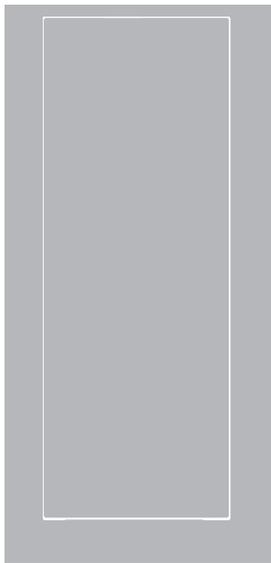


# Airwell

## INSTALLATION & OPERATING MANUAL

WELLEA SPLIT TANK R32

*Indoor & Outdoor*



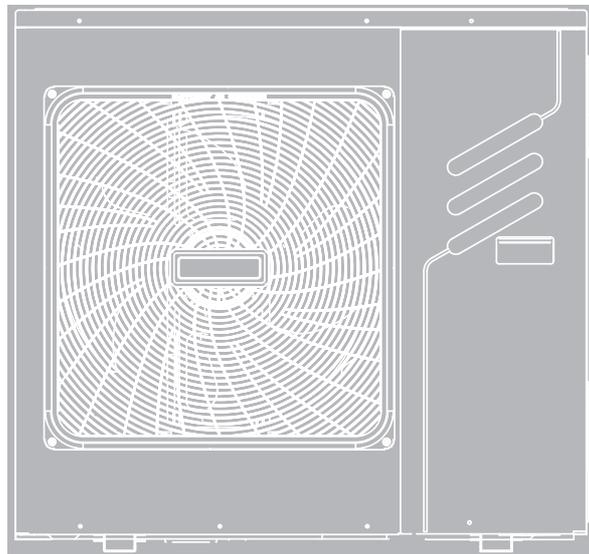
AW-YHPS04-H91

AW-YHPS06-H91

AW-YHPS08-H91

AW-YHPS10-H91

AW-WHPST0410-N91



Dear Customer,

We congratulate you on choosing these product

Airwell has been working for years to offer systems able to assure the maximum comfort for a long time with highly-reliable, efficient, high-quality and safe solutions.  
The target of the company is to offer advanced systems, that assure the best comfort and reduce energy consumption as well as the installation and maintenance costs for the entire life-cycle of the system.

With this manual, we want to give you information that are useful for all phases: from reception, installation and use to disposal - so that such an advanced system can provide the best performances during installation and use.

Best regards and have a good read.

Airwell Residential S.A.S.

|   |    |                                  |     |
|---|----|----------------------------------|-----|
|   | 1  | Safety considerations            | 6   |
|   | 2  | Information on refrigerant gas   | 12  |
|    | 3  | General                          | 13  |
|   | 4  | Reception                        | 14  |
|   | 5  | Installation requirements        | 19  |
|   | 6  | Water connections                | 29  |
|   | 7  | Refrigerating connections        | 34  |
|   | 8  | Electrical connections           | 39  |
|   | 9  | Start - up                       | 48  |
|  | 10 | Control                          | 72  |
|   | 11 | Maintenace                       | 121 |
|   | 12 | Disposal                         | 134 |
|   | 13 | Accessories                      | 135 |
|   | 14 | Technical data                   | 136 |
|   | 15 | Energy data sheets and labelling | 144 |

Pay particular attention to:



INSTALLER use

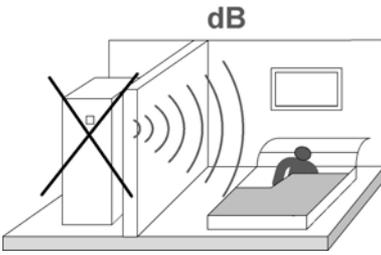


USER use

### A Consider sound emissions

Internal unit

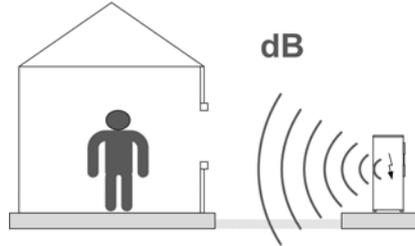
For details see the manual sections



Avoid installations next to bedrooms

Install in a local or compartment where the temperature can't drop below 0 ° C.

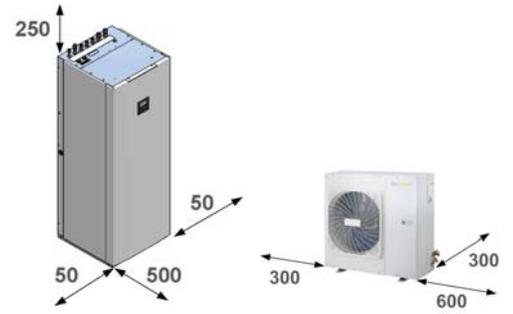
External unit



Place so that it doesn't disturb

### B Functional clearances/access

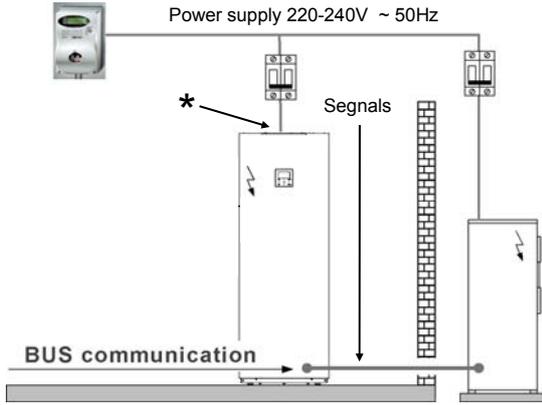
Respect the functional clearances for maintenance



### F Electrical connections

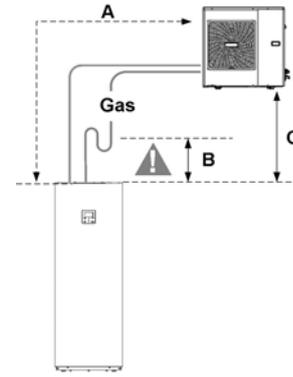
#### Separate power supply and signal

Power supply 220-240V ~ 50Hz



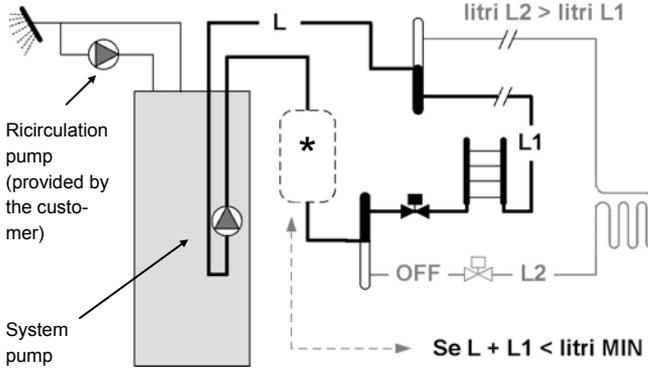
\* Use a cable puller to insert the power cable through the opening.

### G Refrigerant piping: distance maximum height differences



| Size              | 4kW - 6kW | 8kW - 10kW |
|-------------------|-----------|------------|
| Liquid Ø external | 1/4"      | 3/8"       |
| Gas Ø external    | 5/8"      | 5/8"       |

### L Water minimum content always circulating

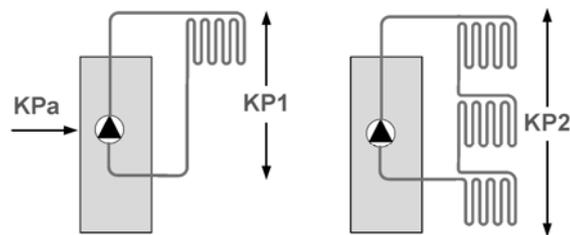


\* Storage tank: this is present when the radiator circuit is excluded and there is not enough water in the towel warmer circuit

| Size                  | 4kW | 6kW | 8kW | 10kW |
|-----------------------|-----|-----|-----|------|
| Min. content / Liters | 15  | 22  | 28  | 35   |

### M Pump head/pressure drops of the system

Check that the pump head is adequate to the type of system

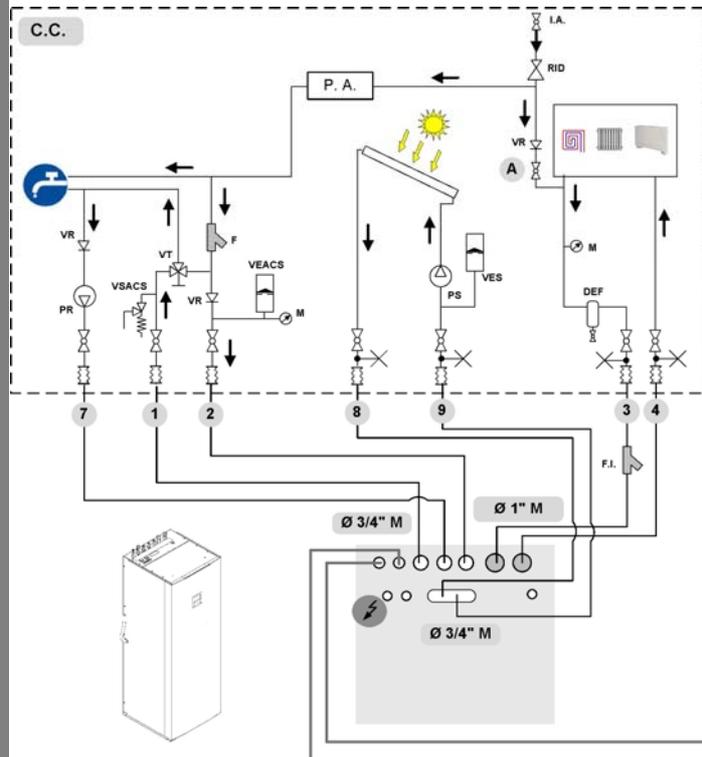


$KPa > KP1 = OK$

$KPa < KP2 = NO !$

$KPa =$  Useful pump discharge head

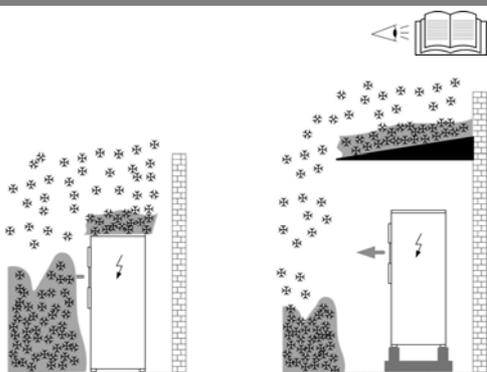
### N Water connection



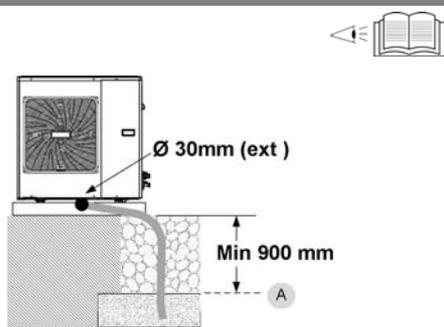
Anti-vibration joints

Cut-off valves

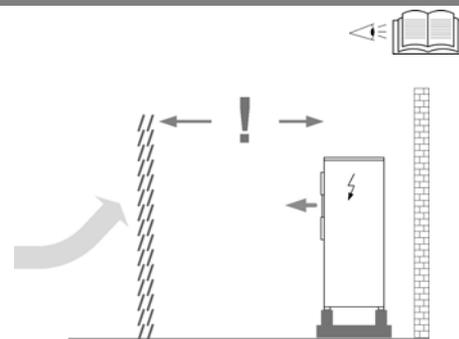
Vent

**C****Snowdrifts**

Provide a protection

**D****Condensate discharge**

To avoid the water freezing downstream of the drain, lay the tube below the frost line (A).

**E****Strong winds**

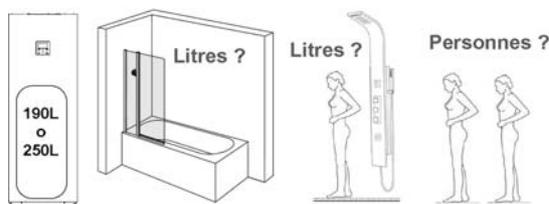
Provide windbreaks or similar

**H****Water features**Between 8°f  
and 15°f

If necessary, install water softener

**I****Domestic Hot Water Requirements**

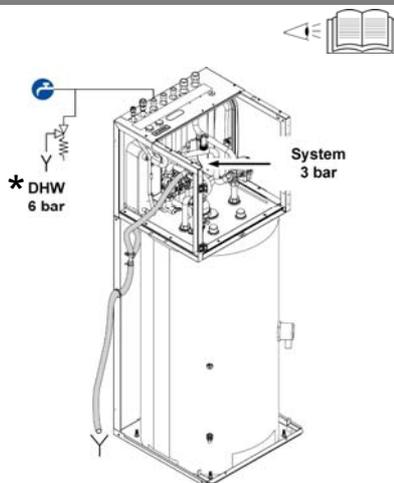
The requirements vary by the number of people living in the building



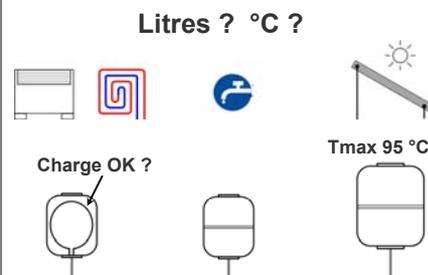
Estimated average daily per capita consumption of hot water

| Requirements  | Liters - day - people (bathroom) | Liters - day - people (kitchen) |
|---------------|----------------------------------|---------------------------------|
| Low           | Min.15 > max. 30                 | Min. 10 > max. 20               |
| <b>Medium</b> | Min.30 > max. 60                 | Min. 20 > max. 40               |
| High          | Min.60 > max. 120                | Min. 40 > max. 80               |

Example: average requirement for 4 people need about 230 litres/day

**O****Internal unit drains**

\* DHW safty valve (provided by the customer)

**P****Expansion tanks****Q****System cleaning**

Carefully wash the system

**C.C. Components provided by Customer**

- A** System valve
- I.A.** Aqueduct input
- F** Water filter (supplied as standard)
- F.I.** System filter (provided by the customer)
- M** Pressure gauge
- P. A.** Descaler protection
- PS** Solar pump
- PR** Recirculation pump
- RID** Pressure reducing valve
- VEACS** Domestic hot water expansion tank
- VSACS** Domestic hot water safty valve
- VES** Solar expansion tank
- VR** Check valve
- VT** Mixing valve thermostatic

- 1 Domestic hot water output
- 2 Water input
- 3 System water return
- 4 System water outlet
- 5 Refrigerant line( liquid)
- 6 Refrigerant line ( gas)
- 8 Solar system input (option)
- 9 Solar system output (option)
- 10 Domestic hot water recirculation

**BEFORE REQUESTING START-UP**

- Completed system
- Refrigeration circuit emptying and charging
- Water circuit loading and venting

**Rapid guide****WELLEA SPLIT TANK***Airwell*

The precautions in this manual are divided as indicated on the side.

They are important, so make sure you follow them closely.

Please read these instructions carefully before installing.

Keep this manual handy for future reference. This unit contains fluorinated gases. For specific information on gas types and quantities, please refer to the plate found on the unit.

Please contact your dealer for future assistance.

## **DANGER**

- ⇒ *An incorrect installation of equipment or accessories may provoke electric shocks, short circuits, leaks, fire or other damages to the equipment. Make sure you only use accessories provided by the supplier - which are designed specifically for the equipment -and make sure they are installed by a professional.*
- ⇒ *All activities described in this manual must be performed by authorised technicians. Make sure to wear suitable personal protection such as gloves and safety goggles while installing the unit or performing maintenance operations.*
- ⇒ *Switch off the power switch before touching electrical components and terminals.*
- ⇒ *When the service panels are removed, the live parts can easily be touched by mistake.*
- ⇒ *Never leave the unit unattended during installation or maintenance operations while the service panel is removed.*
- ⇒ *Do not touch the water pipes during and after performing welding or junction work as the pipes may be very hot and you may burn your hands. To avoid lesions, wait until the pipes return to a normal temperature or make sure you are wearing protective gloves.*

## **Meaning of the symbols DANGER, WARNING, CAUTION and NOTE**

### **DANGER**

- ⇒ *It indicates a situation of imminent danger that, if not avoided, will cause death or serious lesions.*

### **WARNING**

- ⇒ *It indicates a potentially dangerous situation that, if not avoided, may cause death or serious lesions.*

### **CAUTION**

- ⇒ *It indicates a potentially dangerous situation that, if not avoided, may cause slight or moderate injury. Also used to warn against unsafe practices.*

### **NOTE**

- ⇒ *It indicates situation that may cause accidental damage to the equipment or property.*



# 1 SAFETY CONSIDERATIONS

⇒ Do not touch any switch with wet hands. Touching a switch with wet hands may lead to electric shock.

## WARNING

⇒ The power supply of the WELLEA series complies with IEC / EN 61000-3-11 and must be connected to a suitable power supply network, in able to support a maximum system impedance of  $Z_{max} = 0.445$  ohm on the interface. Keep in touch with the supply authority so to ensure that the power supply is connected only to a power supply with an impedance no more than the one shown above.

⇒ Maintenance operations must be performed as recommended by the manufacturer. Maintenance and reparation operations requiring the assistance from specialized personnel must be performed under the supervision of the person competent as regards flammable refrigerants.

⇒ Tear and dispose of plastic bags so that children may not play with them. Children playing with plastic bags risk choking.

⇒ Some products use PP packaging straps. Do not pull the straps or use them to lift or move the product. It may be dangerous should the straps break.

⇒ Dispose safely of packaging material such as nails or other metal or wooden parts that may cause lesions.

⇒ Ask your dealer or qualified personnel to perform installation operations according to this manual. Do not install the unit yourself. An incorrect installation may cause water leaks, electric shock or fire.

⇒ Make sure to only use accessories and parts specified for installation operations. Failing to use specific parts may cause

⇒ water leaks, electric shock, fire or the unit falling from its support.

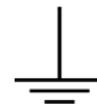
⇒ Install the unit on a structure that can withstand its weight. An insufficiently robust



Warning:  
Fire hazard  
Flammable materials

*structure may lead to the unit falling causing possible lesions.*

- ⇒ Perform installation operations considering the possibility that strong winds, hurricanes or earthquakes may occur. Incorrect installation operations may lead to accidents caused by falling equipment.*
- ⇒ Make sure all electrical operations are performed by qualified personnel in accordance with the law, local regulations and this manual.*
- ⇒ Connect the unit to a separate power supply circuit. An insufficient capacity of the power supply circuit or incorrect connections may lead to electric shock or fire.*
- ⇒ Make sure to install an additional differential circuit-breaker against a leakage to earth compliant with the law and local regulations: omnipolar circuit breaker, at least 3 mm separation in all poles, residual current device (RCD) with a rated value not exceeding 30 mA.*
- ⇒ Failing to install a differential circuit-breaker may lead to electric shock and fire.*
- ⇒ Make sure all the wiring is safe. Use the specified wires and make sure terminal connections and wires are protected against the water, external forces or other phenomena. Incomplete connections or fixing may cause a fire.*
- ⇒ When connecting the power supply, arrange the wires so that the front panel can be fixed properly. If the front panel is not in position, it may lead to terminals overheating, electric shock or fire.*
- ⇒ People working or intervening on a cooling circuit must hold a suitable certification issued by an authorised assessment centre proving their suitability to handle refrigerants safely in compliance with a specific assessment recognised by industry associations.*
- ⇒ After installation operations are over, verify that there are no refrigerant leaks.*



- ⇒ *Never touch the leaking refrigerant directly, as it may lead to serious frostbite injuries. Do not touch the refrigerant pipes during and right after functioning, as they may be hot or cold depending on the conditions of the refrigerant flowing through the pipes, compressor and other parts of the cooling circuit. Burns or frostbite may occur if you touch the refrigerant pipes. If it is necessary to touch the pipes, wait for them to return to a normal temperature or wear protective gloves and clothes.*
- ⇒ *Do not touch the internal parts (pump, backup heater, etc.) during and immediately after functioning. Touching internal parts may cause burns. To avoid lesions, wait until the internal parts have returned to a normal temperature or, if touching them is necessary, wear protective gloves.*
- ⇒ *Do not use other means than those recommended by the manufacturer to hasten the defrosting or cleaning process.*
- ⇒ *The equipment must be placed somewhere without continuous ignition sources (e.g. open flame, a gas-operated device or an electric heater).*
- ⇒ *Do not pierce nor burn.*
- ⇒ *Be aware that refrigerants are odourless.*

## CAUTION

- ⇒ *Place the unit on the ground.*
- ⇒ *The earth resistance should comply with the law and local regulations.*
- ⇒ *Do not connect the earth cable to gas or water mains, lightning rods or phone earth cables.*
- ⇒ *Incomplete earthing may cause electrical shocks.*
- *Gas mains: fires or explosions may occur in case of a gas leak.*
- *Water mains: rigid vinyl tubes are not effective.*

- Lightning rods or phone earth cables: the electrical threshold can increase abnormally if hit by lightning.
- ⇒ *Install the power supply cable at least one metre from TVs or radios to prevent interferences or disturbances. Depending on the type of radio wave, one metre may not be enough to avoid disturbances.*
- ⇒ *Do not wash the unit as it may cause electric shocks or fires.*
- ⇒ *If the power supply cable is damaged, it must be replaced by the producers, personnel from its assistance network or qualified personnel.*
- ⇒ *Do not install the unit in the following places:*
  - Where there is mineral oil, even in form of vapour. Plastic parts may deteriorate, disperse and cause waterleaks.
  - Where corrosive gases (such as sulphurous acid) are produced.
  - Where the corrosion of copper pipes or welded parts may cause refrigerant leaks.
  - Where there are devices emitting electromagnetic waves. Electromagnetic waves may disturb the control system and cause malfunctions.
  - Where flammable gases may leak, or carbon fibre or flammable powders may be found in the air or where volatile flammable materials such as paint thinners or petrol are handled. These gases may cause a fire.
  - Where the air contains high levels of salt, such as the seaside.
  - Where the power supply voltage is subject to fluctuations, such as in factories.
  - On vehicles or ships.
  - Where there are acid or alkaline vapours.
- ⇒ *Prior to installation, verify if the user's power supply meets the unit's installation requirements (including reliable earthing, differential circuit-breaker, component size, wire section, etc.). If the electrical installation requirements are not met, the unit cannot be installed until the electrical system is rectified.*

- ⇒ *Before the hydraulic connection and electrical wiring operations, verify that the installation area is safe and without hidden dangers such as water, electricity and gas conduits.*
- ⇒ *Do not touch the fins of the heat exchanger as they may cause injury.*
- ⇒ *If installing multiple units in a centralised manner, adjust the electric load on the various phases. Do not connect multiple units to the same phase of the three-phase supply.*
- ⇒ *The following subjects may use the unit if supervised or instructed on safe usage and capable of understanding the possible dangers: children who are minimum 8 years old, people with no experience or knowledge, people with limited physical, sensory or mental abilities.*
- ⇒ *Children should be supervised to ensure that they do not play with the appliance.*
- ⇒ *Cleaning and maintenance operations to be carried out by the user must not be performed by unsupervised children.*
- ⇒ *Once the installation is complete, the unit tested and functioning is normal, instruct the client as regards the use and maintenance of the unit as indicated in this manual. In addition, make sure that the manual is suitably kept for future reference.*
- ⇒ *DISPOSAL: do not dispose of this product as unsorted waste. Contact the local authorities for information on the collection systems available. If electrical equipment is disposed of in landfills, dangerous substances may infiltrate the waste water and enter the food chain, harming the health and well-being of people and animals.*



## 2 INFORMATION ON REFRIGERANT GAS

This product contains fluorinated greenhouse gases covered by the Kyoto protocol. Do not discharge gas into air.

Refrigerant type: R32

Characteristics of R32 refrigerant:

- minimum environmental impact thanks to the low Global Warming Potential GWP
- low flammability, class A2L according to ISO 817
- low combustion speed
- low toxicity

The refrigerant quantity is indicated on the unit plate Quantity factory-loaded refrigerant and equivalent CO<sub>2</sub> tons:

| Size       | Refrigerant (Kg) | Equivalent CO <sub>2</sub> tons |
|------------|------------------|---------------------------------|
| 4kW - 6kW  | 1,55             | 1,04                            |
| 8kW - 10kW | 1,65             | 1,11                            |

### Physical characteristics of the R32 refrigerant

|                            |       |                          |
|----------------------------|-------|--------------------------|
| Safety class (ISO 817)     | A2L   |                          |
| GWP                        | 675   |                          |
| LFL Low flammability limit | 0.307 | kg/m <sup>3</sup> @ 60°C |
| BV Burning velocity        | 6,7   | cm/s                     |
| Punto di ebollizione       | -52   | °C                       |
| GWP                        | 675   | 100 yr ITH               |
| GWP                        | 677   | ARS 100 yr ITH           |
| Self-ignition temperature  | 648   | °C                       |

### UNIT IDENTIFICATION

#### Serial number label

The serial number label is positioned on the unit and allows to identify all the unit features.

#### Warning

⇒ *It has not to be removed for any reason.* It reports the regulations indications such as:

- machine type, exemple
- size
- serial number xxxxxxxxxxxx
- year of manufacture
- wiring diagram number
- electrical data
- manufacturer logo and address .

#### Serial number

It identifies uniquely each machine.

It identifies specific spare parts for the machine.

#### Assistance request

Note data from the serial number label and write them in the chart on side, so you will find them easily when needed.

In case of intervention you have to provide data.

|                     |
|---------------------|
| Serie               |
| Size                |
| Serial number       |
| Year of manufacture |
| Wiring diagram      |

### Preliminary information

#### NOTE

Before beginning the work, ensure you that have the final project for installing the system and positioning the units.

Operate in compliance with safety regulations in force .

Use single protection devices.

Before accepting the delivery you have to check:

- that the unit hasn't been damaged during transport.
- Check that the materials delivered correspond with that indicated on the transport document comparing the data with the identification label 'A' positioned on the packaging.

In case of damage or anomaly:

- Write down on the transport document the damage you found and quote this sentence: "Conditional acceptance clear evidence of deficiencies/damages during transport".
- Contact supplier and the carrier by fax and registered mail with advice of receipt.

### NOTE

⇒ Any disputes must be made within the 8 days following the delivery. Complaints after this period are invalid.

### Storage

Shelter from: direct sunlight, rain, sand and wind.

Stocking temperature:

maximum 50°C

minimum -10°C

### NOTE

⇒ The respect of the instructions on the exterior side of the packaging assures the physical and functional integrity of the unit for the final user's advantage.

### Handling

Before handling verify that the unit keeps its balance.

The following examples are indications the choice of the means and of the handling modes will depend on factors.

1 Verify unit weight and handling equipment lifting capacity . 2

Identify critical points during handling (disconnected routes, flights, steps, doors).

3 Stair climbing trolley.

4 Use protection (A) to avoid the unit damaging

5 Belt input side for lifting (B) by crane

6 Fork input side the

### DANGER

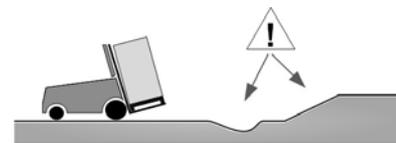
⇒ It is strictly forbidden to stand under the machine when it is lifted.



1



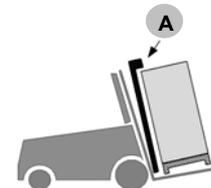
2



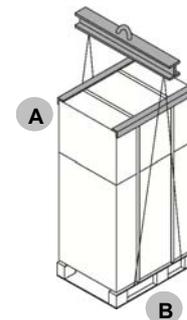
3



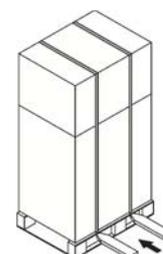
4



5



6



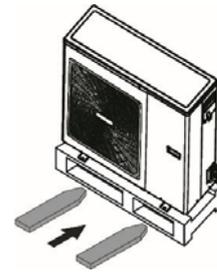
## External unit

- 1 Fork input side
- 2 Input side for lifting by crane
- 3 Do not lean it more than 45°, and do not lay it sidelong
- 4 Do not lean it more than 45°, and do not lay it sidelong

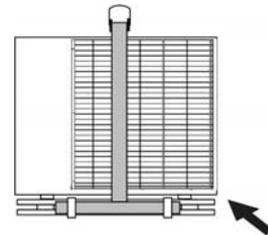
### DANGER

⇒ It is strictly forbidden to stand under the machine when it is lifted.

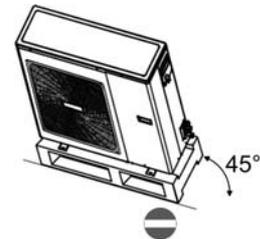
1



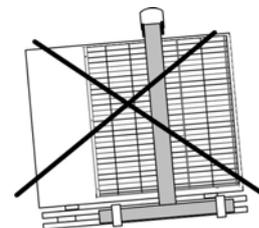
2



3



4

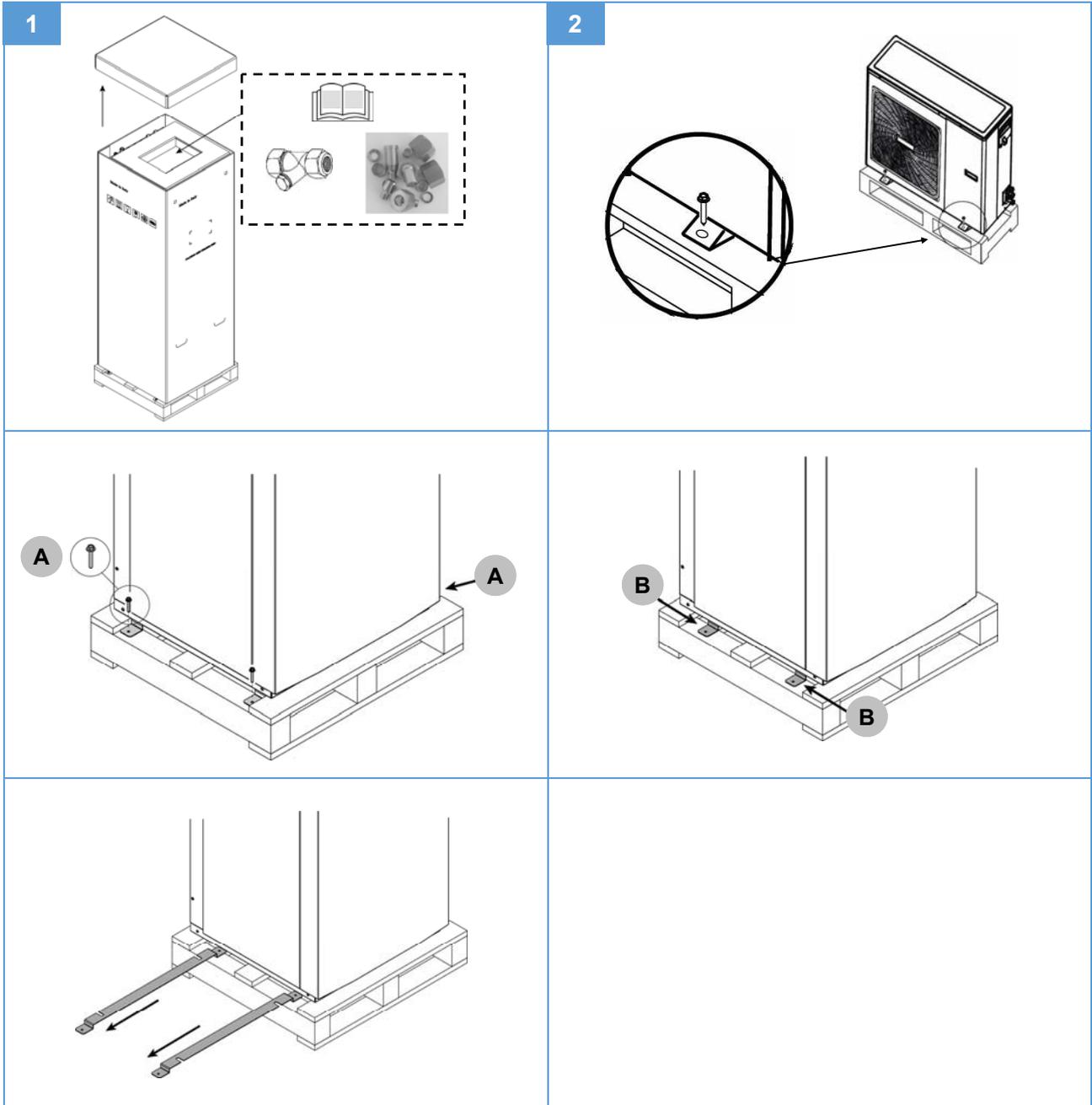


## 1 - Components supplied

Non-return valve / Water filter / Manual / Welding fittings / Shut-off valve water / Copper reduction 10-6

## 2- Remove wooden platforms

- Remove the screws (External unit)
- Remove the screws (A)
- Move the brackets (B)
- Remove the brackets



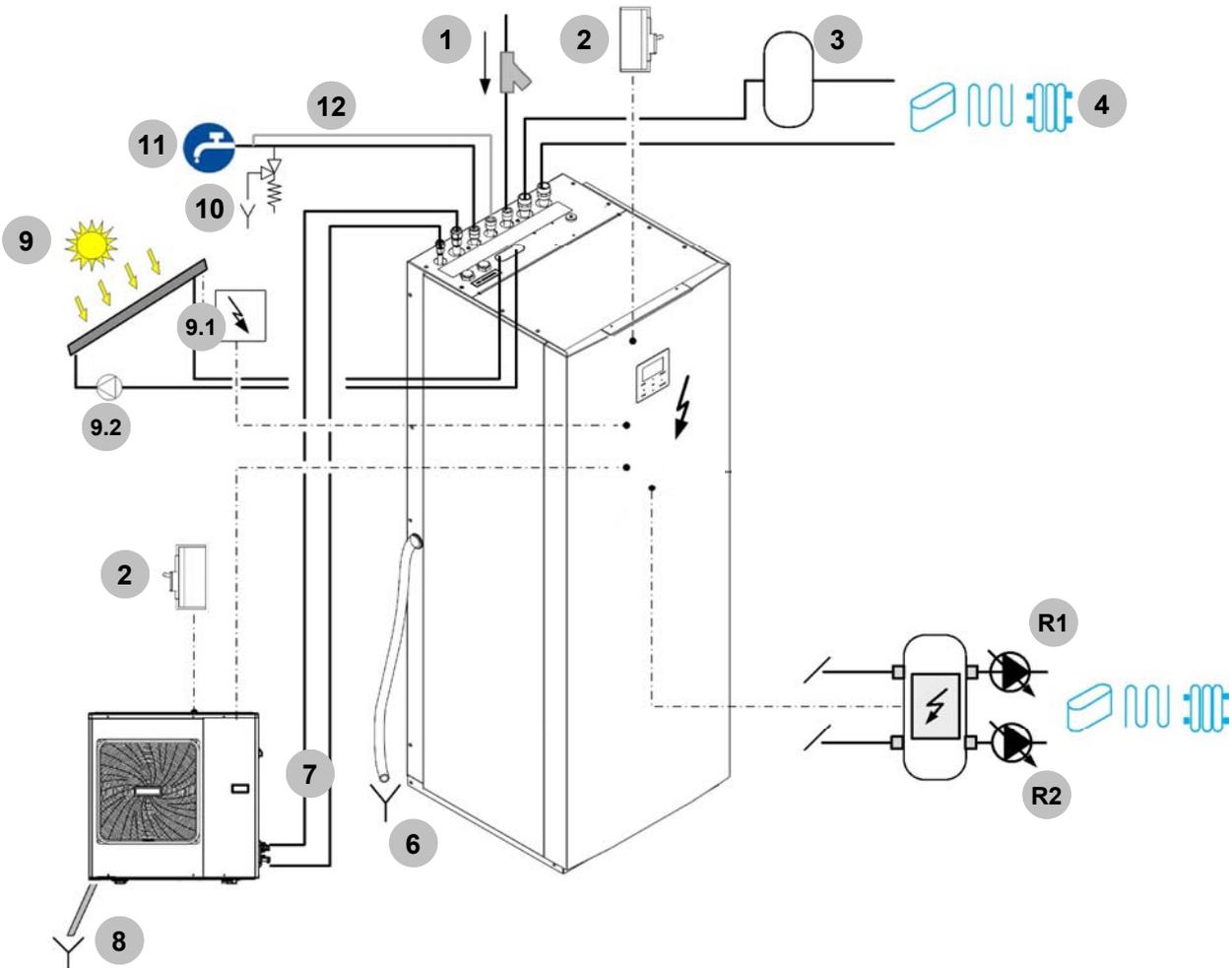
## Packing removing

Be careful not to damage the unit.

Keep packing material out of children's reach it may be dangerous.

Recycle and dispose of packing material in conformity with local regulations.

Schema collegamenti

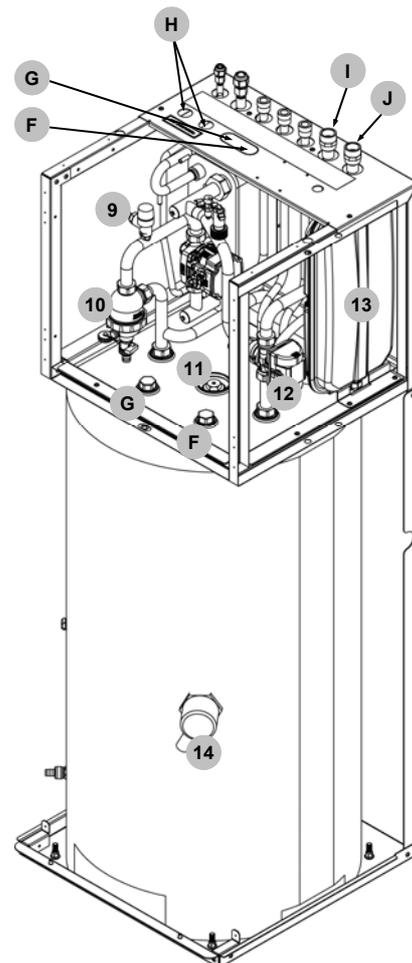
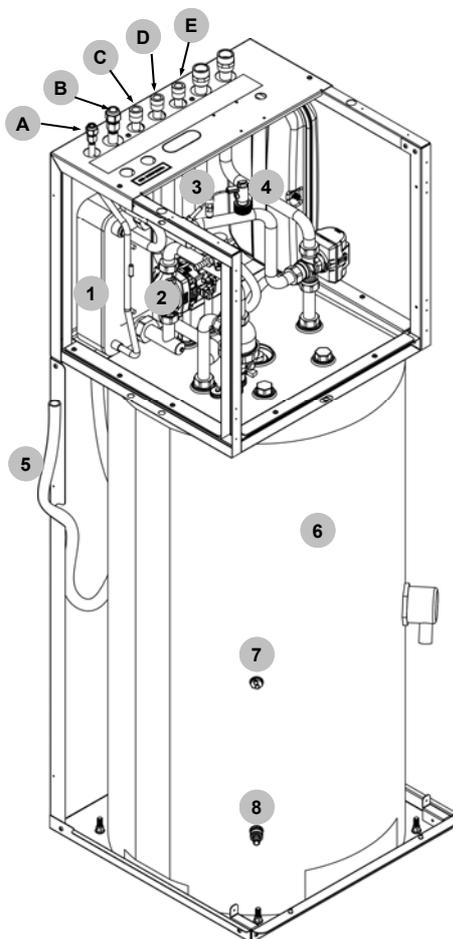


|          |                           |          |
|----------|---------------------------|----------|
| <b>1</b> | Acqueduct                 | Ø 3/4" M |
| <b>2</b> | Supply line               |          |
| <b>3</b> | Inertial storage (option) | Ø 1" M   |
| <b>4</b> | System                    |          |
|          | System outlet             | Ø 1" M   |
|          | System return             | Ø 1" M   |

|            |                       |                          |
|------------|-----------------------|--------------------------|
| <b>R1</b>  | Booster 1 (option)    |                          |
| <b>R2</b>  | Booster 2 (option)    |                          |
| <b>6</b>   | Drainage tray         | Provided by the customer |
| <b>7</b>   | Refrigerant lines     | Provided by the customer |
| <b>8</b>   | Unit drain            | Provided by the customer |
| <b>9</b>   | Solar panels (option) | Ø 3/4" M                 |
| <b>9.1</b> | Solar panels unit     |                          |
| <b>9.2</b> | Solar pump            |                          |
| <b>10</b>  | DHW drain valve       | Provided by the customer |
| <b>11</b>  | DHW                   | Ø 3/4" M                 |
| <b>12</b>  | DHW recirculation     | Ø 3/4" M                 |

## connections

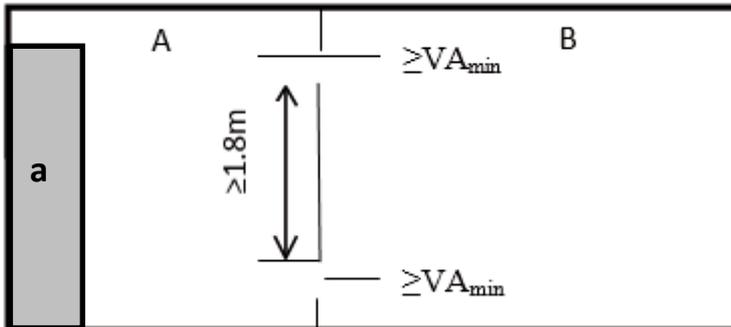
- A. Liquid line
- B. Gas line
- C. DHW output
- D. Domestic hot water recirculation input (DHW )
- E. Aqueduct input
- F. Solar system output (option)
- G. Solar system output (option)
- H. Electric line input
- I. System return
- J. System outlet



## Components

- 1. System exchanger
- 2. System pump
- 3. System vent
- 4. Flow-switch
- 5. Condensate discharge
- 6. Storage
- 7. DHW probe  
solar probe (option)
- 8. Tap
- 9. Safety valve system (3 bar)
- 10. Sludge
- 11. Anode
- 12. DHW / System production valve
- 13. System expansion vessel
- 14. Resistance (2kW)

If the total refrigerant charge in the system is  $<1.84$  kg there are no minimum surface requirements.



a Indoor unit

A Room where the unit is installed.

B Room adjacent to room A.

Area A+B must be greater than or equal to the minimum surface required in table 2 according to the total charge.

If the total refrigerant charge in the system is  $\geq 1.84$  kg it is necessary to comply with the minimum surface requirements indicated in the following procedure:

- 1 calculate, based on piping length, the total refrigerant charge (mc)
- 2 calculate area room A (Aroom A)
- 3 calculate, through table 1, the maximum refrigerant charge allowed by room A (mmax)
- 4 **if  $m_{max} \geq mc$  the unit can be installed in room A**

**if  $m_{max} \leq mc$**

- 1 calculate the area of room B adjacent to room A (Aroom B)
- 2 calculate, through table 2, the minimum total area ( $A_{min\ total}$ ) required for the total refrigerant charge (mc)
- 3 **if (Aroom A + Aroom B)  $\geq A_{min\ total}$** 
  - calculate, through table 3, the minimum area of natural ventilation opening between room A and room B
  - the unit can be installed in room A if
  - There are 2 ventilation openings (permanently open) between room A and B, 1 at the top and 1 at the bottom.
  - Lower opening: the lower opening must meet the minimum area requirements ( $V_{Amin}$ ). It must be as close to the floor as possible. If the ventilation opening starts from the floor, the height should be  $\geq 20$ mm. The lower part of the opening must be less than 100 mm from the floor. At least 50% of the required opening area must be  $< 200$  mm from the floor. The entire area of the opening must be  $< 300$  mm from the floor.
  - Upper opening: the upper opening area must be greater than or equal to the lower opening. The lower part of the upper opening must be at least 1.5 m above the upper part of the lower opening.
  - Outward ventilation openings are NOT considered suitable ventilation openings (the user can lock them when it is cold).
  - **if (Aroom A + Aroom B)  $< A_{min\ total}$  call the retailer**

## 5 INSTALLATION REQUIREMENTS



Table 1 - Maximum refrigerant charge allowed in a room: Indoor unit

| A <sub>room</sub> (m <sup>2</sup> ) | Maximum refrigerant charge in a room (m <sub>max</sub> )(kg) |
|-------------------------------------|--|
|                                     | H = 600 mm   |
| 1                                   | 0,138  |
| 2                                   | 0,276  |
| 3                                   | 0,414  |
| 4                                   | 0,553  |
| 5                                   | 0,691  |
| 6                                   | 0,829  |
| 7                                   | 0,967  |
| 8                                   | 1,105  |
| 9                                   | 1,243  |
| 10                                  | 1,382  |
| 11                                  | 1,520  |
| 12                                  | 1,658  |
| 13                                  | 1,796  |
| 14                                  | 1,934  |
| 15                                  | 2,072  |
| 16                                  | 2,210  |
| 17                                  | 2,349  |

- For H values lower than 600 mm, the value of H considered is 600 mm to comply to IEC 60335-2-40:2018 Clause GG 2.
- For intermediate A<sub>room</sub> values, consider the value that corresponds to the lower A<sub>room</sub> value from the table. If A<sub>room</sub> = 7.5m<sup>2</sup> consider the value that corresponds to A<sub>room</sub>= 7m<sup>2</sup>.
- System with total refrigerant charge lower than 1.84 kg are not subjected to any room requirements.

Table 2 - Minimum floor area: Indoor unit

| m <sub>c</sub> (kg) | Minimum floor area (m <sup>2</sup> ) (A <sub>mintotal</sub> ) |
|---------------------|---|
|                     | H = 600 mm  |
| 1,84                | 13,319  |
| 1,86                | 13,464  |
| 1,88                | 13,608  |
| 1,9                 | 13,753  |
| 1,92                | 13,898  |
| 1,94                | 14,043  |
| 1,96                | 14,187  |
| 1,98                | 14,332  |
| 2                   | 14,477  |
| 2,02                | 14,622  |
| 2,04                | 14,767  |
| 2,06                | 14,911  |
| 2,08                | 15,056  |
| 2,1                 | 15,201  |
| 2,12                | 15,346  |
| 2,14                | 15,490  |
| 2,16                | 15,635  |
| 2,18                | 15,780  |
| 2,2                 | 15,925  |
| 2,22                | 16,069  |
| 2,24                | 16,214  |

- For H values lower than 600 mm, the value of H considered is 600 mm to comply to IEC 60335-2-40:2018 Clause GG 2.
- For intermediate m<sub>c</sub> value, consider the value that corresponds to the higher m<sub>c</sub> value from the table. If m<sub>c</sub> = 2,07 kg consider the value that corresponds to m<sub>c</sub>= 2,08 kg.
- Systems with total refrigerant charge lower than 1.84 kg are not subjected to any room requirements.
- Charge above 1,85 kg are not allowed in the sizes 4kW & 6kW.
- Charge above 2,22 kg are not allowed in the sizes 8kW & 10kW.

Table 3 - Minimum venting opening area for natural ventilation: indoor unit until 6 kW of power

| $m_c$<br>[kg] | $m_{max}$<br>[kg] | Minimum venting opening area (cm <sup>2</sup> ) (VA <sub>min</sub> ) |
|---------------|-------------------|--|
|               |                   | H = 600 mm   |
| 1,84          | 0,1               | 842  |
| 1,84          | 0,3               | 744  |
| 1,84          | 0,5               | 648  |
| 1,84          | 0,7               | 551  |
| 1,84          | 0,9               | 455  |
| 1,84          | 1,1               | 358  |
| 1,84          | 1,3               | 261  |
| 1,84          | 1,5               | 164  |
| 1,84          | 1,7               | 68   |

- For H values lower than 600 mm, the value of H considered is 600 mm to comply to IEC 60335-2-40:2018 Clause GG 1.
- For intermediate  $m_{max}$  values, consider the value that corresponds to the higher  $m_{max}$  value from the table. If  $m_{max} = 0.6$  kg consider the value that corresponds to  $m_c = 0.7$  kg.

Table 4 - Minimum venting opening area for natural ventilation: indoor unit until 10 kW of power

| $m_c$<br>[kg] | $m_{max}$<br>[kg] | Minimum venting opening area (cm <sup>2</sup> ) (VA <sub>min</sub> ) |
|---------------|-------------------|--|
|               |                   | H = 600 mm   |
| 2,22          | 0,1               | 1026   |
| 2,22          | 0,3               | 928  |
| 2,22          | 0,5               | 832  |
| 2,22          | 0,7               | 735  |
| 2,22          | 0,9               | 638  |
| 2,22          | 1,1               | 542  |
| 2,22          | 1,3               | 445  |
| 2,22          | 1,5               | 348  |
| 2,22          | 1,7               | 251  |
| 2,22          | 1,9               | 155  |
| 2,22          | 2,1               | 58   |

- For H values lower than 600 mm, the value of H considered is 600 mm to comply to IEC 60335-2-40:2018 Clause GG 1.
- For intermediate  $m_{max}$  values, consider the value that corresponds to the higher  $m_{max}$  value from the table. If  $m_{max} = 0.6$  kg consider the value that corresponds to  $m_{max} = 0.7$  kg.

## Positioning

The installation has been implemented by qualified technical personnel only and that the instructions contained in the present manual and the local regulations in force have been adhered to.

Choose the installation place according to the following criteria:

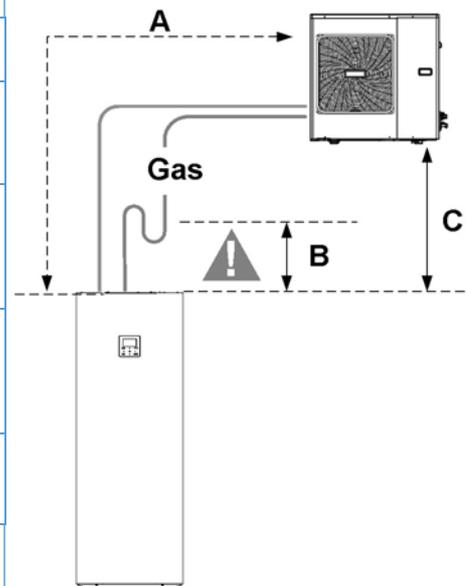
- customer approval
- safe accessible position
- guarantee good unit operation
- enough space for installation and maintenance shall be preserved.
- make sure that there's no obstacle around the unit
- the base surface should to bear the weight of the unit and suitable for installing the unit without increasing noise or vibration
- carry out maintenance operations
- technical spaces requested by the unit
- water connections
- max. distance allowed by the electrical connections
- max. distance allowed by the refrigerating connections
- control points with capacity adequate to the unit weight
- verify that all bearing points are aligned and leveled
- sound levels (TECHNICAL INFORMATION section) external unit

## Maximum distance

Refrigerant pipes:

in vertical sections ensure the presence of siphons every 10 metres of unevenness (on the supply/suction line only).

| Size   |   |   | 4kW - 10kW |
|--|---|---|------------|
| Refrigerant pipe min/max equivalent length   | A | m | 3 - 30     |
| 10 m back up → siphon (gas line)   | C | m | 10         |
| Maximum refrigerant pipe height difference with outdoors unit higher than indoors unit | B | m | 20         |
| Height difference due to the presence of the siphon                                    | B | m | 15         |



### External unit

- Installed EXTERNAL
- in fixed positions

If the unit is installed on a roof or terrace, check the load capacity and the possibility for discharging the condensate.

Installation standards:

- spaces for the air intake/exhaust
- condensate water draining
- install the unit raised from the ground

Prefer places where the unit doesn't disturb the neighbours.

Avoid installations in places subject to flooding

Avoid installations next to bedrooms or windows.

Avoid snow accumulating obstructing for air ejection and suction

A correct circulation of the air is indispensable to guarantee the good working order of the machine.

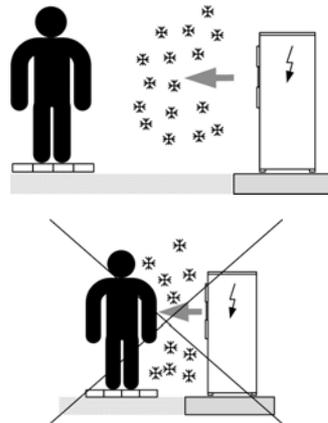
Avoid therefore:

- obstacles to the airflow;
- exchange difficulties;
- leaves or other foreign bodies that can obstruct the exchange batteries;
- winds that hinder or favour the airflow;
- heat or pollution sources close to the unit (chimneys, extractors etc);
- stratification (cold air that stagnates at the bottom);
- recirculation (expelled air that is sucked in again);
- positioning below the level of the threshold, close to very high walls, attics or in angles that could give rise to stratification or recirculation phenomenons.
- Ignoring the previous indications could:
  - energy efficiency decrease;
  - blocks due to HIGH PRESSURE (in summer) or LOW PRESSURE (in winter).

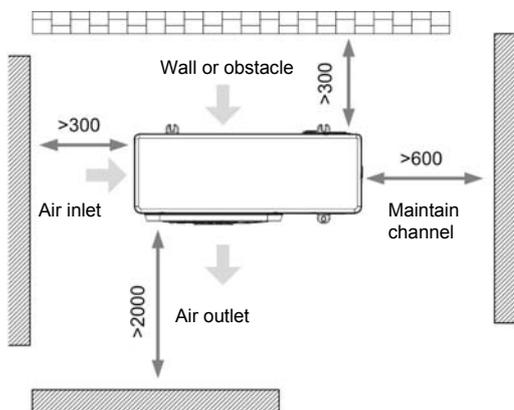
## 5 INSTALLATION REQUIREMENTS

- 1 Consider clearances and direction of expelled air. Single unit installation
- 2 Units side by side
- 3 Units in parallel
- 4 Keep the min. distances from the pedestrian areas.
- 5 Avoid installations next to bedrooms or windows. Consider sound emissions
- 6 Provide windbreaks (or similar) in locations with strong winds.
- 7 Avoid snow accumulations on batteries. Install the unit lifted from the ground.

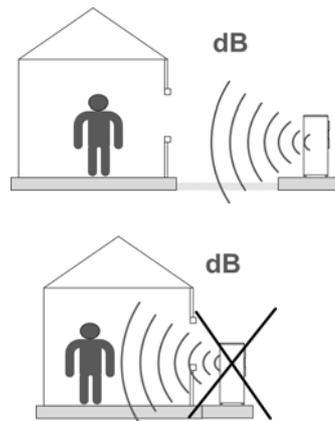
4



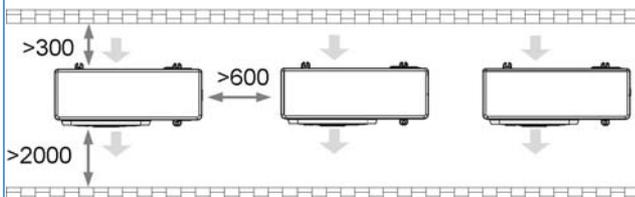
1



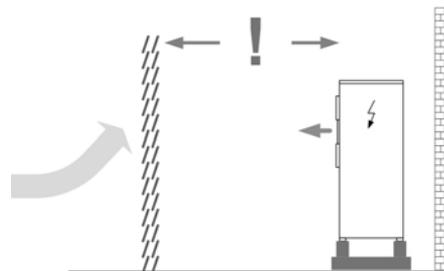
5



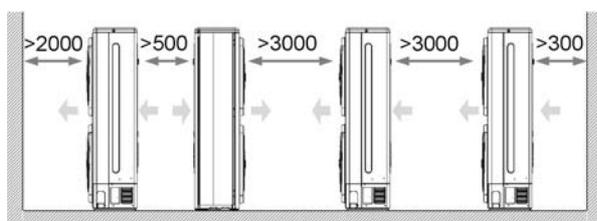
2



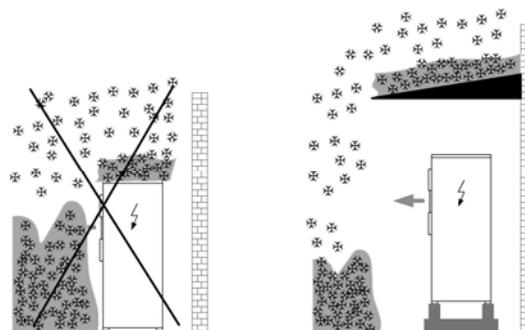
6



3



7



### Condensate drain

When a heat pump is running it produces a considerable amount of water due to the defrosting cycles of the external coil.

#### NOTE

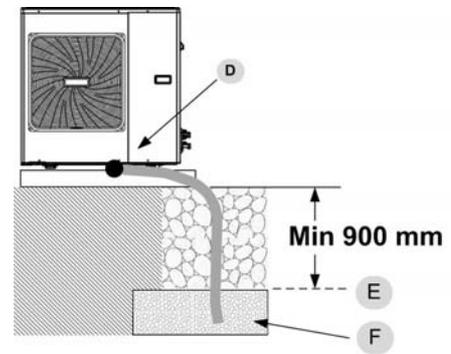
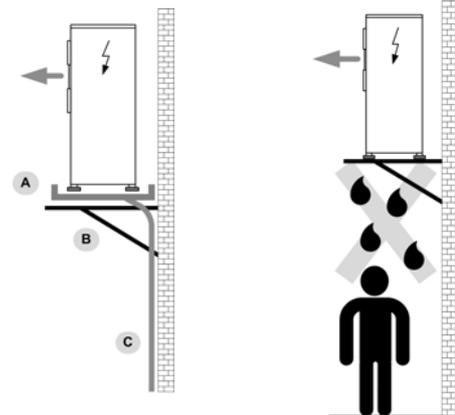
⇒ *The condensation must be eliminated in a manner to avoid wetting pedestrian areas.*

With extensive very cold outdoor temperatures, condensation could freeze outside the unit blocking the flow and causing a slow build-up of ice; therefore special attention must be paid to eliminating condensation, raising the unit off the ground and evaluating whether antifreeze elements should be installed.

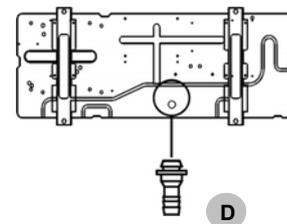
To avoid freezing of the water downstream of the drain lay the tube below the frost line (E).

- A Condensation collection basin (Field supplied)
- B Unit support (Customer care)
- C Pipe discharge connection (Customer care)
- D Condensate discharge connection  $\varnothing$  30
- E Frost line

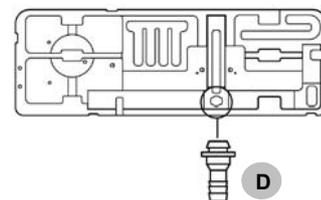
Layer of gravel or pebbles to help with condensate drainage  
The unit can be supplied with:



Size 4kW - 6kW



Size 8kW - 10kW



## Internal unit

- installed inside
- in a dry room/compartment where the temperature cannot fall below 0 degrees
- in fixed positions

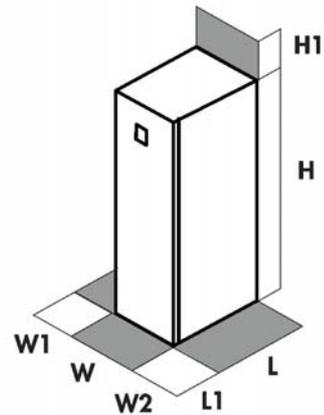
Keep to the indicated safety spaces.

Prefer places where the unit doesn't disturb the neighbours.

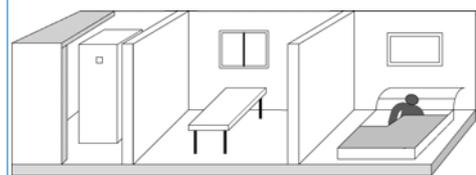
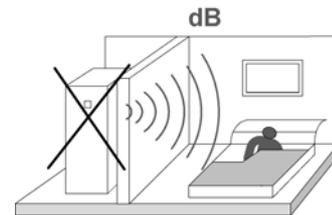
Avoid installations in places subject to flooding

Avoid installations next to bedrooms or windows.

The spaces can be occupied by objects that must be easily removeable in case of maintenance interventions.

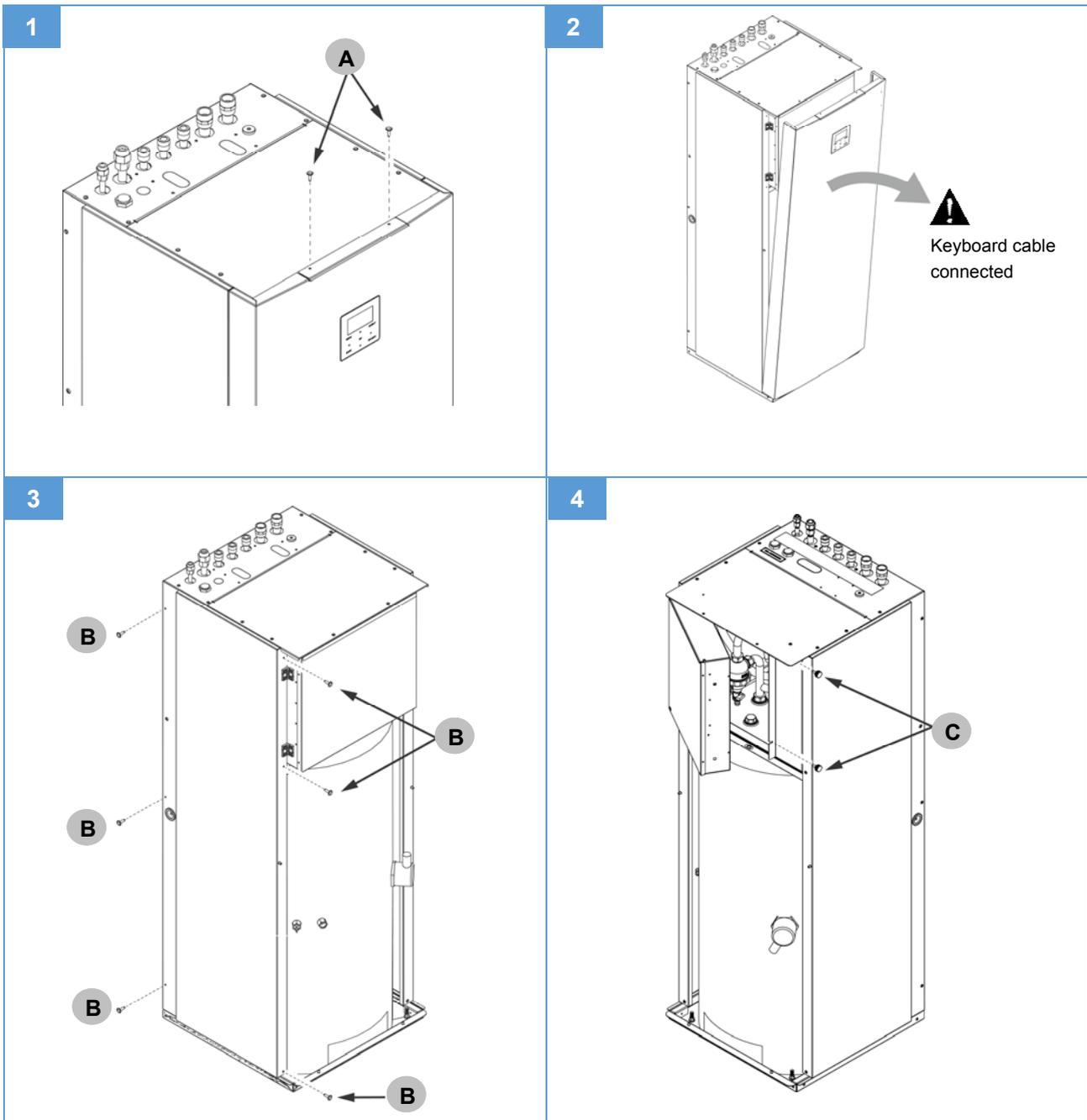


| Series       | H1  | H    | L1  | L   | W1 | W   | W2 |
|--------------|-----|------|-----|-----|----|-----|----|
| Version 190L | 250 | 1694 | 500 | 615 | 50 | 600 | 50 |



### Access to the internal parts

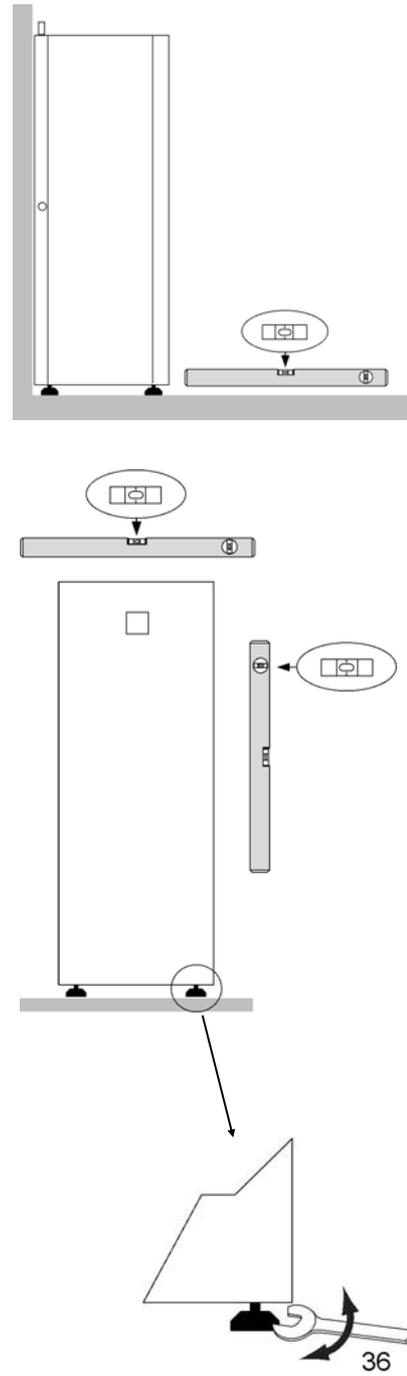
- 1 Remove the screws (A)
- 2 Remove the panel
- 3 Remove the screws (B)  
Remove the panel  
Same sequence for the opposite side.
- 4 Electrical panel opening, unscrew knobs (C)



### Levelling internal unit

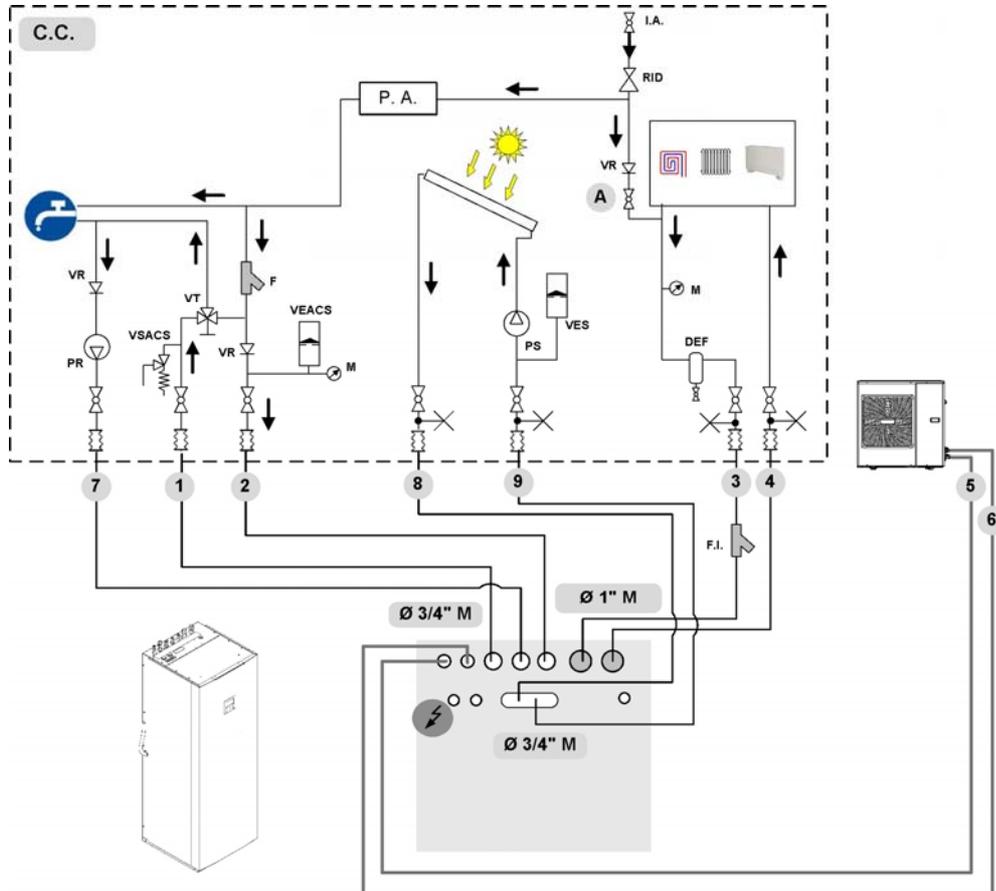
Position the internal unit on a flat, level surface.

Adjust the support feet.



## Hydraulic connection schema

Make sure that the safety devices are installed on the DHW circuit (thermostatic valve) when the anti-*Legionella* function is enabled.



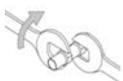
Indicative plumbing diagram

The system components must be defined by Designer and Installer (ex. expansion tanks, vents, taps, calibration/safety valves etc.)

### Indispensable components system (not supplied)

- C.C.** Components provided by Customer
- A** System valve
- I.A.** Aqueduct input
- F** Water filter (supplied as standard)
- F.I.** System filter (provided by the customer)
- M** Pressure gauge
- P. A.** Descaler protection
- PS** Solar pump
- PR** Recirculation pump
- RID** Pressure reducing valve
- VEACS** Domestic hot water expansion tank
- VSACS** Domestic hot water safty valve
- VES** Solar expansion tank
- VR** Check valve
- VT** Mixing valve thermostatic

|   |                                  |
|---|----------------------------------|
| 1 | Domestic Hot Water output        |
| 2 | Water input                      |
| 3 | System water return              |
| 4 | System water outlet              |
| 5 | Refrigerant line (gas)           |
| 6 | Refrigerant line (liquid)        |
| 7 | Domestic Hot Water recirculation |
| 8 | Solar system return (option)     |
| 9 | Solar system outlet (option)     |
|   | Vent                             |
|   | Cut-off valves                   |
|   | Anti-vibration joints            |



In the tightening operations always use the wrench and backup wrench.

### An air bleed valve

Install the highest points of tubes in a way that the air can escape from the circuit.

### Water filter (supplied as standard)

The filter is extremely important: it helps to lockout any impurities in the water and avoid clogging the system and heat exchanger.

It must be installed immediately at the entrance to the water mains, in a position that is easily accessible for cleaning.

The filter should never be re-moved.

Check for clogging from time to time

### System filter (provided by the client)

Must be installed on the system return

The filter must never be removed.

Check for clogging from time to time.

### Connecting the indoor unit drains

#### Note

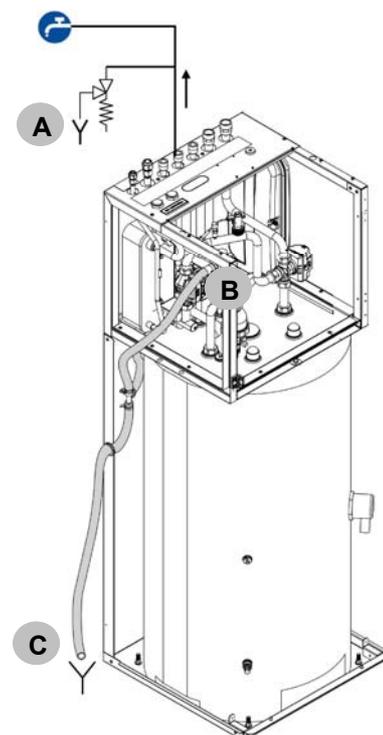
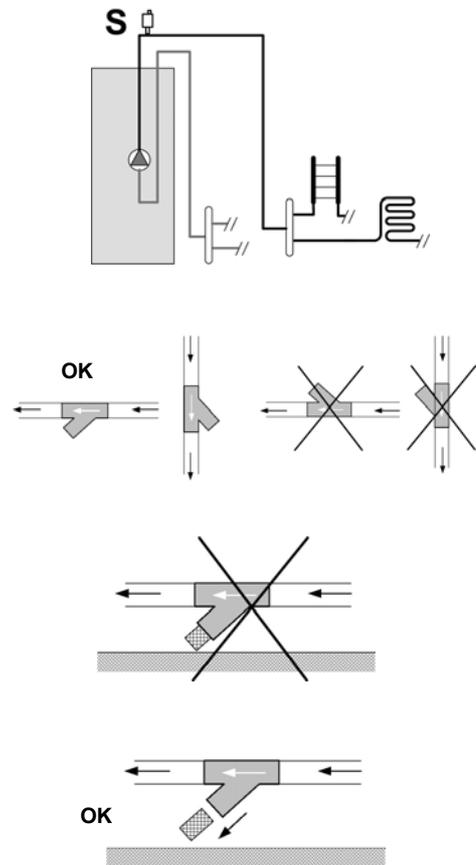
⇒ Any anti-freeze liquid contained in the system should not be discharged freely as it is a pollutant.

⇒ It must be collected and reused.

- A. domestic hot water safety valve (6 bar) (provided by the customer)
- B. system safety valve (3 bar)
- C. basin drain pipe

Direct the exhaust pipe (C) towards a suitable drain.

Inside the unit there is a safety valve (3 bar on the installation circuit) and one to be installed at the DHW outlet (6 bar on the DHW circuit) that must be connected to a suitable drain, otherwise if valves intervened and flood the rooms, the heat pump manufacturer will not be responsible.



### Note

- ⇒ Fill the storage tank (DHW) only during the unit start-up.
- ⇒ If the house is not immediately lived, or the unit is turned off for long periods, empty the storage tank to avoid the stagnation of the water, or with temperatures close to 0°C the risk of freeze.

### Water features

#### Note

- ⇒ Circulators function well exclusively with clean and high-quality tap water.

The most frequent factors that can affect circulators and the system are oxygen, limescale, sludge, acidity level and other substances (including chlorides and minerals).

In addition to the quality of water, installation also plays an important role. The heating system must be airtight. Choose materials that are not sensitive to oxygen diffusion (risk of corrosion...).

#### Characteristics of the water

- compliant with local regulations
- Langelier Index (LI) between 0 and +0.4
- within the limits indicated in the chart

Water quality must be checked by qualified personnel.

#### Hardness

If the water is hard, install a system suitable to preserve the unit from harmful deposits and limestone formation.

If necessary, install a water softener to reduce water hardness

#### Cleanliness

Before connecting the water to the unit, clean the system thoroughly with specific products effective to remove residues or impurities that may affect functioning. Existing systems must be free from sludge and contaminants and protected against build-ups.

#### New systems

In case of new installations, it is essential to wash the entire installation (with the circulator uninstalled) before commissioning the central installation. This removes residues of the installation process (welding, waste, joint products...) and preservatives (including mineral oil). The system must then be filled with clean high-quality tap water.

#### Existing systems

If a new boiler or heat pump is installed on an existing heating system, the system must be rinsed to avoid the presence of particles, sludge and waste. The system must be drained before installing the new unit. Dirt can be removed only with a suitable water flow. Each section must then be washed separately. Particular attention must also be paid to "blind spots" where a lot of dirt can accumulate due to the reduced water flow. The system must then be filled with clean high-quality tap water. If, after rinsing, the quality of the water is still unsuitable, a few measures must be taken to avoid problems. An option to remove pollutants is to install a filter. Various types of filters are

| Water component for corrosion limit on Copper                 |   |     |
|---|---|-----|
| PH  | 7,5 ÷ 9,0   |     |
| SO <sub>4</sub> <sup>2-</sup>                                 | < 100   |     |
| HCO <sub>3</sub> <sup>-</sup> / SO <sub>4</sub> <sup>2-</sup> | > 1   |     |
| Total Hardness  | 8 ÷ 15  | °f  |
| Cl <sup>-</sup>   | < 50  | ppm |
| PO <sub>4</sub> <sup>3-</sup>                                 | < 2,0   | ppm |
| NH <sub>3</sub>   | < 0,5   | ppm |
| Free Chlorine   | < 0,5   | ppm |
| Fe <sub>3</sub> <sup>+</sup>                                  | < 0,5   | ppm |
| Mn <sup>2+</sup>  | < 0,05  | ppm |
| CO <sub>2</sub>   | < 50  | ppm |
| H <sub>2</sub> S  | < 50  | ppb |
| Temperature   | < 65  | °C  |
| Oxygen content  | < 0,1   | ppm |
| Sand  | 10 mg/L<br>0.1 to 0.7mm max diameter              |     |
| Ferrite hydroxide Fe <sub>3</sub> O <sub>4</sub> (black)      | Dose < 7.5 mg/L 50% of mass with diameter < 10 µm |     |
| Iron oxide Fe <sub>2</sub> O <sub>3</sub> (red)               | Dose < 7.5mg/L<br>Diameter < 1 µm                 |     |



available. A mesh filter is designed to catch large dirt particles. This filter is usually placed in the part with the larger flow. A tissue filter is designed to catch the finer particles.

### Exclusions

The warranty does not cover damage formed by limestone, deposits and impurities deriving from the water supply and/or by the malfunctioning of the system cleaning system.

#### Note

⇒ *If necessary, fit a water softener to reduce water hardness.*

### Risk of frost

#### Note

⇒ *When the outside temperature gets close to 0°C, the water in the pipes and unit may freeze.*

⇒ *Frost may determine irreversible damage to the unit.*

⇒ *Frost damage is not covered by the warranty.*

If the unit or hydraulic connections are subject to temperatures close to 0°C:

- mix water with glycol, or
- safeguard the pipes with heating cables placed under the insulation, or
- empty the system in cases of long non-use

### Anti-freeze solutions

Consider that the use of anti-freeze solution determines an increase in a pressure drop.

Make sure that the glycol type utilized is inhibited (not corrosive) and compatible with the water circuit components.

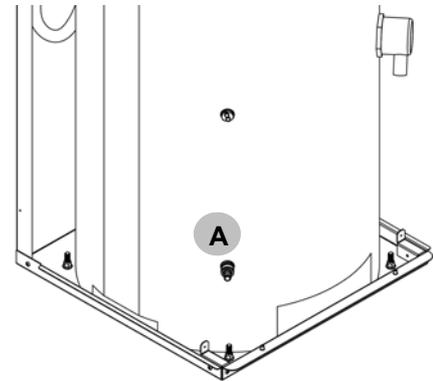
Do not use different glycol mixture (i.e. ethylene with propylene).

## Domestic hot water tank charge

Maximum DWH system pressure 6 bar

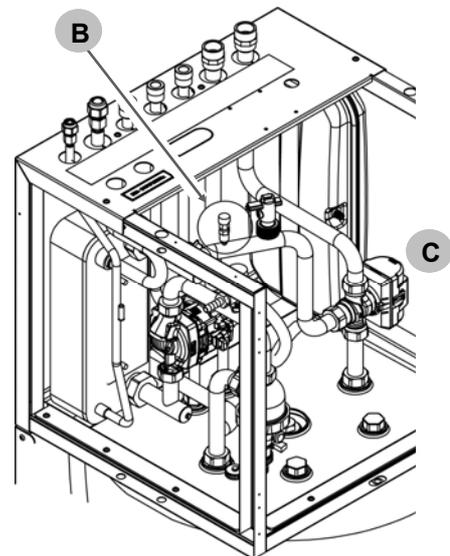
DWH safety valve setting 6 bar

- 1 Before charging, position the systems general switch in the 'off' position .
- 2 Check that the draining taps of the system DWH are closed (A).
- 3 Start the filling opening the water loading tap ( I.A. - see hydraulic connection schema page 29)
- 4 Open taps (7-1-2)
- 5 Open the hot water taps (bathroom and kitchen) until water comes out.
- 6 Close them when water starts pouring out of the hot water taps.
- 7 Check the hydraulic seal of the joints.



## System charge heating/cooling

- 1 Switch ON the unit
  - 2 From the keyboard put ON the domestic hot water mode and wait until the lever of the 3 way valve goes to the right, as showed on figure (D)
  - 3 Disconnect the indoor unit from the power supply
  - 4 Move the lever to the central position by pressing both to the left or inward until it locks
  - 5 Start the filling opening the tap (A - see page 29)
  - 6 Open taps (3 - 4)
  - 7 Open all of the bleeding valves of the related terminals or radiators
  - 8 When water begins to exit from the bleeding valve, close and continue the charging until the pressure intended for the system (max.3 bar)
  - 9 Check the hydraulic seal of the joints.
- Once the process is finished, the valve goes to heating/cooling mode automatically when will be power on. Repeat the operation after the unit has operated for a number of hours and periodically control the system pressure.  
Reintegration is carried out when the unit is off (pump OFF).

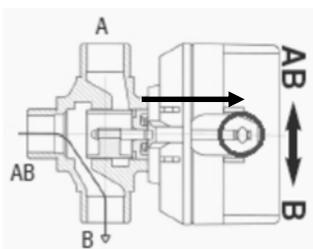


B - System vent valve

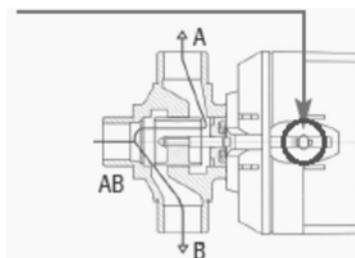
C - 3-way valve

### D

Path A closed



Manual lever



Manual lever engaged

### Refrigerant lines

Unit is designed to ensure the best comfort and energy efficiency levels. To maintain these high values is necessary to consider the system details that could adversely affect on performances.

#### NOTE

*In particular:*

- ⇒ *the length of the refrigerant piping should be as small as possible ;*
- ⇒ *to realize a path of the pipes as straight as possible by limiting the presence of curves;*
- ⇒ *properly insulate pipes;*
- ⇒ *properly load the refrigerant system.*

#### NOTE

- ⇒ *An incorrect sizing can cause damage to the compressor or variations in the cooling capacity .*

When cut-off parts (solenoid valves, taps etc) are installed pay attention to the possible formation of traps for the refrigerant, meaning closed zones up or downstream in which the refrigerant is unable to expand freely.

With an increase in temperature under these circumstances (exposure to the sun, ducting close to heat sources etc) the expansion of the trapped gas could cause an explosion in the refrigerating ducting. Evaluate the possibility of installing a safety valve especially in the ducting of the liquid which is exposed to the most risk.

The operations must be carried out by an expert refrigerationist .

Avoid curves with a too small curving radius.

Avoid squashing the pipes.

Provide anchoring rods to support the ducting (the weight must not be on the unit).

The rods must allow the thermal dilation of the ducting.

Place anti-vibrating material between the rods and the ducting to avoid the transmission of vibrations.

Clean with nitrogen or dry air before attaching the ducting to the two units.

The internal unit and the heat exchanger must be connected with refrigerating ducting suitable for the refrigerant used and covered with thermal insulation.



**Warning:**  
**Fire hazard**  
**Flammable materials**

Before starting light operations:

**safety warnings for  
operations on units  
containing R32**

## Ducting

### Pressure Equipment Directive

This unit is a subset: to operate it has to be combined to another unit.

It is an installer responsibility :

- follow the PED Directive and to the national regulations of PED Directive realization
- consider the insertion of any additional security devices
- check the safety device operation
- write on the serial label number the amount of total refrigerant
- issue the Declaration of conformity
- inform the user of the need to carry out regular checks

### NOTE

⇒ Use only copper pipes for refrigeration, specifications for R32

Pipes must be clean.

On vertical sections ensure the presence of siphons every 10 metres of unevenness on the delivery/suction line only.

Plug the ends of the pipe prior to passing it through a hole in the wall (1).

Do not place the ends of pipes which have not been plugged or closed with tape directly on the ground (2).

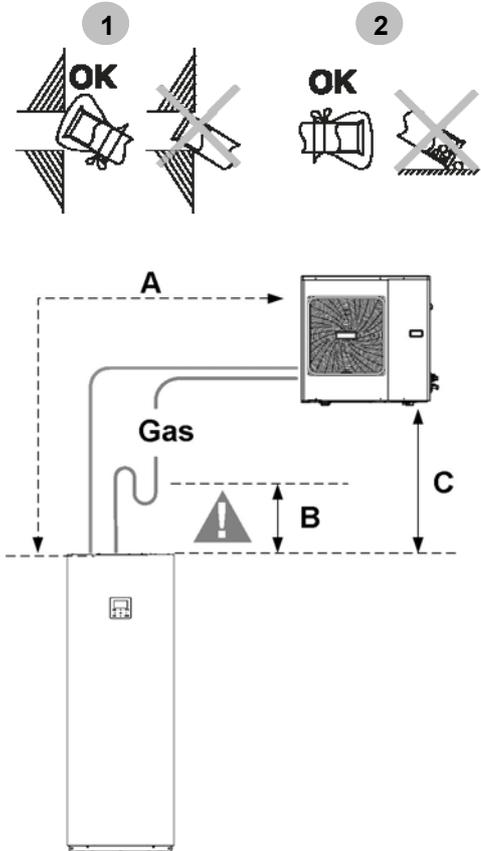
If the installation of the pipes is not to be completed within the next day or for a long period of time, braze the ends of the pipes and introduce nitrogen oxide via a Schrader valve access joint to avoid the formation of humidity and the contamination of the particles.

| Size   |   |   | 4kW - 10kW |
|--|---|---|------------|
| Refrigerant pipe min/max equivalent length   | A | m | 3 - 30     |
| 10 m back up → siphon (gas line)   | C | m | 10         |
| Maximum refrigerant pipe height difference with outdoors unit higher than indoors unit | B | m | 20         |
| Height difference due to the presence of the siphon                                    | B | m | 15         |

Equivalent length of the lines (metres) = Effective length (metres) + (Q.ty of curves x K)

Consider K=0.3 m for wide radius 90° curves;

Consider K=0.5 m for standard 90° elbow curves



# 7 REFRIGERATING CONNECTIONS



## Internal unit

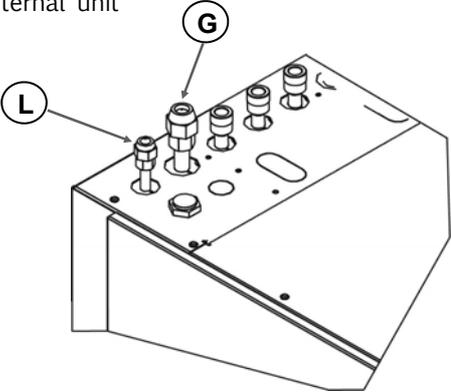
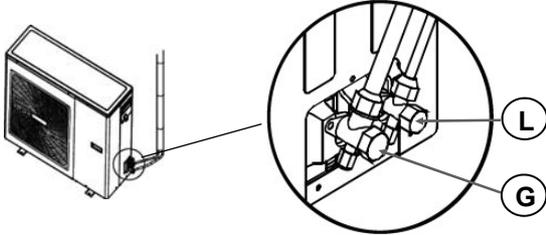
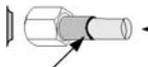
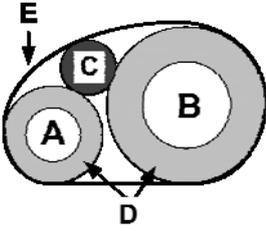
The internal unit shipped with a nitrogen charge of about 1 bar.

If it is discharged, test the leaks also before the connections.

Before attaching the ducting to the two units, clean with dry air or nitrogen.

| Type of pipes         |               |               |
|-----------------------|---------------|---------------|
| Size .                | 4kW - 6kW     | 8kW - 10kW    |
| Liquid Ø external     | 1/4" (6,3mm)  | 3/8" (9,5mm)  |
| Gas Ø external        | 5/8" (15,9mm) | 5/8" (15,9mm) |
| Min. thickness gas    | 0,8 mm        |               |
| Min. thickness liquid | 0,8 mm        |               |

## Refrigerating couplings

| <p><b>1</b> Internal unit</p>    | <p><b>2</b> External unit</p>  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
|--|---|------------|---|---------------------------------------|---|---------------------------------------|--|----------|----------------|----------|-------------|----------|-----------------|----------|------------|----------|----------------------|
| <p><b>G</b> Gas line (5/8")</p>  | <p><b>G</b> Gas line (5/8")</p>   |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <p><b>L</b> Liquid line (3/8")</p>   | <p><b>L</b> Liquid line (3/8")</p>  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <p><b>3</b></p> <p>For connections use the components supplied with the unit</p> <p><b>Refrigerating line fittings</b></p> <table border="1"> <thead> <tr> <th>Size</th> <th>4kW - 10kW</th> </tr> </thead> <tbody> <tr> <td></td> <td>2x5/8" Gas line<br/>2x3/8" Liquid line</td> </tr> <tr> <td></td> <td>2x5/8" Gas line<br/>2x3/8" Liquid line</td> </tr> </tbody> </table> <p> Reduction 10-6 for outdoor unit size 4kW &amp; 6kW</p> <p></p> <p> ← Pipes supplied by the customer</p> <p>Welding points</p> | Size  | 4kW - 10kW |  | 2x5/8" Gas line<br>2x3/8" Liquid line |  | 2x5/8" Gas line<br>2x3/8" Liquid line | <p><b>4</b></p> <p>Insulate pipes.<br/>Use insulation with resistance <math>t = 120^\circ \text{C}</math> with a thickness of at least 13 mm.</p>  <table border="1"> <tbody> <tr> <td><b>A</b></td> <td>Liquid ducting</td> </tr> <tr> <td><b>B</b></td> <td>Gas ducting</td> </tr> <tr> <td><b>C</b></td> <td>Electric cables</td> </tr> <tr> <td><b>D</b></td> <td>Insulation</td> </tr> <tr> <td><b>E</b></td> <td>Sheath - sticky tape</td> </tr> </tbody> </table> | <b>A</b> | Liquid ducting | <b>B</b> | Gas ducting | <b>C</b> | Electric cables | <b>D</b> | Insulation | <b>E</b> | Sheath - sticky tape |
| Size   | 4kW - 10kW  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
|   | 2x5/8" Gas line<br>2x3/8" Liquid line   |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
|   | 2x5/8" Gas line<br>2x3/8" Liquid line   |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <b>A</b>   | Liquid ducting  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <b>B</b>   | Gas ducting   |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <b>C</b>   | Electric cables   |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <b>D</b>   | Insulation  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |
| <b>E</b>   | Sheath - sticky tape  |            |   |                                       |   |                                       |  |          |                |          |             |          |                 |          |            |          |                      |

## internal unit vacuum operation

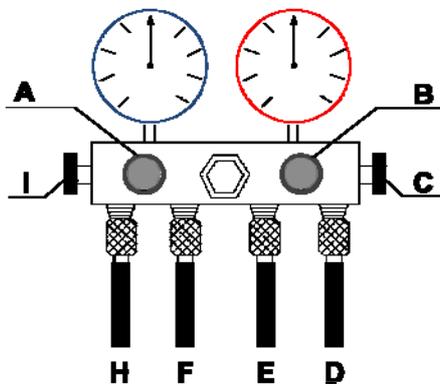
is delivered with charged refrigerator circuits in the following manner:

| Internal unit   |          | Nitrogen precharge |      |            |
|---|----------|--------------------|------|------------|
| External unit charged with refrigerant (voltage 220-240 ~ 50) |          |                    |      |            |
| Size  |          | 4kW                | 6kW  | 8kW - 10kW |
| R32   | kg       | 1,55               | 1,55 | 1,65       |
| * total charge  | t CO2-eq | 1,04               | 1,04 | 1,11       |

### NOTE

⇒ The refrigerant charge present in the external unit is sufficient up to 15 meters of distance between the 2 units.

| Lengths of ducting exceeding 15 metres          |           |            |
|---|-----------|------------|
| Further refill for distance exceeding 15 metres |           |            |
| Size  | 4kW - 6kW | 8kW - 10kW |
| Kg/m  | 0,02      | 0,038      |



|   |                           |
|---|---------------------------|
| A | VAC vacuum gauge cock     |
| B | REF refrigerant cock      |
| C | HIGH high pressure cock   |
| D | liquid high pressure pump |
| E | Refrigerant pipe          |
| F | Vacuum pump pipe          |
| H | Low pressure pipe         |
| I | LOW low pressure cock     |

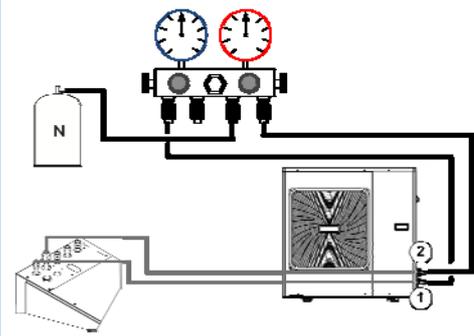
## 7 REFRIGERATING CONNECTIONS

After having completed the refrigerating connections the sealing of the refrigerating circuit must be checked:

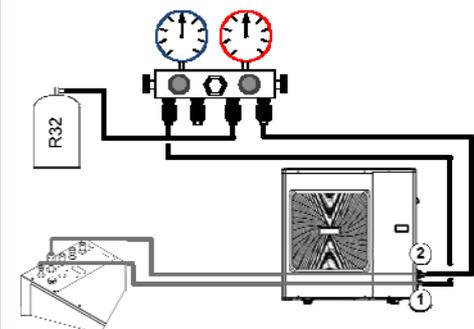
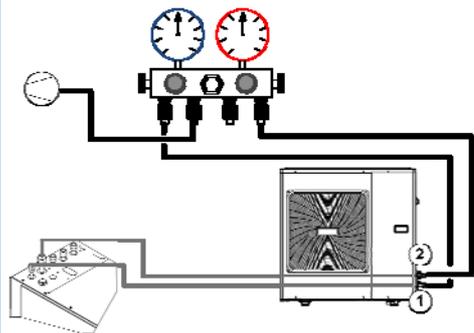
- maintain close the indoor unit cocks **1** and **2**
- connect pipes **D** and **H** to cocks **1** and **2**
- close cocks **A**, **B**, **C** and **I**
- connect **E** to the nitrogen cylinder
- open cocks **C** and **I**
- perform the tightness test
- **Mode 1:** open cock **B**, pressurize the circuit up to 45 bar (see the label) and wait few hours.
- **Mode 2:** open cock **B**, pressurize the circuit up to 65 bar (as according to UNI-EN 378-2 2009:PS x 1,43 law)
- spray using a leak detector spray cocks and pipes and check if bubbles are present (gas leaks)
- if everything is OK, proceed
- discharge the nitrogen from the unit

- connect **F** to the vacuum pump
- open cocks **A**, **C** and **I**
- start the vacuum pump
- in optimal conditions, 15-60 minutes are required to create the vacuum. In the event of high moisture content in the piping or the temperature is  $< 20\text{ }^{\circ}\text{C}$ , a few hours may be required
- reach the lowest value (approximately 1 mbar = 100 Pa.)
- close cock **A**
- turn off the pump
- overlap the red pointer of the vacuum gauge to the black one
- check the vacuum gauge to ensure that the pressure does not rise, for a few minutes
- if it rises, repeat the procedure
- if everything is OK, proceed

- connect **E** to the coolant cylinder
- open cock **B** to charge the coolant (see table "additional energy exchanger charge")
- close cocks **B**, **C** and **I**
- disconnect pipes **D** and **H** and cocks **1** and **2**



|   |             |
|---|-------------|
| 1 | Liquid line |
| 2 | Gas line    |



The characteristics of the lines must be determined by specialized personnel able to design electrical installations in compliance with regulations in force.

The protective equipment of the unit supply line must be able to shut-off the presumed short circuit current, which value must be determined in accordance with the system features.

The power cable and protection cable section must be defined in accordance with the characteristics of the protections adopted.

All electrical operations should be performed by trained personnel having the requirements envisaged by the regulations in force and informed about the risks relevant to these activities.

Operate in compliance with safety regulations in force.

### Electric data

The serial number label reports the unit's specific electrical data, electrical accessories included.

The electrical data indicated in the technical bulletin and in the manual refer to the standard unit, accessories excluded.

The label reports the indications envisaged by regulations, in particular:

Voltage

F.L.A.: full load ampere, absorbed current at maximum admitted conditions

F.L.I.: full load input, full load power input at max. admissible condition

Electrical wiring diagram No.

### Connections

Refer to the unit's electrical diagram (the number of the diagram is shown on the serial number label)

Verify that the electrical supply has characteristics conforming to the data shown on the serial number label.

Before starting work, ensure the unit is isolated, unable to be turned on and a safety sign used.

Ensure correct earth connection.

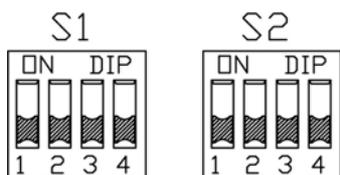
Ensure cables are suitably protected.

Before powering the unit, make sure that all the protections that were removed during the electrical connection work have been restored.





## Settaggio dip-switch



| S1         |  |                             |
|------------|--|-----------------------------|
| DIP switch | ON=1   | OFF=0                       |
| 1          | Outdoor unit size 8kW - 10kW   | Outdoor unit size 4kW - 6kW |
| 2          | With solar   | Without solar               |
| 3/4        | 0/0= without IBH end AHS<br>1/0= with AHS for heat mode<br>0/1= with IBH<br>1/1= with AHS for heat mode and DHW mode |                             |

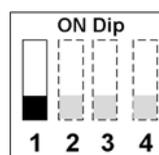
| S2         |   |   |
|------------|---|---|
| DIP switch | ON=1  | OFF=0                                       |
| 1          | Start pump on after six hours will be invalid   | Start pump on after six hours will be valid |
| 2          | Without TBH   | With TBH                                    |
| 3/4        | 0/0= variable speed pump (max head: 7,5m)<br>0/1= constant speed (reserved)<br>1/0= variable speed pump (max head: 10m)<br>1/1= variable speed (reserved) |   |

| Temp sensor code            | Property value                                      |
|-----------------------------|---|
| T2 / T2B                    | $B_{25/50} = 4100K, R_{25^{\circ}C} = 10k \Omega$   |
| T1 / TW_out<br>TW_in/T5/T1B | $B_{0/100} = 3970K, R_{50^{\circ}C} = 17.6k \Omega$ |

### External unit connected.

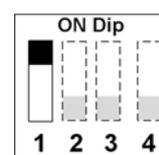
Set dip-switch according to the installed unit.

Size 4kW-6kW



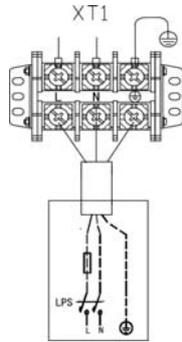
S1

Size 8kW-10kW

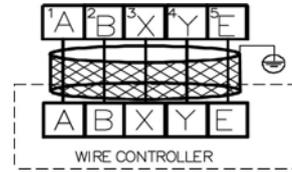


S1

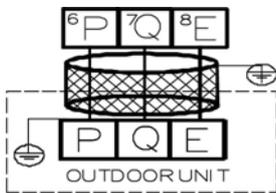
Power supply



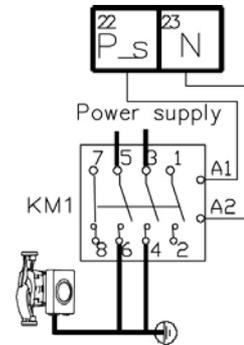
Connection wired controller



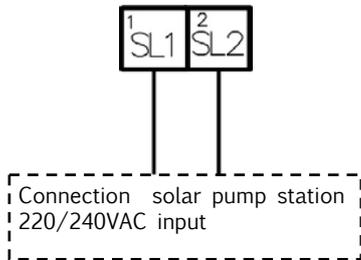
Connection outdoor unit



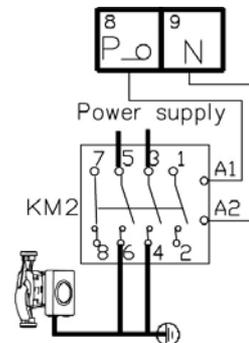
Solar pump



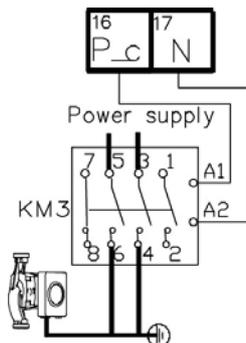
Solar signal input



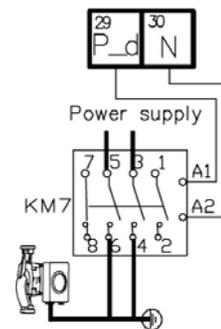
Zone pump 1



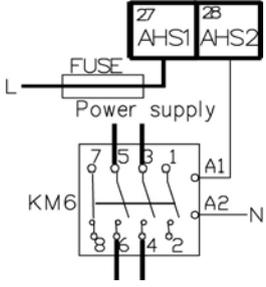
Zone pump 2



DHW recirculation



|  |  |
|--|--|
| <p>Thermostat connection<br/>Method 1</p>  | <p>Method 2</p>                                    |
| <p>Method 3</p>  | <p>Remote switch or tank booster heater switch</p> |
| <p>Valve</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>3-way</p> </div> <div style="text-align: center;"> <p>2-way</p> </div> <div style="text-align: center;"> <p>Mixing valve</p> </div> </div> |  |
| <p>Antifreeze e-heating tape</p>   | <p>Defrost</p>                                     |

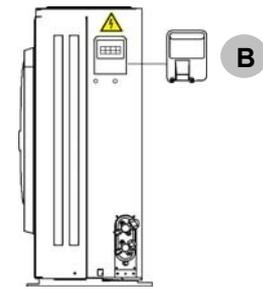
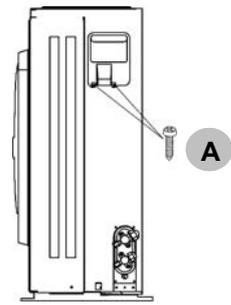
|   |  |
|---|--|
| <p>Additional heat source</p>  |  |
|   |  |
|   |  |
|   |  |

## External unit connections

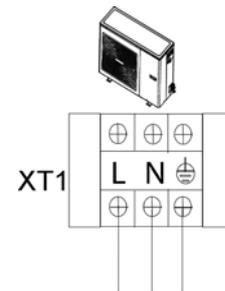
Carry out the connection in accordance with the electric connection layout.

Remove screws A

Remove the protective cover B

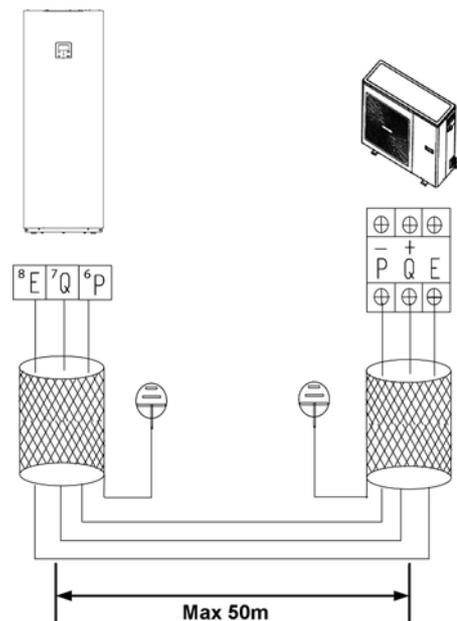


Power supply 220-240 ~ 50HZ



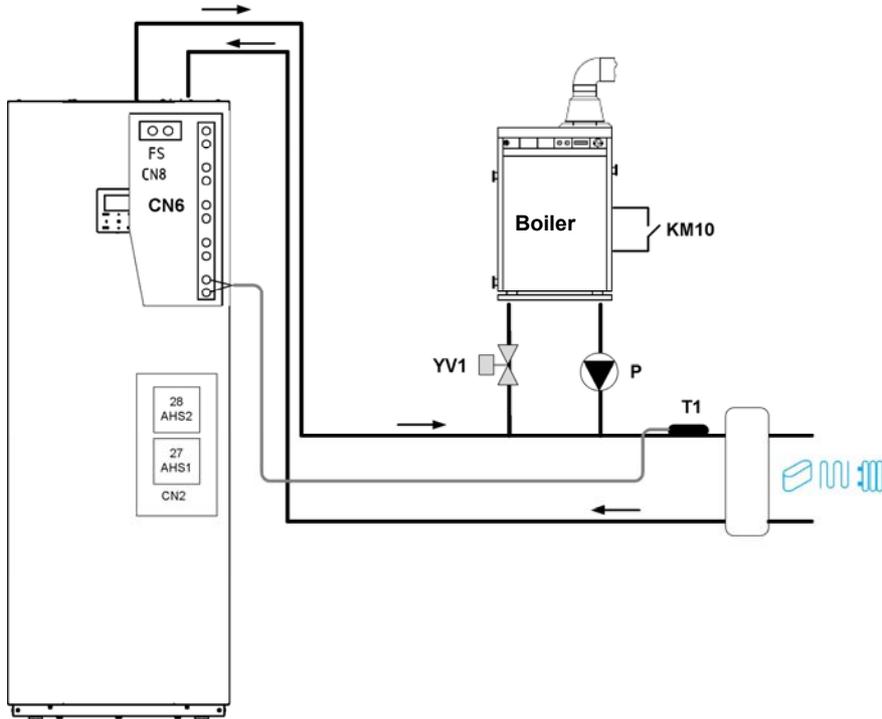
## Bus connections

Use a 3-conductor shielded cable as an internal/external signal cable, and earth the shielding.

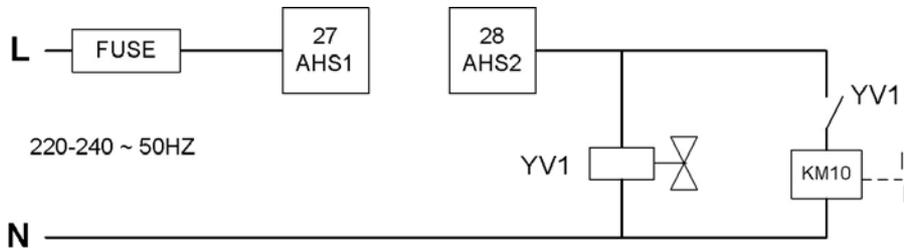


|            |  |
|------------|--|
| Cable type | 3-core shielded wire 0,75 - 1,25 mm <sup>2</sup> (AWG18-AWG16) |
|------------|--|

## Boiler connection (to be supplied by the client)



## Electrical connection



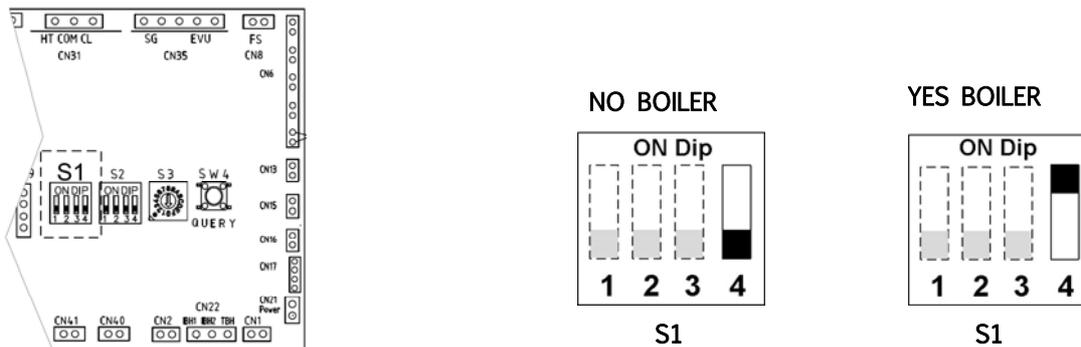
**T1** = water temperature probe (positioned inside the unit)

**KM10** = Relè (provided by the customer)

**YV1** = 2-way valve (to be supplied by the client) with end contact to enable the boiler

**P** = pump (provided by the customer)

Set **DIP 4** of bank **S1** to ON value





### General

The indicated operations should be done by F.GAS qualified technician with specific training on the product.

Upon request, the service centres performing the start-up.

The electrical, water connections and the other system works are by the installer.

Agree upon in advance the start-up data with the service centre.

Before checking, please verify the following:

- the unit should be installed properly and in conformity with this manual
- the electrical power supply line should be isolated at the beginning
- the unit isolator is open, locked and equipped with the suitable warning
- make sure no tension is present

### WARNING

⇒ After turning off the power, wait at least 5 minutes before accessing to the electrical panel or any other electrical component.

⇒ Before accessing check with a multimeter that there are no residual stresses.

### Preliminary checks

The following check list is a brief reminder of the points to check and of the operations to perform to start-up the unit.

For details on the points mentioned in the check list refer to various chapters of the manual.

| √  | <b>Preliminary checks</b>   |
|----|---|
| 1  | Are the functional spaces of the internal unit and the energy exchanger being observed ?                                |
| 2  | Is the section of the cooling lines correct ? Have the supplied sealing couplings <u>been</u> used ?                    |
| 3  | Does the equivalent length of the refrigerant piping exceed 3 or ≤30m? (depending on the unit's magnitude)              |
| 4  | Is the height different of the refrigerant piping below 15m or 20m? (depending on the unit's positioning)               |
| 5  | Are there siphons every 10m going back up on the gas line ?   |
| 6  | Have emptying and additional load been carried out ? Was there a visual check for oil / leaks ?                         |
| 7  | Water features are suitable? The hydraulic system has been cleaned?   |
| 8  | Is the water filter from the waterworks inlet correctly installed ?   |
| 9  | Is the system filter on the supply correctly installed?   |
| 10 | Are the inlet and outlet of the water lines correct ?   |
| 11 | Is there a non-return valve on the DHW recirculation line?  |
| 12 | Present safety valve on the DHW side?   |
| 13 | Present expansion vessel on the DHW side?   |
| 14 | If there are intercepting units present (heads/valves), are the unit circulator/s in arrest due to lack of water flow ? |
| 15 | How was the system created ? Is there a minimum water content in circulation ?  |

|    |   |
|----|---|
| 16 | Are the anti-vibration joints on the hydraulic connections present ?                  |
| 17 | Was the system loaded, placed under pressure and was the air let out ?                |
| 18 | Have you verified the expansion tank charge ?   |
| 19 | Is the solar installation present? The circuit is charged?                            |
| 20 | Was the condensate produced by the external unit drained correctly ? Can it freeze ?  |
| 21 | Is the capacity of air to the external unit adequate ? Is there air recirculation ?   |
| 22 | Have the electrical connections to the external unit been made ?                      |
| 23 | Earthing connection?  |
| 24 | Have optional electrical connections been made ? (summer/winter, second set, etc....) |
| 25 | Is the power supply correct ?<br>Is the available power supply sufficient ?           |
| 26 | Are the system temperature and the room temperature with the operating limits ?       |
| 27 | Is the screed “dry” ? (only in presence of radiant panels)                            |

### Start-up sequence

#### Unit power supply ON

|    |                          |   |
|----|--------------------------|---|
|    | ✓                        | <b>Start-up sequence</b>  |
| 1  | <input type="checkbox"/> | Has the carter resistance been charged for at least 8 hours ?     |
| 2  | <input type="checkbox"/> | Set the dip-switches according to the external unit.              |
| 3  | <input type="checkbox"/> | Select keyboard language  |
| 4  | <input type="checkbox"/> | Select the size of the combined outdoor unit                      |
| 5  | <input type="checkbox"/> | Set date and time   |
| 6  | <input type="checkbox"/> | Sanitary water personalisation                                    |
| 7  | <input type="checkbox"/> | Personalise anti-legionella scheduling                            |
| 8  | <input type="checkbox"/> | Personalise system climatic curves                                |
| 9  | <input type="checkbox"/> | Personalise environment scheduling                                |
| 10 | <input type="checkbox"/> | Personalise anti-dew compensation (if radiant panels are present) |
| 11 | <input type="checkbox"/> | Enable solar (if present)   |
| 12 | <input type="checkbox"/> | Compile documentation   |

## Refrigerant circuit

- 1 Visually inspect the refrigerating circuit: the presence of oil stains can be a symptom of leakage (caused e.g. by transportation, handling or other).
- 2 Verify that the refrigerating circuit is in pressure: Using the unit manometers, if present, or service manometers.
- 3 Make sure that all the service outlets are closed with proper caps; if caps are not present a leak of refrigerant can be possible.
- 4 Open all of the refrigeration circuit shut-off valves (if applicable).

## Hydraulic circuit

- 1 The unit is fitted with a flow switch that is used as a safety device and cannot be bypassed due to warranty purposes. Carry out the following checks when starting the unit:
  - circulator stopped > the flow switch contact must be open;
  - circulator working > the flow switch contact must close.
 If one of these two conditions does not occur, the unit displays a water flow error.
- 2 Before connecting the unit to the hydraulic system, make sure that the hydraulic system has been washed and that the water has been drained
- 3 Check that the hydraulic circuit has been filled and pressurized-
- 4 Check that the shut-off valves in the circuit are in the "OPEN" position.
- 5 Check that there is no air inside the circuit, and bleed it through the vent valves in the high points of the system if necessary.
- 6 When using antifreeze solutions, make sure the glycol percentage is suitable for the type of use envisaged.

### NOTE

⇒ *Neglecting the washing will lead to several filter cleaning interventions and at worst cases can cause damages to the exchangers and the other parts.*

| Weight of glycol (%)      | 10   | 20   | 30    | 40    |
|---------------------------|------|------|-------|-------|
| Freezing temperature (°C) | -3.9 | -8.9 | -15.6 | -23.4 |
| Safety temperature        | -1   | -4   | -10   | -19   |

## Electric circuit

Check the unit is connected to the earthing system.

Check the conductors are tightened as: the vibrations caused by handling and transport might cause these to come loose.

Power the unit by closing the isolation device but leave in OFF.

Check the network frequency and voltage values, which must be within the limits: 400/3/50 +N +/-6%

Example:

$$220/240 - 10\% = 198$$

$$220/240 + 10\% = 264$$

### NOTE

⇒ *Working outside of these limits can cause irreversible damages and voids the warranty.*

### Compressor casing resistances

Connect the compressor oil heating resistances at least 8 hours before the compressor is to be started:

- at the first unit start-up
  - after each prolonged period of inactivity
- 1 Power the heaters: isolator switch on 1 / ON.
  - 2 Check the power consumption of the resistances to make sure that they are functioning.
  - 3 Start-up the compressor only if the crank-case temperature on the lower side is higher than the outside temperature by at least 10°C .
  - 4 Do not start the compressor with the crankcase oil below operating temperature.

### Starting report

Reading the objective operating conditions is useful for checking the unit over time.

With unit of full load, namely in stable conditions and close to those of work, take the following data:

- Voltage and general absorptions with unit at full load
- Absorption of varied electrical loads (compressors, fans, pumps etc)
- Temperatures and capacities of different liquid (water, air) in the inlet and outlet of the unit.
- Temperature and pressures on the characteristic points of the refrigerating circuit (compressor discharge, liquid, intake).

The readings should be stored and made available during maintenance .

### 2014/68/UE PED directive

DIRECTIVE 2014/68/UE PED gives instructions for installers, users and maintenance technicians as well.

Refer to local regulations; briefly and as an example, see the following:

Compulsory verification of the first installation:

- only for units assembled on the installer's building site (for ex. Condensing circuit + direct expansion unit)

Certification of setting in service:

- for all the units

Periodical verifications:

- to be executed with the frequency indicated by the Manufacturer (see the "maintenance inspections" paragraph)

## Field settings

During installation, the unit settings and parameters should be configured by the installer to suit the installation configuration, climate conditions and end-user preferences.

The relevant settings are accessible and programmable through the **FOR SERVICEMAN** menu on the unit user interface.

The user interface menus and settings can be navigated using the user interface's touch-sensitive keys.

### Danger

Temperature values displayed on the wired controller (user interface) are in °C



| Keys |   | Function  |
|------|---|---|
|      | <b>MENU</b>                             | Go to the menu structure(on the home page)  |
|      | <b>ON / OFF</b>                         | Turn on/off the space heating/cooling operation or DHW mode<br>Turn on/or off functions in the menu structure         |
|      | <b>UNLOCK</b>                           | Long press 3 sec. for unlock /lock the controller<br>Unlock /lock some functions such as "DHW temperature adjusting " |
|      | <b>OK</b>                               | Enter a sub-menu<br>Confirm entered values  |
| <br> | <b>LEFT - RIGHT</b><br><b>DOWN - UP</b> | Navigate in the menu structure, adjust settings   |
|      | <b>BACK</b>                             | Come back to the up level   |

## Description of terms

The terms related to this unit are shown in the table below.

| Parameter | Illustration  |
|-----------|---|
| T1        | Outlet water temperature of backup heater   |
| T1B       | Outlet water temperature of additional heating source   |
| T1S       | Target outlet water temperature   |
| T2        | Temperature of refrigerant at outlet /inlet of plate heat exchanger when in heat mode/cool mode     |
| T2B       | Temperature of refrigerant at let outlet /inlet of plate heat exchanger when in heat mode/cool mode |
| T3        | Temperature of tube at outlet/inlet of condenser when in cool/heat mode                             |
| T4        | Outside temperature   |
| T5        | Temperature of domestic hot water   |
| Th        | Suction temperature   |
| Tp        | Discharge temperature   |
| TW_in     | Inlet water temperature of plate heat exchanger   |
| TW_out    | Outlet water temperature of plate heat exchanger  |
| AHS       | Additional heating source   |
| IBH1      | Electrical resistance backup  |
| TBH       | Backup heater in the domestic hot water tank  |
| Pe        | Evaporate/condense pressure in cool/heat mode   |

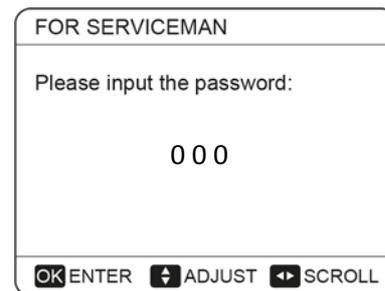
## About FOR SERVICEMAN

FOR SERVICEMAN is designed for the installer to set the parameter.

- Setting the composition of equipment.
- Setting the parameter.

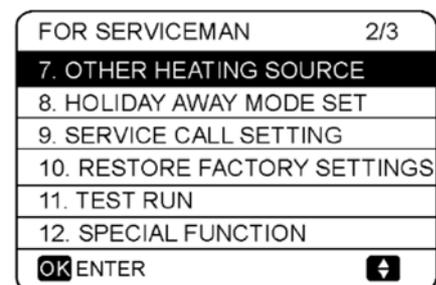
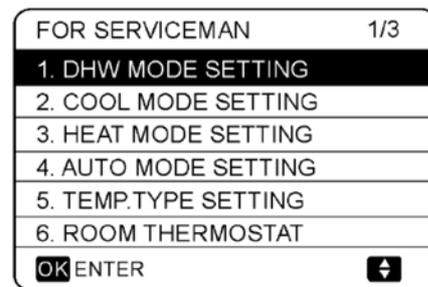
How to go to FOR SERVICEMAN

Go to MENU > FOR SERVICEMAN. Press OK



Use **LEFT** , **RIGHT** to navigate and use **Down**, **Up** to adjust the numerical value.

Press OK.



|                            |     |
|----------------------------|-----|
| FOR SERVICEMAN             | 3/3 |
| <b>13. AUTO RESTART</b>    |     |
| 14. POWER INPUT LIMITATION |     |
| 15. INPUT DEFINE           |     |
|                            |     |
|                            |     |
| OK/ENTER                   | ↕   |

## DHW MODE SETTING

MENU > FOR SERVICEMAN > DHW MODE SETTING

|                           |            |
|---------------------------|------------|
| 1 DHW MODE SETTING        | 1/5        |
| <b>1.1 DHW MODE</b>       | <b>YES</b> |
| 1.2 DISINFECT             | YES        |
| 1.3 DHW PRIORITY          | YES        |
| 1.4 DHW PUMP              | YES        |
| 1.5 DHW PRIORITY TIME SET | NON        |
| ← ADJUST                  | →          |

|                     |        |
|---------------------|--------|
| 1 DHW MODE SETTING  | 2/5    |
| 1.6 dT5_ON          | 5 °C   |
| 1.7 dT1S5           | 10 °C  |
| 1.8 T4DHWMAX        | 43 °C  |
| 1.9 T4DHWMIN        | -10 °C |
| 1.10 t_INTERVAL_DHW | 5 MIN  |
| ← ADJUST            | →      |

|                     |        |
|---------------------|--------|
| 1 DHW MODE SETTING  | 3/5    |
| 1.11 dT5_TBH_OFF    | 5 °C   |
| 1.12 T4_TBH_ON      | 5 °C   |
| 1.13 t_TBH_DELAY    | 30 MIN |
| 1.14 T5S_DI         | 65 °C  |
| 1.15 t_DI HIGHTEMP. | 15MIN  |
| ← ADJUST            | →      |

|                        |         |
|------------------------|---------|
| 1 DHW MODE SETTING     | 4/5     |
| 1.16 t_DI_MAX          | 210 MIN |
| 1.17 t_DHWHP_RESTRICT  | 30 MIN  |
| 1.18 t_DHWHP_MAX       | 120 MIN |
| 1.19 DHWPUMP TIME RUN  | YES     |
| 1.20 PUMP RUNNING TIME | 5 MIN   |
| ← ADJUST               | →       |

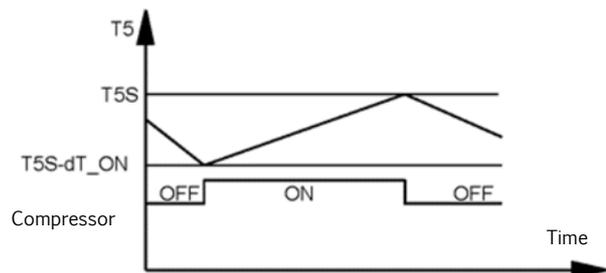
|                      |     |
|----------------------|-----|
| 1 DHW MODE SETTING   | 5/5 |
| 1.21 DHW PUMP DI RUN | NON |
|                      |     |
|                      |     |
|                      |     |
| ← ADJUST             | →   |

DHW : domestic hot water

DHW MODE SETTING typically consists of the following:

- DHW MODE: enable or disable the DHW mode
- DISINFEZIONE: enable or disable the disinfection
- DHW PRIORITY : set the priority between domestic hot water heating and space operation.
- DHW PUMP sets whether or not the recirculation is controlled by the unit. If the DHW pump is to be controlled by the unit select YES. If the recirculation pump is not controlled by the unit, select NON.
- DHW PUMP PRIORITY TIME SET set the operation time of DHW during DHW PRIORITY mode.

**dT5\_ON** sets the temperature difference between the DHW set temperature (T5S) and the DHW tank water temperature (T5) above which the heat pump providing heated water to the DHW tank. When  $T5S \geq T5 \geq dT5\_ON$  the heat pump providing heated water to the DHW tank.



T5: DHW tank water temperature

T5S: DHW set temperature

Note: When the heat pump's leaving water temperature is above the DHW mode leaving water temperature operating limit (T5stop), the heat pump does not provide heated water to the DHW tank. The DHW mode leaving water temperature operating limit is related to outside temperature.

**dT1S5** dT1S5 sets the heat pump's leaving water set temperature (T1S) relative to DHW tank water temperature (T5). For DHW mode, the user sets the DHW set temperature (T5S) on the main screen and cannot manually set T1S.

T1S is set as  $T1S = T5 + dT1S5$ .

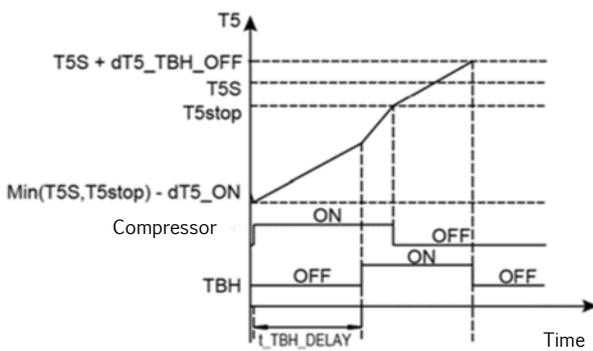
Figure (under) illustrates the operation of the heat pump and immersion heater in DHW mode. If the DHW tank water temperature ( $T5$ ) is less than the minimum of the DHW set temperature ( $T5S$ ) and the heat pump leaving water temperature operating limit ( $T5stop$ ) less  $dT5\_ON$ , the heat pump starts providing heated water to the DHW tank.

After  $t\_TBH\_delay$  minutes have elapsed, the immersion heater is turned on.

If  $T5$  reaches  $T5stop$ , the heat pump stops but the immersion heater continues running until  $T5$  has reached  $T5S$

+  $dT5\_TBH\_OFF$

DHW mode operation



$T5$ : DHW tank water temperature

$T5S$ : DHW set temperature

$T5stop$ : DHW mode leaving water temperature operating limit

TBH: Immersion heater in DHW tank

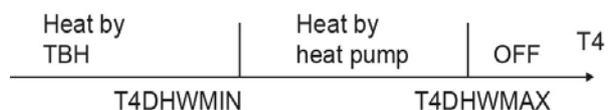
**T4DHWMAX** is the maximum outside temperature that the heat pump can operate at for domestic water heating. The unit will not operate if the outside temperature goes above it in DHW mode.

**T4DHWMAX** sets the outside temperature above which the heat pump will not operate in DHW mode. The highest value that **T4DHWMAX** can take is  $43^{\circ}\text{C}$ , which is the DHW mode upper outside temperature operating limit of the heat pump.

**T4DHWMIN** is the minimum outside temperature that the heat pump can operate for domestic water heating.

**T4DHWMIN** sets the outside temperature below which the heat pump will not operate in DHW mode. The lowest value that **T4DHWMIN** can take is  $-25^{\circ}\text{C}$ , which is the DHW mode lower outside temperature operating limit of the heat pump.

The heat pump will turn off if the outside temperature drops below it in water heating mode. The relationship between operation of the unit and outside temperature can be illustrated in the picture below:



HP: Heat pump

TBH: DWH tank immersion heater

**T\_INTERVAL\_DHW** is the start time interval of the compressor in DHW mode. When the compressor stops running, the next time the compressor turns on it should be **T\_INTERVAL\_DHW** plus one minute later at least.

**dT5\_TBH\_OFF** sets the temperature difference between the DHW set temperature ( $T5S$ ) and the DHW tank water temperature ( $T5$ ) below which the immersion heater is not used. When  $T5 > \text{Min}(dT5\_TBH\_OFF, 65^{\circ}\text{C})$ , the immersion heater is off.

**T4\_TBH\_ON** is the temperature only when the outside temperature is lower than its parameter and the booster heater will be available.

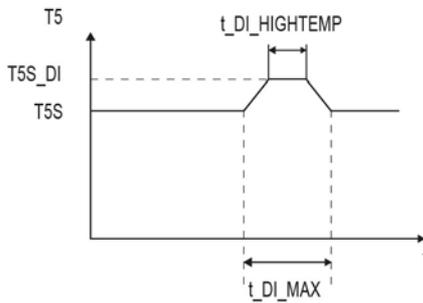
**t\_TBH\_DELAY** is the time that the compressor has run before starting the booster heater (if  $T5 < \text{min}(T5S, T5stop)$ ).

**T5S\_DI** is the target temperature of water in the domestic hot water tank in the DISINFECT function.

The maximum temperature that can be set is  $70^{\circ}\text{C}$ .

**t\_DI\_HIGHTEMP** is the time that the hot water will last.

**t\_DI\_MAX** is the time that disinfection will last. The change of domestic water temperature is described in the picture below:



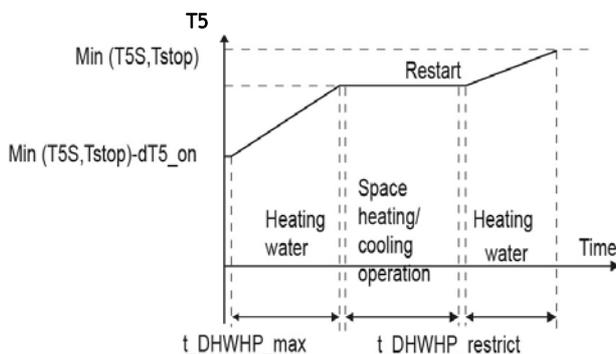
T5: DHW tank water temperature  
T5S: DHW set temperature

**t\_DHWHP\_RESTRICT RESTRICT** sets the maximum length of time that the heat pump will run in space heating or space cooling modes before switching to DHW mode, if a requirement for DHW mode exists. When running in space heating mode or space cooling mode, the heat pump becomes available for DHW mode either as soon the space heating/cooling set temperatures have been reached (refer to “COOL MODE SETTING Menu” and “HEAT MODE SETTING Menu”) or after t\_DHWHP\_MAX minutes have elapsed.

**t\_DHWHP\_MAX** sets the maximum length of time that the heat pump will run in DWH mode before switching to space heating mode or space cooling mode if a requirement for space heating/cooling modes exists. When running in DHW mode, the heat pump becomes available for space heating/cooling either as soon as the DHW tank water temperature (T5) reaches the DHW set temperature (T5S) or after t\_DHWHP\_MAX minutes have elapsed.

Figure illustrates the effects of t\_DHWHP\_MAX and t\_DHWHP\_RESTRICT when DHW PRIORITY is enabled. The heat pump initially runs in DWH mode. After t\_DHWHP\_MAX minutes, T5 has not reached

Operation in DHW PRIORITY



T5: DHW tank water temperature  
T5S: DHW set temperature  
T5stop: DHW mode leaving water temperature operating limit

**DHW PUMP TIME RUN** sets whether or not the user is able to set the recirculation pump in DHW mode. For installations with a recirculation pump, select ON so that the user is able to set pump start times.

**PUMP RUNNING TIME** sets the length of time the pump runs for at each of the user-specified start times on the DHW PUMP tab on the DOMESTIC HOT WATER (DHW) menu, if TIMER RUNNING is enabled.

**DHW PUMP DI RUN** sets whether or not the recirculation pump (field supply) operates during the disinfection mode.

**Menu COOLING MODE SETTING**

**MENU > FOR SERVICEMAN > COOL MODE SETTING**

|                     |            |
|---------------------|------------|
| 2 COOL MODE SETTING | 1/3        |
| 2.1 COOL MODE       | <b>YES</b> |
| 2.2 t_T4_FRESH_C    | 2.0HRS     |
| 2.3 T4CMAX          | 43°C       |
| 2.4 T4CMIN          | 20°C       |
| 2.5 dT1SC           | 5°C        |
| ADJUST              |            |

|                     |            |
|---------------------|------------|
| 2 COOL MODE SETTING | 2/3        |
| 2.6 dTSC            | <b>2°C</b> |
| 2.7 t_INTERVAL_C    | 5MIN       |
| 2.8 T1SetC1         | 10°C       |
| 2.9 T1SetC2         | 16°C       |
| 2.10 T4C1           | 35°C       |
| ADJUST              |            |

|                       |             |
|-----------------------|-------------|
| 2 COOL MODE SETTING   | 3/3         |
| 2.11 T4C2             | <b>25°C</b> |
| 2.12 ZONE1 C-EMISSION | FCU         |
| 2.13 ZONE2 C-EMISSION | FLH         |
| ADJUST                |             |

In COOL MODE SETTING the following parameters should be set.

**COOL MODE** enables or disables cooling mode.

For installations with space cooling terminals, select YES to enable cooling mode.

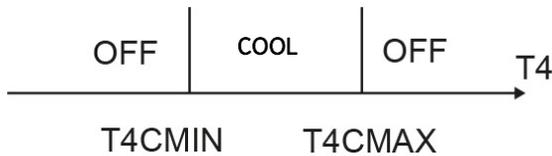
For installations without space cooling terminals, select NON to disable cooling mode.

**t\_T4\_FRESH\_C** sets the refresh time of cooling model climate temperature curve.

**T4CMAX** sets the outside temperature above which the heat pump will not operate in cooling mode. The maximum value that T4CMAX can take is 46°C, which is the cooling mode upper outside temperature operating limit of the heat pump.

**T4CMIN** sets the outside temperature below which the heat pump will not operate in cooling mode. The lowest value that T4CMIN can take is -5°C, which is the cooling mode lower outside temperature operating limit of the heat pump.

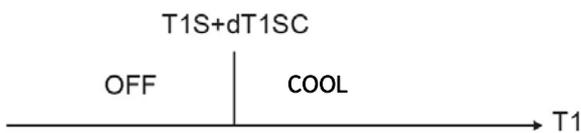
Refer to figure



T4: outside temperature

**dT1SC** sets the minimum temperature difference between the heat pump leaving water temperature (T1) and the heat pump leaving water set temperature (T1S) at which the heat pump provides chilled water to the space cooling terminals.

When  $T1 - T1S \geq dT1SC$  the heat pump provides chilled water to the space cooling terminals and when  $T1 \leq T1S$  the heat pump does not provide chilled water to the space cooling terminals.



T1: Heat pump leaving water temperature

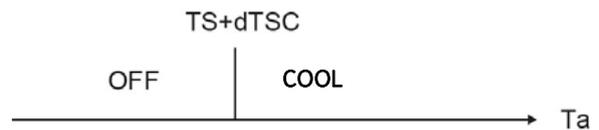
T1S: Heat pump leaving water set temperature

**dTSC** sets the temperature difference between the actual room temperature (Ta) and set room temperature (TS) above which the heat pump provides chilled water to the space cooling terminals.

When  $Ta - TS \geq dTSC$  the heat pump provides chilled water to the space cooling terminals and when  $Ta \leq TS$  the heat pump does not provide chilled water to the space cooling terminals.

Refer to figure

dTSC is only applicable if YES is selected for ROOM TEMP in the TEMP. TYPE SETTING menu. Refer to Part "TEMP. TYPE SETTING Menu"



**t\_INTERVAL\_C** sets the cooling mode compressor re-start delay. When the compressor stops running, it will not re-start until at least t\_INTERVAL\_C minutes have elapsed.

**T1SetC1** sets the temperature 1 of automatic setting curve for cooling mode.

**T1SetC2** sets the temperature 2 of automatic setting curve for cooling mode.

**T4C1** sets the outside temperature 1 of automatic setting curve for cooling mode.

**T4C2** sets the outside temperature 2 of automatic setting curve for cooling mode.

**ZONE1 C-EMISSIONI** sets the emission type of zone1 for cooling mode.

Select type:

RAD = radiators (do not use)

FCU = fancoil

FLH = radiant panels

**ZONE2 C-EMISSIONI** sets the emission type of zone2 for cooling mode.

Select type:

RAD = radiators (do not use)

FCU = fancoil

FLH = radiant panels

Menu HEATING MODE SETTING  
 MENU > FOR SERVICEMAN > HEAT MODE SETTING

|                     |        |
|---------------------|--------|
| 3 HEAT MODE SETTING | 1/3    |
| 3.1 HEAT MODE       | YES    |
| 3.2 t_T4_FRESH_H    | 2.0HRS |
| 3.3 T4HMAX          | 16°C   |
| 3.4 T4HMIN          | -15°C  |
| 3.5 dT1SH           | 5°C    |
| ADJUST              |        |

|                     |      |
|---------------------|------|
| 3 HEAT MODE SETTING | 2/3  |
| 3.6 dTSH            | 2°C  |
| 3.7 t_INTERVAL_H    | 5MIN |
| 3.8 T1SetH1         | 35°C |
| 3.9 T1SetH2         | 28°C |
| 3.10 T4H1           | -5°C |
| ADJUST              |      |

|                       |      |
|-----------------------|------|
| 3 HEAT MODE SETTING   | 3/3  |
| 3.11 T4H2             | 7°C  |
| 3.12 ZONE1 H-EMISSION | RAD. |
| 3.13 ZONE2 H-EMISSION | FLH  |
| 3.14 t_DELAY_PUMPI    | 2MIN |
| ADJUST                |      |

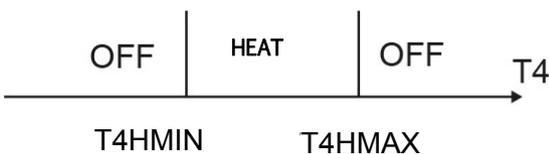
In HEAT MODE SETTING the following parameters should be set.

HEAT MODE enables or disables heating mode.

t\_T4\_FRESH\_H sets the refresh time of heating model climate temperature curve .

T4HMAX sets the outside temperature above which the heat pump will not operate in heating mode.

The highest value that T4HMAX can take is 35°C, which is the heating mode upper outside temperature operating limit of the heat pump. Refer to figure



T4: outside temperature

T4HMIN sets the outside temperature below which the heat pump will not operate in heating mode. The lowest value that T4HMIN can take is -25°C, which is the heating mode lower outside temperature operating limit of the heat pump.

dT1SH sets the temperature difference between the heat pump leaving water temperature (T1) and the heat pump leaving water set temperature (T1S) above which the heat pump provides heated water to the space heating terminals

dTSH sets the temperature difference between the actual room temperature (Ta) and set room temperature (TS) above which the heat pump provides heated water to the space heating terminals.

When  $TS - Ta \geq dTSH$  the heat pump provides heated water to the space heating terminals and when  $Ta \geq TS$  the heat pump does not provide heated water to the space heating terminals.

Refer to figure

dTSH is only relevant if YES is selected for OUTSIDE TEMP in the TEMP. TYPE SETTING menu. Refer to Part “TEMP. TYPE SETTING Menu”.



NotE:  
 Only when ROOM TEMP is enabled will this function be available

t\_INTERVAL\_H sets the heating mode compressor re-start delay. When the compressor stops running, it will not re-start until at least t\_INTERVAL\_H minutes have elapsed.

T1SetH1 sets the temperature 1 of automatic setting curve for heating mode.

T1SetH2 sets the temperature 2 of automatic setting curve for heating mode.

T4H1 sets the outside temperature 1 of automatic setting curve for heating mode.

T4H2 sets the outside temperature 2 of automatic setting curve for heating mode.

**ZONE1 H-EMISSION** sets the emission type for heating mode.

Select type:

RAD = radiators

FCU = fancoil

FLH = radiant panels

**ZONE2 H-EMISSION** sets the emission type for heating mode.

Select type:

RAD = radiators

FCU = fancoil

FLH = radiant panels

**DELAY\_PUMPI** Delay in switching off the pump from OFF of the compressor.

### Menu AUTO MODE SETTING

MENU > FOR SERVICEMAN > AUTO MODE SETTING

|                      |      |
|----------------------|------|
| 4 AUTO. MODE SETTING |      |
| 4.1 T4AUTOCMIN       | 25°C |
| 4.2 T4AUTOHMAX       | 17°C |
|                      |      |
|                      |      |
|                      |      |
|                      |      |
| ADJUST               |      |

In AUTO MODE SETTING the following parameters should be set.

**T4AUTOCMIN** sets the outside temperature below which the heat pump will not provide chilled water for space cooling in auto mode.

**T4AUTOHMAX** sets the outside temperature above which the heat pump will not provide heated water for space heating in auto mode

Refer to figure



AHS: Additional heating source

IBH: Backup electric heater

T4CMAX: The outside temperature above which the heat pump will not operate in cooling mode.

T4HMIN: The outside temperature below which the heat pump will not operate in heating mode

### Menu TEMP. TYPE SETTING

MENU > FOR SERVICEMAN > TEMP. TYPE SETTING

|                      |     |
|----------------------|-----|
| 5 TEMP. TYPE SETTING |     |
| 5.1 WATER FLOW TEMP. | YES |
| 5.2 ROOM TEMP.       | NON |
| 5.3 DOUBLE ZONE      | NON |
|                      |     |
|                      |     |
| ADJUST               |     |

The TEMP. TYPE SETTING is used for selecting whether the water flow temperature or room temperature is used to control the ON/OFF of the heat pump.

For installations without room thermostats, space heating and cooling modes can be controlled in one way:

- the unit only manages the water temperature

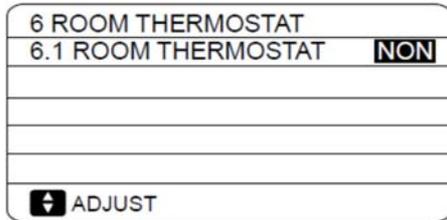
**WATER FLOW TEMP.** sets whether space heating/cooling modes are controlled according to the unit leaving water temperature. If YES is selected, the user is able to set the unit leaving water temperature set temperature on the user interface's main screen..

**DOUBLE ZONE** sets whether there are two zones.

The **ROOM TEMP.** control is not available if **ROOM TEMP.** is selected an error will appear.

## Menu ROOM THERMOSTAT

MENU > FOR SERVICEMAN > ROOM THERMOSTAT



As an alternative to controlling space heating/cooling modes according to the unit leaving water temperature, it is possible to install a separate room thermostat and use it to control space heating/cooling modes.

In ROOM THERMOSTAT the following parameters should be set.

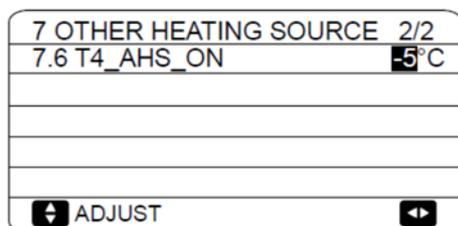
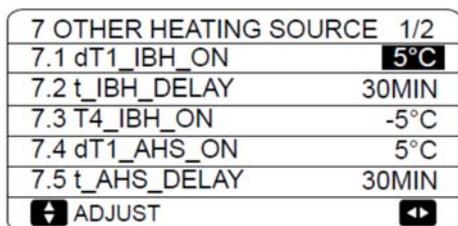
**ROOM THERMOSTAT** sets whether or not room thermostats are installed.

For installations with room thermostats, select: ONE ZONE - DOUBLE ZONE - MODE SET.

For installations without room thermostats, select NON.

## Menu OTHER HEATING SOURCE

MENU > FOR SERVICEMAN > OTHER HEATING SOURCE



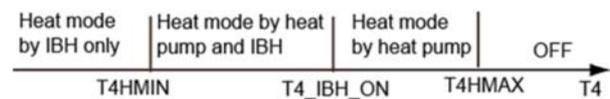
In OTHER HEATING SOURCE the following parameters should be set. Backup electric heater is optional.

**dT1\_IBH\_ON** sets the temperature difference between the heat pump's leaving water set temperature (T1S) and the heat pump's leaving water temperature (T1) above which the backup electric heater heating element(s) are on. When  $T1S - T1 \geq dT1\_IBH\_ON$  the backup electric heater is on (on models where the backup electric heater has a simple on/off control function).

**t\_IBH\_DELAY** sets the delay between the compressor starting and the backup electric heater being turned on.

**T4\_IBH\_ON** sets the outside temperature below which the backup electric heater is used. If the outside temperature is above T4\_IBH\_ON, the backup electric heater is not used.

The relationship between operation of the backup heater and the outside temperature is shown in figure



T4: outside temperature

IBH: Backup electric heater

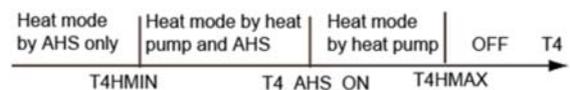
Currently for this unit the IBH is not available.

**dT1\_ASH\_ON** sets the temperature difference between the heat pump's leaving water set temperature (T1S) and the heat pump's leaving water temperature (T1) above which the additional heating source is on. When  $T1S - T1 \geq dT1\_AHS\_ON$  the additional heating source is on.

**t\_ASH\_DELAY** sets the delay between the compressor starting and the additional heating source being turned on.

**T4\_AHS\_ON** sets the outside temperature below which the additional heating source is used. If the outside temperature is above T4\_AHS\_ON, the additional heating source is not used.

The relationship between operation of the additional heating source and the outside temperature is shown in the picture below.

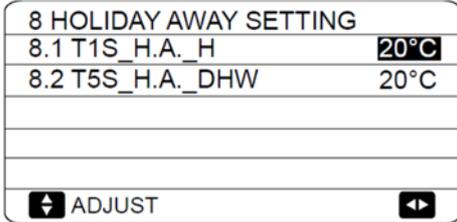


AHS: Additional heating source

T4: outside temperature

## Menu HOLIDAY AWAY SETTING

MENU > FOR SERVICEMAN > HOLIDAY AWAY SETTING



The HOLIDAY AWAY SETTING menu settings are used to set the outlet water temperature to prevent water pipes freezing when away from home in cold weather seasons.

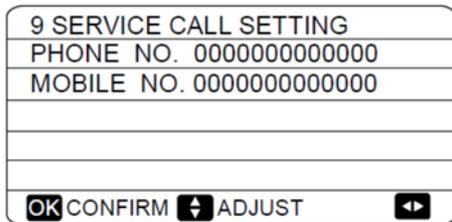
In HOLIDAY AWAY SETTING the following parameters should be set.

**T1S\_H.A.\_H** sets the heat pump's leaving water set temperature for space heating mode when in holiday away mode.

**T5S\_H.M\_DHW** sets the heat pump's leaving water set temperature for DHW mode when in holiday away mode.

## Menu SERVICE CALL

MENU > FOR SERVICEMAN > SERVICE CALL



In SERVICE CALL the following parameters can be set.

PHONE NO. and MOBILE NO. can be used to set after-sales service contact numbers.

If set, these numbers are displayed to users in MENU > FOR SERVICEMAN > SERVICE CALL

Use DOWN , UP to adjust the numerical values. The maximum length of the phone numbers is 14 digits.

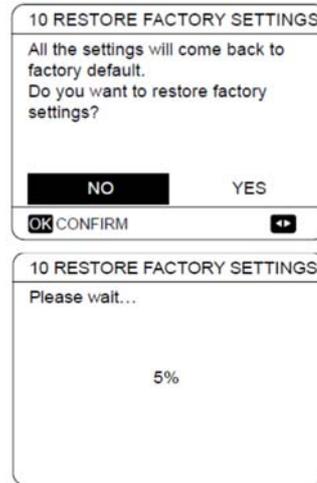
The black rectangle found between 0 and 9 when scrolling up and down using DOWN, UP is converted to a blank space when the phone numbers are displayed to users in MENU > FOR SERVICEMAN > SERVICE CALL and can be used for phone numbers less than 14 digits in length.

## Menu RESTORE FACTORY SETTINGS

MENU > FOR SERVICEMAN > RESTORE FACTORY SETTINGS

RESTORE FACTORY SETTINGS is used to restore all the parameters set in the user interface to their factory defaults.

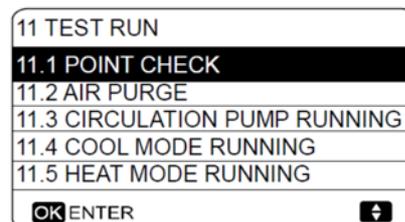
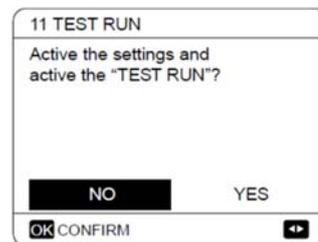
On selecting YES, the process of restoring all settings to their factory defaults begins and progress is displayed as a percentage.

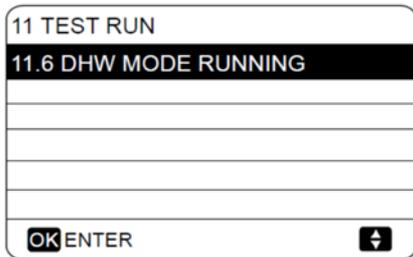


## Menu TEST RUN

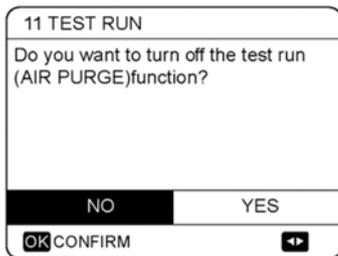
MENU > FOR SERVICEMAN > TEST RUN

TEST RUN is used to check that the valves, air purge function, circulation pump, space cooling mode, space heating mode and DHW mode are all operating correctly.





During test run, all buttons except OK are invalid. If you want to turn off the test run, please press OK. For example, when the unit is in air purge mode, after you press OK, the following page will be displayed:

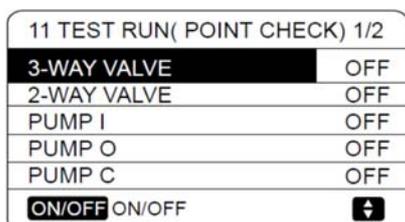
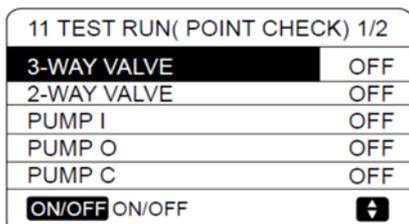


### Menu POINT CHECK

**MENU > FOR SERVICEMAN > TEST RUN > POINT CHECK**

The POINT CHECK menu is used to check the operation of individual components. Use DOWN, UP to scroll to the components you want to check and press ON/OFF to toggle the on/off state of the component.

If a valve does not turn on/off when its on/off state is toggled or if a pump/heater does not operate when turned on, check the component's connection to the hydronic system main PCB.



### AIR PURGE operation

**MENU > FOR SERVICEMAN > TEST RUN > AIR PURGE**

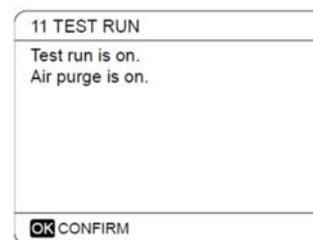
Once installation is complete it is important to run the air purge function to remove any air which may be present in the water piping and which could cause malfunctions during operation.

The AIR PURGE operation is used to remove air from the water piping. Before running AIR PURGE mode, make sure that the air purge valve is open.

When the air purge operation starts, the 3-way valve opens and the 2-way valve closes. 60 secs later the pump in the unit (PUMPI) operates for 10min during which the flow switch does not work.

After the pump stops, the 3-way valve closes and the 2-way valve opens. 60 secs later both PUMPI and PUMPO operate until the next command is received.

If any error code is displayed during the air purge operation, the cause should be investigated.



### CIRCULATION PUMP RUNNING operation

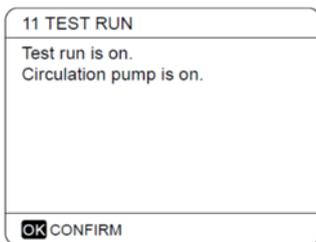
**MENU > FOR SERVICEMAN > TEST RUN > CIRCULATION PUMP RUNNING**

The CIRCULATION PUMP RUNNING operation is used to check the operation of the circulation pump.

When the circulation pump running operation starts, all running components stop. 60 secs later, the 3-way valve opens and the 2-way valve closes.

After a further 60 secs PUMPI starts. 30 seconds later, if the flow switch detects that the water flow is normal, PUMPI operates for 3 mins after which the 3-way valve closes and the 2-way valve opens. 60s later both PUMI and PUMPO will operate.

After a further 2 mins the flow switch start to check the water flow. If the water flow rate is sufficient, both PUMPI and PUMPO operate until the next command is received. If the water flow rate is insufficient over any 15 second period, PUMPI and PUMPO stop and error code E8 is displayed.



### COOL MODE RUNNING operation MENU > FOR SERVICEMAN > TEST RUN > COOL MODE RUNNING

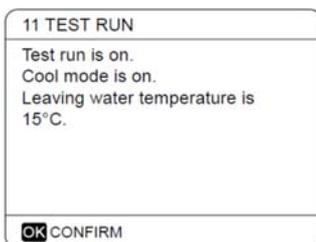
The COOL MODE RUNNING operation is used to check the operation of the system in space cooling mode..

During the COOL MODE RUNNING operation, the unit leaving water set temperature is 7°C.

The current actual leaving water temperature is displayed on the user interface.

The unit operates until the leaving water temperature drops to the set temperature or the next command is received.

If any error code is displayed during the cool mode running operation, the cause should be investigated.



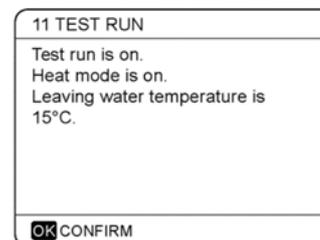
### HEAT MODE RUNNING operation MENU > FOR SERVICEMAN > TEST RUN > HEAT MODE RUNNING

The HEAT MODE RUNNING operation is used to check the operation of the system in space heating mode

During the HEAT MODE RUNNING operation the unit leaving water set temperature is 35°C. The current actual leaving water temperature is displayed on the user interface. When the HEAT MODE RUNNING operation starts, the heat pump first runs for 10 mins.

After 10 mins:

- On systems where an auxiliary heat source (AHS) is installed, the AHS starts and runs for 10 mins (whilst the heat pump continues running), after which the AHS stops and the heat pump continues to operate until the water temperature rises to the set temperature or the heat mode running operation is exited by pressing OK.
- On systems where a backup electric heater is being used, the backup heater turn on (on models where the backup heater has a simple on/off control function). 3 mins later the backup electric heater will turn off. The heat pump will then operate until the water temperature rises to the set temperature or the next command is received.
- On systems with no auxiliary heat source (AHS), the heat pump will then operate until the water temperature rises to the set temperature or the next command is received.
- If any error code is displayed during the cool mode running operation, the cause should be investigated



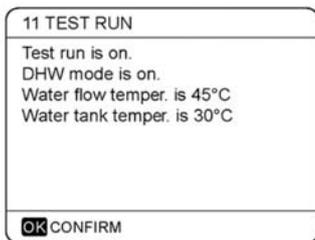
## DHW MODE RUNNING operation

MENU > FOR SERVICEMAN > TEST RUN > DHW MODE RUNNING

The DHW MODE RUNNING operation is used to check the operation of the system in DHW mode. During the DHW MODE RUNNING operation, the DHW set temperature is 55°C.

The tank boost heater will turn on once the heat pump has run for 10 mins.

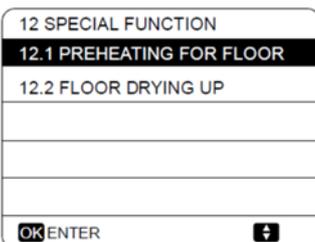
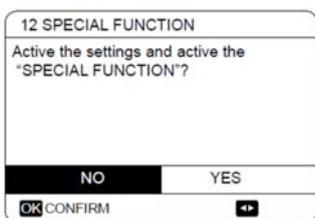
The tank boost heater will turn off 3 mins later and the heat pump will operate until the water temperature rises to the set temperature or the next command is received.



## SPECIAL FUNCTION

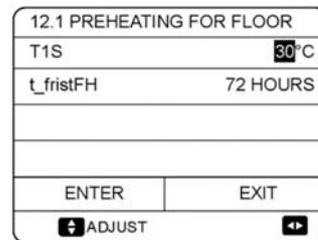
MENU > FOR SERVICEMAN > SPECIAL FUNCTION

SPECIAL FUNCTION is used to pre-heating floor and drying up floor once installation is complete or the first time start up the unit or restart the unit after a long time stop.



## PREHEATING FOR FLOOR

MENU > FOR SERVICEMAN > SPECIAL FUNCTION > PREHEATING FOR FLOOR



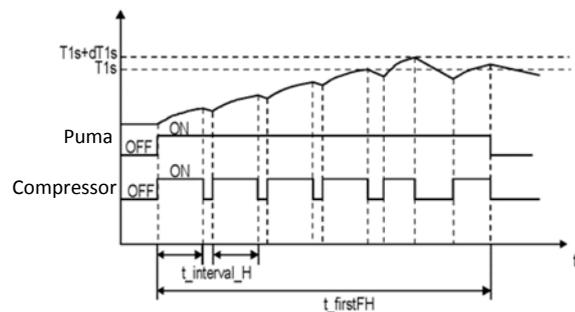
Before floor heating, if a large amount of water remains on the floor, the floor may be warped or even rupture during floor heating operation, in order to protect the floor, floor drying is necessary, during which the temperature of the floor should be increased gradually.

During first operation of the unit, air may remain in the water system which can cause malfunctions during operation. It is necessary to run the air purge function to release the air (make sure the air purge valve is open).

**T1S** is the target outlet water temperature in preheating for floor mode.

**t\_fristFH** is the time last for preheating floor.

The operation of the unit during preheating for floor described in the picture below:

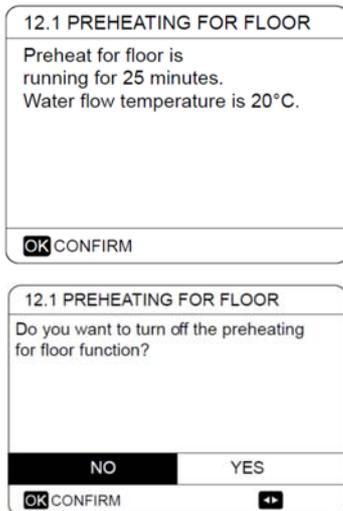


t\_interval\_H: Compressor re?start delay in space heating mode.

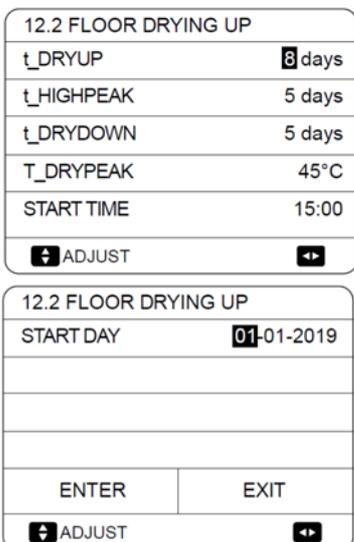
Whilst the preheating for floor operation is running, the number of minutes that it has been running for and the heat pump's leaving water temperature are displayed on the user interface. During the preheating for floor operation all buttons except OK are inactivated.

To exit the preheating for floor operation, press OK and then select YES when prompted.

Refer to figure



## FLOOR DRYING UP MENU > FOR SERVICEMAN > SPECIAL FUNCTION > FLOOR DRYING UP



For newly-installed under-floor heating systems, floor drying up mode can be used to remove moisture from the floor slab and subfloor to prevent warping or rupture of the floor during floor heating operation.

There are three phases to the floor drying up operation:

- Phase 1: gradual temperature increase from a starting point of 25°C to the peak temperature
- Phase 2: maintain peak temperature
- Phase 3: gradual temperature decrease from the peak temperature to 45°C

t\_DRYUP is the day for warming up.

t\_HIGHPEAK is the continue days in high temperature.

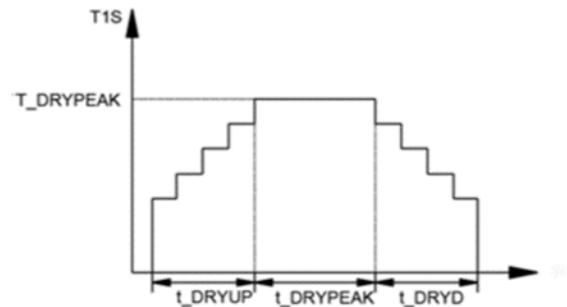
t\_DRYDOWN is the day of dropping temperature

T\_DRYPEAK is the target peak temperature of water flow during floor drying up.

START TIME sets the floor drying up operation start time

START DATE sets the floor drying up operation start date.

The target outlet water temperature during floor drying up described in the picture below:



During the floor drying up operation all buttons except OK are inactivated.

To exit the floor drying up operation, press OK and then select YES when prompted.

Note: In the event of a heat pump malfunction, floor drying up mode will continue if a backup electric heater and/or additional heating source is available and configured to support space heating mode.

|                      |            |
|----------------------|------------|
| 12.2 FLOOR DRYING UP |            |
| START DAY            | 01-01-2019 |
|                      |            |
|                      |            |
| ENTER                | EXIT       |
| ADJUST               |            |

## AUTO RESTART

MENU > FOR SERVICEMAN > AUTO RESTART

The AUTO RESTART function is used to select whether the unit reapplies the user interface settings at the time when power returns after a power supply failure.

Select YES to enable auto restart or NON to disable auto restart.

If the auto restart function is enabled, when the power returns following a power failure, the unit re-applies the user interface settings from before the power failure.

If the auto restart function is disabled, when the power returns after a power failure, the unit won't auto restart.

|                     |     |
|---------------------|-----|
| 13 AUTO RESTART     |     |
| 13.1 COOL/HEAT MODE | YES |
| 13.2 DHWMODE        | NON |
|                     |     |
|                     |     |
|                     |     |
| ADJUST              |     |

## POWER INPUT LIMITATION

MENU > FOR SERVICEMAN > POWER INPUT LIMITATION

How to set the POWER INPUT LIMITATION

|                             |   |
|-----------------------------|---|
| 14 POWER INPUT LIMITATION   |   |
| 14.1 POWER INPUT LIMITATION | 0 |
|                             |   |
|                             |   |
|                             |   |
|                             |   |
| ADJUST                      |   |

## INPUT DEFINE

MENU > FOR SERVICEMAN > INPUT DEFINE

How to set the INPUT DEFINE

|                      |               |
|----------------------|---------------|
| 15 INPUT DEFINE      |               |
| 15.1 CN12 ON/OFF     | REMOTE ON/OFF |
| 15.2 CN35 SMART GRID | NON           |
| 15.3 CN15 T1B        | NON           |
| 15.4 Ta              | HMI           |
|                      |               |
| ADJUST               |               |

## CLIMATE CURVES

The climate related curves can be selected in the user interface, MENU > PRESET TEMPERATURE > WEATHER TEMP. SET.

The curves for heating mode and ECO heating mode are the same but the default curve is curve 4 in heating mode, while in ECO mode, the default curve is curve 6.

The default curves for cooling mode is curve 4. Once the curve is selected, the leaving water set temperature (T1s) is determined by the outdoor temperature.

In each mode, each curve from the eight curves in the user interface can be selected.

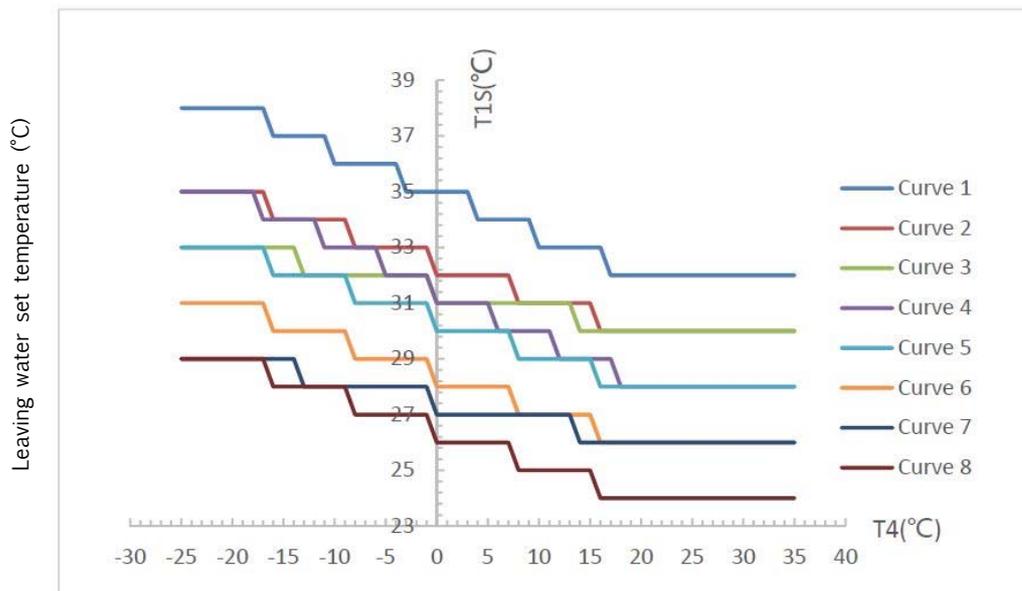
The relationship between outside temperature (T4) and leaving water set temperature (T1s) is described as in Figure A, Figure B, Figure C and Figure D

The automatic setting curves are the ninth curve for cooling and heating mode, the ninth curve can be set as in Figure E and Figure F

| PRESET TEMPERATURE     |                  |          |
|------------------------|------------------|----------|
| PRESET TEMP.           | WEATHER TEMP.SET | ECO MODE |
| ZONE1 C-MODE LOW TEMP. |                  | OFF      |
| ZONE1 H-MODE LOW TEMP. |                  | OFF      |
| ZONE2 C-MODE LOW TEMP. |                  | OFF      |
| ZONE2 H-MODE LOW TEMP. |                  | OFF      |
| ON/OFF                 |                  | ON/OFF   |

Figure A

Low temperature curves for heating mode1

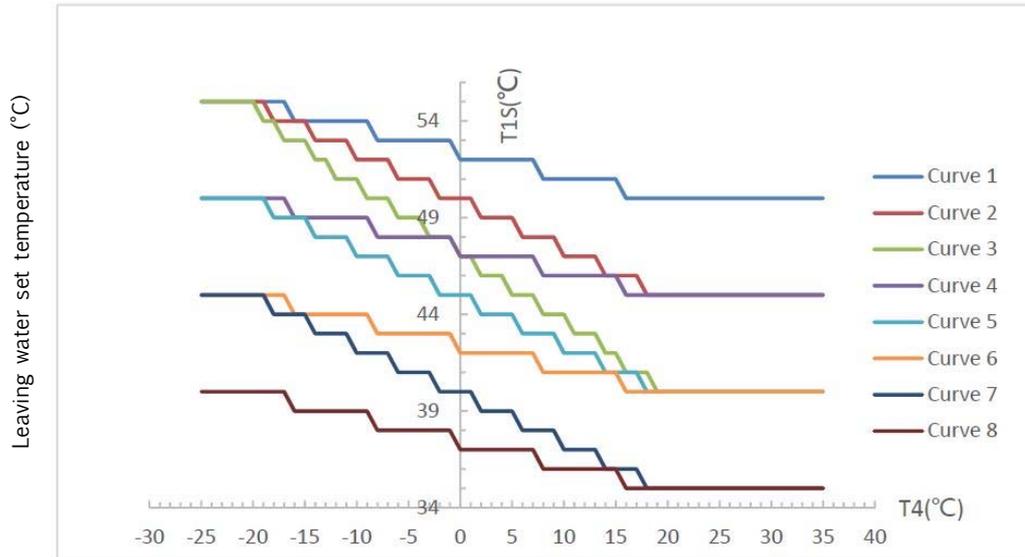


Notes:

- 1 It only has the curves of the low temperature setting for heating, if the low temperature is set for heating.
- 2 Curve 4 is default in low temperature heating mode and curve 6 is default in ECO mode.

Figure B

High temperature curves for heating mode

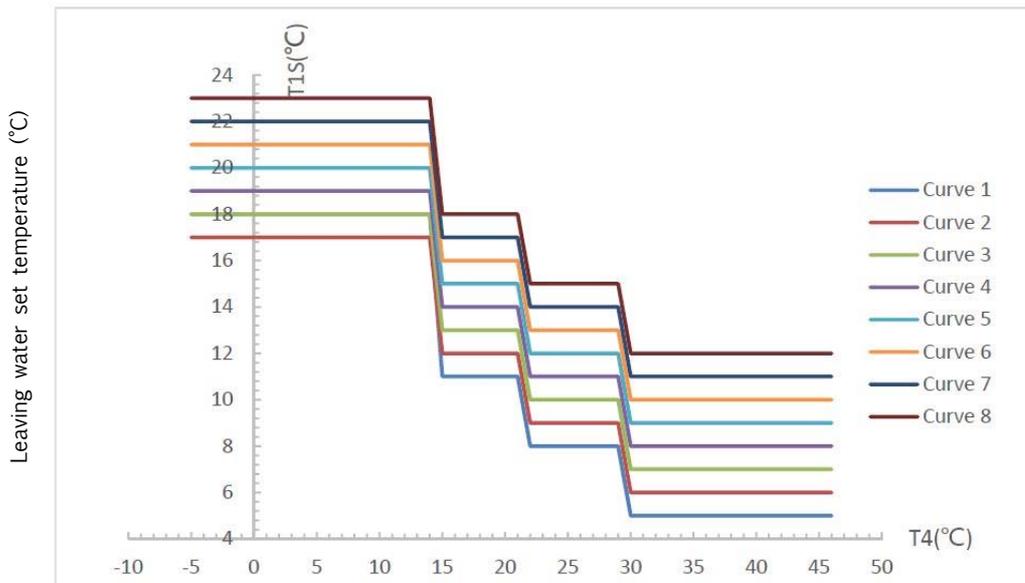


Note:

- 1 It only has the curves of the high temperature setting for heating, if the high temperature is set for heating.
- 2 Curve 4 is default in high temperature heating mode and curve 6 is default in ECO mode.

Figure C

Low temperature curves for cooling mode

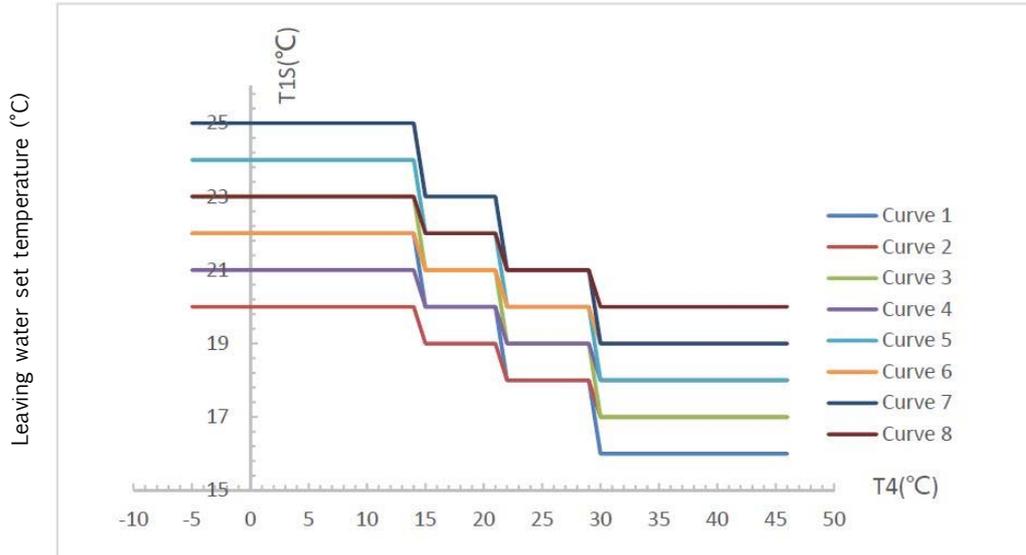


Notes:

- 1 It only has the curves of the low temperature setting for cooling, if the low temperature is set for cooling.
- 2 Curve 4 is default in low temperature cooling mode.

Figure D

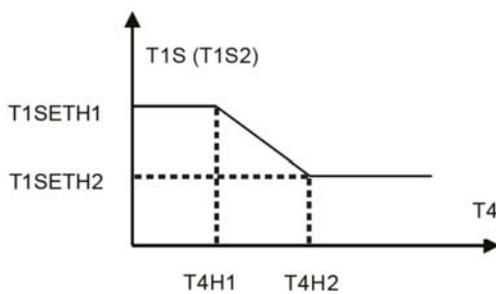
High temperature curves for cooling mode



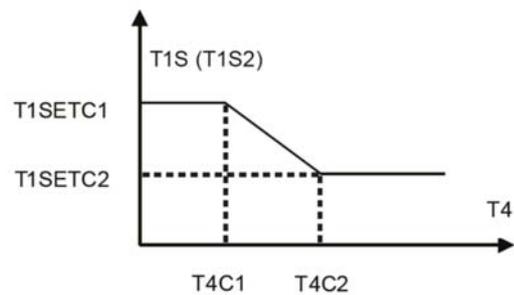
Notes:

- 1 It only has the curves of the high temperature setting for cooling, if the high temperature is set for cooling.
- 2 Curve 4 is default in high temperature cooling mode.

Automatic setting curve for heating mode



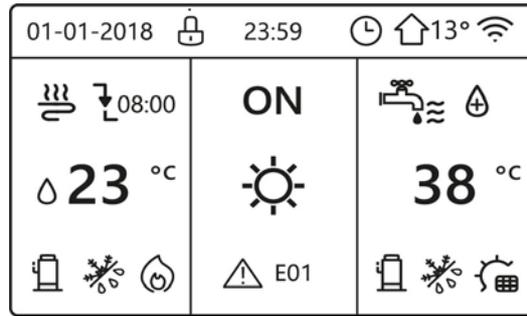
Automatic setting curve for cooling mode

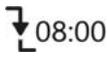


The setting of T1SETH1, T1SETH2, T4H1, T4H2 refer to Part "HEATING MODE SETTING Menu" and T1SETC1, T1SETC2, T4C1, T4C2 refer to Part "COOLING MODE SETTING Menu".



| Key  |   | Functionn  |
|--|---|--|
|   | <b>MENU</b>                             | Enter the menu structure from the home page  |
|   | <b>ON / OFF</b>                         | To set the ON / OFF function or DHW mode turn on or off the function in the menu structure   |
|   | <b>UNLOCK</b>                           | Long press for unlocking /locking the controller   |
|   | <b>OK</b>                               | Go to the next step when programming a schedule in the menu structure  |
| <br> | <b>LEFT - RIGHT</b><br><b>DOWN - Up</b> | Navigate the cursor on the display/navigate in the menu structure/adjust the settings  |
|   | <b>BACK</b>                             | To return to the previous level.<br>Press to exit the current page and return to the previous page.<br>Long press to return straight to the home screen. |



|   |  |   |   |
|---|--|---|---|
|    | Lock   |    | The compressor is activated                           |
|    | At the next scheduled action, the temperature will decrease. |    | The pump is activated                                 |
|    | The temperature not change                                   |    | Weekly schedule                                       |
|    | The temperature will decrease                                |    | Timer   |
|   | The temperature will increase                                |   | Outside temperature                                   |
|  | Fan coil   |  | Wi-Fi   |
|  | Radiator   |  | Domestic hot water                                    |
|  | The floor heating (panels radiants)                          |  | The disinfect (anti-legionella) function is activated |
|  | System water supply temperature (configurable)               | ON<br>OFF   | ON<br>OFF   |
|  | Heat mode  |  | DHW tank temperature                                  |
|  | Cool mode  |  | The solar energy is activated                         |
|  | Auto mode  |  | Active electrical storage tank resistance             |
|  | Additional heat source                                       |  | Allarm  |
|  | Electrical resistance  |  | Smart grid mode                                       |

|  |  |   |   |  |
|--|--|---|---|--|
| Prevent freezing is activated<br> | Defrost mode is activated<br> | Holiday away/home is activated<br> | Silent mode is activated<br> | Eco mode is activated<br> |
|--|--|---|---|--|

|     |          |          |                   |                    |
|-----|----------|----------|-------------------|--------------------|
|     | Fan coil | Radiator | The floor heating | Domestic hot water |
| ON  |          |          |                   |                    |
| OFF |          |          |                   |                    |

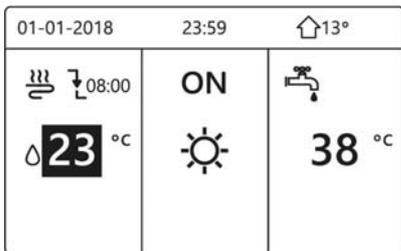
|                 |               |                  |                  |
|-----------------|---------------|------------------|------------------|
| Energy cost     | Free          | Low              | High             |
| Smart grid      |               |                  |                  |
| Energy source   | Photovoltaics | From the network | From the network |
| Energy absorbed | Everage       | Everage          | Peak             |

**The main screen changes according to the type of system**



The installer is responsible for configuration.

1) 1 single zone system



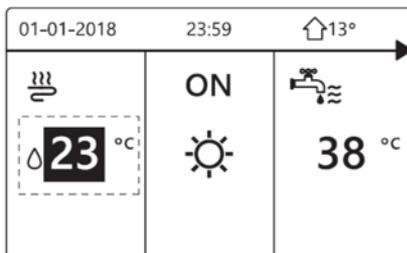
Keyboard control:

MENU > FOR SERVICEMAN > ROOM THERMOSTAT > ROOM THERMOSTAT = NON

Thermostat control:

MENU > FOR SERVICEMAN > ROOM THERMOSTAT > ROOM THERMOSTAT = ONE ZONE

2) double zone system



Keyboard control:

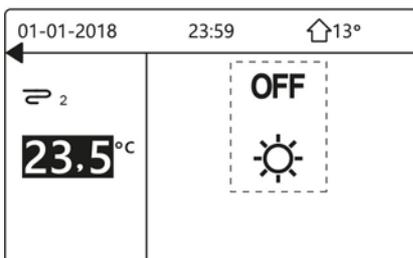
MENU > FOR SERVICEMAN > ROOM THERMOSTAT > ROOM THERMOSTAT = NON

Press BACK

Selection TEMP. TYPE SETTING > DOUBLE ZONE= YES

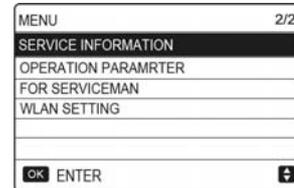
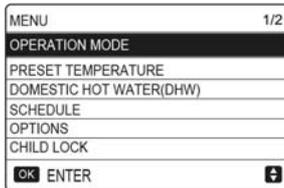
Thermostat control:

MENU > FOR SERVICEMAN > ROOM THERMOSTAT > ROOM THERMOSTAT = DOUBLE ZONE



## Menu structure

Press 3 sec. "UNLOCK" to unlock the keyboard.



### Operation mode

- Heat
- Cool
- Auto

### Preset temperature

- Preset temperature
- Weather temperature set
- ECO mode

### Domestic hot water (DHW)

- Disinfect (anti-legionella)
- Fast DHW
- Tank heater
- DHW pump (recirculation)

### Schedule

- Timer
- Weekly schedule
- Schedule check
- Cancel timer

### Options

- Silent mode
- Holiday away
- Holiday home
- Backup heater

### Child lock

- Please input the password
- Cool/heat temp. adjust
- Cool/heat mode on/off
- DHW temp. adjust
- DHW mode on/off

### Service information

- Service call
- Error code
- Parameter
- Diplay

### Operation parameter

- Consultation only

### For serviceman \*

- Please input the password
- DHW mode setting
- Cool mode setting
- Heat mode setting
- Auto mode setting
- Temp. type setting
- Room thermostat
- Other heating source
- Holiday away setting
- Service call
- Restore factory settings
- Test run
- Special function
- Power input limitation
- Input define

\* The access by pwd is reserved to qualified personnel; The parameters changes may cause malfunctions

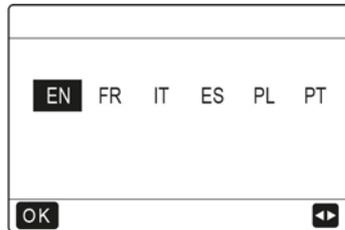
### Wlan setting

- Ap mode
- Restore wlan setting

### 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)
- Double zone system water supply temperature



## 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.

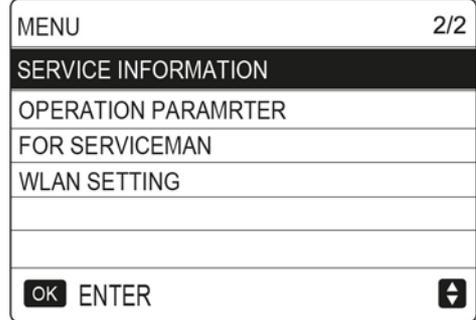
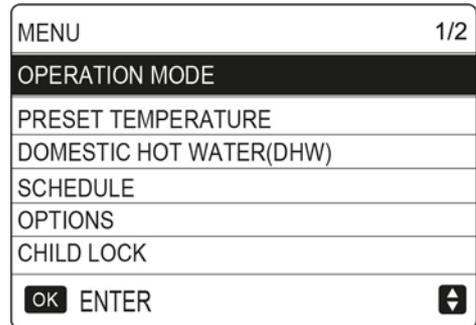
### To go to the menu structure

From a home page, press MENU.

Result: The menu structure appear

### To navigate in the menu structure

Press **Down**, **Up** to scroll



## Screen Unlock

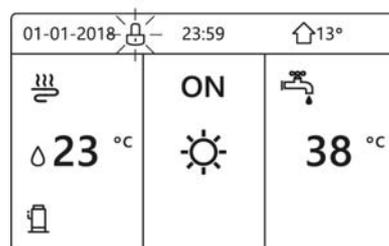
If the icon UNLOCK is on the screen, the controller is locked.

The following page is displayed:

Press any key, the icon UNLOCK will flash.

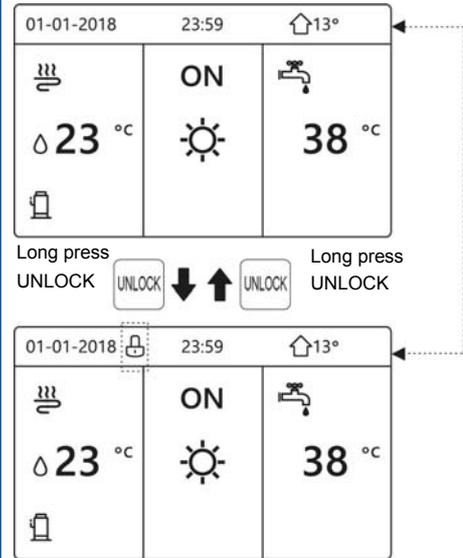
Long press the "UNLOCK" key.

The icon will disappear, the interface can be controlled.



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

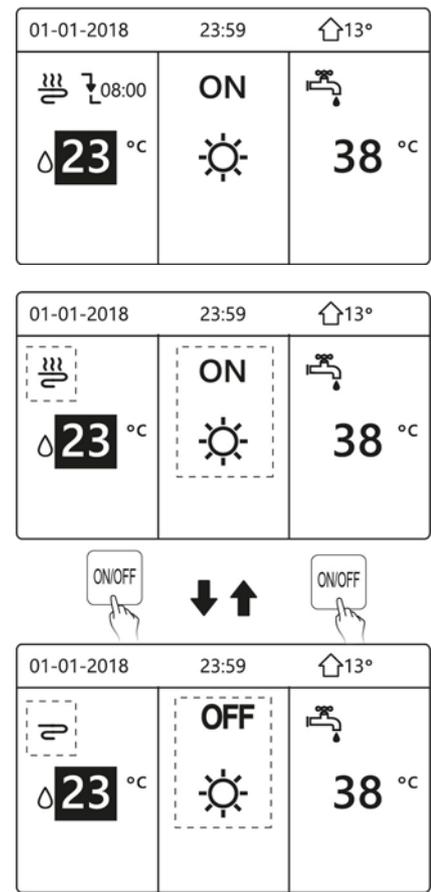
If the interface is unlocked, long press "UNLOCK", the interface will be locked.



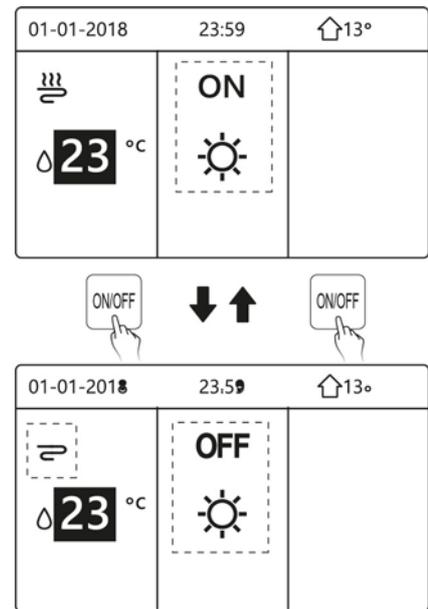
## Turning ON/OFF controls

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 FOR SERVICEMAN).
  - Press **LEFT** or **Up** 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), press "ON/OFF" key to turn on/off space heating or cooling.
  - 2 Press **RIGHT**, the cursor is on the DHW side, press the "ON/OFF" button to turn the DHW on/off.

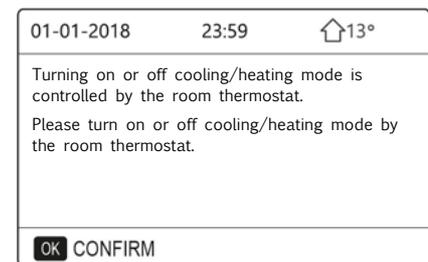


If DHW MODE SETTING is set on NO, the following screens will be displayed without the DHW function.



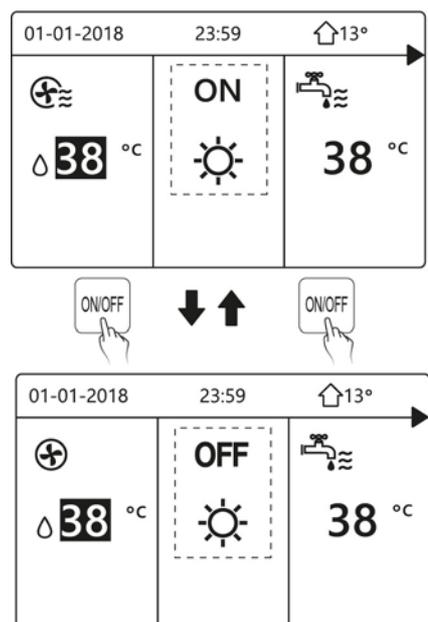
Use the room thermostat to turn on or off the unit for space heating or cooling.

- If the ROOM THERMOSTAT is set on:
  - DOUBLE ZONE, ONE ZONE = the unit can be turned on or off with the room thermostat. The following screen appears if ON/OFF is pressed on the interface.
  - MODE SETTING = can be turned on or off with the room thermostat and controls the heating and cooling mode. (see the FOR SERVICEMAN section).



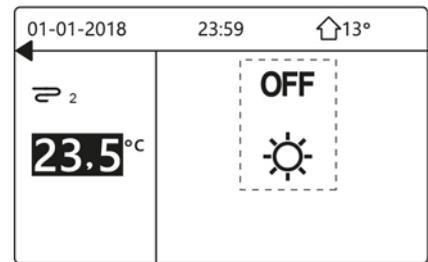
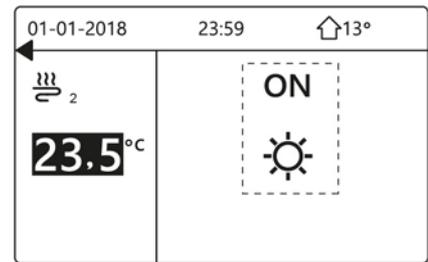
- The room thermostat is set NON (see FOR SERVICEMAN). Press **LEFT or Up** on the screen, the black cursor will appear. When the cursor is on the system temperature side, press the ON/OFF button to turn the fancoil on/off.

The following page is displayed:



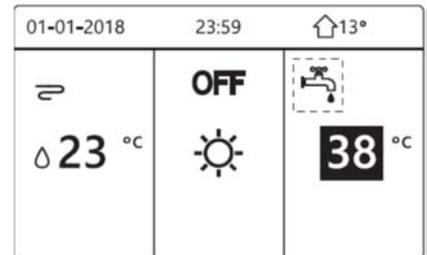
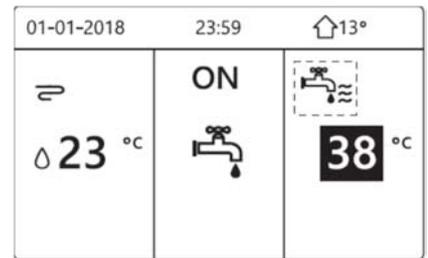
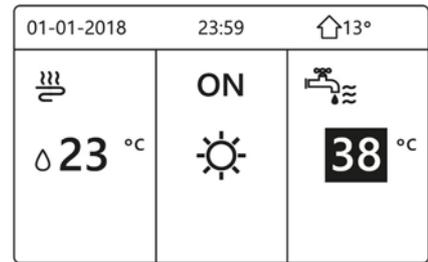
Press **RIGHT** on the screen and the black cursor appears.  
 When the cursor is on the system temperature side, press the ON/OFF button to turn the radiant panels on/off.

The following page is displayed



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

Press **RIGHT** on home page, the black cursor will appear  
 When the cursor is on the DHW temperature side, press the ON/OFF button to turn the domestic hot water production on/off.

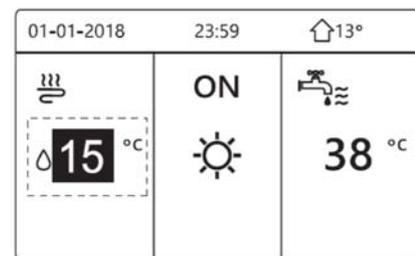
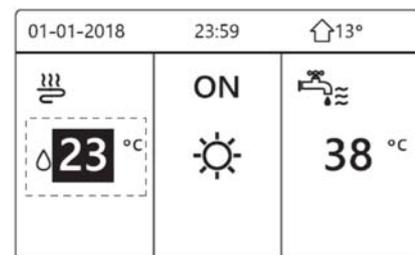
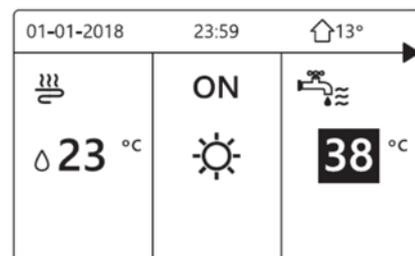
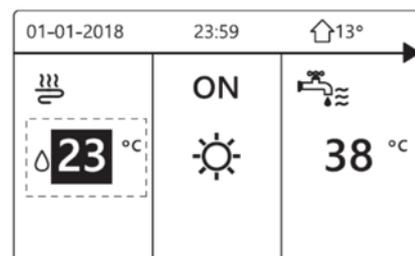
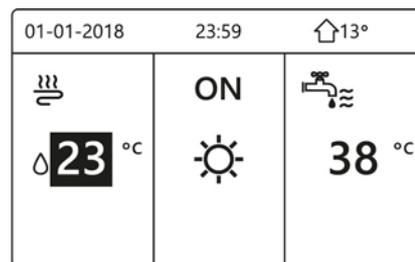


## Adjusting the temperature

System water / DHW

Press **LEFT** or **Up** on home page, the black cursor will appear

If the cursor is on the temperature, use the **LEFT** , **RIGHT** to select and use **Up**, **Down** 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:

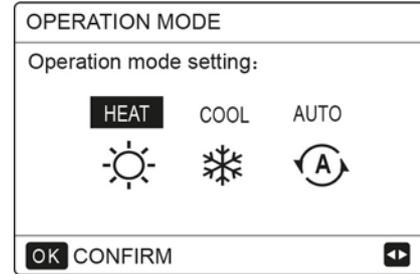
There are three modes to be selected including HEAT, COOL and AUTO mode.

Use the **LEFT** or **RIGHT** 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.

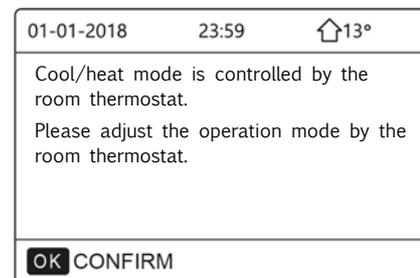


| If you select...  | Then the space operation mode is...   |
|---|---|
| <br>heat  | Heating mode  |
| <br>cool | Cooling mode  |
| <br>Auto | Automatically changed by the software based on the outdoor temperature (and depending on installer settings of the indoor temperature), and takes monthly restrictions into account.<br>Note: Automatic changeover is only possible under certain conditions.<br>See the FOR SERVICEMAN > AUTO MODE SETTING |

Adjust space operation mode by the room thermostat, see FOR SERVICEMAN > ROOM THERMOSTAT.

Go to MENU > OPERATION MODE.

Press any selection or control button and the following screen will be displayed, if room thermostat = MODE SETTING is selected



## Preset Temperature

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

### Preset Temperature

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

PRESET TEMP.= PRESET TEMPERATUER

PRESET TEMP. = Preset Temperature

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

| PRESET TEMPERATURE |                          |            | 1/2 |
|--------------------|--------------------------|------------|-----|
| PRESET TEMP.       | WEATHER TEMP.SET         | ECO MODE   |     |
| NO.                | TIME                     | TEMP.      |     |
| 1                  | <input type="checkbox"/> | 00:00 25°C |     |
| 2                  | <input type="checkbox"/> | 00:00 25°C |     |
| 3                  | <input type="checkbox"/> | 00:00 25°C |     |
|                    |                          |            | ⏪ ⏩ |

| PRESET TEMPERATURE |                          |            | 2/2 |
|--------------------|--------------------------|------------|-----|
| PRESET TEMP.       | WEATHER TEMP.SET         | ECO MODE   |     |
| NO.                | TIME                     | TEMP.      |     |
| 4                  | <input type="checkbox"/> | 00:00 25°C |     |
| 5                  | <input type="checkbox"/> | 00:00 25°C |     |
| 6                  | <input type="checkbox"/> | 00:00 25°C |     |
|                    |                          |            | ⏪ ⏩ |

| PRESET TEMPERATURE                            |                                     |            | 1/2 |
|---|-------------------------------------|------------|-----|
| PRESET TEMP.                                  | WEATHER TEMP.SET                    | ECO MODE   |     |
| NO.   | TIME                                | TEMP.      |     |
| 1   | <input checked="" type="checkbox"/> | 00:00 25°C |     |
| 2   | <input type="checkbox"/>            | 00:00 25°C |     |
| 3   | <input type="checkbox"/>            | 00:00 25°C |     |
| OK <input checked="" type="checkbox"/> SELECT |                                     |            | ⏪ ⏩ |

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

Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** to adjust the time and the temperature.

When the cursor is on '■', as the following page

You press OK, and the  becomes .  
 The timer 1 is selected.  
 You press OK again, and the  becomes .  
 The timer 1 is unselected.  
 Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** 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 35°C.  
 The following page will appear

We set the PRESET TEMP as following table.

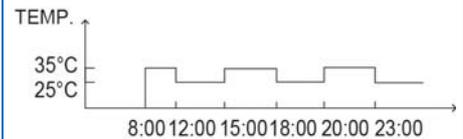
**Information**

When the room operation mode is changed, PRESET TEMP. is automatically turned off and the schedule must be set again.  
 The PRESET TEMP. function can be used in Heating or Cooling mode.

| PRESET TEMPERATURE 1/2             |   |   |
|------------------------------------|---|---|
| PRESET TEMP.                       | WEATHER TEMP.SET                          | ECO MODE  |
| NO.                                | TIME                                      | TEMP.   |
| 1                                  | <input checked="" type="checkbox"/> 08:00 | 35°C  |
| 2                                  | <input checked="" type="checkbox"/> 12:00 | 25°C  |
| 3                                  | <input checked="" type="checkbox"/> 15:00 | 35°C  |
| OK <input type="checkbox"/> CANCEL |   |  |

|   |   |   |
|---|---|---|
| 01-01-2018  | 8:00  |  13° |
|   08:00 | <b>ON</b>   |   |
|  <b>25 °C</b>  |  |   |
|    |   |   |

| NO. | TIME  | TEMPERATURE |
|-----|-------|-------------|
| 1   | 8:00  | 35°C        |
| 2   | 12:00 | 25°C        |
| 3   | 15:00 | 35°C        |
| 4   | 18:00 | 25°C        |
| 5   | 20:00 | 35°C        |
| 6   | 23:00 | 25°C        |



## Weather 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

### Information

The WEATHER TEMP. SET function is used to select the climate related curves for the various zones and different operation modes.

The possible selections are based on the options set in MENU > FOR SERVICEMAN > COOL MODE SETTING and > HEAT MODE SETTING

If temperature curves are selected, the desired temperature cannot be adjusted.

If you select "ON", the following page will appear

To select the climate related curves, see page 69

Press **LEFT** , **RIGHT**, to scroll .

Press "OK" to select.

| PRESET TEMPERATURE   |                               |   |
|----------------------|-------------------------------|---|
| PRESET TEMP.         | WEATHER TEMP.SET              | ECO MODE  |
|                      | <b>ZONE1 C-MODE LOW TEMP.</b> | OFF   |
|                      | ZONE1 H-MODE LOW TEMP.        | OFF   |
|                      | ZONE2 C-MODE LOW TEMP.        | OFF   |
|                      | ZONE2 H-MODE LOW TEMP.        | OFF   |
| <b>ON/OFF</b> ON/OFF |                               |  |

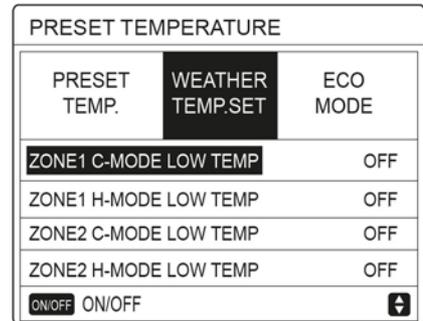
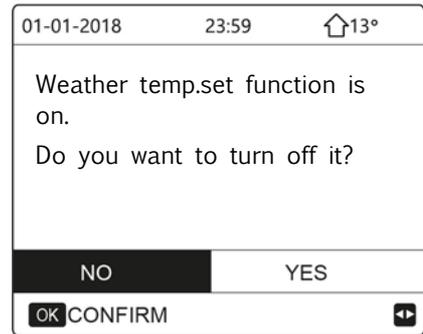
| WEATHER TEMP. SET   |          |
|---|----------|
| WEATHER TEMP. SET TYPE:   |          |
| 1   | 2        |
| 3   | <b>4</b> |
| 5   | 6        |
| 7   | 8        |
| 9   |          |
| <b>OK</b> CONFIRM  |          |

| PRESET TEMPERATURE   |                               |   |
|----------------------|-------------------------------|---|
| PRESET TEMP.         | WEATHER TEMP.SET              | ECO MODE  |
|                      | <b>ZONE1 C-MODE LOW TEMP.</b> | ON  |
|                      | ZONE1 H-MODE LOW TEMP         | OFF   |
|                      | ZONE2 C-MODE LOW TEMP         | OFF   |
|                      | ZONE2 H-MODE LOW TEMP         | OFF   |
| <b>ON/OFF</b> ON/OFF |                               |  |

If the WEATHER TEMP.SET is activated, the desired temperature can not be adjusted on the interface.

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

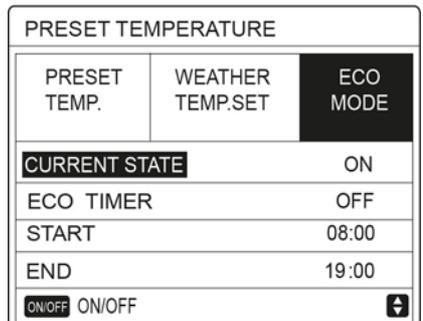
ECO MODE is used to save energy.

The ECO MODE function is activated if DOUBLE ZONE is on NO, if DOUBLE ZONE is on YES, the ECO MODE function is not activated. (see MENU > FOR SERVICEMAN > TEMP. TYPE SETTING )

Go to MENU > PRESET TEMPERATURE > ECO MODE.

Press OK

The following page will appear

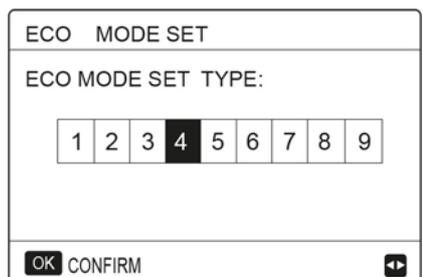


Press "ON/OFF".

The following page will appear

Press **RIGHT** , **LEFT** to scroll

Press "OK" to confirm.



To select the climate related curves, see page 69

The following page will appear:

Press ON/OFF to turn ON or OFF, and press **Up, Down** to scroll

When the cursor is on the START or on the END, you can press **LEFT , RIGHT, Down, Up** to scroll and press **Up, Down** to adjust the time.

### Information

- The desired temperature (T1S) can't be adjusted, when the ECO mode is ON.
- 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.
- When the function is activated, this icon appears on the keypad 

| PRESET TEMPERATURE   |                  |  |
|----------------------|------------------|--|
| PRESET TEMP.         | WEATHER TEMP.SET | ECO MODE   |
| <b>CURRENT STATE</b> |                  | ON   |
| ECO TIMER            |                  | OFF  |
| START                |                  | 08:00  |
| END                  |                  | 19:00  |
| ON/OFF               |                  | ON/OFF  |

| PRESET TEMPERATURE   |                  |   |
|--|------------------|---|
| PRESET TEMP.   | WEATHER TEMP.SET | ECO MODE  |
| CURRENT STATE  |                  | OFF   |
| ECO TIMER  |                  | ON  |
| START  |                  | 08:00   |
| END  |                  | 19:00   |
|  ADJUST |                  |  |

## Domestic Hot Water (DHW)

DHW mode typically consists of the following :

- 1 DISINFECT (anti-legionella)
- 2 FAST DHW
- 3 TANK HEATER
- 4 DHW PUMP (DHW recirculation)

### DISINFECT (anti-legionella)

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 DHW MODE

See FOR SERVICEMAN. > DWH MODE > DISINFECT.

Go to MENU > DOMESTIC HOT WATER > DISINFECT.

Press "OK".

The following page will appear

Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** to adjust the parameters when setting "OPERATE DAY" and "START".

Example: 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

In DISINFECT operation the unit does not work towards the system.

| DOMESTIC HOT WATER (DHW) |             |                |             |
|--------------------------|-------------|----------------|-------------|
| DIS-<br>INFECT           | FAST<br>DHW | TANK<br>HEATER | DHW<br>PUMP |
| CURRENT STATE            |             |                | ON          |
| OPERATE                  | DAY         |                | FRI         |
| START                    | 23:00       |                |             |
| ⏪ ⏩                      |             |                |             |



| DOMESTIC HOT WATER (DHW) |             |                |             |
|--------------------------|-------------|----------------|-------------|
| DIS-<br>INFECT           | FAST<br>DHW | TANK<br>HEATER | DHW<br>PUMP |
| CURRENT STATE            |             |                | OFF         |
| OPERATE                  | DAY         |                | FRI         |
| START                    | 23:00       |                |             |
| ON/OFF ON/OFF ⏪ ⏩        |             |                |             |

|                     |                 |                   |       |
|---------------------|-----------------|-------------------|-------|
| 01-01-2018 🗓        |                 | 23:59             | 🏠 13° |
| 🌊<br><b>23.5 °C</b> | <b>ON</b><br>☀️ | 🚰<br><b>38 °C</b> |       |



## FAST DHW

The function is used to force the system to operate in DHW mode. The heat pump and the storage resistance will operate together, and the DHW desired temperature will be changed to 60°C

Go to MENU> DOMESTIC HOT WATER > FAST DHW.  
Press "OK":

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

### Information

The FAST DHW function is once effective.

| DOMESTIC HOT WATER (DHW) |          |             |          |
|--------------------------|----------|-------------|----------|
| DIS-INFECT               | FAST DHW | TANK HEATER | DHW PUMP |
|                          | FAST DHW |             |          |
| CURRENT STATE            |          |             | ON       |
|                          |          |             |          |
|                          |          |             |          |
| ON/OFF ON/OFF            |          |             |          |



| DOMESTIC HOT WATER (DHW) |          |             |          |
|--------------------------|----------|-------------|----------|
| DIS-INFECT               | FAST DHW | TANK HEATER | DHW PUMP |
|                          | FAST DHW |             |          |
| CURRENT STATE            |          |             | OFF      |
|                          |          |             |          |
|                          |          |             |          |
| ON/OFF ON/OFF            |          |             |          |

## Tank heater

The tank heater function is used to force the tank heater to heat the water in tank (using the storage resistance) 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 HEATER.  
Press "OK".

| DOMESTIC HOT WATER (DHW) |          |             |          |
|--------------------------|----------|-------------|----------|
| DIS-INFECT               | FAST DHW | TANK HEATER | DHW PUMP |
|                          |          | TANK HEATER |          |
| CURRENT STATE            |          |             | ON       |
|                          |          |             |          |
|                          |          |             |          |
| ON/OFF ON/OFF            |          |             |          |



| DOMESTIC HOT WATER (DHW) |          |             |          |
|--------------------------|----------|-------------|----------|
| DIS-INFECT               | FAST DHW | TANK HEATER | DHW PUMP |
|                          |          | TANK HEATER |          |
| CURRENT STATE            |          |             | OFF      |
|                          |          |             |          |
|                          |          |             |          |
| ON/OFF ON/OFF            |          |             |          |



Press "ON/OFF" to select ON or OFF. Use "BACK" to exit.  
 If TANK HEATER is effect, the following page will appear

### Information

If CURRENT STATE is OFF, TANK HEATER is invalid.  
 If the T5(sensor of tank) is fault ,tank heater can't work.

|            |       |       |
|------------|-------|-------|
| 01-01-2018 | 23:59 | 13°   |
| 23 °C      | ON    | 38 °C |
|            |       |       |

### DHW Pump (recirculation) if present

The pump is the provided by the Customer  
 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    |
| T1 <input type="checkbox"/>  | 00:00    | T4 <input type="checkbox"/> | 00:00    |
| T2 <input type="checkbox"/>  | 00:00    | T5 <input type="checkbox"/> | 00:00    |
| T3 <input type="checkbox"/>  | 00:00    | T6 <input type="checkbox"/> | 00:00    |
|                              |          |                             |          |

| DOMESTIC HOT WATER (DHW) 2/2 |          |                              |          |
|------------------------------|----------|------------------------------|----------|
| DIS-INFECT                   | FAST DHW | TANK HEATER                  | DHW PUMP |
| NO.                          | START    | NO.                          | START    |
| T7 <input type="checkbox"/>  | 00:00    | T10 <input type="checkbox"/> | 00:00    |
| T8 <input type="checkbox"/>  | 00:00    | T11 <input type="checkbox"/> | 00:00    |
| T9 <input type="checkbox"/>  | 00:00    | T12 <input type="checkbox"/> | 00:00    |
|                              |          |                              |          |

Move to "■", press " OK " to select or unselect. (  The timer is selected  the timer is unselected)

Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** to adjust the parameters.

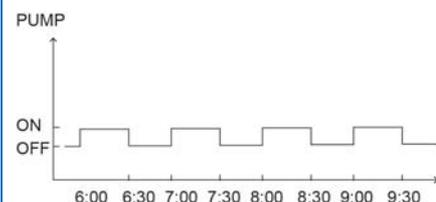
For example:you have set the parameter about the DHW PUMP (see FOR SERVICEMAN > DHW MODE SETTINGS ).  
 PUMP RUNNING TIME is 30 minutes.

Set as follows:

| NO. | TIME |
|-----|------|
| 1   | 6:00 |
| 2   | 7:00 |
| 3   | 8:00 |
| 4   | 9:00 |

The PUMP will run as follows:

| DOMESTIC HOT WATER (DHW) 1/2           |          |                             |          |
|--|----------|-----------------------------|----------|
| DIS-INFECT                             | FAST DHW | TANK HEATER                 | DHW PUMP |
| NO.                                    | START    | NO.                         | START    |
| T1 <input checked="" type="checkbox"/> | 00:00    | T4 <input type="checkbox"/> | 00:00    |
| T2 <input type="checkbox"/>            | 00:00    | T5 <input type="checkbox"/> | 00:00    |
| T3 <input type="checkbox"/>            | 00:00    | T6 <input type="checkbox"/> | 00:00    |
|  |          |                             |          |





## Schedule

SCHEDULE menu contents as follows:

- 1) TIMER for daily programming.
- 2) WEEKLY SCHEDULE for weekly programming.
- 3) SCHEDULE CHECK to check programming
- 4) CANCEL TIMER to cancel programming

### TIMER

If weekly schedule is ON and the TIMER function is OFF, the setting that is activated takes precedence over the setting that is not.

If the Timer is activated, ⌚ is displayed on home page.

Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** to adjust the time, the mode and the temperature.

Movre to ■ , press " OK " to select or unselect .(  the timer is selected.  the timer is unselected.)

Six timers can be set.

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

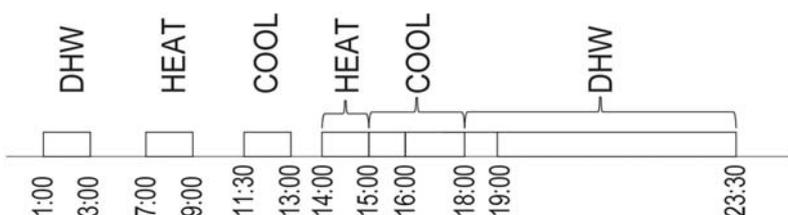
If you set the start time later than the end time or the temperature out of range of the mode, the following page will appear.

Example:

Six timer is set as following:

| NO. | START | END   | MODE | TEMP |
|-----|-------|-------|------|------|
| 1   | 1:00  | 3:00  | DHW  | 50°C |
| 2   | 7:00  | 9:00  | HEAT | 28°C |
| 3   | 11:30 | 13:30 | COOL | 20°C |
| 4   | 14:30 | 16:30 | HEAT | 28°C |
| 5   | 15:00 | 19:00 | COOL | 20°C |
| 6   | 18:00 | 23:30 | DHW  | 50°C |

The unit will run as following:



| SCHEDULE |                          |                |              |      | 1/2 |
|----------|--------------------------|----------------|--------------|------|-----|
| TIMER    | WEEKLY SCHEDULE          | SCHEDULE CHECK | CANCEL TIMER |      |     |
| NO.      | START                    | END            | MODE         | TEMP |     |
| 1        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |
| 2        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |
| 3        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |

| SCHEDULE |                          |                |              |      | 2/2 |
|----------|--------------------------|----------------|--------------|------|-----|
| TIMER    | WEEKLY SCHEDULE          | SCHEDULE CHECK | CANCEL TIMER |      |     |
| NO.      | START                    | END            | MODE         | TEMP |     |
| 4        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |
| 5        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |
| 6        | <input type="checkbox"/> | 00:00          | 00:00        | HEAT | 0°C |

| SCHEDULE  |                 |                |              |
|---|-----------------|----------------|--------------|
| TIMER   | WEEKLY SCHEDULE | SCHEDULE CHECK | CANCEL TIMER |
| Timer1 is useless.<br>Please check the timer setting and temperature setting. |                 |                |              |
| <input type="button" value="OK"/> CONFIRM                                     |                 |                |              |

The operation of the controller at the following time:

| TIME  | The operationof 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 |
| 16:00 | HEAT MODE is turned OFF                            |
| 18:00 | DHW MODE is turned ON                              |
| 19:00 | COOL MODE is turned OFF                            |
| 23:00 | DHW mode is turned OFF                             |

**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, 7 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.  
Press **LEFT** or **RIGHT** to scroll through the days, press "OK" to select or unselect the day.

If the day MON means that the day is selected,“MON” means that the day is unselected.

**Information**

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

SCHEDULE

| TIMER         | WEEKLY SCHEDULE | SCHEDULE CHECK | CANCEL TIMER |      |      |      |
|---------------|-----------------|----------------|--------------|------|------|------|
| MON.          | TUE.            | WED.           | THU.         | FRI. | SAT. | SUN. |
| ■             | □               | □              | □            | □    | □    | □    |
| ENTER         |                 |                | CANCEL       |      |      |      |
| OK MON SELECT |                 |                | ⬆️ ⬇️ ⬇️ ⬆️  |      |      |      |

Press **LEFT** or **RIGHT** to scroll through the days, press "OK" to select or unselect the day.

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

Press **RIGHT** until the cursor is on CONFIRM, then press OK

The following pages will appear

Press **LEFT** , **RIGHT**, **Down**, **UP** 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

|   |                 |                |              |
|---|-----------------|----------------|--------------|
| TIMER   | WEEKLY SCHEDULE | SCHEDULE CHECK | CANCEL TIMER |
| MON. TUE. WED. THU. FRI. SAT. SUN.  |                 |                |              |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |                 |                |              |
| ENTER   |                 | CANCEL         |              |
| OK MON SELECT <span>↕</span> <span>↔</span>   |                 |                |              |

SCHEDULE

|   |                 |                |              |
|---|-----------------|----------------|--------------|
| TIMER   | WEEKLY SCHEDULE | SCHEDULE CHECK | CANCEL TIMER |
| MON. TUE. WED. THU. FRI. SAT. SUN.  |                 |                |              |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |                 |                |              |
| ENTER   |                 | CANCEL         |              |
| OK MON SELECT <span>↕</span> <span>↔</span>   |                 |                |              |

SCHEDULE 1/2

| TIMER                         | WEEKLY SCHEDULE                | SCHEDULE CHECK | CANCEL TIMER |      |
|-------------------------------|--------------------------------|----------------|--------------|------|
| NO.                           | START                          | END            | MODE         | TEMP |
| 1                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| 2                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| 3                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| <span>↕</span> <span>↔</span> |                                |                |              |      |

SCHEDULE 2/2

| TIMER                         | WEEKLY SCHEDULE                | SCHEDULE CHECK | CANCEL TIMER |      |
|-------------------------------|--------------------------------|----------------|--------------|------|
| NO.                           | START                          | END            | MODE         | TEMP |
| 4                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| 5                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| 6                             | <input type="checkbox"/> 00:00 | 00:00          | HEAT         | 0°C  |
| <span>↕</span> <span>↔</span> |                                |                |              |      |

## Schedule check

Schedule check can only check the weekly schedule.

go to MENU > SCHEDULE > SCHEDULE. CHECK

Press "OK".

The following page will appear

SCHEDULE

|  |                 |                |              |
|--|-----------------|----------------|--------------|
| TIMER                                  | WEEKLY SCHEDULE | SCHEDULE CHECK | CANCEL TIMER |
| WEEKLY SCHEDULE CHECK                  |                 |                |              |
|  |                 |                |              |
|  |                 |                |              |
| OK ENTER <span>↕</span> <span>↔</span> |                 |                |              |

Press **Down, UP** , the timer from Monday to Sunday will appear

| WEEKLY SCHEDULE CHECK           |    |                               |     |       |       |  |
|---------------------------------|----|-------------------------------|-----|-------|-------|--|
| DAY                             | NO | MODE                          | SET | START | END   |  |
| MON<br><input type="checkbox"/> | T1 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |
|                                 | T2 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |
|                                 | T3 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |
|                                 | T4 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |
|                                 | T5 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |
|                                 | T6 | <input type="checkbox"/> HEAT | 0°C | 00:00 | 00:00 |  |

## Cancel timer

go to MENU > SCHEDULE > CANCEL TIMER

Press "OK".

The following page will appear

Press **LEFT** , **RIGHT**, **Down**, **UP** 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  or weekly schedule icon  will display on the home page.

If TIMER or WEEKLY SCHEDULE is canceled, icon will disappear on the home page.

### Informazioni

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.

| PROGRAM.               |                  |   |               |
|------------------------|------------------|---|---------------|
| TIMER                  | PROGRAM. SETTIM. | CONTR. PROGRAM.   | ANNULLA TIMER |
| ANNULLARE TIMER E      |                  |   |               |
| PROGRAMM. SETTIMANALE? |                  |   |               |
| NO                     |                  | SI  |               |
| OK CONFERMA            |                  |   |               |

|   |   |   |
|---|---|---|
| 01-01-2018  | 23:59   |   13° |
|            | ON  |    |
| 23.5 °C   |  | 38 °C   |

|  |   |   |
|--|---|---|
| 01-01-2018  | 23:59   |  13° |
|             | ON  |      |
| 23.5 °C  |  | 38 °C   |



### 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.

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.

PRESET TEMP. and WATHER TEMP.SET are on the same priority. The later setting function is valid.

### 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.

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;
- 2 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 **RIGHT**

The following page will appear

Press **Down, UP** to select level 1 or level 2.

Press "OK"

| OPTIONS       |              |              |               | 1/2  |
|---------------|--------------|--------------|---------------|--|
| SILENT MODE   | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |  |
| CURRENT STATE |              |              |               | OFF  |
| SILENT LEVEL  |              |              |               | LEVEL 1  |
| TIMER1 START  |              |              |               | 12:00  |
| TIMER1 END    |              |              |               | 15:00  |
| ON/OFF        |              |              |               | ON/OFF  |

| OPTIONS       |              |              |               |   |
|---------------|--------------|--------------|---------------|---|
| SILENT MODE   | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |   |
| CURRENT STATE |              |              |               | ON  |
| SILENT LEVEL  |              |              |               | LEVEL 1   |
| TIMER1 START  |              |              |               | 12:00   |
| TIMER1 END    |              |              |               | 15:00   |
| ADJUST        |              |              |               |  |

LEVEL 1

| OPTIONS       |              |              |               |   |
|---------------|--------------|--------------|---------------|---|
| SILENT MODE   | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |   |
| CURRENT STATE |              |              |               | ON  |
| SILENT LEVEL  |              |              |               | LEVEL 2   |
| TIMER1 START  |              |              |               | 12:00   |
| TIMER1 END    |              |              |               | 15:00   |
| ADJUST        |              |              |               |  |

LEVEL 2

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 to the time.

| OPTIONS      |              |              |               | 2/2 |
|--------------|--------------|--------------|---------------|-----|
| SILENT MODE  | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |     |
|              |              |              |               |     |
| TIMER1       |              |              | OFF           |     |
| TIMER2 START |              |              | 22:00         |     |
| TIMER2 END   |              |              | 07:00         |     |
| TIMER2       |              |              | OFF           |     |
| ADJUST       |              |              |               |     |

## 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

| OPTIONS       |              |              |               | 1/2 |
|---------------|--------------|--------------|---------------|-----|
| SILENT MODE   | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |     |
|               |              |              |               |     |
| CURRENT STATE |              |              | OFF           |     |
| DHW MODE      |              |              | ON            |     |
| DISINFECT     |              |              | ON            |     |
| HEAT MODE     |              |              | ON            |     |
| ON/OFF ON/OFF |              |              |               |     |

Usage example: You go away during the winter. The current date is 2020-01-31, two days later is 2020-02-02, 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" .

Press "ON/OFF" to select "OFF" or "ON" and press **LEFT** , **RIGHT** , **Down** , **UP** to scroll and adjust.

| OPTIONS     |              |              |               | 2/2 |
|-------------|--------------|--------------|---------------|-----|
| SILENT MODE | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |     |
|             |              |              |               |     |
| FROM        |              |              | 00-00-2000    |     |
| UNTIL       |              |              | 00-00-2000    |     |
| ADJUST      |              |              |               |     |

| Settings       | Value            |
|----------------|------------------|
| Holiday away   | ON               |
| From           | 2 February 2020  |
| Until          | 16 February 2020 |
| Operation mode | Heating          |
| Disinfect      | ON               |

### 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.  
 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.

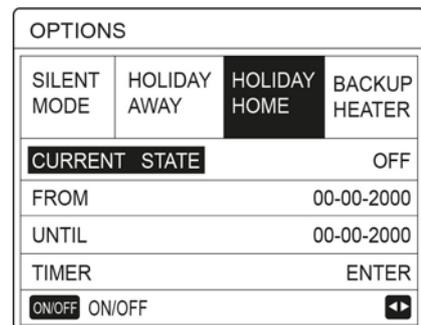
**Holiday home**

The HOLIDAY HOME function is used to program up to 6 programs without changing the normal schedules when holidaying at home. During your holiday, you can use the holiday mode to deviate from your normal schedules without having to change them.

| Period                        | Programming                                   |
|-------------------------------|---|
| 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,  will display on the home page.

Go to MENU > OPTIONS > HOLIDAY HOME  
 Press "OK"  
 The following page will appear  
 Select Holiday home  
 Press **Down**  
 Press "ON/OFF" to select "OFF" or "ON"  
 If the CURRENT STATE is OFF, the HOLIDAY HOME is OFF  
 If the CURRENT STATE is ON, the HOLIDAY HOME is ON.  
 Press **Down** to adjust the date.  
 Press **LEFT , RIGHT, Down, UP** to scroll and adjust values.  
 Press "OK"



The following page will appear

Press **LEFT** , **RIGHT**, **Down**, **UP** to scroll and press **Down**, **UP** to adjust the time, the mode and the temperature.

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

If you want to cancel the **TIMER**, you move the cursor to  ,press "OK", the  become  ,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.

Before and after your holiday, your normal schedule will be used. During your holiday, you save energy and prevent your house from freezing.

### Information

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

| OPTIONS                           |              |              |               |      | 1/2 |
|-----------------------------------|--------------|--------------|---------------|------|-----|
| SILENT MODE                       | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |      |     |
| N.                                | START        | END          | MODE          | TEMP |     |
| <b>1</b> <input type="checkbox"/> | 00:00        | 00:00        | HEAT          | 0°C  |     |
| 2 <input type="checkbox"/>        | 00:00        | 00:00        | HEAT          | 0°C  |     |
| 3 <input type="checkbox"/>        | 00:00        | 00:00        | HEAT          | 0°C  |     |

| OPTIONS                           |              |              |               |      | 2/2 |
|-----------------------------------|--------------|--------------|---------------|------|-----|
| SILENT MODE                       | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |      |     |
| NO.                               | START        | END          | MODE          | TEMP |     |
| <b>4</b> <input type="checkbox"/> | 00:00        | 00:00        | HEAT          | 0°C  |     |
| 5 <input type="checkbox"/>        | 00:00        | 00:00        | HEAT          | 0°C  |     |
| 6 <input type="checkbox"/>        | 00:00        | 00:00        | HEAT          | 0°C  |     |

| OPZIONI   |              |              |               | ! |
|---|--------------|--------------|---------------|---|
| SILENT MODE   | HOLIDAY AWAY | HOLIDAY HOME | BACKUP HEATER |   |
| Timer1 is useless.<br>Please check the timer setting and temperature setting. |              |              |               |   |
| <input type="button" value="OK"/> CONFIRM                                     |              |              |               |   |

## Backup Heater (Currently not available)

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"

### 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.

| OPTIONS     |              |              |                      |
|-------------|--------------|--------------|----------------------|
| SILENT MODE | HOLIDAY AWAY | HOLIDAY HOME | <b>BACKUP HEATER</b> |
|             |              |              |                      |
|             |              |              |                      |
|             |              |              |                      |
|             |              |              |                      |
| ◀ ▶         |              |              |                      |

| OPTIONS              |              |              |                      |
|----------------------|--------------|--------------|----------------------|
| SILENT MODE          | HOLIDAY AWAY | HOLIDAY HOME | <b>BACKUP HEATER</b> |
| <b>BACKUP HEATER</b> |              |              | ON                   |
|                      |              |              |                      |
|                      |              |              |                      |
|                      |              |              |                      |
|                      |              |              |                      |
| ON/OFF ON/OFF ▶ ◀    |              |              |                      |

## 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:

Press **Down, UP** 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

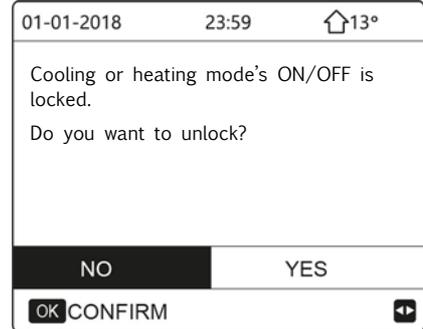
| CHILD LOCK                   |     |
|------------------------------|-----|
| Please input the password:   |     |
| 1                            | 2 3 |
|                              |     |
|                              |     |
| OK ENTER    ⬇️ ADJUST    ▶ ◀ |     |

| CHILD LOCK                      |        |
|---------------------------------|--------|
| <b>COOL/HEAT TEMP. ADJUST</b>   | UNLOCK |
| COOL/HEAT MODE ON/OFF           | UNLOCK |
| DHW TEMP.ADJUST                 | UNLOCK |
| DHW MODE ON/OFF                 | UNLOCK |
|                                 |        |
|                                 |        |
| <b>UNLOCK</b> LOCK/UNLOCK    ⬇️ |        |

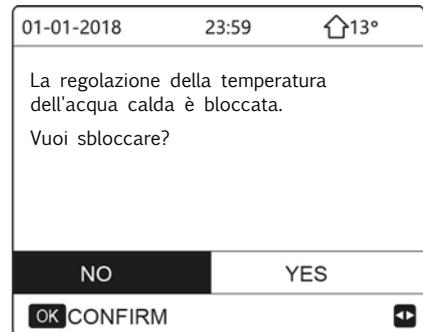
|   |       |       |
|---|-------|-------|
| 01-01-2018  | 23:59 | 🏠 13° |
| Cooling or heating temperature adjust function is locked. |       |       |
| Do you want to unlock?                                    |       |       |
|   |       |       |
| <b>NO</b>   |       | YES   |
| OK CONFIRM    ▶ ◀   |       |       |

The cool/heat mode can't turn on or off when the COOL/HEAT MODE ON/OFF is locked.

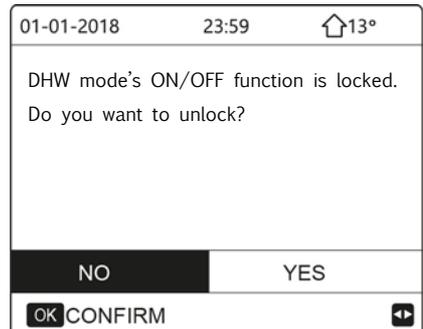
If you want to turn on or off the cool/heat mode when COOL/HEAT MODE ON/OFF is locked, the following page will appear



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: displays the contacts needed to call for assistance;
- 2 error code: displays the meaning of the error codes;
- 3 parameter: used to control the operating parameters;
- 4 display: used to configure the display.

How to go to service information menu

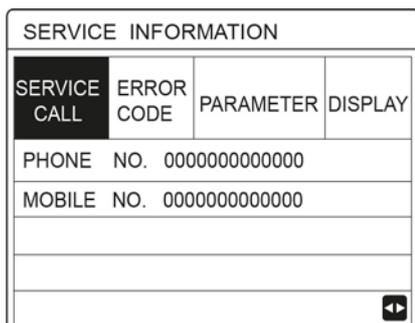
Go to MENU > SERVICE INFORMATION.

Press "OK".

The following page will appear

The service call can show the service phone or mobile number.

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

Press OK to show the mean of the error code

### Information

A total of eight fault codes can be recorded.

| SERVICE INFORMATION |            |           |            |
|---------------------|------------|-----------|------------|
| 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 ENTER 

| SERVICE INFORMATION |            |           |            | 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 ENTER 

01-01-2018 23:59  13°

E2 communication fault between controller and indoor unit

Please contact your dealer.

OK CONFIRM

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

| SERVICE INFORMATION |            |                   |         | 1/2 |
|---------------------|------------|-------------------|---------|-----|
| SERVICE CALL        | ERROR CODE | PARAMETER         | DISPLAY |     |
|                     |            | ROOM SET TEMP.    | 26°C    |     |
|                     |            | MAIN SET TEMP.    | 55°C    |     |
|                     |            | TANK SET TEMP.    | 55°C    |     |
|                     |            | ROOM ACTUAL TEMP. | 24°C    |     |

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

The DISPLAY function is used to set the interface

Press "OK" to enter and press **LEFT** , **RIGHT**, **Down**, **UP** to scroll.

| SERVICE INFORMATION |            |           |         | 1/2        |
|---------------------|------------|-----------|---------|------------|
| SERVICE CALL        | ERROR CODE | PARAMETER | DISPLAY |            |
|                     |            | TIME      |         | 12:30      |
|                     |            | DATE      |         | 08-08-2018 |
|                     |            | LANGUAGE  |         | EN         |
|                     |            | BACKLIGHT |         | ON         |
| OK ENTER            |            |           |         | ▶◀         |

| SERVICE INFORMATION |            |                         |         | 2/2    |
|---------------------|------------|-------------------------|---------|--------|
| SERVICE CALL        | ERROR CODE | PARAMETER               | DISPLAY |        |
|                     |            | BUZZER                  |         | ON     |
|                     |            | SCREEN LOCK TIME        |         | 120SEC |
|                     |            | SMART GRID RUNNING TIME |         | 2 Hrs  |
| ON/OFF ON/OFF       |            |                         |         | ⬇      |

## Operation Parameter



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

The values shown on the screens are only indicative

At home page, go to MENU > OPERATION PARAMETER.

Press "OK".

Press "OK". There are six pages for the operating parameter as following.

Press **Down**, **UP** to scroll.

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

| OPERATION PARAMETER    |  | 2/6       |
|------------------------|--|-----------|
| COMP.RUN TIME4         |  | 1000 HOUR |
| EXPANSION VALVE        |  | 240 P     |
| FAN SPEED              |  | 600 R/MIN |
| IDU TARGET FREQUENCY   |  | 0 HZ      |
| FREQUENCY LIMITED TYPE |  | 0         |
| T1 LEAVING WATER TEMP. |  | 25 °C     |
|                        |  | ⬇         |

| 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 |
|                           |  | ⬇     |

### Information

The power consumption parameter is preparatory.  
 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  $\pm 1^{\circ}\text{C}$  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%.

|                           |         |
|---------------------------|---------|
| 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 |

|                           |          |
|---------------------------|----------|
| 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    |

|                       |               |
|-----------------------|---------------|
| OPERATION PARAMETER   | 6/6           |
| DC GENERATRIX CURRENT | 18 A          |
| WATER FLOW            | 1.72 M3/H     |
| HEAT PUMP CAPACTIY    | 11.52 KW      |
| HMI SOFTWARE          | 00-00-2000V00 |
| IDU SOFTWARE          | 00-00-2000V00 |
| ODU SOFTWARE          | 00-00-2000V00 |

### For Serviceman



#### About For Serviceman

FOR SERVICEMAN is used for installer and service engineer.

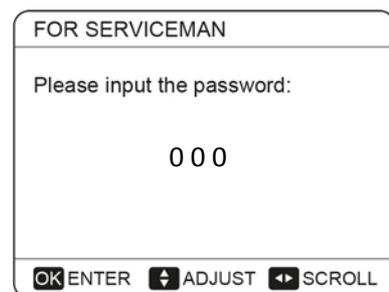
- Setting the function of equipment.
- Setting the parameters.

#### 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 intended the home owner alters setting with this menu. It is for this reason password protection is required to prevent unauthorised access to the service settings.



## 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.

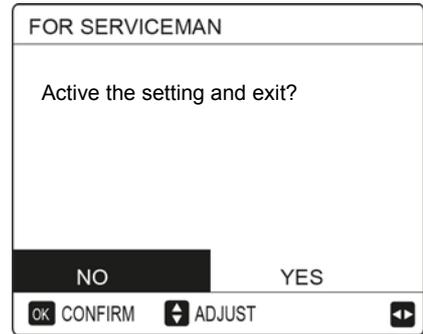


Table1 The outside temperature curve of the low temperature setting for heating

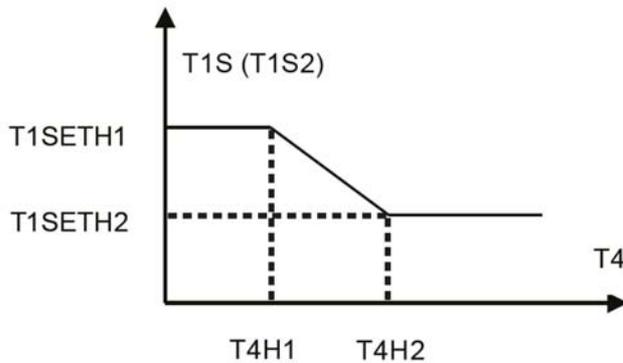
| T4     | ≤ -20 | - 19 | - 18 | - 17 | - 16 | - 15 | - 14 | - 13 | - 12 | - 11 | - 10 | - 9 | - 8 | - 7 | - 6 | - 5 | - 4 | - 3 | - 2 | - 1  | 0  |
|--------|-------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|----|
| 1-T1S  | 38    | 38   | 38   | 38   | 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  | 31  | 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 |

Table2 The outside 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  | 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 |
| T4     | 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: setting from wired controller, if  $T4H2 < T4H1$ , exchange value; if  $T1SETH1 < T1SETH2$ , exchange value.

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

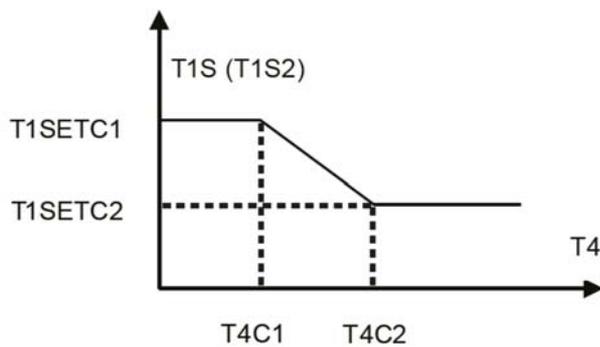
|         |                    |                   |                   |                   |
|---------|--------------------|-------------------|-------------------|-------------------|
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 1 - T1S | 18       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

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

| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
|---------|--------------------|-------------------|-------------------|-------------------|
| 1 - T1S | 22                 | 20                | 18                | 16                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 2 - T1S | 20                 | 19                | 18                | 17                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 3- T1S  | 23                 | 21                | 19                | 17                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 4- T1S  | 21                 | 20                | 19                | 18                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 5 - T1S | 24                 | 22                | 20                | 18                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 6 - T1S | 22                 | 21                | 20                | 19                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 7 -T1S  | 25                 | 23                | 21                | 19                |
| T4      | $-10 \leq T4 < 15$ | $15 \leq T4 < 22$ | $22 \leq T4 < 30$ | $30 \leq T4 < 46$ |
| 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.

**UNIT stata**

During the Sphera operation is possible to visualize the unit status by the values obtained from sensors and from the main unit operating parameters.

| Signification             | Description   |
|---------------------------|---|
| Operating frequency       | Compressor operating frequency in Hz. Send value = actual value                                       |
| Operating mode            | The actual operating mode of the whole machine.<br>2= cooling<br>3= heating<br>0= shutdown            |
| Fan speed                 | Fan speed, unit r/min. Send value = actual speed  |
| PMV opening               | Outside the machine electronic expansion valve opening degree, the unit: P. Send value = actual value |
| Inlet temperature         | TW_in, unit: °C. Send value = actual value  |
| Outlet temperature        | TW_out, unit: °C. Send value = actual value   |
| T3 temperature            | Condenser temperature in °C. Send value = actual value  |
| T4 temperature            | Outside temperature in °C. Send value = actual value  |
| Exhaust gas temperature   | Compressor exhaust temperature Tp, in °C. Send value = actual value                                   |
| Return gas temperature    | Back to the compressor temperature Th, unit: °C. Send value = actual value                            |
| T1                        | Total outlet temperature, unit: °C. Send value = actual value   |
| T1B                       | Total outlet of the system (after auxiliary heat source), unit: °C. Send value = actual value         |
| T2                        | The temperature of the refrigerant liquid side, unit: °C. Send value = actual value                   |
| T2B                       | Refrigerant gas side temperature, unit: °C. Send value = actual value                                 |
| Ta                        | Room temperature, unit: °C. Send value = actual value   |
| T5                        | Water tank temperature  |
| Pressure value 1          | External high pressure value, unit: kPa .Send value = true value                                      |
| Pressure value 2          | External low pressure value, unit: kPa .Send value = true value (reserved)                            |
| External current          | External machine running current, unit A, sending value = actual value                                |
| External voltage          | A voltage value outside the machine, unit: V. Send value = actual value (reserved)                    |
| Hydraulic modulecurrent 1 | Hydraulic module current 1, unit: A. Send value = actual value  |
| Hydraulic modulecurrent 2 | Hydraulic current module 2, Unit: A. Send value = actual value  |
| Compressor running time   | Compressor running time, unit: hour, send value = actual value  |
| model                     | 10-18 : on behalf of 10-18KW  |
| Current fault             | standard fault coding method, specific fault code, reference code table                               |
| Fault 1                   | standard fault coding method<br>Specific fault code, refer to the code table.                         |
| Fault 2                   |   |
| Fault 3                   |   |

|                                |   |                                |
|--------------------------------|---|--------------------------------|
| Status bit 1                   | BIT15   | Reserved                       |
|                                | BIT14   | Reserved                       |
|                                | BIT13   | Reserved                       |
|                                | BIT12   | Reserved                       |
|                                | BIT11   | Reserved                       |
|                                | BIT10   | Reserved                       |
|                                | BIT9  | Water tank anti-freezing       |
|                                | BIT8  | Solar signal input             |
|                                | BIT7  | Room thermostat refrigeration  |
|                                | BIT6  | Room thermostat heating        |
|                                | BIT5  | Foreign machine test mode flag |
|                                | BIT4  | Remote ON/OFF (1 : d8)         |
|                                | BIT3  | Return oil                     |
|                                | BIT2  | Anti-freeze                    |
|                                | BIT1  | Defrost                        |
| BIT0                           | Forced water pump   |                                |
| Load output                    | BIT15   | DEFROST                        |
|                                | BIT14   | External heat source           |
|                                | BIT13   | RUN                            |
|                                | BIT12   | ALARM                          |
|                                | BIT11   | Solar water pump PUMP          |
|                                | BIT10   | HEAT4                          |
|                                | BIT9  | SV3                            |
|                                | BIT8  | Mixing water pump P_m          |
|                                | BIT7  | Backwater pump P_p             |
|                                | BIT6  | External water pump P_o        |
|                                | BIT5  | SV2                            |
|                                | BIT4  | SV1                            |
|                                | BIT3  | Water pump PUMP_ I             |
|                                | BIT2  | Electric heating TBH           |
|                                | BIT1  | Electric heating IBH2          |
| BIT0                           | Electric heating IBH1 (reserved)  |                                |
| Machine version number         | 1~99 means the serial number of the whole machine, which refers to the serial number of the hydraulic module. |                                |
| Wire controller version number | 1~99 indicates the serial number of the remote controller   |                                |
| Unit target frequency          |   |                                |
| DC bus current                 | Unit: Ampere  |                                |
| DC bus voltage                 | Return value = actual value / 10 ( Unit: Volt)  |                                |

## 10 CONTROL

|  |   |
|--|---|
| TF module temperature                                | Units (?) - Outside machine feedback                        |
| Water conservancy module curve T1S calculated value1 | Actual value - Registration result corresponding to area 1  |
| Water conservancy module curve T1S calculated value2 | Actual value --- Calculation result corresponding to area 2 |
| Water flow   | Actual value *100 units: M3/H                               |
| External current limit scheme                        | Scheme value ----- Outside machine feedback 174             |
| Hydraulic module capability value                    | Actual value *100 units: Kw                                 |

## Allarms

In case of maloperations the alarms are indicated by the 'Alarm in progress' symbol on the multifunctional keypad.

To view the alarms select Menu ► Service information

To reset the alarm remove its cause and reset the active alarm.

Before resetting an alarm identify and remove the cause that generate it.

Repeated reset can cause irreversible damages as maloperation of the system itself.

In case of doubt please contact an Assistance Centre.

| Hydraulic module failure |  | Modbus code |
|--------------------------|--|-------------|
| E0                       | Water flow failure (3 times water flow failure)  | 1           |
| E2                       | Line controller and hydraulic module communication failure   | 3           |
| H0                       | Hydraulic module and outdoor unit communication failure (10 seconds continuous communication error)                                      | 39          |
| E3                       | T1 outlet water temperature sensor failure   | 4           |
| E4                       | T5 water tank temperature sensor failure   | 5           |
| E8                       | Water flow failure, (E8 in three times, recoverable)   | 9           |
| Ed                       | Twin plate replacement water temperature sensor failure  | 14          |
| EE                       | Hydraulic module EEprom failure  | 15          |
| H2                       | T2 refrigerant gas side temperature sensor failure   | 41          |
| H3                       | T2B refrigerant liquid side temperature sensor failure   | 42          |
| HA                       | Twout board replaced water temperature sensor failure  | 49          |
| H5                       | Ta temperature sensor failure  | 44          |
| H9                       | Tw2 sensor failure   | 48          |
| Pb                       | Anti-freeze (not protected, the alarm light does not flash), the line controller does not display Pb, and displays the anti-freeze icon; | 31          |
| P5                       | Twin-Twout , or Twout-Twin inlet and outlet water temperature difference protection  | 25          |
| PP                       | Abnormal temperature difference between inlet and outlet water   | 38          |
| Outdoor unit failure     |  |             |
| E1                       | Phase sequence fault (three camera type has this fault code)   | 2           |
| H0                       | Hydraulic module and outdoor unit communication failure  | 39          |
| H1                       | External unit and IR341 communication failure (external unit and inverter module)  | 40          |
| E5                       | Outdoor unit T3 temperature sensor failure   | 6           |
| E6                       | Outdoor unit T4 outside temperature sensor failure   | 7           |
| E9                       | Outdoor unit Th return air temperature sensor failure  | 10          |
| EA                       | Outdoor unit Tp exhaust temperature sensor failure   | 11          |
| HF                       | External machine EEprom failure  | 54          |

|    |  |      |
|----|--|------|
| H6 | DC fan failure   | 45   |
| H7 | Voltage protection fault   | 46   |
| H8 | High pressure sensor failure (replacement with resistor when the external unit is not installed)               | 47   |
| HH | H6 fault occurs twice in 10 minutes (can be restored after power off)  | 55   |
| HP | Three times of low pressure protection (less than 0.6MPa ) occurred continuously within 1 hour                 | 57   |
| HL | PFC module failure   | 56   |
| P0 | Low voltage switch protection  | 20   |
| P1 | High pressure / exhaust temperature control switch protection  | 21   |
| P3 | Compressor overcurrent protection  | 23   |
| P4 | TP exhaust temperature is too high protection  | 24   |
| P6 | Module protection (three times L0 or L1 fault display, H4 permanent fault, need to be powered down to recover) | 26   |
| P9 | DC fan protection  | 29   |
| PC | Other protection (protection that the line controller cannot display)  | 32   |
| Pd | Outdoor unit T3 over temperature protection  | 33   |
| C7 | Heat sink temperature protection   | 65   |
| C9 | Frequency anomaly protection   | 67   |
| CA | SCR temperature is too high protection   | 68   |
| Cb | Fan temperature is too high protection   | 69   |
| L0 | DC compressor module failure   | #N/D |
| L1 | DC bus low voltage protection  | #N/D |
| L2 | DC bus high voltage protection   | #N/D |
| L4 | MCE fault / synchronization / closed loop  | #N/D |
| L5 | Zero speed protection  | #N/D |
| L7 | Phase sequence error protection  | #N/D |
| L8 | Speed change >15Hz protection at the previous and last moments   | #N/D |
| L9 | Set speed and running speed difference >15Hz protection  | #N/D |

## Password-protected unit parameters (installer use)

The unit is set by the factory with default unit parameters to values that can satisfy the greater number of installation cases.

For a detailed customization of the system is however possible to make changes; the following is a list of all unit parameters, with all the available settings.

According to the unit configuration some parameters are visible and some not.

### ATTENTION

The access to parameters or modifications are allowed only to the installer who assumes all responsibility, in case of doubts please contact Airwell.

For any changes not permitted or not approved by Airwell, the same declines any responsibility for malfunctions and/or damages to the unit/system.

| Signification                             | Description   |   |
|---|---|---|
| Home appliance type                       | The high 8 is the type of home appliances:<br>Central heating: 0x07<br>The lower 8 bits are subtypes<br>R32 refrigerant frequency conversion pump model: 0x02 |   |
| T1S cooling set temperature upper limit   |   |   |
| T1S cooling set temperature lower limit   |   |   |
| T1S heating set temperature upper limit   |   |   |
| T1S heating set temperature lower limit   |   |   |
| TS set temperature upper limit            |   |   |
| TS set temperature lower limit            |   |   |
| Hot water setting temperature upper limit |   |   |
| Hot water set temperature lower limit     |   |   |
| PUMP RUNNING TIME                         | DHW pump, Backwater running time, Default is 5 minutes, adjustment range 5~120min · Adjustment interval 1min  |   |
| Parameter setting 1                       | BIT15   | Hot water enable  |
|   | BIT14   | Support water tank electric heating TBH                     |
|   | BIT13   | Support sterilization function                              |
|   | BIT12   | Whether to support DHW PUMP , 1: support; 0 : not supported |
|   | BIT11   | Reserved  |
|   | BIT10   | DHW pump supports Pipe Disinfect                            |
|   | BIT9  | Cooling enable  |
|   | BIT8  | T1S cooling high/low temperature setting (read only)        |
|   | BIT7  | Heating enable  |
|   | BIT6  | T1S heating high/low temperature setting (read only)        |
|   | BIT5  | Support T1 sensor   |
|   | BIT4  | Support room temperature sensor Ta                          |
|   | BIT3  | Support room thermostat (Room thermostat)                   |
|   | BIT2  | Room thermostat MODE SETTING                                |
|   | BIT1  | Dual Room Thermostat<br>0= not supported;<br>1= support     |
| BIT0                                      | 0= space cooling and heating priority,<br>1= Hot water priority   |   |

|                     |   |   |
|---------------------|---|---|
| Parameter setting 2 | BIT15   | Support for backup heat source (IBH ) Reserved              |
|                     | BIT14   | IBH supports heating function Reservation                   |
|                     | BIT13   | IBH supports hot water Reserve                              |
|                     | BIT12   | Reservation   |
|                     | BIT11   | AHS supports heating function Reservation                   |
|                     | BIT10   | AHS supports hot water function Reserve                     |
|                     | BIT9  | Support solar module Reservation                            |
|                     | BIT8  | Input port definition:<br>0= remote switch<br>1= DHW Heater |
|                     | BIT7  | Smart grid:<br>0= None<br>1= Yes                            |
|                     | BIT6  | Tw2 sensor enable<br>0= None<br>1= Yes                      |
|                     | BIT5  | T1S cooling high/low temperature setting                    |
|                     | BIT4  | T1S heating high/low temperature setting                    |
|                     | BIT3  | Dual zone setting is effective                              |
|                     | BIT2  | Reserved  |
| BIT1                | Reserved  |   |
| BIT0                | Reserved  |   |
| dT5_On              | Default: 5°C, range: 2~10°C, adjustment interval 1°C                                    |   |
| dT1S5               | Default: 10 , Range: 5-20°C, adjustment interval 1°C                                    |   |
| T_Interval_DHW      | Default: 5min , range:5~30min, adjustment interval 1min                                 |   |
| T4DHWmax            | Default: 43°C, range 35-43°C, adjustment interval 1°C                                   |   |
| T4DHWmin            | Default: -10°C, range -20-5°C, adjustment interval 1°C                                  |   |
| t_TBH_delay         | Default: 90min range: 0~240min ; adjustment interval 5min                               |   |
| dT5S_TBH_off        | Default: 5°C, range: 0 ~ 10°C, adjustment interval 1°C                                  |   |
| T4_TBH_on           | Default: 5°C, range: -5~20°C, adjustment interval 1°C                                   |   |
| T5s_DI              | Sterilization function water tank set temperature, setting range 60~70°C, default 65 °C |   |
| t_DI_max            | Maximum sterilization period, setting range: 90~ 300 min , default 210 min ,            |   |
| t_DI_hightemp       | Sterilization high temperature time, setting range: 5~60min , default 15min             |   |
| t_interval_C        | Cooling mode compressor start time interval; range: 5~30min , default value is 5min     |   |
| dT1SC               | Default: 5°C, range: 2-10°C, adjustment interval 1°C                                    |   |
| dTSC                | Default: 2°C, range: 1-10°C, adjustment interval 1°C                                    |   |
| T4cmax              | Default: 43°C, range: 35-46°C; adjustment interval 1°C                                  |   |
| T4cmin              | Default: 10°C, range: -5-25°C; adjustment interval 1°C                                  |   |
| t_interval_H        | Heating mode compressor start time interval; range: 5~60min, default is 5 min           |   |
| dT1SH               | Default: 5°C, range: 2-10°C, adjustment interval 1°C                                    |   |

|                   |  |
|-------------------|--|
| dTSH              | Default: 2°C, range: 1-10°C, adjustment interval 1°C   |
| T4hmax            | Default: 25°C, range: 20-35°C, adjustment interval 1°C   |
| T4hmin            | Default: -15°C, range: -20-5°C, adjustment interval 1°C  |
| T4_IBH_on         | Hydraulic module electric auxiliary heat IBH to open the ambient temperature, the setting range: -15~10°C, default value: -5°C                 |
| dT1_IBH_on        | Hydraulic module electric auxiliary heat IBH open temperature difference, setting range: 2~10°C, default value 5°C                             |
| t_IBH_delay       | Hydraulic module electric auxiliary heat IBH delay opening time, setting range: 15~120min, default value 30min                                 |
| t_IBH12_delay     | After opening the hydraulic IBH1, IBH2 on delay time setting range: 5~30min, 5min (reservation)  |
| T4_AHS_on         | The external heat source AHS turns on the ambient temperature, the setting range is -15~10°C, the default value is -5°C.                       |
| dT1_AHS_on        | External heat source AHS turns on temperature hysteresis, setting range: 2~10°C, default value is 2°C  |
| dT1_AHS_off       | AHS external heat source shutdown temperature hysteresis setting range: -5~0°C, the default value 0°C  |
| t_AHS_delay       | External heat source AHS lag on time, setting range 5~120min, default value 30min  |
| t_DHWHP_max       | The maximum time for the heat pump to run hot water, the setting range: 10~600min ; default value: 120min; setting value is minute             |
| t_DHWHP_restrict  | The heat pump limits the time for running hot water. The setting range is: 10~600min; the default value is 30min; the setting value is minute. |
| T4autocmin        | The default value is: 25°C, the range is: 20~29°C, the adjustment interval is 1°C.   |
| T4autohmax        | The default value is: 17°C, the range is: 10~17°C, the adjustment interval is 1°C.   |
| T1S_H.A_H         | T1 set value in heating mode during vacation, range: 20~25°C, default 25°C   |
| T5S_H.A_DHW       | T1 set value in hot water mode during vacation, range: 20~25°C, default 25 °C  |
| ECO parameter     | Reserved, query this register to report address error  |
| ECO parameter     | Reserved, query this register to report address error  |
| ECO parameter     | Reserved, query this register to report address error  |
| ECO parameter     | Reserved, query this register to report address error  |
| Comfort parameter | Reserved, query this register to report address error  |
| Comfort parameter | Reserved, query this register to report address error  |
| Comfort parameter | Reserved, query this register to report address error  |
| Comfort parameter | Reserved, query this register to report address error  |
| t_DRYUP           | Heating days, setting range: 4~15days, default 8 days  |
| t_HIGHPEAK        | Drying days, setting range: 3~7days , default5 days  |
| t_DRYD            | Cooling days, setting range: 4~15days , default 5 days   |
| T_DRYPEAK         | Maximum drying temperature, setting range:30-55°C, default 45°C  |
| t_firstFH         | Floor heating first run time, default value 72hrs, setting range: 48-96hrs   |
| T1S(First warm)   | First warm T1S , setting range: 25~35°C, default: 25°C;  |

|                  |  |
|------------------|--|
| T1SetC1          | Cooling temperature curve 9 parameters, setting range 5-25°C, default 10°C     |
| T1SetC2          | Cooling temperature curve 9 parameters, setting range 5-25°C, default 16°C     |
| T4C1             | Cooling temperature curve 9 parameters, setting range (-5)-46°C, default 35°C  |
| T4C2             | Cooling temperature curve 9 parameters, setting range (-5)-46°C, default 25°C  |
| T1SetH1          | Heating temperature curve 9 parameters, setting range 25-60°C, default 35°C    |
| T1SetH1          | Heating temperature curve 9 parameters, setting range 25-60°C, default 28°C    |
| T4H1             | Heating temperature curve 9 parameters, setting range (-25)-35°C, default -5°C |
| T4H2             | Heating temperature curve 9 parameters, setting range (-25)-35°C, default 7°C  |
|                  | Current limiting scheme,<br>0= No setting;<br>1~7= Scheme 1~7,<br>default 0    |
| HB: t_T4_FRESH_C | Range 0.5 - 6 hours, send value = actual value * 2                             |
| LB: t_T4_FRESH_H | -  |
| T_PUMPI_DELAY    | Range 2-20 , send value = actual value * 2                                     |
| EMISSION TYPE    | Bit12-15= Zone 2 cooling end type  |
|                  | Bit8-11= Zone 1 cooling end type   |
|                  | Bit4-7= Zone 2 heating end type  |
|                  | Bit0-3= Zone 1 heating end type  |

### General

Maintenance must be performed by authorized centres or by qualified personnel

The maintenance allows to:

- maintaining the unit efficient
- reduce the deterioration speed all the equipment is subject to over time
- collect information and data to understand the efficiency state of the unit and prevent possible faults

#### WARNING

- ⇒ *Before checking, please verify the following:*
- ⇒ *the electrical power supply line should be isolated at the beginning*
- ⇒ *the line isolator device is open, locked and equipped with the suitable warning sign*
- ⇒ *make sure no tension is present*
- ⇒ *After switching the power off, wait at least 5 minutes before accessing to the electrical panel or any other electrical component.*
- ⇒ *Before accessing check with a multimeter that there are no residual stresses.*

### Frequency of interventions

Perform an inspection every 6 months.

However, frequency depends on the type of use.

Plan inspections at close intervals in the event of:

- frequent use (continuous or very intermittent use, near the operating limits, etc)
- critical use (service necessary)

#### WARNING

- ⇒ *Before performing any work, please read carefully: SAFETY WARNINGS FOR OPERATIONS ON UNITS CONTAINING R32*



### SAFETY WARNINGS FOR OPERATIONS ON UNITS CONTAINING R32

#### Area checks

Before working on systems containing flammable refrigerants, perform safety checks to reduce the risk of combustion to the minimum. Before performing any repair operations on the cooling system, comply with the following warnings.

#### Work procedures

Operations must be performed following a controlled procedure so as to reduce the risk of flammable gases or vapours developing.

#### General work area

All the personnel in charge with maintenance operations and other operators working in the local area must be instructed and monitored as regards the nature of the intervention.

Avoid working in tight spaces. The area surrounding the working space must be cordoned off. Make sure the area is secured by monitoring the flammable material.

#### Check the presence of refrigerant

Both before and during operations, the area must be monitored with a dedicated refrigerant detector to make sure the technician is aware of the presence of potentially-flammable environments.

Make sure the leak detection equipment is suitable for use with flammable refrigerants and therefore without sparks, suitably sealed or intrinsically safe.

#### Presence of the fire extinguisher

If hot interventions are not performed on cooling equipment or connected components, suitable fire fighting equipment must be kept at hand.

Keep a dry-powder or CO<sub>2</sub> extinguisher near the loading area.

#### No ignition source

It is absolutely forbidden to use ignition sources that may lead to fire or explosion during operations on the cooling system or on pipes that contain or have contained flammable refrigerant.

All possible ignition sources, including cigarettes, must be kept sufficiently away from the installation, repair, removal and disposal site as flammable refrigerant may be released in the surrounding area.

Before starting operations, the area surrounding the equipment must be inspected to guarantee the absence of flammables or combustion risks. "SMOKING IS FORBIDDEN" signs must be affixed.

#### Ventilated area

Before intervening on the system or performing any hot intervention, make sure to be in an outdoor or suitably ventilated area.

Ventilation must be maintained during operations. Ventilation must disperse the released refrigerant safely, preferably outdoors in the atmosphere.

#### Cooling equipment checks

Should a replacement be necessary, the new components installed must be suitable for the purpose envisaged and compliant with specifications.

Always follow the manufacturer guidelines on maintenance and assistance. In case of doubt, contact the manufacturer technical office for assistance.

The following checks must be performed on systems containing flammable refrigerants:

- the quantity of the charge must comply with the size of the room where the parts containing refrigerant are installed;
- the machine and ventilation intake function correctly and are not obstructed;
- If an indirect cooling circuit is used, the secondary circuits must be checked to verify the presence of refrigerants; the marking on the equipment remains visible and readable;
- Make sure markings and symbols are always readable; cooling pipes or components must be installed in a position that makes improbable their exposure to substances that may corrode the components

containing refrigerant, unless they are manufactured with material intrinsically resistant to corrosion or suitably protected against corrosion.

### Electrical device checks

The reparation and maintenance of electric components must include initial safety checks and component inspection procedures.

In case of a fault that compromises safety, do not perform any electrical connection to the circuit until said fault is suitably resolved.

If it is not possible to repair the fault immediately and electrical components need to remain functioning, a temporary solution must be adopted. This must be reported to the owner of the equipment so as to keep all parties informed.

Initial safety checks must include:

- that condensers are emptied. This operation must be performed safely to avoid any sparks;
- that electrical components and wiring are not exposed during the charging, recovering or venting phases;
- That the earth conductor is continuous.

### Repairing sealed components

- During the reparation operations of sealed components, disconnect all the equipment before removing sealed casings etc. If, during operations, it is absolutely necessary for the equipment to remain connected, a leak detection device must be placed in the most critical point so as to report any potentially-dangerous situation.
- Pay particular attention to what follows to guarantee that, while intervening on electrical components, the housing is not altered in a way so as to affect the level of protection. This includes damage to cables, an excessive number of connections, terminals not compliance with the original specifications, damage to gaskets, an unsuitable installation of gaskets, etc.
- Make sure the device is installed safely.
- Check that the seals or sealing materials are not altered in such a way that they no longer the impede the entry of flammable environments. Spare parts must comply with manufacturer specifications.

#### NOTE:

⇒ *Using silicone sealants may inhibit the effectiveness of a few types of leak detection equipment. It is not necessary to isolate intrinsically safe components before performing operations on them.*

### Reparation of intrinsically safe components

Do not apply permanent inductive or capacitive loads to the circuit without making sure that they do not exceed the admissible voltage and current allowed for equipment in use.

Intrinsically safe components are the only component type on which operations can be performed in a flammable atmosphere. The testing device must show a correct value. Replace components only with the parts specified by the manufacturer.

Following a leak, other parts could lead to the combustion of the refrigerant in the atmosphere.

### Wires

Make sure wires are not subjected to wear, corrosion, excessive pressure or vibration, that there are no sharp edges and that they do not produce other negative effects on the environment. The inspection must also keep into consideration the effects of time or the continuous vibration caused e.g. by compressors or fans.

### Detection of flammable refrigerants

Under no circumstance is it possible to use potential ignition sources to search or detect refrigerant leaks.

Do not use halide lights (or any other open flame detectors).

### Leak detection methods

The following leak detection methods are considered acceptable for systems containing flammable refrigerants. Electric leak detectors must always be used to identify flammable refrigerants, although they do not present a suitable sensitivity level or require recalibration (detection equipment must be calibrated in an area free from refrigerants).

Check that the detector is not a possible source of ignition and that it is suitable for the refrigerant. Leak detection equipment must always be set to an LFL percentage and calibrated depending on the refrigerant used, so the correct gas percentage (25% max) must be verified.

Leak detection fluids are suitable for most refrigerants, although using detergents containing chlorine should be avoided as this substance may react with the refrigerant and corrode copper pipes.

If a leak is suspected, all open flames must be removed or switched off.

If a leak is identified that requires brazing, all the refrigerant must be recovered from the system or isolated (using interception valves) in a section of the system far away from the leak. Oxygen-Free-Nitrogen (OFN) is then purged through the system both before and during the brazing procedure.

### Removal and evacuation

When intervening on the cooling circuit to perform repair work or any other type of work, always follow the normal procedure. However, considering the risk of flammability, we recommend following the best practices. Comply with the following procedure:

- remove the refrigerant;
- purge the circuit with inert gas;
- evacuate;
- Purge again with inert gas;
- Interrupt the circuit with interruption or brazing.

The refrigerant charge must be collected in suitable recovery tanks. To make the unit safe, flushing with Oxygen-free-Nitrogen must be performed. This procedure may have to be repeated multiple times. Do not use compressed air or oxygen for this operation.

Flushing is obtained interrupting the system vacuum with OFN and filling until the operating pressure is obtained, then releasing into the atmosphere and restoring the vacuum. This process must be repeated until there is no trace of refrigerant in the system.

When using the final OFN charge, the system must be vented to the atmospheric pressure to allow the intervention. This step is essential to perform brazing operations on the pipes.

Make sure that the vacuum pump intake is not near ignition sources and that there is suitable ventilation.

### Charging operations

In addition to conventional charging operations, the following requirements must be complied with:

- When using charging equipment, make sure that the various refrigerants are not contaminated. Flexible tubes or conduits must be as short as possible to reduce to the minimum the quantity of refrigerant contained.
- Tanks must be kept in a vertical position.
- Before loading the system with refrigerant, check that the cooling system is earthed.
- Label the system when fully charged (unless already labelled).
- Make sure not to fill the cooling system excessively.
- Before recharging the system, the pressure must be tested with OFN. A leak test must be performed after the charging operations but before commissioning. Before leaving the site, perform an additional leak test.

### Dismantling

Before performing this procedure, it is essential that the technician has become familiar with the equipment and the relative details.

We recommend employing good practices for a safe recovery of the refrigerants.

Before performing the operation, take a sample of oil and refrigerant should an analysis be necessary before reusing the regenerated refrigerant. Before performing the operation, check the availability of electricity.

- Become familiar with the equipment and how it functions.

- Electrically isolate the system.

Before attempting the procedure, check that:

- The mechanical manipulation equipment is available, if necessary, to handle refrigerant tanks;
- All the personal protection equipment is available and employed correctly;
- The recovery procedure is monitored at all times by skilled personnel;
- The recovery equipment and tanks comply with suitable standards.
- If possible, pump the cooling system.
- If it is not possible to obtain a vacuum, make sure that a collector removes the refrigerant from various parts of the system.
- Before proceeding with the recovery, check that the tank is located on the scales.
- Start up the recovery machine and use it following the instructions by the manufacturer.
- Do not fill the tanks excessively. (Do not exceed 80% of the liquid volume).
- Do not exceed the tank's maximum operating pressure, not even momentarily.
- Once the tanks are filled correctly and the process is over, make sure that the tanks and equipment are immediately removed from the site and that all insulation valves on the equipment are closed.
- The refrigerant recovered must not be loaded into another cooling system unless it has been cleaned and checked.

### Labelling

Equipment must be labelled reporting the dismantling and emptying of the refrigerant.

Labels must be dated and signed.

Make sure all the equipment is labelled and reporting the presence of flammable refrigerant.

### Recovery

When removing the refrigerant from the system, please adopt good practices to remove all refrigerants safely in case of both assistance or decommissioning operations.

When transferring the refrigerant into the tanks, make sure only suitable tanks are used to recover the refrigerant.

Make sure enough tanks are used.

All the tanks to be used are designated for the recovered refrigerant and are labelled for that specific refrigerant (e.g. special tanks for refrigerant collection).

Tanks must be equipped with a perfectly-functioning safety valve and relative interception valves.

Empty recovery tanks are evacuated and, if possible, cooled before recovery.

Recovery equipment must be perfectly functioning with the respective instruction booklets at hand and they must be suitable to recover flammable refrigerants. A series of perfectly-functioning calibrated scales must also be available.

Flexible tubes must be equipped with leak-proof disconnection fittings in good condition. Before using the recovery machine, make sure it is in good condition, maintained and that all associated electrical components are sealed to avoid combustion in case of a refrigerant leak. Please contact the manufacturer in case of doubt.

The refrigerant recovered must be taken to the supplier in suitable recovery tanks and with the relative waste transfer note suitably filled in.

Do not mix the refrigerants in the recovery units nor in the tanks.

If it is necessary to remove compressors or compressor oils, make sure they are evacuated to an acceptable level to make sure no trace is left of the flammable refrigerant inside the lubricant. The evacuation process must be performed before taking the compressors back to the suppliers.

The electric resistance must be used with the compressor body only to accelerate this process.

Operations to discharge the oil from the system must be performed in full safety.

## 20. Transport, mark and storage

- 1 Transport of equipment containing flammable refrigerants  
Compliance with transport regulations

- 2 Marking of equipment with symbols  
Compliance with local regulations
- 3 Disposal of equipment employing flammable refrigerants  
Compliance with national regulations
- 4 Storage of equipment/devices  
The equipment must be stored in compliance with the instructions provided by the manufacturer.
- 5 Storing packed (unsold) equipment  
Packing must be performed in such a way that mechanical damage to the equipment inside it does not cause refrigerant leaks.  
The maximum number of elements that can be stored together is determined by local regulations.

## Checklist for recommended regular checks

Checks effected on.....by.....of the company.....

| √                        | intervention frequency (months)   | 1 | 6 | 12 |
|--------------------------|---|---|---|----|
| <input type="checkbox"/> | Panel fixing  |   |   | X  |
| <input type="checkbox"/> | External unit fan fixing  |   | X |    |
| <input type="checkbox"/> | External unit coil cleaning   |   | X |    |
| <input type="checkbox"/> | Charged pressure of water system  |   | X |    |
| <input type="checkbox"/> | Docking joints, caps and shafts   |   | X |    |
| <input type="checkbox"/> | Leak visual check on solar panel fittings   |   | X |    |
| <input type="checkbox"/> | Air in the pipes  |   |   | X  |
| <input type="checkbox"/> | Flow switch / differential pressure switch function   |   |   | X  |
| <input type="checkbox"/> | Drain dirt separator  | X | X | X  |
| <input type="checkbox"/> | Anode check   |   | X |    |
| <input type="checkbox"/> | Capacity contactor status   |   |   | X  |
| <input type="checkbox"/> | Terminal closing, cable insulation integrity  |   |   | X  |
| <input type="checkbox"/> | Voltage and phase unbalancing (no load and on-load)   |   | X |    |
| <input type="checkbox"/> | Absorptions of the single electrical loads  |   | X |    |
| <input type="checkbox"/> | Compressor carter resi stance test  |   | X |    |
| <input type="checkbox"/> | Leak control *  |   |   | X  |
| <input type="checkbox"/> | Measure of operating parameters of the refrigerant circuit  |   | X |    |
| <input type="checkbox"/> | Check drier filter  |   |   | X  |
| <input type="checkbox"/> | Presence of oil stains  |   | X |    |
| <input type="checkbox"/> | Closure of pipe unions, Scradar caps  |   | X |    |
| <input type="checkbox"/> | Protective device / integrity test : safety valves, pressure switches, thermostats, flow switches etc |   | X |    |
| <input type="checkbox"/> | Check schedulers, setpoints, compensations, etc...  |   | X |    |
| <input type="checkbox"/> | Control device/integrity test: alarm signalling, thermometers, probes, pressure gauges etc            |   | X |    |
| <input type="checkbox"/> | Fill in the unit booklet  |   |   |    |

### NOTE

⇒ Refer to the local regulations. Companies and technicians performing installation, maintenance/repair, leak control and recovery operations must be CERTIFIED as set out by the local regulations.

### Unit booklet

It's advisable to create a unit booklet to take notes of the unit interventions.

In this way, it will be easier to adequately schedule the various interventions and facilitate any troubleshooting.

On the schedule note:

- date
- intervention description
- carried out measures etc.

### Standby mode

If a long period of inactivity is foreseen:

- turn off the power
- avoid the risk of frost (empty the system or add glycol)

Turn off the power to avoid electrical risks or damages by lightning strikes.

With lower temperatures keep heaters turned on in of the electrical panel (option).

It's recommended that the re-start after the stopping period is performed by a qualified technician, especially after seasonal stops or seasonal

switching.

When restarting, refer to what is indicated in the "start-up" section.

Schedule technical assistance in advance to avoid hitches and to guarantee that the system can be used when required

### External unit fan

Check:

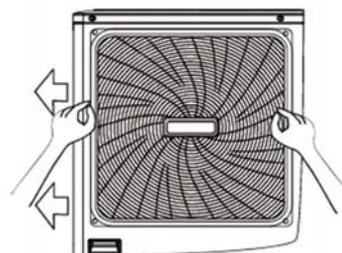
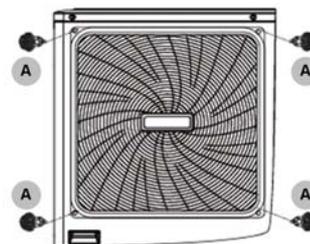
- ensure that the fan and the relative protection grids are well fixed
- The fan bearings (evident by noise and anomalous vibrations )
- the terminal protection covers are closed and the cable holders are properly positioned

Access to the fan

- Remove the screws (A)
- Push the grill to the left until it stops.
- Then pull its right edge, the grill can now be removed.
- You can also reverse the procedure.

#### **DANGER**

⇒ Exercise caution to avoid a possible hand injury.



## Outdoor unit air coil

Accidental contact with the exchanger flaps can cause injuries from cut: use protective gloves.

The coil must allow maximum thermal exchange, therefore, the surface must be clear from dirt and scaling.

Clean the air inlet side.

Use a soft brush or aspirator or pressurised air jet or high-pressure water jet machine.

Keep the direction parallel to the flow of the flaps to avoid damages.

Check the aluminium flaps have not been damaged or folded, on the contrary contact an authorised after-sales assistance centre to "comb" the coil for excellent air flow.

## Outdoor unit condensate drain

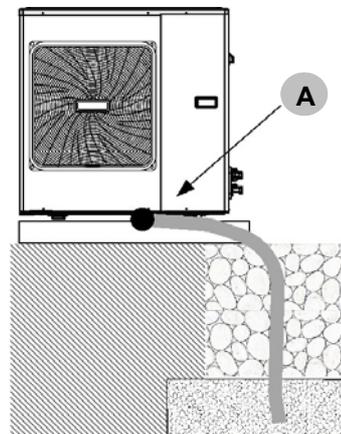
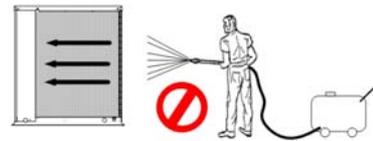
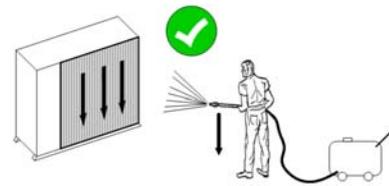
Dirt or scale can give rise to clogging.

Also, microorganisms and mould can flourish in the bowl.

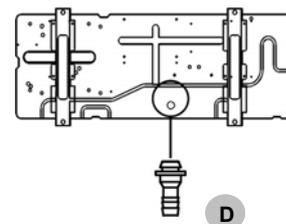
Foresee periodical cleaning with suitable detergents and, eventually, disinfect with sanitising products.

Once cleaning is completed, pour water inside the bowl to check the regular outflow.

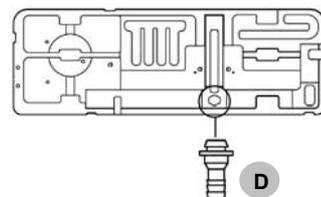
A - Condensate discharge connection



Size 4kW - 6kW



Size 8kW - 10kW



## Periodic system checks

- Charge check of expansion tanks
- Water filter cleaning check
- Check system and aqueduct operating pressures

## Expansion vessel

Check the expansion vessel charge (at least once a year).

First check that the expansion vessel is totally drained of water. If you necessary load with nitrogen, take care that the pressure does not exceed the value indicated on the label.

## Safety valves

The safety valves must be checked regularly.

Almost all losses are caused by impurities deposited inside the valve.

It's normal if some water drops from the hole of safety valve during operation.

But, if there is a great amount of water, call your service agent for instructions.

Please beware of burn, beware of the hot water from the valve.

To carry out a wash:

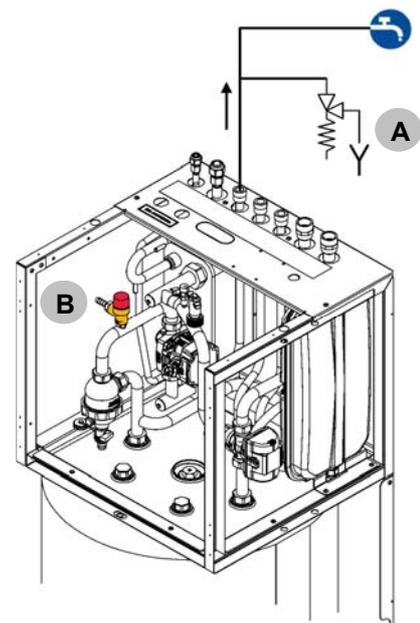
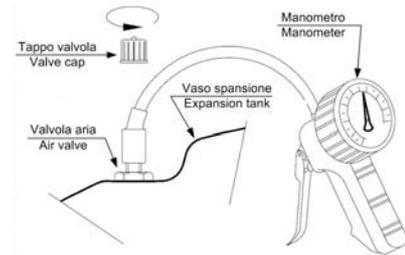
- manually open the valve
- rotate the knob in the sense indicated by the arrow in the knob.

A. DHW safety valve (6 bar)

B. System safety valve (3 bar)

## Water filter

Check that no impurities prevent the correct passage of water.



## Magnetic sludge

Magnetic filter “A” separates the impurities (sand particles, rust ... etc) present in the system water.

The impurities are collected in a settling chamber.

Cleaning the filter can also be done with a working system.

Clean the filter:

- During the start up of the unit
- After one week from the start up
- After one month from start up
- Once a year

## Unloading

- Remove the magnet holder cartridge (1);
- Open the tap to purge impurities (2);
- Close the tap.

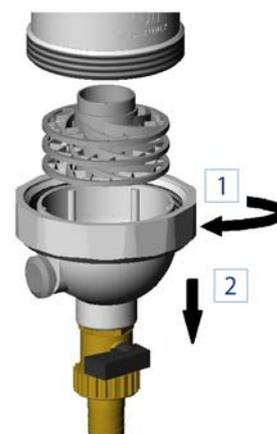
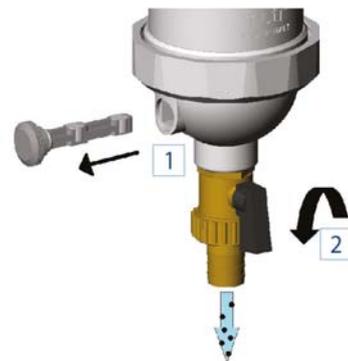
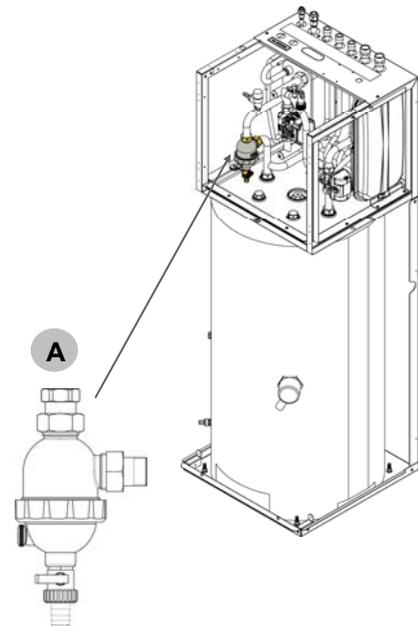
## Cleaning (extraordinary)

Close the shut-off valves of the system and water supply.

Disassembly sequence:

- Unscrew the ring nut (1) of the lower cover (2) of the dirt separator and remove the filter
- Take out the magnet cartridge.
- Clean the filter and the bottom cover.
- Reinsert the magnet cartridge.
- Close the bottom cover of the dirt separator
- Open the shut-off valves of the plant and aqueduct.

Check pressure of the plant



## Anode rod replace

The magnesium sacrificial anodes assure the storage tank anti-corrosive protection.

The magnesium anode is replaced when its diameter is  $\leq$  of a third of the original anode.

Remove power supply

- Turn off the water inlet valve (A)
- Open hot water tap for decrease the pressure of the storage tank.
- Open tap (B)
- Empty the storage up to point (C)
- Get off the anode rod. (D)
- Replace with a new one, and make sure effective sealed.
- Control that there are no water losses from the fitting
- Open the water inlet tap (A) until water flows out from outlet tap, then turn of water outlet tap.
- Power on then restart the unit.

### DANGER

⇒ *Beware of your body for burns.*

⇒ *The outlet water temperature may be very high*

### NOTE

The anode must be:

- Checked all 6 - 12 months
- Replaced all 2-3 years

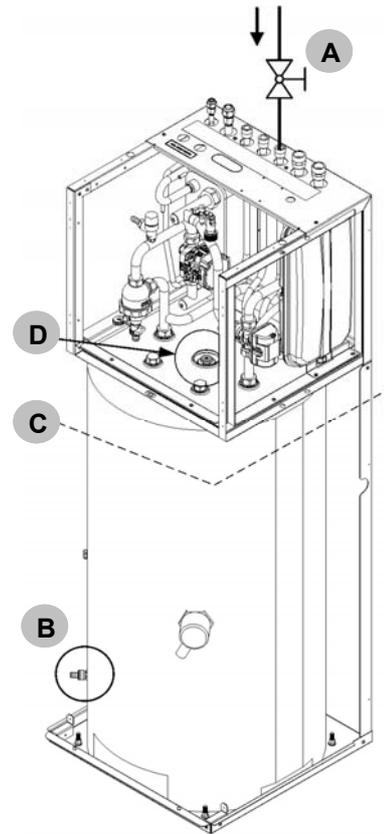
## Structure

Check the condition of the parts making up the structure.

Paint so as to eliminate or reduce oxidation at the points in the unit where this problem may occur.

Check that the panelling is fastened correctly.

Poor fastening may give rise to malfunctions and abnormal noise and vibration.



## Disconnection

### WARNING

⇒ Before performing any operation, read the warnings found in the Maintenance chapter.

Avoid leak or spills into the environment.

Before disconnecting the unit, the following must be recovered, if present:

- refrigerant gas
- Anti-freeze solutions in the hydraulic circuit

Awaiting decommissioning and disposal, the unit can also be stored outdoors, as bad weather and rapid changes in temperature do not harm the environment provided that the electric, cooling and hydraulic circuits of the unit are intact and closed.

### WEEE INFORMATION

The manufacturer is registered on the EEE National Register, in compliance with implementation of Directive 2012/19/EU and relevant national regulations on waste electrical and electronic equipment.

This Directive requires electrical and electronic equipment to be disposed of properly.

Equipment bearing the crossed-out wheelie bin mark must be disposed of separately at the end of its life cycle to prevent damage to human health and to the environment.

Electrical and electronic equipment must be disposed of together with all of its parts.

To dispose of “household” electrical and electronic equipment, the manufacturer recommends you contact an authorised dealer or an authorised ecological area.

“Professional” electrical and electronic equipment must be disposed of by authorised personnel through established waste disposal authorities around the country.

In this regard, here is the definition of household WEEE and professional WEEE:

WEEE from private households: WEEE originating from private households and WEEE which comes from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households. Subject to the nature and quantity, where the waste from EEE was likely to have been by both a private household and users of other than private households, it will be classed as private household WEEE;

Professional WEEE: all WEEE which comes from users other than private households.

This equipment may contain:

refrigerant gas, the entire contents of which must be recovered in suitable containers by specialised personnel with the necessary qualifications;

- lubrication oil contained in compressors and in the cooling circuit to be collected;
- mixtures with antifreeze in the water circuit, the contents of which are to be collected;
- mechanical and electrical parts to be separated and disposed of as authorised.

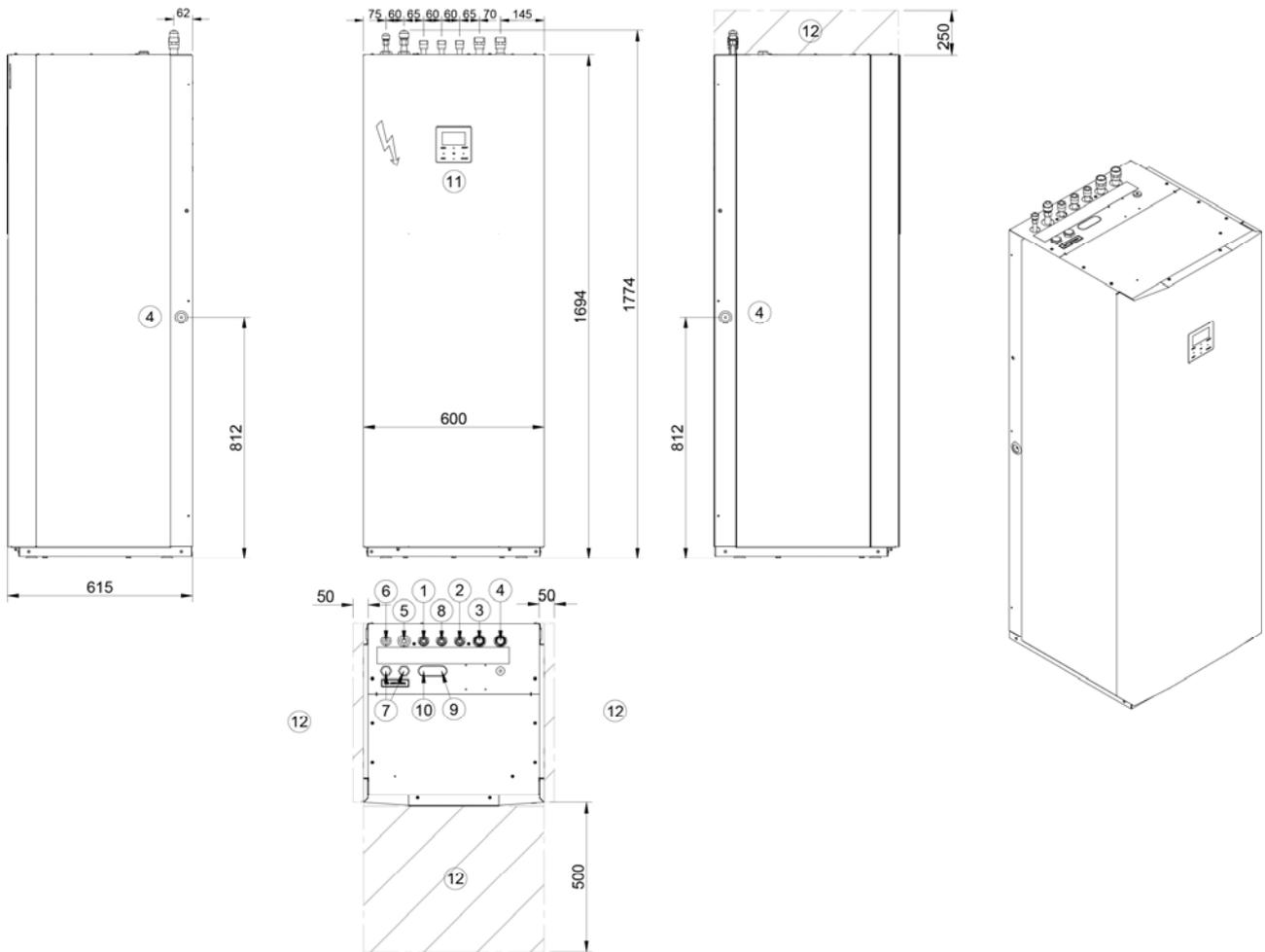
When machine components to be replaced for maintenance purposes are removed or when the entire unit reaches the end of its life and needs to be removed from the installation, waste should be separated by its nature and disposed of by authorised personnel at existing collection centres.



**Warning:**  
Fire hazard  
Flammable materials



## Dimensional Internal unit

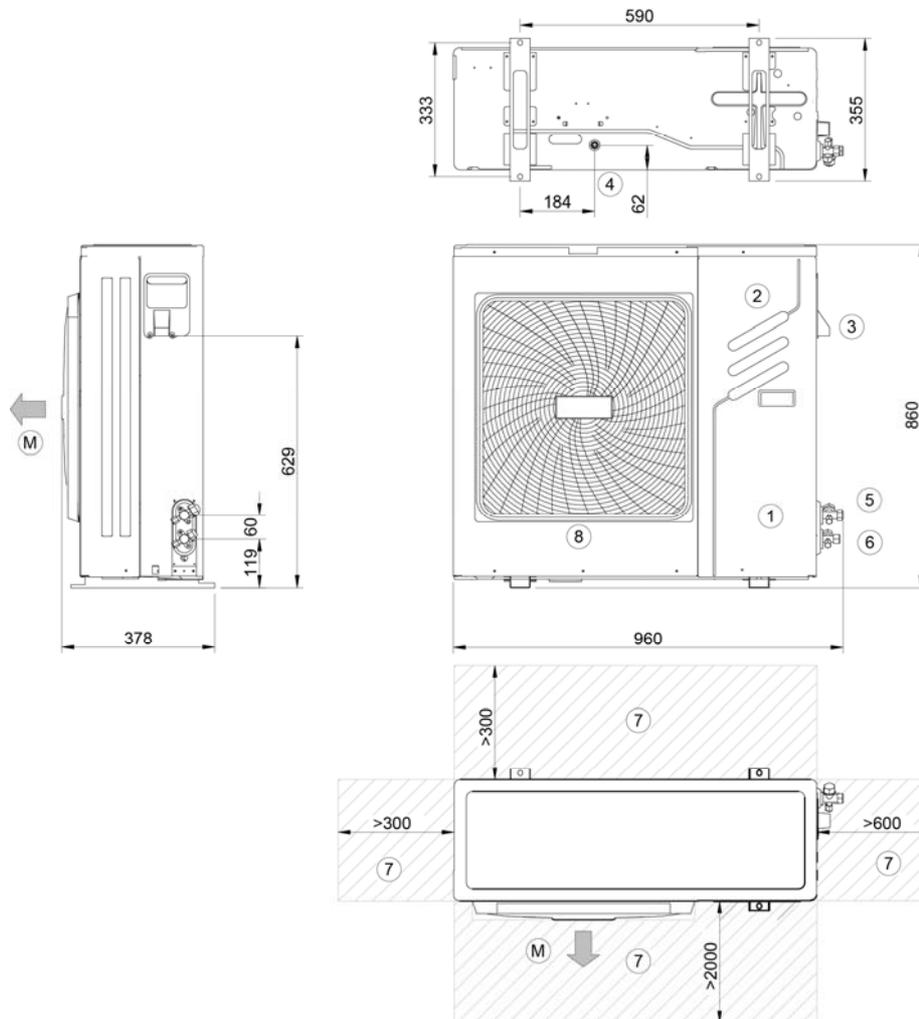


1. Domestic hot water outlet M 3/4"
2. Aqueduct inlet M 3/4"
3. Return from user side system M 1"
4. Supply to the utility installation M 1"
5. Gas line 5/8" SAE
6. Liquid line 3/8" SAE
7. Electric line input
8. Dhw recirculation circuit inlet M 3/4"
9. Return from the 3/4" M solar system (accessory separately supplied)
10. Supply to the 3/4" M solar system (accessory separately supplied)
11. Unit control keypad
12. Functional spaces for standard unit

| Size             |    | 190L |
|------------------|----|------|
| Operating weight | kg | 357  |
| Shipping weight  | kg | 185  |

## External unit

Size 4kW - 6kW

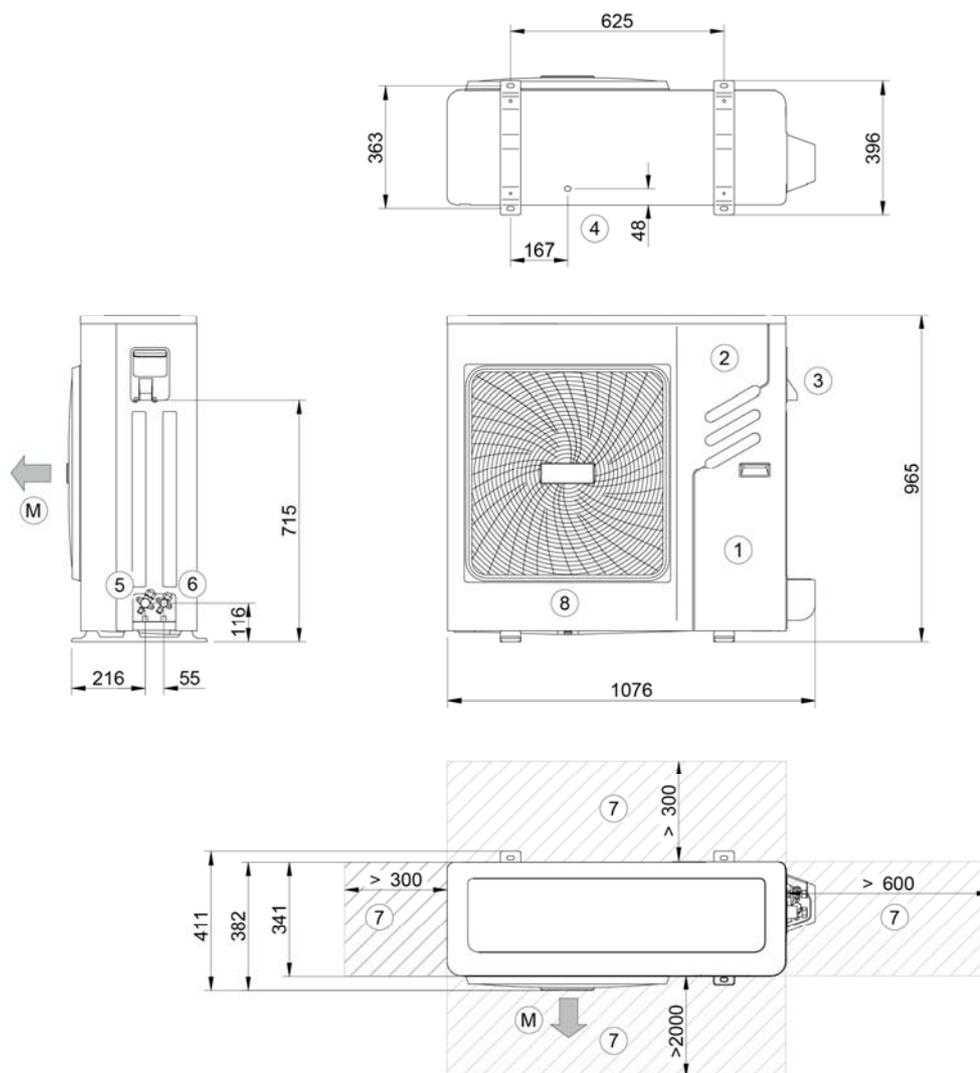


- 1 Compressor compartment
- 2 Electrical panel
- 3 Power input
- 4 Condensate drain
- 5 Liquid line connection
- 6 Suction line connection
- 7 Functional spaces
- 8 Electric fan

(M) Air supply

| Size             |    | 4kW | 6kW |
|------------------|----|-----|-----|
| Operating weight | kg | 60  | 60  |
| Shipping weight  | kg | 72  | 72  |

## Size 8kW - 10kW



- 1 Compressor compartment
- 2 Electrical panel
- 3 Power input
- 4 Condensate drain
- 5 Liquid line connection
- 6 Suction line connection
- 7 Functional spaces
- 8 Electric fan

(M) Air supply

| Size             |    | 8kW - 10kW |
|------------------|----|------------|
| Operating weight | kg | 76         |
| Shipping weight  | kg | 88         |

## General technical data

| Size   |   |     | 4kW  | 6kW  | 8kW  | 10kW  |
|--|---|-----|------|------|------|-------|
| <b>Heating</b>                                   |   |     |      |      |      |       |
| <b>Air 7°C - Water 35°C</b>                      |   |     |      |      |      |       |
| Heating capacity                                 | 1 | kW  | 4,49 | 6,32 | 8,37 | 10,26 |
| Total power input                                | 1 | kW  | 0,90 | 1,32 | 1,72 | 2,19  |
| COP  | 1 | -   | 5,01 | 4,79 | 4,87 | 4,68  |
| Water flow-rate                                  | 1 | l/s | 0,22 | 0,31 | 0,41 | 0,48  |
| Nominal available pressure                       | 1 | kPa | 39   | 48   | 37   | 28    |
| Maximum available pressure                       | 1 | kPa | 68   | 60   | 43   | 28    |
| <b>Air -7°C - Water 35°C</b>                     |   |     |      |      |      |       |
| Heating capacity                                 | 2 | kW  | 4,59 | 5,55 | 6,46 | 8,02  |
| Total power input                                | 2 | kW  | 1,50 | 1,91 | 2,13 | 2,69  |
| COP  | 2 | -   | 3,07 | 2,90 | 3,04 | 2,98  |
| Water flow-rate                                  | 2 | l/s | 0,23 | 0,31 | 0,32 | 0,40  |
| Nominal available pressure                       | 2 | kPa | 38   | 47   | 47   | 38    |
| Maximum available pressure                       | 2 | kPa | 67   | 61   | 58   | 44    |
| <b>Air 7°C - Water 45°C</b>                      |   |     |      |      |      |       |
| Heating capacity                                 | 3 | kW  | 4,14 | 6,09 | 8,02 | 10,30 |
| Total power input                                | 3 | kW  | 1,12 | 1,66 | 2,10 | 2,81  |
| COP  | 3 | -   | 3,70 | 3,66 | 3,82 | 3,67  |
| Water flow-rate                                  | 3 | l/s | 0,20 | 0,29 | 0,38 | 0,47  |
| Nominal available pressure                       | 3 | kPa | 39   | 50   | 39   | 28    |
| Maximum available pressure                       | 3 | kPa | 70   | 62   | 45   | 28    |
| <b>Cooling</b>                                   |   |     |      |      |      |       |
| <b>Air 35°C - Water 18°C</b>                     |   |     |      |      |      |       |
| Cooling capacity                                 | 4 | kW  | 4,63 | 6,79 | 8,53 | 9,73  |
| Total power input                                | 4 | kW  | 0,89 | 1,32 | 1,71 | 2,00  |
| EER  | 4 | -   | 5,21 | 5,14 | 5,00 | 4,87  |
| Water flow-rate                                  | 4 | l/s | 0,22 | 0,32 | 0,41 | 0,45  |
| Nominal available pressure                       | 4 | kPa | 38   | 45   | 36   | 35    |
| Maximum available pressure                       | 4 | kPa | 70   | 58   | 37   | 35    |
| <b>Air 35°C - Water 7°C</b>                      |   |     |      |      |      |       |
| Cooling capacity                                 | 5 | kW  | 4,56 | 6,17 | 7,39 | 9,06  |
| Total power input                                | 5 | kW  | 1,31 | 1,92 | 2,37 | 3,01  |
| EER  | 5 | -   | 3,49 | 3,21 | 3,12 | 3,01  |
| Water flow-rate                                  | 5 | l/s | 0,22 | 0,30 | 0,35 | 0,41  |
| Nominal available pressure                       | 5 | kPa | 37   | 49   | 43   | 36    |
| Maximum available pressure                       | 5 | kPa | 70   | 61   | 50   | 38    |
| <b>ErP</b>                                       |   |     |      |      |      |       |
| <b>Clima Average High temperature Heat pumps</b> |   |     |      |      |      |       |
| Nominal power                                    | 6 | kW  | 5    | 6    | 8    | 9     |
| SCOP   | 6 |     | 3,37 | 3,37 | 3,40 | 3,56  |
| Generator energy class                           | 6 |     | A++  | A++  | A++  | A++   |
| $\eta_s$   | 6 | %   | 132  | 132  | 133  | 140   |
| System energy class                              | 6 |     | A++  | A++  | A++  | A++   |
| $\eta_s$   | 6 | %   | 137  | 137  | 138  | 145   |
| Declared load profile                            | 6 | -   | L    | L    | L    | L     |
| $\eta_{wh}$                                      | 6 | %   | 115  | 115  | 115  | 115   |
| Domestic Hot Water Energy Class                  | 6 |     | A+   | A+   | A+   | A+    |
| <b>Clima Average Low temperature Heat pumps</b>  |   |     |      |      |      |       |
| Nominal power                                    | 7 | kw  | 5    | 6    | 8    | 10    |
| SCOP   | 7 |     | 4,73 | 4,89 | 4,96 | 5,04  |
| Generator energy class                           | 7 |     | A+++ | A+++ | A+++ | A+++  |
| $\eta_s$   | 7 | %   | 186  | 192  | 195  | 199   |
| System energy class                              | 7 |     | A+++ | A+++ | A+++ | A+++  |
| $\eta_s$   | 7 | %   | 191  | 197  | 200  | 204   |

- 1 User side entering/leaving water temperature 30/35 °C, source side air 7°C (U.R. = 85% Heat power data, Total power input and COP in accordance with EN 14511:2018
- 2 User side entering/leaving water temperature 30/35 °C, source side air -7°C Heat power data, Total power input and COP in accordance with EN 14511:2018
- 3 User side entering/leaving water temperature 40/45 °C, source side air 7°C (U.R. = 85% Heat power data, Total power input and COP in accordance with EN 14511:2018
- 4 User side entering/leaving water temperature 18/23 °C, source side air 35°C Heat power data, Total power input and COP in accordance with EN 14511:2018
- 5 User side entering/leaving water temperature 7/12 °C, source side air 35°C Heat power data, Total power input and COP in accordance with EN 14511:2018
- 6 The product is conforming with the European ErP Directives, which includes Commission Delegated Regulation (EU) N. 811/2018 and Commission Delegated Regulation N. 813/2013, Clima Average, High Temperature 47/55°C
- 7 The product is conforming with the European ErP Directives, which includes Commission Delegated Regulation (EU) N. 811/2018 and Commission Delegated Regulation N. 813/2013, Clima Average, Low Temperature 30/35°C

\* All data calculated with zero height difference and equivalent length of 7m.

## Construction - Outdoor unit

| Size                                    |   |                   | 4kW    | 6kW    | 8kW    | 10kW   |
|---|---|-------------------|--------|--------|--------|--------|
| <b>Characteristics</b>                  |   |                   |        |        |        |        |
| Compressor                              |   |                   | Rotary | Rotary | Rotary | Rotary |
| Refrigerant                             |   |                   | R32    | R32    | R32    | R32    |
| Refrigerant charge                      |   | kg                | 1,55   | 1,55   | 1,65   | 1,65   |
| GWP                                     |   | t <sub>CO2</sub>  | 675    | 675    | 675    | 675    |
| Equivalent tons of CO2 (*)              |   | t <sub>e</sub>    | 1,05   | 1,05   | 1,11   | 1,11   |
| Oil charge                              |   | l                 | 0,46   | 0,46   | 0,46   | 0,46   |
| Type of fan                             | 1 |                   | AX     | AX     | AX     | AX     |
| Standard air flow rate                  |   | m <sup>3</sup> /h | 2860   | 2860   | 4750   | 4750   |
| Outdoors unit sound pressure at 1 metre | 2 | dB(A)             | 47     | 48     | 48     | 50     |
| Sound power                             | 2 | dB(A)             | 61     | 62     | 63     | 65     |
| <b>Dimensions</b>                       |   |                   |        |        |        |        |
| Length of unit                          |   | mm                | 960    | 960    | 1075   | 1075   |
| Depth of unit                           |   | mm                | 380    | 380    | 395    | 395    |
| Height of unit                          |   | mm                | 860    | 860    | 965    | 965    |
| Operation weight                        |   | kg                | 57     | 57     | 67     | 67     |

1 AX axial fan

2 The sound levels are referred to a unit at full load, under nominal test conditions. Data referred to the following conditions: service side exchanger inlet/outlet water 47/55 °C source side exchanger inlet air 7°C.

The sound pressure level refers to a distance of 1 m from the external surface of the unit operating in the free field. Sound pressure level determined using the intense metric method (UNI EN ISO 9614-2)

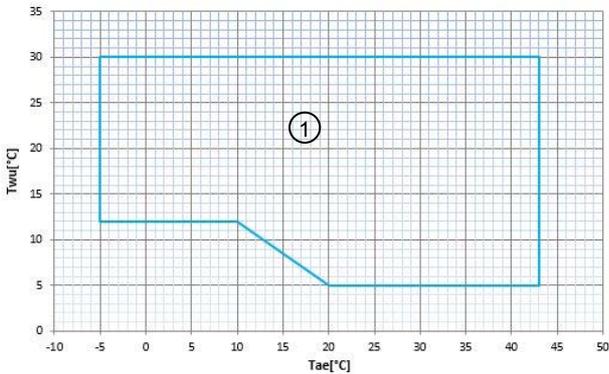
(\*) It contains fluorinated greenhouse gases

## Construction - Indoor unit

|                                     |   |                |                 |
|-------------------------------------|---|----------------|-----------------|
| <b>Size</b>                         |   |                |                 |
| <b>System characteristics</b>       |   |                |                 |
| Maximum circuit pressure            |   | Bar            | 3               |
| System expansion tank               | 3 | l              | 8               |
| <b>DHW characteristics</b>          |   |                |                 |
| Type Storage tank                   |   |                | Vitrified Steel |
| Volume of DHW tank                  |   | l              | 190             |
| Internal pipe coil exchange surface |   | m <sup>2</sup> | 2,32            |
| Storage dipersion                   |   | W/K (kWh/24h)  | 1,81 (2,04)     |
| DHW safety heating element          |   | kW             | 2               |
| Maximum DHW circuit pressure        | 1 | Bar            | 6               |
| Recommended sanitary expansion tank | 2 | l              | 12              |
| <b>Dimensions</b>                   |   |                |                 |
| Length of unit                      |   | mm             | 600             |
| Depth of unit                       |   | mm             | 610             |
| Height of unit                      |   | mm             | 1774            |
| Operation weight                    |   | kg             | 357             |

- 1 The safety valve on the bathroom fixture side is in the kit supplied, to be installed by the installer.
- 2 The installation of the fixture's expansion tank is mandatory and is to be completed by the installer. The indicated volumes are for reference purposes only.
- 3 Sufficient volume up to a maximum of 60 liters of system water content.

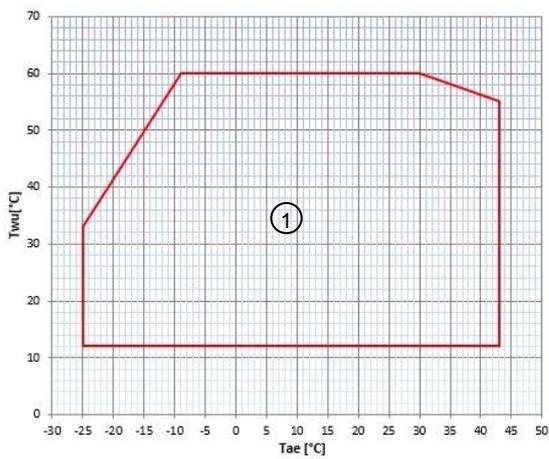
Operational limits - Cooling



Twu [°C] = Exchanger water outlet temperature  
 Tae [°C] = Outdoors exchanger air inlet temperature

1 Normal operating range

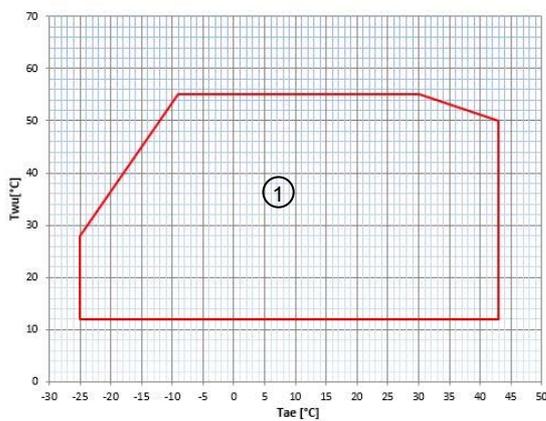
Operational limits - Heating



Twu [°C] = Exchanger water outlet temperature  
 Tae [°C] = Outdoors exchanger air inlet temperature

1 Normal operating range

Operational limits - Domestic hot water



Twu [°C] = Temperature domestic hot water  
 Tae [°C] = Outdoors exchanger air inlet temperature

1 Normal operating range

# 15 - ENERGY DATA SHEETS AND LABELLING



**ENERG** Y IJA  
енергия · ενέργεια IE IA

*Airwell* AW-WHPST0410-N91 +  
AW-YHPS04-H91

|   |   |  |   |
|---|---|--|---|
|    |  |     |  |
|    |   |     |   |
|    |   |     |   |
|   |   |    |   |
|  |   |   |   |
|  |   |   |   |
|  |   |  |   |

 **41** dB

 **61** dB



■ 05 kW  
■ **05 kW**  
■ 06 kW

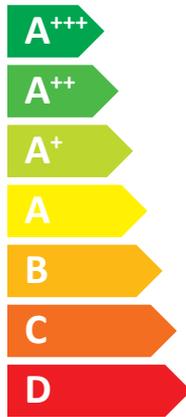
2019 811/2013



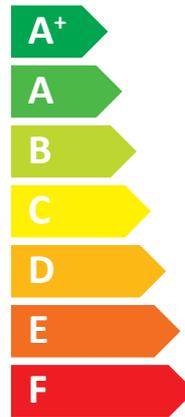
**ENERG** Y IJA  
енергия · ενέργεια IE IA

*Airwell*

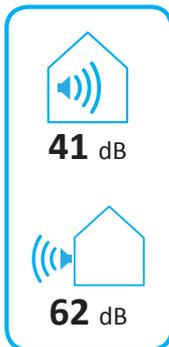
AW-WHPST0410-N91 +  
AW-YHPS06-H91



A++



A+



2019

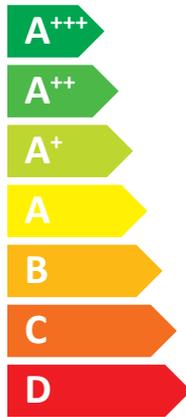
811/2013



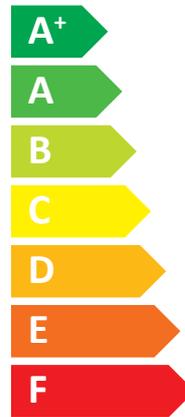
**ENERG** Y IJA  
енергия · ενέργεια IE IA

*Airwell*

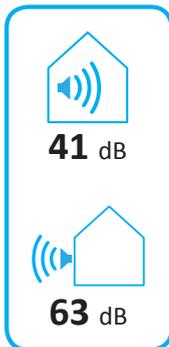
AW-WHPST0410-N91 +  
AW-YHPS08-H91



A++



A+



2019

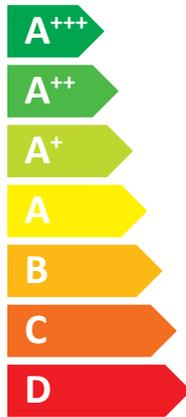
811/2013



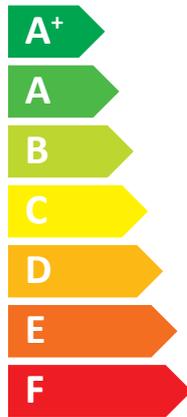
**ENERG** Y IJA  
енергия · ενέργεια IE IA

*Airwell*

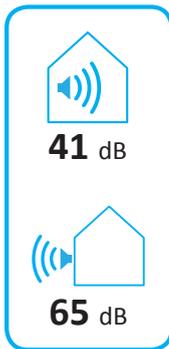
AW-WHPST0410-N91 +  
AW-YHPS10-H91



A++



A+



2019

811/2013



## DECLARATION OF CONFORMITY EU

DECLARATION DE CONFORMITE EU  
DICHIARAZIONE DI CONFORMITÀ UE  
KONFORMITÄT SERKLÄRUNG EU  
DECLARACIÓN DE CONFORMIDAD EU

### WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE

NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE  
DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA  
WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE  
EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

CATEGORY **HEAT PUMP – domestic hot water production**  
CATEGORIE **POMPE A CHALEUR – production eau chaude sanitaire**  
KATEGORIE **WÄRMEPUMPE - warmwasserproduktion**  
CATEGORIA **POMPA DI CALORE – produzione acqua calda sanitaria**  
CATEGORIA **BOMBA DE CALOR – producción de agua calientesanitaria**

TYPE / TIPO / TYP / TYPE / TIPO

AW-WHPST0410-N91

- **COMPLIES WITH THE FOLLOWING EC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:**
  - EST CONFORME AUX DIRECTIVES CE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
  - RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CE, COMPRESSE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
  - DEN IN DEN FOLGENDEN EG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
  - ES CONFORME A LAS SIGUIENTES DIRECTIVAS CE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:
- 2014/35/UE** **low voltage directive**  
directive basse tension  
direttiva bassa tensione  
Bestimmungen der Niederspannungsrichtlinie  
directiva de baja tensión
- 2014/30/UE** **electromagnetic compatibility**  
compatibilité électromagnétique  
compatibilità elettromagnetica  
Elektromagnetische Verträglichkeit  
compatibilidad electromagnética
- 2009/125/UE** **Ecodesign / Éco-conception / Progettazione ecocompatibile / Ecodesign / Ecodiseño**
- 2011/65/UE** **RoHs**

-Unit manufactured and tested according to the followings Standards:  
-Unidad construida y probada de acuerdo con las siguientes Normativas  
-Unità costruita e collaudata in conformità alle seguenti Normative:  
-Unité construite et testée en conformité avec les Réglementations suivantes  
-Gebautes und geprüftes Gerät nach folgenden Normen

EN 55014-1:2017 EN 55014-2:2015 EN 61000-3-2:2014  
EN 61000-3-12:2011 EN 61000-3-3:2013 EN 62238:2008  
EN 60335-2-40:2003+A11:2004+A12:2005+A1:2006+A2:2009+A13:2012  
EN 60335-2-21:2003+A1:2005+A2:2008 EN 60335-1:2012+A11:2014+A13:2017  
EN 62321-1 :2013 EN 62321-2 :2014 EN 62321-3-1 :2014  
EN 62321-4 :2014 EN 62321-5 :2014 EN 62321-6 :2015  
EN 62321-7-1 :2015 EN 62321 :2009

-Responsible to constitute the technical file is the company n°00708410253 and registered at the Chamber of Commerce of Belluno Italy  
-Responsable pour compiler le dossier technique est la société n°00708410253 enregistrée à la Chambre de Commerce de Belluno en Italie  
-Responsabile a costituire il fascicolo tecnico è la società n° 00708410253 registrata presso la Camera di Commercio di Belluno Italia  
-Verantwortliche für die technischen Unterlagen zusammenstellen n°00708410253 ist das Unternehmen bei der Handelskammer von Belluno Italien registriert  
-Encargado de elaborar el expediente técnico es la empresa n° 00708410253 registrada en la Cámara de Comercio de Belluno Italia

MONTIGNY-LE-BRETONNEUX,  
12/03/2020

NAME / PRÉNOM / NOME / VORNAME / NOMBRE  
SURNAME / NOM / COGNOME / ZUNAME / APELLIDOS  
COMPANY POSITION / FONCTION / POSIZIONE / BETRIEBSPOSITION / CARGO

Damien  
Riccio  
DIRECTEUR GÉNÉRAL



**INSTALLATION &  
OPERATING MANUAL  
WELLEA SPLIT TANK R32  
Indoor & Outdoor**

**WARNING :**

**The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details.**