36	36	36	36	36	35	35	35	35	35	35	34	34	34	34
3- T1S	36	36	36	35	35	35	35	35	35	34	34	34	34	34	34	33	33	33	33	33	33
4-T1S	35	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32
5- T1S	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32	31	31	31	31	31	31
6- T1S	32	32	32	32	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	29
7- T1S	31	31	31	31	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28
8- T1S	29	29	29	29	28	28	28	28	28	28	28	28	27	27	27	27	27	27	27	27	26
T4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	≥	20
1- T1S	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32	32
2- T1S	34	34	33	33	33	33	33	33	32	32	32	32	32	32	31	31	31	31	31	31	31
3- T1S	32	32	32	32	32	32	31	31	31	31	31	31	30	30	30	30	30	30	29	29	29
4-T1S	31	31	31	31	31	31	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28
5- T1S	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28	28	28	28	27	27	27
6- T1S	29	29	29	29	29	29	28	28	28	28	28	28	27	27	27	27	27	27	26	26	26
7- T1S	28	28	28	28	28	28	27	27	27	27	27	27	26	26	26	26	26	26	25	25	25
8- T1S	26	26	26	26	26	26	26	25	25	25	25	25	25	25	25	24	24	24	24	24	24

Table 2: The environment temperature curve of the high temperature setting for heating

T4	≤ -20	- 19	- 18	- 17	- 16	- 15	- 14	- 13	- 12	- 11	- 10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
1- T1S	55	55	55	55	54	54	54	54	54	54	54	54	53	53	53	53	53	53	53	53	52
2-T1S	53	53	53	53	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	50
3- T1S	52	52	52	52	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	49
4- T1S	50	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	47
5- T1S	48	48	48	48	47	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	45
6- T1S	45	45	45	45	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	42
7- T1S	43	43	43	43	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40
8- T1S	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	37
T4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	≥ 2	20
1- T1S	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	50	50	50	50	50	50
2- T1S	50	50	50	50	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48	48
3- T1S	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	47	47	47	47	47	47
4- T1S	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	45	45	45	45	45	45
5- T1S	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	43	43	43	43	43	43
6- T1S	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	40	40	40	40	40	40
7- T1S	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	38	38	38	38	38	38
8- T1S	37	37	37	37	37	37	37	36	36	36	36	36	36	36	36	35	35	35	35	35	35

## The automatic setting curve

The automatic setting curve is the ninth curve, this is the calculation:



State:In the setting the wired controller, if T4H2<T4H1, then exchange their value; if T1SETH1<T1SETH2, then exchange their value.

Table 3: The environment temperature curve of the low temperature setting for cooling

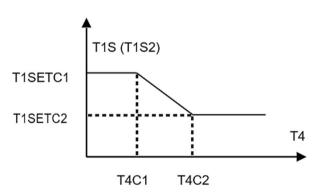
T4	-10≤ T4<15	15≤ T4<22	22≤ T4<30	30≤ T4
1-T1S	16	11	8	5
2-T1S	17	12	9	6
3-T1S	18	13	10	7
4-T1S	19	14	11	8
5-T1S	20	15	12	9
6- T1S	21	16	13	10
7-T1S	22	17	14	11
8- T1S	23	18	15	12

Table 4: The environment tem	nerature curve of the high	temperature setting for cooling
Table 4. The environment term	iperature curve or the riight	terriperature setting for cooling

T4	-10≤ T4<15	15≤ T4<22	22≤ T4<30	30≤ T4
1- T1S	20	18	17	16
2- T1S	21	19	18	17
3- T1S	22	20	19	17
4- T1S	23	21	19	18
5- T1S	24	21	20	18
6- T1S	24	22	20	19
7- T1S	25	22	21	19
8- T1S	25	23	21	20

The automatic setting curve

The automatic setting curve is the ninth curve, this is the calculation



State: In the setting the wired controller, if T4C2<T4C1, then exchange their value; if T1SETC1<T1SETC2, then exchange their value.

#### **DISPOSAL OF ELECTRICAL AND ELECTRONIC EQUIPMENT**



To protect our environment and to recycle the raw materials used as completely as possible, the consumer is asked to return unserviceable equipment to the public collection system for electrical and electronic.

The symbol of the crossed indicates that this product must be returned to the collection point for electronic waste to feed it by recycling the best possible raw material recycling.

By ensuring this product you will prevent possible negative effects on the environment and human health, which could otherwise be caused due to improper disposal of that product. The recycling of materials from this product, you will help to preserve a healthy environment and natural resources. For detailed information about the collection of EE products contact the dealer where you purchased the product.

### **EU DECLARATON OF CONFORMITY**

This device is manufactured in accordance with the applicable European standards and in accordance with all applicable Directives and Regulations.



EU declaration of conformity can be downloaded from the following link: www.msan.hr/dokumentacijaartikala

