

## MAGIS M TOP

MAGIS M5 TOP  
MAGIS M8 TOP  
MAGIS M12 TOP  
MAGIS M16 TOP  
MAGIS M12 T TOP  
MAGIS M16 T TOP

**IE**

### Instructions and recommendations

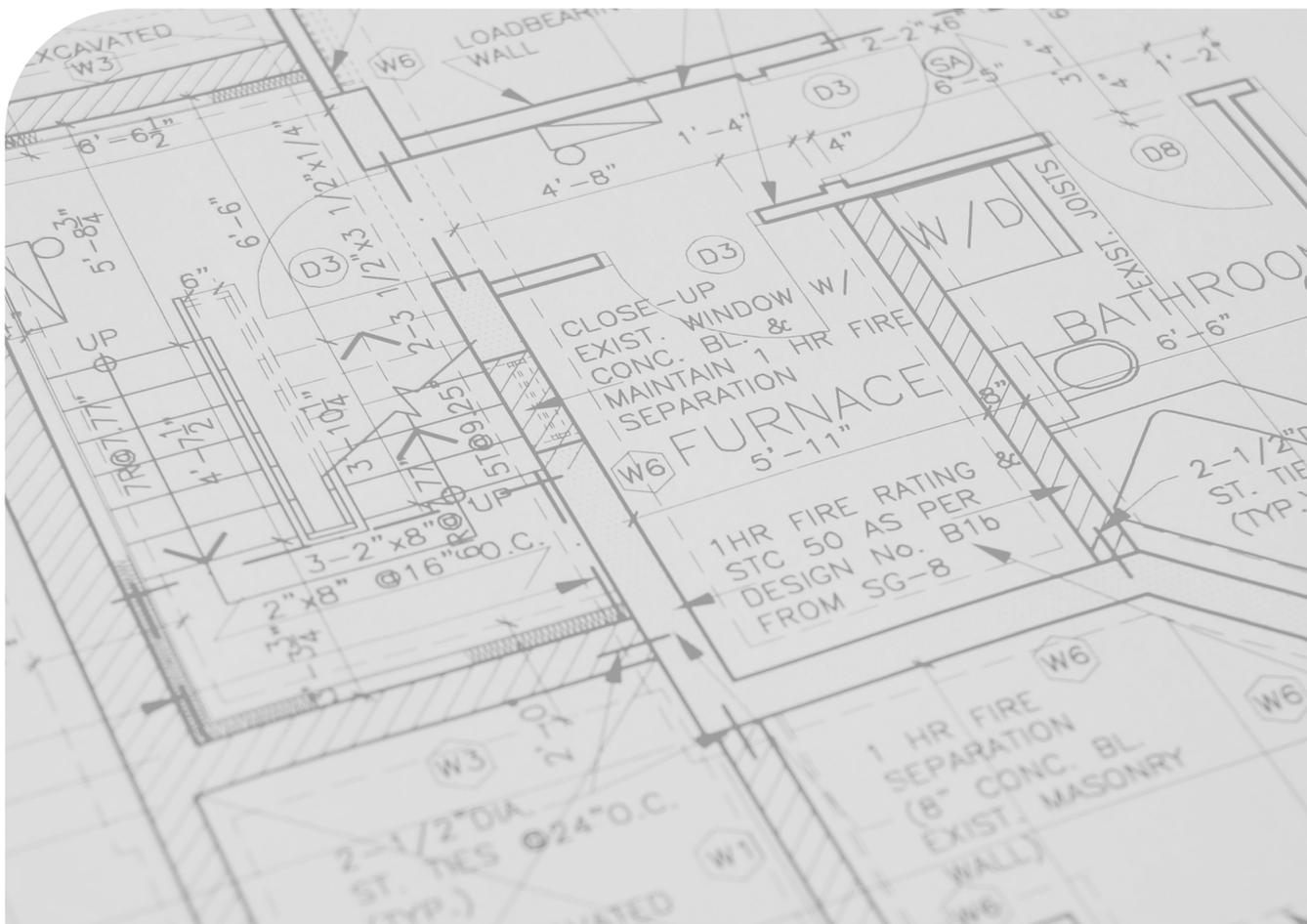
Installer

User

Control Panel

Maintenance technician

Technical Data



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## Dear Customer

*Congratulations for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a Qualified Authorised After-Sales Technical Assistance Centre, prepared and updated to guarantee the constant efficiency of your products. Read the following pages carefully: you will be able to draw useful tips on the proper use of the device, compliance with which will confirm your satisfaction with the Immergas product.*

*For assistance and routine maintenance, contact Authorised Technical Service Centres: they have original spare parts and are specifically trained directly by the manufacturer.*

**Thermal systems must undergo periodic maintenance and scheduled checks of the energy efficiency in compliance with national, regional or local provisions in force.**

**Thermal systems must undergo periodic maintenance and scheduled checks of the energy efficiency in compliance with national, regional or local provisions in force. In order to fulfil the obligations set forth by the Law, we urge you to contact the Authorised Technical Assistance Centres, which will illustrate to you the advantages of the Formula Comfort operation.**

The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE), declares that the design, manufacturing and after-sales assistance processes comply with the requirements of standard **UNIEN ISO 9001:2015**.

For further details on the product CE marking, request a copy of the Declaration of Conformity from the manufacturer, specifying the appliance model and the language of the country.

The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.

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### **Correct disposal of the product (electrical and electronic waste) (Applicable in countries with separate waste collection systems)**



The symbol on the product, on the accessories or on the documentation (a crossed-out wheeled waste bin with a black stripe below) indicates that the product and relative electronic accessories must not be disposed of with unsorted municipal waste at the end of its life cycle but must be collected separately to allow for reuse, recycling and other forms of recovery in compliance with standards in force. In fact waste electric and electronic equipment may contain harmful and hazardous substances which, if not managed properly, pose a hazard for the environment and human health.

At the end of its service life, the appliance must not be disposed of like normal household waste nor released in the environment but must be removed by a professionally authorised company as required by current legislation and handed over to authorised collection systems according to local standards.

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## GENERAL RECOMMENDATIONS

Before carrying out any type of work on the appliance, personnel in charge of installation/maintenance must refer to the information in this manual.

This book contains important information for the:

**Installer** (section 1, section 3 and section 5);

**User** (section 2 and section 3);

**Maintenance technician** (section 3, section 4 and section 5).

- This manual provides a detailed explanation on the precautions to be taken during use.
- Read this manual carefully before using the wall-mounted control unit to guarantee its proper operation.
- After you have read this manual, keep it for future consultation.
- The user must carefully read the instructions in the specific section (section 2).
- The user must limit operations on the appliance only to those explicitly allowed in the specific section.
- The appliance must be installed by qualified and professionally trained personnel.
- The instruction booklet is an integral and essential part of the product and must be given to the new user in the case of transfer or succession of ownership.
- This manual must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.
- In compliance with legislation in force, the systems must be designed by qualified professionals. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, intended as staff with specific technical skills in the system sector, as envisioned by the Law.
- Improper installation or assembly of the Immergas appliance and/or components, accessories, kit and devices can cause unexpected problems to people, animals and objects. Read the instructions provided with the product carefully to ensure proper installation.
- This instruction manual provides technical information for installing Immergas products. As for the other issues related to the installation of products (e.g. safety at the workplace, environmental protection, accident prevention), it is necessary to comply with the provisions of the standards in force and the principles of good practice.
- All the Immergas products are protected with suitable transport packaging.
- The material must be stored in a dry place protected from the weather.
- Damaged products must not be installed.
- Maintenance must be carried out by skilled technical staff. For example, the Authorised Service Centre that represents a guarantee of qualifications and professionalism.
- The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.
- If errors occur during installation, operation and maintenance, due to non-compliance with technical laws in force, standards or instructions contained in this booklet (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the device warranty is invalidated.
- In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts). Do not attempt to modify or repair the appliance alone.
- Any work on the equipment, including disposal, must only be carried out by qualified personnel with a suitable Refrigeration Technician's Licence who are familiar with and operate systems containing HC-type gases (e.g. R290 - Propane).
- For further information regarding legislative and statutory provisions relative to the installation of heat pumps, consult the Immergas site at the following address: [www.immergas.com](http://www.immergas.com)





## SAFETY SYMBOLS USED



### GENERIC HAZARD

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible harm to the health of the operator and user in general, and/or property damage.



### ELECTRICAL HAZARD

Strictly follow all of the indications next to the pictogram. The symbol indicates the appliance's electrical components or, in this manual, identifies actions that can cause an electrical hazard.



### WARNING FOR INSTALLER

Read the instruction booklet carefully before installing the product.



### COMBUSTIBLE MATERIAL WARNING

This symbol indicates that the appliance in question uses an A3 highly flammable refrigerant. There is a risk of fire if the refrigerant leaked or was exposed to an external ignition source.



### WARNINGS

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible minor injuries to the health of both the operator and the user in general, and/or slight material damage.



### ATTENTION

Read and understand the instructions of the appliance before carrying out any operation, carefully following the instructions given. Failure to observe the instructions may result in malfunction of the unit.



### INFORMATION

Indicates useful tips or additional information.



### EARTH TERMINAL CONNECTION

The symbol identifies the appliance's earth terminal connection point.



### DISPOSAL WARNING

**The user must not dispose of the appliance at the end of its service life as municipal waste, but send it to appropriate collection centres.**

## PERSONAL PROTECTIVE EQUIPMENT



### SAFETY GLOVES



### EYE PROTECTION



### SAFETY FOOTWEAR



# 1 UNIT INSTALLATION

## 1.1 INSTALLATION WARNINGS



- All the materials supplied are essential for the safety of the appliance.



**- Disconnect the appliance from the power mains before servicing or accessing its internal components.**



- You must read this manual carefully before installing the appliance, after which it must be put in a safe place readily available for consultation by the user.
- For safety purposes, the installer is required to carefully read the entire contents of this manual.



- The user must keep the manual in a safe place and remember to pass it on to any other user who over time may manage the appliance after him/her.
- The manual explains how to install a block heat pump and to connect it to the indoor control units (E-BOX TOP unit and Nexis control panel).  
Using different control systems may damage the HP and invalidate the warranty.
- The manufacturer shall not be held liable for damage resulting from use of the appliance with incompatible units.
- The manufacturer disclaims all liability for damage resulting from changes made without their prior written authorisation and/or electric and/or hydraulic and/or cooling connection errors of the appliance. Failure to follow the instructions herein or using the appliance outside of the "Operating Limits" indicated shall immediately nullify any form of manufacturer's warranty.
- Compliance with all the precautions, warnings and guidelines in this manual is essential to prevent serious damage to the system and personal injury.
- Failure to follow these instructions or the requirements indicated in the operating range (see paragraph 5. "Technical data") set forth in the product specifications will immediately invalidate the warranty.
- The appliance must not be used if any damage or anomaly is noticed, such as the emission of odour or increased noise.



- Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children.
- Do not have unauthorised personnel attempt to repair, move, modify or reinstall the unit. These operations can cause damage, electric shocks and fire.
- Do not place liquid containers or other objects on the unit. Never sit or stay on the product.



- All materials used for the packaging of this appliance are recyclable.
- The packaging material must be disposed of in compliance with standards in force.



- The power supply line must be made as required by safety standards in force.



- This appliance is not intended to be used by persons (including children younger than 8 years old) with reduced physical, sensory or mental capacities, or without experience and knowledge, unless they have been given instructions by a person in charge of their safety on the safe use of the appliance and of the hazards that it entails. Children must not play with the appliance. The appliance must not be cleaned and serviced by children without the supervision of an adult.



- Make sure not to modify the power cable, to make extensions or connections with several wires.
- Low-quality connections or insulation, or exceeding the current limit, could cause shocks and fire.





- Do not use any means to speed up the defrosting operation or to clean other than those recommended by Immergas.



- Keep in mind that refrigerants are not odourised.



- Determine the installation site taking into account the normative references and the conditions mentioned in this installation, use and maintenance manual.



- The appliance must not be installed and transported resting on one side or upside down as oil could leak from the compressor and enter the cooling circuit thus seriously damaging the appliance.



- Make sure to safely dispose of the material making up the packaging. Packaging material, such as nails and other metal or wooden pallets can cause injuries to persons and animals if disposed of in an unsafe manner.

INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 1.2 PRODUCT SPECIFICATIONS

### 1.2.1 Description of the product.

Magis M TOP is a block heat pump consisting of:

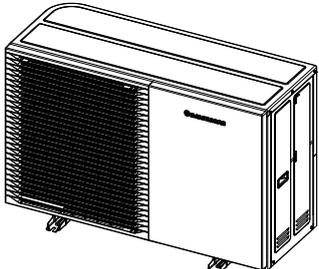
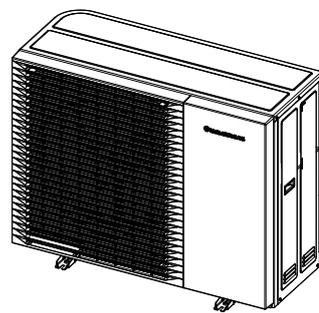
- Hydronic heat pump (hereinafter HP).
- E-BOX TOP electrical box (to be installed internally).
- NEXIS Control Panel.

The Magis M TOP product is hermetically sealed, with integrated circulation pump and expansion vessel.

The Magis M TOP product has the following features:

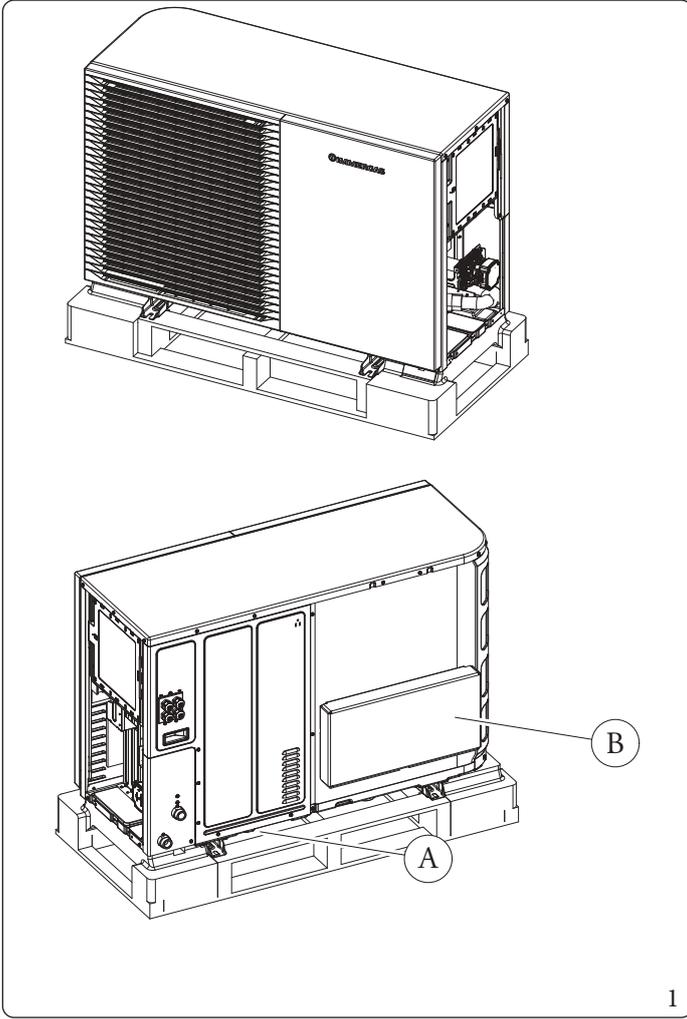
- Central heating, cooling and domestic hot water production operation (if coupled with an external storage tank).
- R290 refrigerant gas.
- Heating energy class A+++ LT (35°C), A++ MT (55°C).
- Compressor and Inverter Fans.
- Entire fan coil range.
- Pump, expansion vessel, Y filter, deaerator, safety valve and heating cable as per standard.

### 1.2.2 Product range

HP		
Frame		
Model name	MAGIS M5 TOP MAGIS M8 TOP	MAGIS M12 TOP MAGIS M16 TOP MAGIS M12 T TOP MAGIS M16 T TOP

### 1.2.3 Accessories

- The accessories supplied must be kept at hand during installation.
- At the end of the work, the Installation Manual must be handed over to the customer. This must be kept throughout the entire lifetime of the appliance as it is an integral part thereof and must be available to bodies in charge of controlling winter heating and summer air-conditioning systems.



#### Accessories in area A

Instruction manual (1)	Drain fitting (1)	Rubber feet (4)

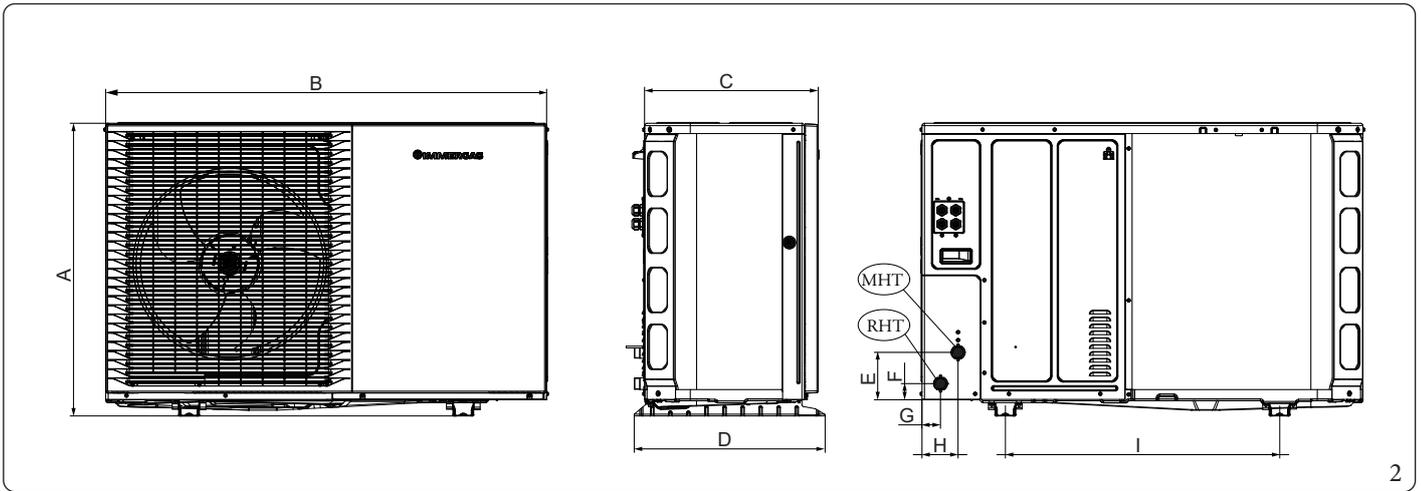
#### Accessories in area B

System filter	E-Box Top electrical box	Nexis control panel	Sleeve in ferrite



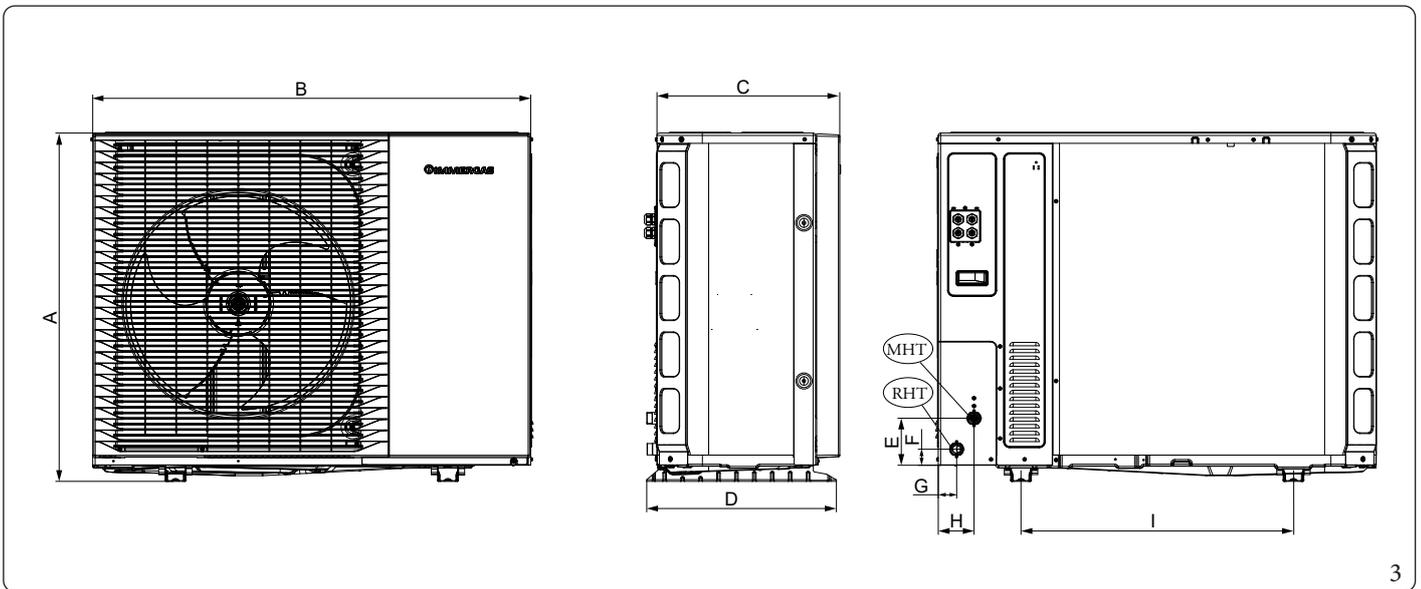
## 1.2.4 Main dimensions

### Models 5-8kW



2

### Models 12-16kW



3

Key (Fig. 2/3):

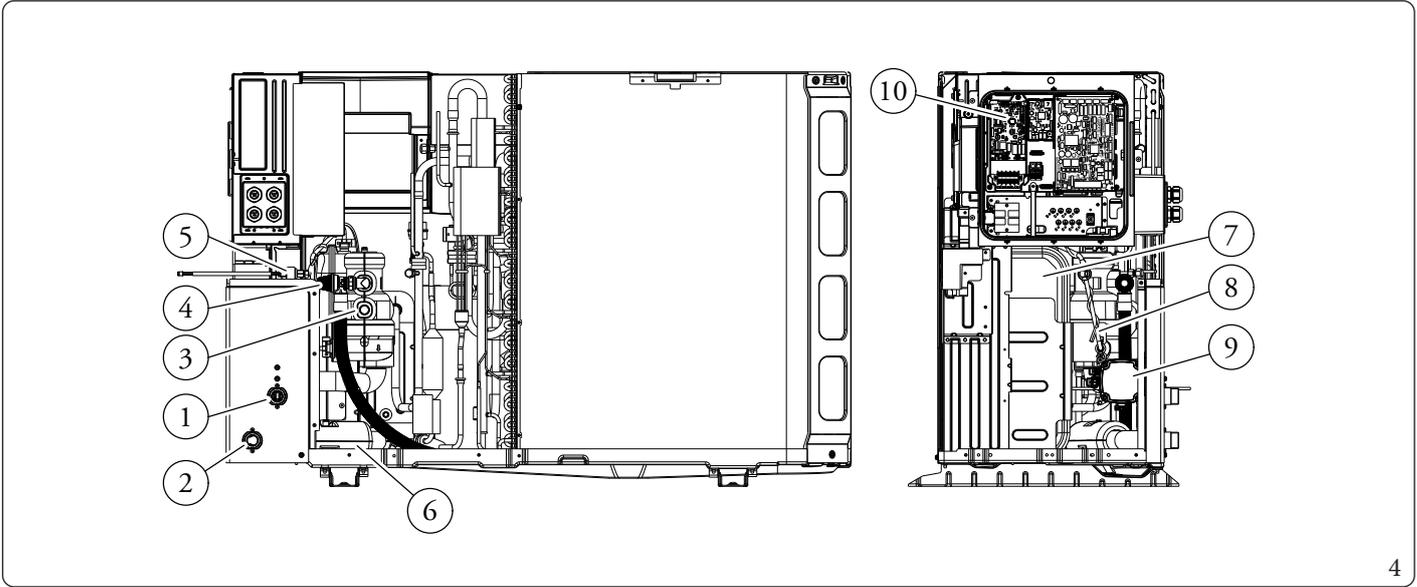
RHT - Heat pump system water return

MHT - Heat pump system water flow

		Models 5-8kW	Models 12-16kW
A	(mm)	850	1018
B	(mm)	1270	1270
C	(mm)	500	530
D	(mm)	550	550
E	(mm)	137	137
F	(mm)	47	47
G	(mm)	53	53
H	(mm)	104	104
I	(mm)	790	790

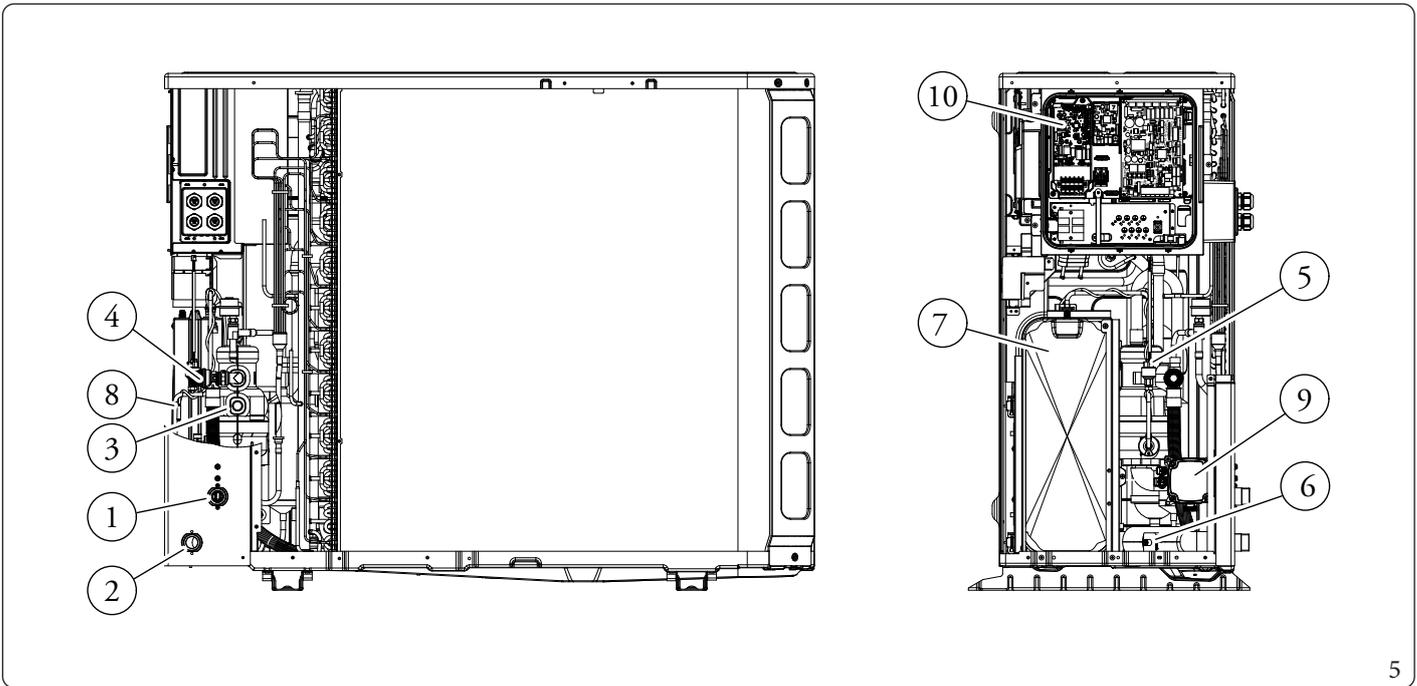
## 1.2.5 Main components

### Models 5-8 kW



4

### Models 12-16 kW



5

Key (Fig. 4/5):

- 1 - G1" male fitting - Heat pump system water flow
- 2 - G1" male fitting - Heat pump system water return
- 3 - Deaerator
- 4 - Safety Valve 250 kPa (2,5 bar)
- 5 - Pressure sensor

- 6 - Flow meter
- 7 - Expansion vessel
- 8 - Heating cable
- 9 - Pump
- 10 - Hydronic interface P.C.B.

INSTALLER

USER

CONTROL PANEL

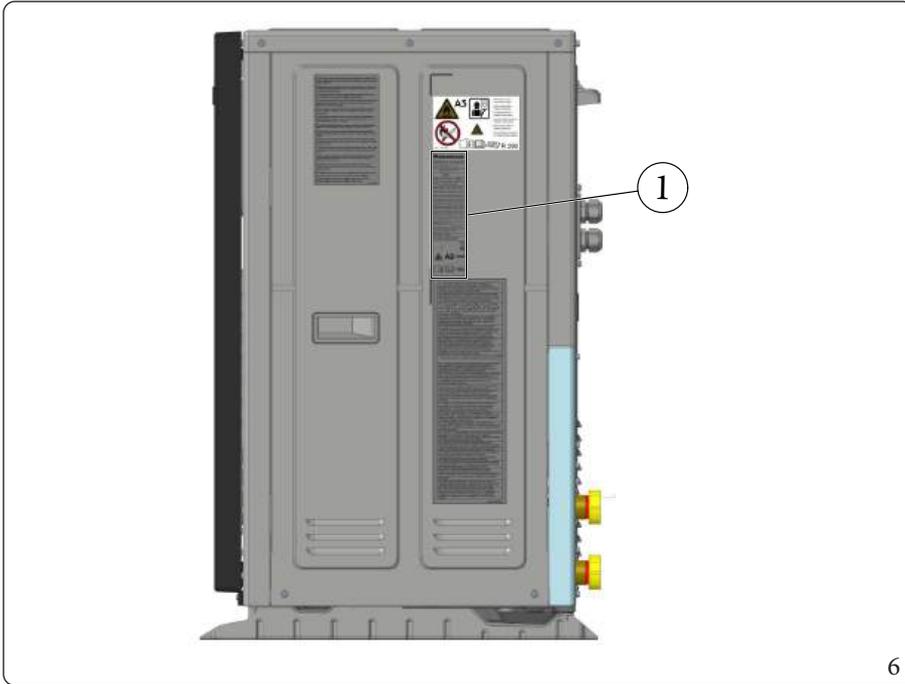
MAINTENANCE TECHNICIAN

TECHNICAL DATA



### 1.3 DATA PLATE

#### 1.3.1 Data nameplate positioning



Key (Fig. 6):  
1 - Data plate

### 1.3.2 Keyfor data nameplate

1	Md.		
2	Cod.Md.		
3	Sr N°	CHK	4
5	Type:		
6	Power supply 1:		
7	Power supply 1 - Max current :		
8	Refrig.:		
9	Max Refrig. Pressure:		
10	Rated Condition (Cool/Heat):		
11	Rated capacity (Cool/Heat):		
12	Rated power input (Cool/Heat):		
13	Rated current (Cool/Heat):		
14	Oper. range (Cool/Heat):		
15	EER/COP :		
16	Max Water Pressure :		
17	Degree of protection :		
18	Net weight:		
19			

7

ENG	
1	<b>Md.</b> - Model
2	<b>Cod.Md.</b> - Model code
3	<b>SrN°</b> - Serial Number
4	<b>CHK:</b> Check
5	<b>Type:</b> Type
6	<b>Power supply 1:</b> Power supply 1 - Rated voltage and frequency
7	<b>Power supply 1 - Max current:</b> Power supply 1 - Maximum current
8	<b>Refrig.:</b> Coolant
9	<b>Max Refrig. Pressure:</b> Maximum coolant pressure (high/low)
10	<b>Rated Condition (Cool/Heat):</b> Rated condition
11	<b>Rated capacity (Cool/Heat):</b> Rated capacity (cooling/heating)
12	<b>Rated power input (Cool/Heat):</b> Rated input power (cooling/heating)
13	<b>Rated current (Cool/Heat):</b> Rated current (cooling/heating)
14	<b>Oper. range (Cool/Heat):</b> Operating range (cooling/heating)
15	<b>EER/COP</b>
16	<b>Max Water Pressure:</b> Maximum water pressure
17	<b>Degree of protection:</b> Protection rating
18	<b>Net weight:</b> Net weight
19	Appliance information



The technical data are provided on the data plate on the appliance.

INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 1.4 HANDLING THE APPLIANCE

- Make sure that the movement path is safe, assessing the weight of the HP in advance.
- During transport, do not incline the product beyond 30° (always keeping the unit upright).
- Be careful not to suffer injuries when handling and installing it.
- Wear personal protective equipment (gloves, etc.).



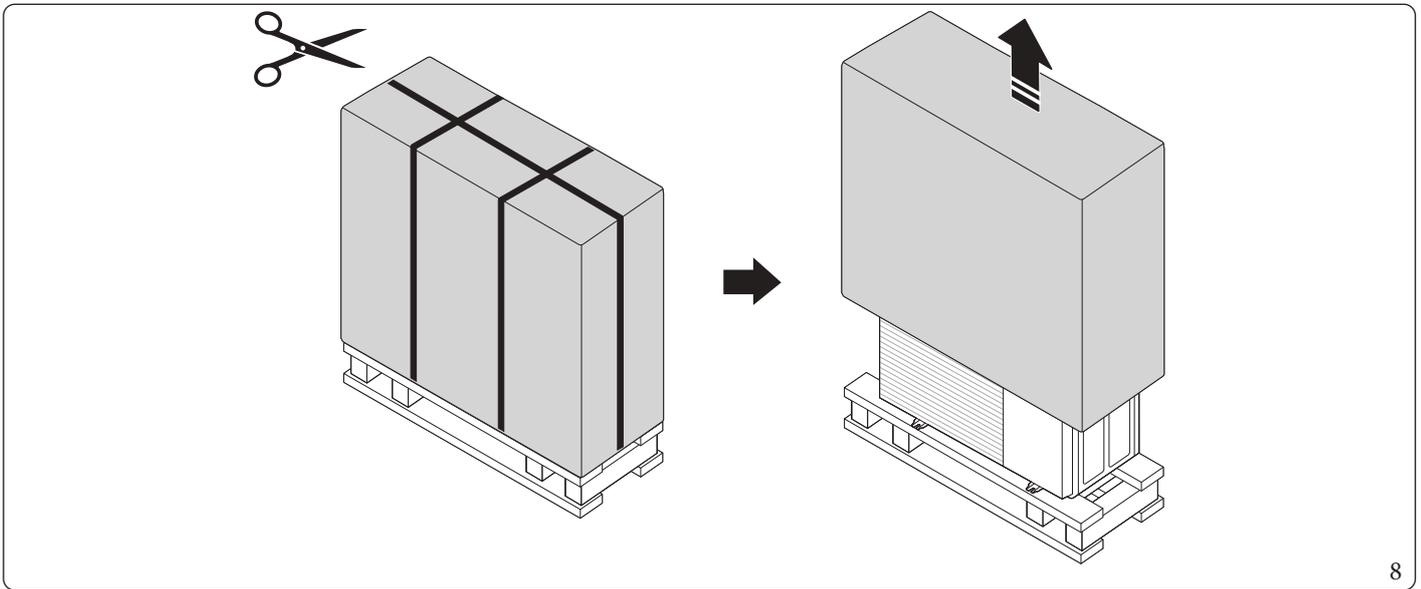
The surface of the heat exchanger is sharp.

### 1.4.1 Handling the crate



- The unit must be checked immediately after delivery (for damage during transport). Any damage must be reported immediately to the dealer of Immergas products. After inspection, the protective enclosure and the crate must be properly reassembled so as to protect the product.
- It is important to protect the product which must therefore be transported in protective packaging so as to be kept covered until final installation.

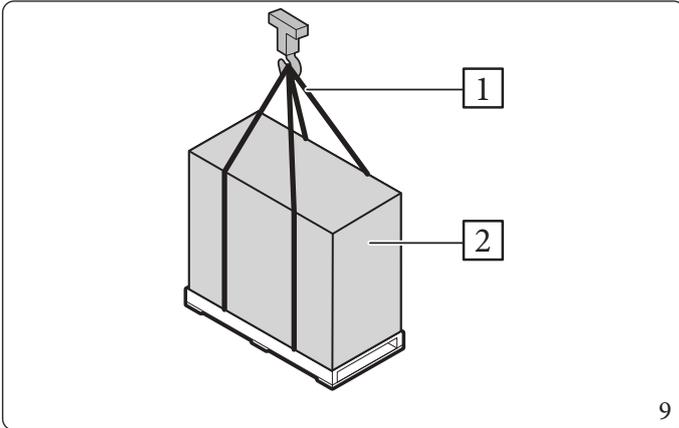
### 1.4.2 Unpacking the product



8

### 1.4.3 Handling with hoist or similar

- Lift the product with a hoist using approved lifting straps (in compliance with standards in force). Keep the straps long so as not to damage the panels. When lifting with a hoist, always wear personal protective equipment (safety helmet, accident prevention shoes and gloves).

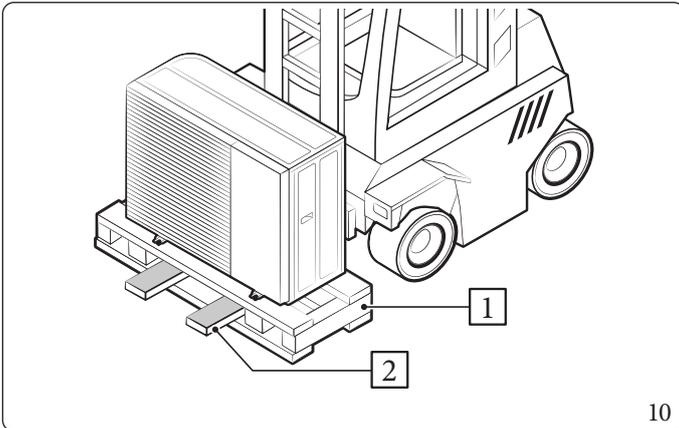


Key (Fig. 9):

- 1 - Lifting straps
- 2 - Heat pump with packaging

### 1.4.4 Handling with forklift truck or similar (e.g.: pallet truck)

- Carefully insert the forks of the truck in the pallet positioned at the bottom of the appliance. Be careful that the forks do not damage the HP.



Key (Fig. 10):

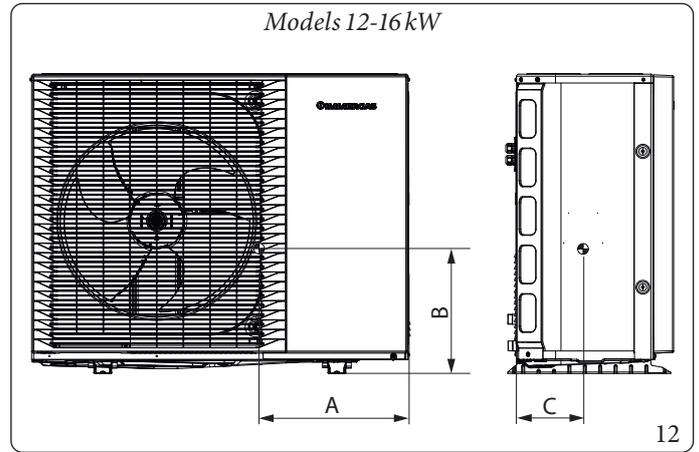
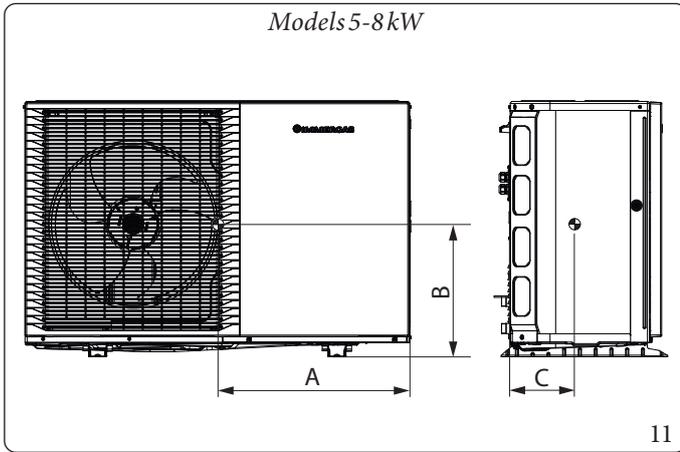
- 1 - Pallet
- 2 - Forklift truck forks or similar (e.g.: pallet truck)



### 1.4.5 Centre of gravity



The hook and the centre of gravity of the unit must be on a vertical line to avoid an improper inclination.



Model	A	B	C
Single phase 5-8 kW	490 mm	360 mm	280 mm
Single phase 12-16 kW	490 mm	360 mm	280 mm
Three-phase 12-16 kW	470 mm	215 mm	360 mm



## 1.5 INSTALLING THE UNIT

### 1.5.1 Introduction



While installing the unit, first connect the water pipes and then the power lines.

- When installation is finished, you must perform an operating test and give the user instructions as to how to operate the air-water heat pump.
- To prevent fires, explosions or injury, the appliance must not be installed in places where there could be hazardous substances or near equipment that could develop flames.
- Do not cut, burn or damage the casing of the appliance or the refrigerant piping.



Failure to comply with the above can cause fires, explosions, property damage, personal injury or death.

- Installation must be carried out by qualified personnel. It must furthermore be done in compliance with the instructions provided in this manual and with relevant standards in force.
- The products must be installed outdoors with natural ventilation in compliance with relevant standards in force.
- Do not work in confined or unventilated places.
- The work area must be monitored and inspected before any maintenance activity, ventilated properly and always treated as if the appliance had leaks. The zone around the work area must be adequately signalled.
- The product and hydraulic system must be installed in a position where there are no substances which can cause them to corrode.
- The following requirements must be met for installation:
  - Installers must be aware of the contents of this document.
  - Install "No smoking" and "Unauthorised personnel keep out" signs.
  - Do not store flammable materials in the work area.
  - There must be no ignition sources in the work area.
  - Appropriate firefighting equipment (CO<sub>2</sub> or dry powder) must be placed appropriately in the vicinity.
  - Any accidental refrigerant leaks which occur during installation must be adequately ventilated and dispersed.
  - The work area must be ventilated appropriately before operating on the refrigerant circuit, braze-welding or handling electric components.

### 1.5.2 Installation requirements.

- The product must be installed outdoors.
- Make sure to comply with the prescribed "Safety zone" (par. 1.5.3).
- During unpacking, handling and installation operations, operators must wear safety gloves so as not to be wounded on the edges of the appliance.
- While the appliance is running, do not touch its internal components (hydraulic lines, cooling lines, heat exchangers). If it is nonetheless necessary to touch an internal component, stop the appliance and cut power, wait for it to cool down and still put on safety gloves.
- The HPs must be installed according to the clearance spaces indicated in the installation manual so that both sides are accessible and to allow for repairs and maintenance to be performed. If the HPs are installed without complying with the procedures described in the manual, additional costs could be required since special harnessing, ladders, scaffolds or any other elevation system for repairs are NOT considered covered by the conventional Immergas warranty and are therefore charged to the end customer.
- Make sure that condensate flows properly and without obstacles from the HP.
- The appliance must be protected against mice, other rodents and any pets (e.g. cats, rabbits, etc.). They could gnaw on cables and other electrical components causing malfunctioning, development of smoke and fire. The user must be recommended to keep the area around the appliance clean and clear of waste.
- Wear "ESD" type protective equipment, namely antistatic, during installation and maintenance operations.
- If installation/repair technicians are not supplied with protective equipment, they could be at the risk of injuries.
- Never install motor equipment near the unit to prevent fires.
- Local, national and European regulations must be complied with.
- It is prohibited to place any type of material on the appliance.
- The appliance is not walkable.
- If the HP is installed in a place exposed to the void (e.g. balcony), make sure that its positioning cannot cause damage to persons, animals or property.

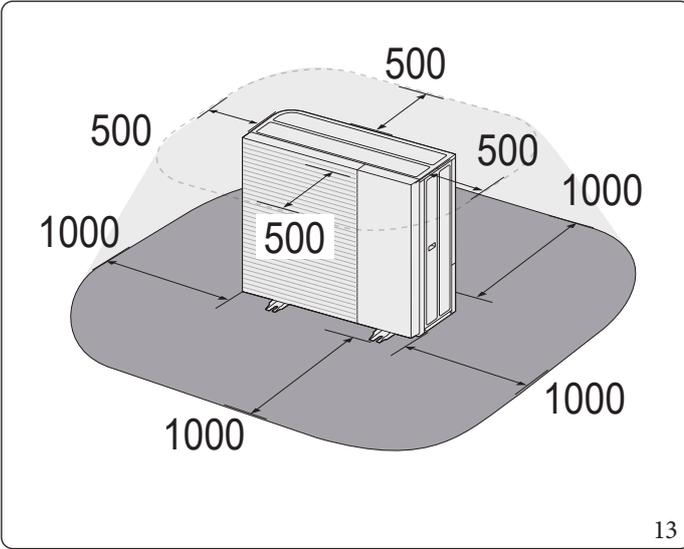


### 1.5.3 Safety zone

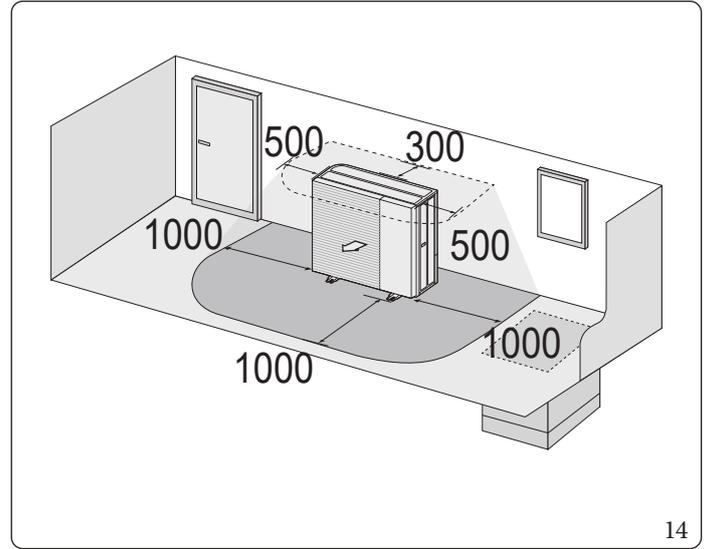


- In case of leaks, under no circumstances must the refrigerant be able to penetrate inside a building. In the safety zone of the building that must not be openings such as: windows, doors, skylights, dormer windows, ventilation system air inlet/outlet, etc.
- R-290 refrigerant is heavier than air and can accumulate on the ground or at the lowest part of the installation site. There must be no hollows in the safety zone that can create hazardous atmospheres due to the accumulation of refrigerant gas, there must be no water collection sample points or similar and other systems inside the sample points.
- The safety zone must not extend to buildings or public areas.
- The safety zone cannot be modified after installation so as to comply with protection rules.

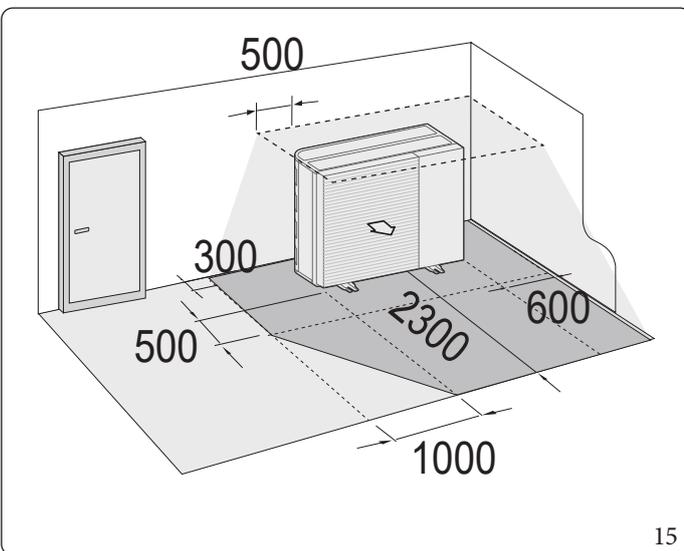
Minimum distance is expressed in mm



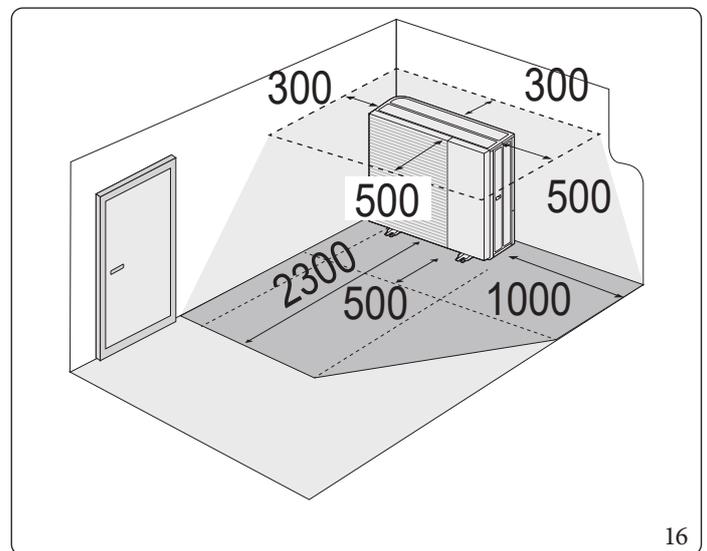
- When installing on the ground
- When it is installed in a place with a flat roof



- When it is installed on the ground, in front of the wall of a building

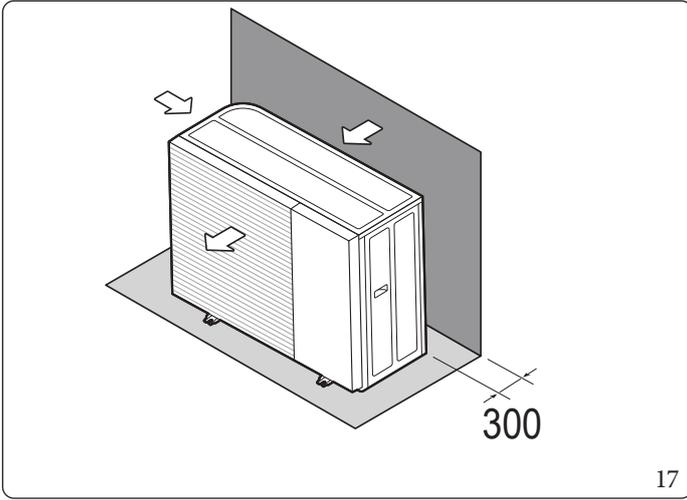


- When it is installed on the right-hand corner of a building

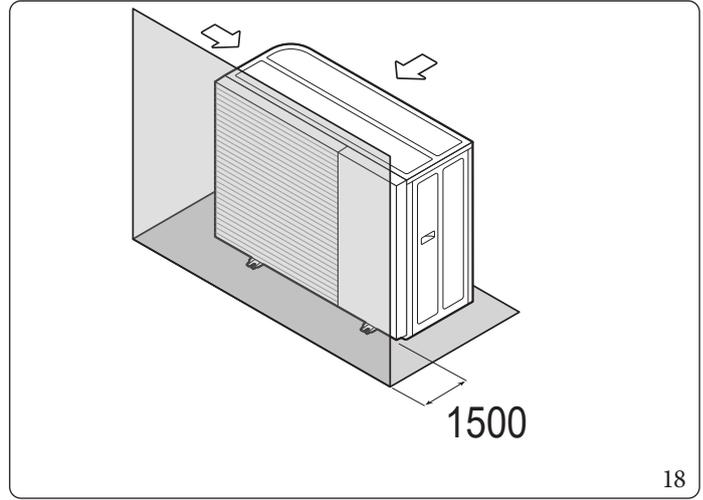


- When it is installed on the left-hand corner of a building

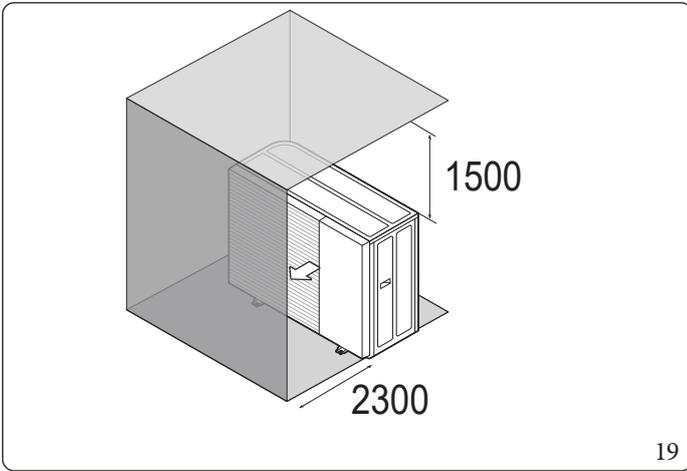
Minimum distance is expressed in mm



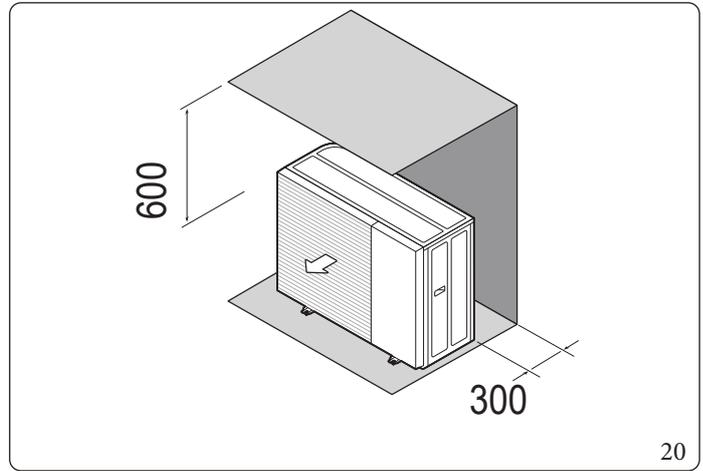
- Wall on intake side



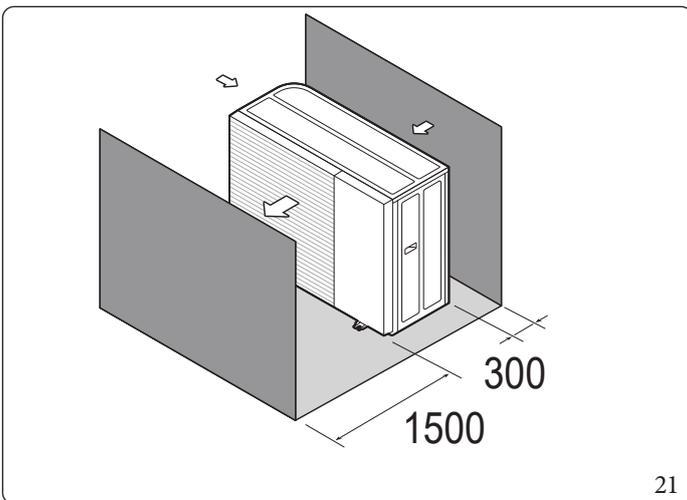
- When the air flow is towards a wall



- Upper side obstacle
- Exhaust side obstacle
- Wall on exhaust side



- Upper side obstacle
- Wall on intake side



- Intake side obstacle
- Wall on exhaust side

INSTALLER

USER

CONTROL PANEL

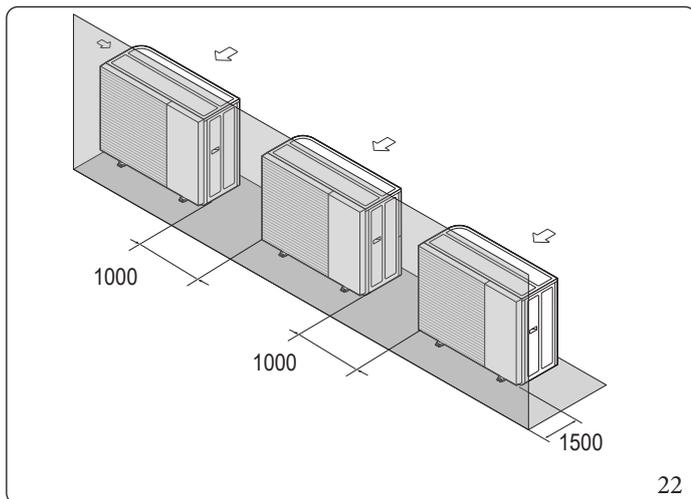
MAINTENANCE TECHNICIAN

TECHNICAL DATA

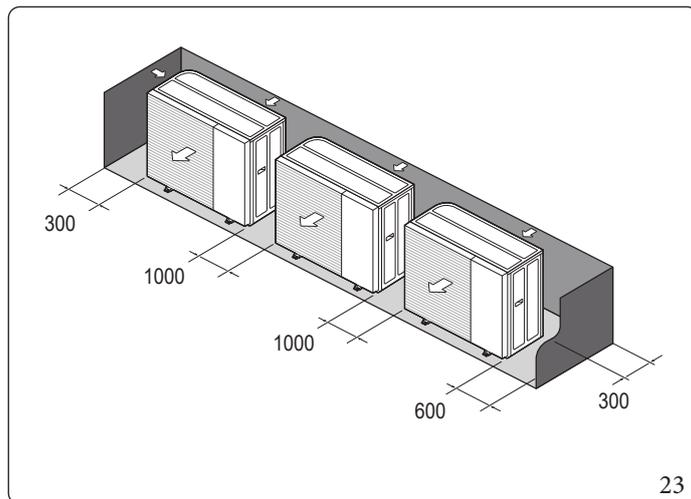


**When installing several outdoor units**

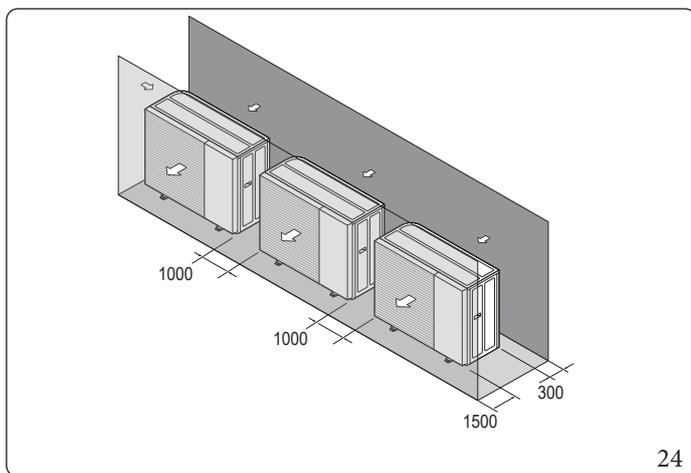
Minimum distance is expressed in mm



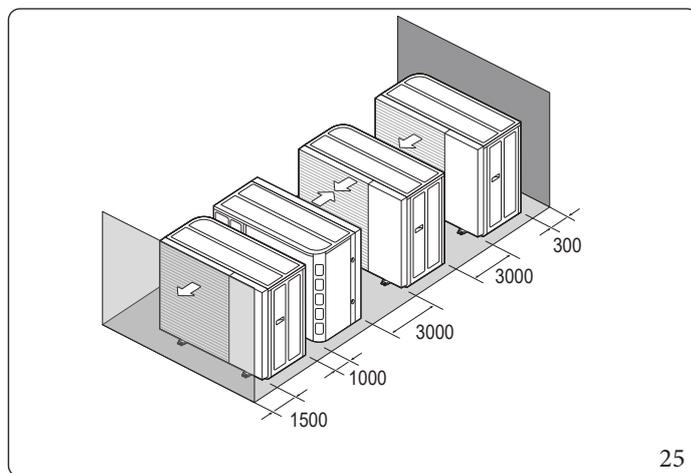
- Wall on exhaust side



- Intake side obstacle (3 sides)
- No upper side obstacle



- Wall on intake side
- Wall on exhaust side



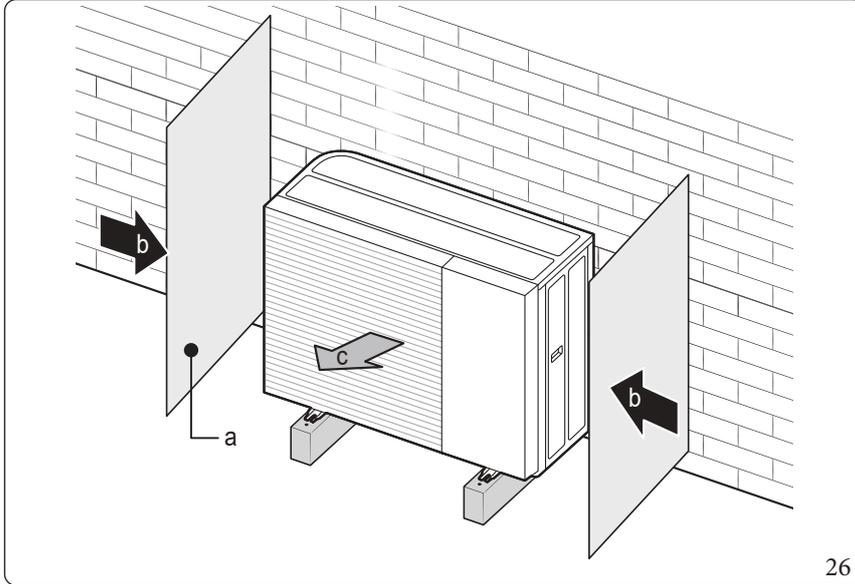
- Wall on intake side
- Wall on exhaust side



The units must be installed according to set distances to allow access from each side and to guarantee that operation and maintenance and repair interventions of the products can be done correctly. Even each component of the appliance must be able to be disassembled under safe conditions (for operators and objects).

### Install the unit in a place with strong winds:

- The HPs must be securely fastened so as to be able to support high winds. If the HP cannot be secured on the ground base, secure it on the side or use an extra support structure.
- To avoid exposure to (strong) wind, install a deflector on the air exhaust side of the unit. (If there is a strong front wind at the outdoor air outlet, this can cause a short circuit. This can cause a performance downgrade, breakage of the fan (motor) and speed up the generation of frost)
- Install a windbreaker protection envisaging the prevailing wind direction (complying with the minimum installation distances described in the previous paragraphs). If the direction of the exhaust part of the air points in the prevailing direction of the wind, this can cause performance reduction and potential damage



Key (Fig. 26):

- a* - Deflector
- b* - Prevailing wind direction
- c* - Air outlet



### 1.5.4 Preparing the installation site

Choose a sufficient space in advance to transport the unit to the installation site.  
Do not choose a place where a lot of dust is generated, such as a construction site.



- The coolant inside the unit is highly flammable A3 (R-290).
- Do not install close to possible ignition sources or near heat sources.

### 1.5.5 Selecting the installation position



- Read the precautions and requirements in paragraph "1.5.2, Installation requirements."
- The appliance is only designed for outdoor installation and for the room temperatures specified in paragraphs 5.4 and 5.5.



The installation place must be chosen in agreement with the user and taking current standards and following requirements into account.

- The chosen position must be dry and ventilated.
- Air must be able to circulate freely through the appliance.
- The chosen position must allow cables and pipes to be connected easily.
- The support surface must be flat, stable and at least strong enough to bear the weight of the appliance and not such to propagate noise and vibrations to the building structures.
- Position the HP in a place without plants or animals, as they could cause it to malfunction.
- The appliance must be sufficiently away from radio and/or stereo equipment as well as computers, etc.
- The HP must be installed in an open space always ventilated.
- Respect the required safety space.

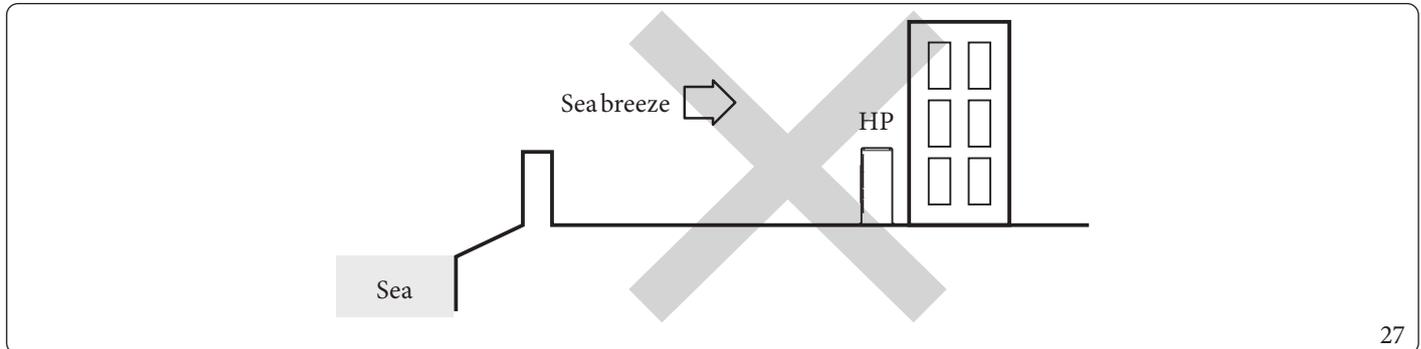
#### The unit must not be installed in the following places:

- A place where there can be potentially hazardous substances such as: combustible gas, carbon fibre, mineral oil, arsenic acid, flammable dust, solvents or petrol, etc.
- Where there can be corrosive gases such as those exhausted from ventilation pipes or flues. The copper pipe or the connection pipe could undergo corrosion and refrigerant could leak.
- Where the appliance can easily overheat from exposure to too intense sunlight or if the ambient temperature exceeds 43°C in cooling operating mode.
- A place where strong winds can affect the unit; if this is not possible, abide by the requirements set out in point "Install the unit in a place with strong winds:" paragraph 1.5.3 "Safety zone" .
- Consider sufficient space to avoid problems with exhaust air from the unit if directed at persons.
- A place where the air is trapped and can recirculate in the unit.
- Where there is not sufficient space for maintenance.
- A place too narrow as it can generate problems and potential damage to the product. This can also cause injuries during installation and maintenance.
- A space with insufficient natural ventilation, especially when several outdoor units are installed. Obstacles can disturb the airflow of the unit and potentially cause recirculation between the exhaust air and the inlet air which could cause malfunctioning.

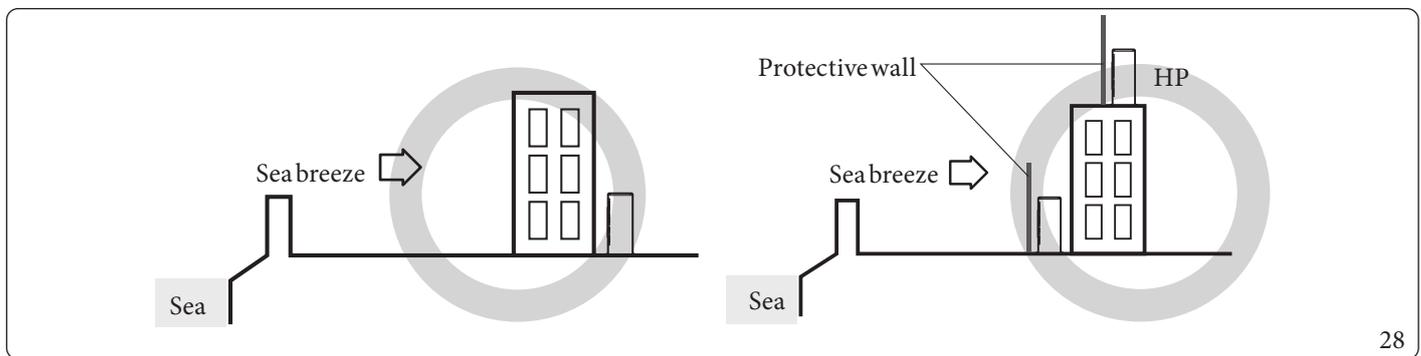
### 1.5.6 Installation guide near the sea

Abide by the guidelines below for installation near the sea.

1. Do not install the product in places where it is directly exposed to sea water or sea breeze.
  - Make sure that the product is installed behind a structure (for example a building) that protects it from sea breeze.
  - Even when it is inevitable to install the appliance along the seacoast, make sure it is not exposed directly to the sea breeze by installing a protective barrier.



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- The protective barrier should be built with strong materials capable of blocking the sea breeze and at least 1.5 times higher and wider than the HP. (To ensure natural ventilation, it is also essential that the barriers respect the minimum distances indicated in paragraph 1.5.3 "Safety zone").
2. Since residual water at the bottom of the HP significantly promotes corrosion, make sure the slope does not affect drainage.
    - Make sure that the floor slope does not cause rain to accumulate.
    - Be careful not to obstruct the drain hole with foreign substances.
  3. If the appliance is installed near the sea, clean it regularly with water to remove any attached salinity.
  4. Make sure to install the appliance where water can be drained conveniently.
  5. If the product is damaged during installation, make sure that it has been repaired.
  6. If the product is installed less than 500 m from the shore, special anticorrosion treatment is necessary.

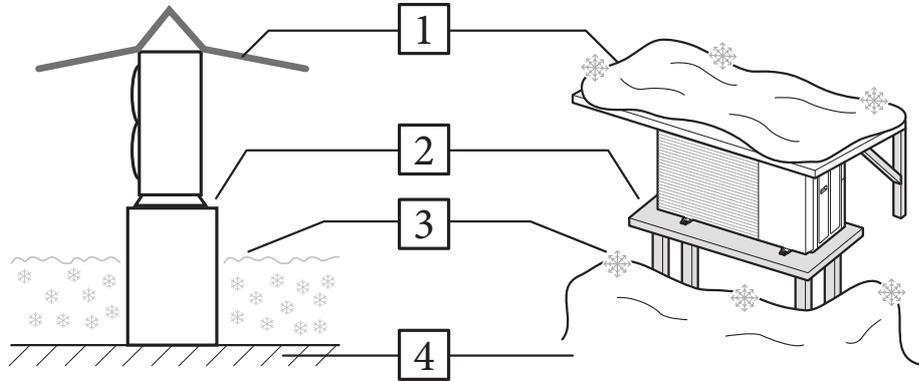


### 1.5.7 Selection of the installation site in areas with a cold climate



If the appliance must operate with low outdoor temperatures, it is paramount to follow the instructions below.

If strong snowfalls are foreseeable, the appliance must be installed so that snow cannot disturb its operation. If necessary, even the refrigerant/air heat exchanger should be protected against snow (for example by building a sufficiently wide roof to prevent the build-up of snow/hale on the outer casing of the appliance).



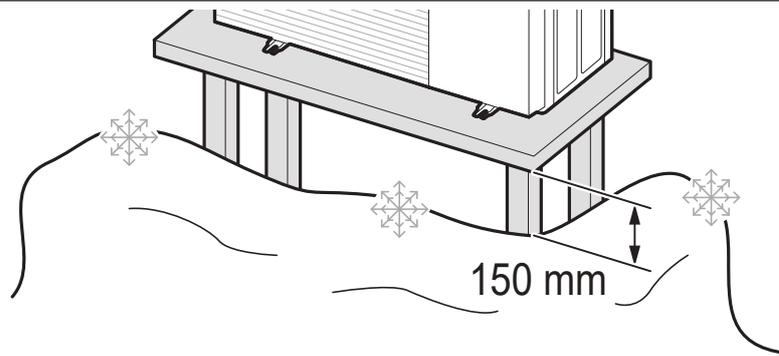
29

Key (Fig. 29):

- 1 - Snow-proof cover: build a large roof.
- 2 - Structure: build a pedestal.
- 3 - Height of the maximum foreseeable snow precipitation
- 4 - Ground

### 1.5.8 Areas with abundant snowfalls

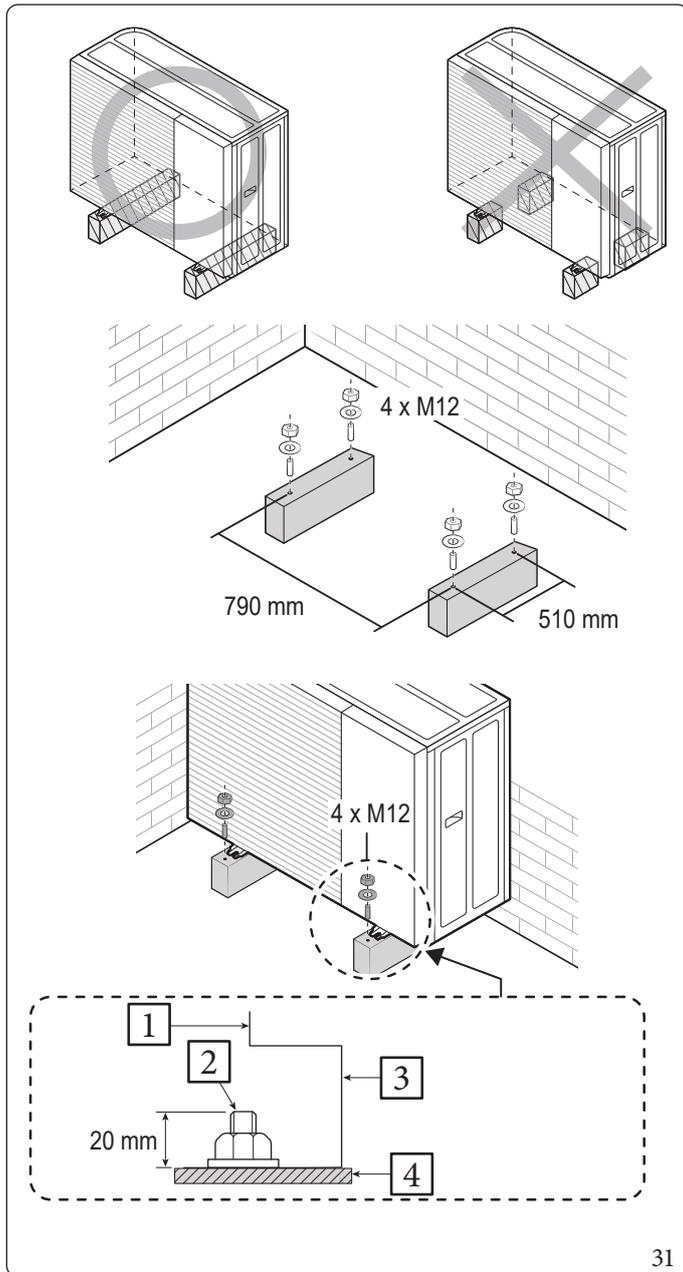
- Prevent the appliance from being even partially covered with snow.
- Any accumulation of ice could seriously damage the appliance. (E.g: the shore of a lake in a cold area, the seashore, an Alpine region, etc.)
- In an area with intense snowfall, do not install the drain elbow and the exhaust cap on the appliance. This could cause ice to form on the ground. Therefore take appropriate measures to prevent this problem.
- Make sure that the product is positioned at least 150 mm above the max expected snow level.



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## 1.6 ASSEMBLING THE UNIT



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The appliance must be installed on a rigid, stable base that does not amplify sound levels and vibration, especially when exposed to strong winds.

When installed with an overhang, it must be secured to a frame capable of bearing its weight and fastened appropriately to the load bearing structure (wall or other).



- Rubber washers must be placed between the feet of the appliance and between lock nuts screwed on the anchoring screws to prevent corrosion.
- If the appliance needs to be installed on a roof, you must first make sure that it is capable of bearing its weight and that it is waterproof.
- The anchoring screws must protrude at least 20 mm beyond the surface of the base.
- To prevent drain water from freezing, the appliance is supplied as per standard with an additional protection (heater).

Key (Fig. 31):

- 1 - HP
- 2 - Anchoring screw
- 3 - HP support
- 4 - Base surface

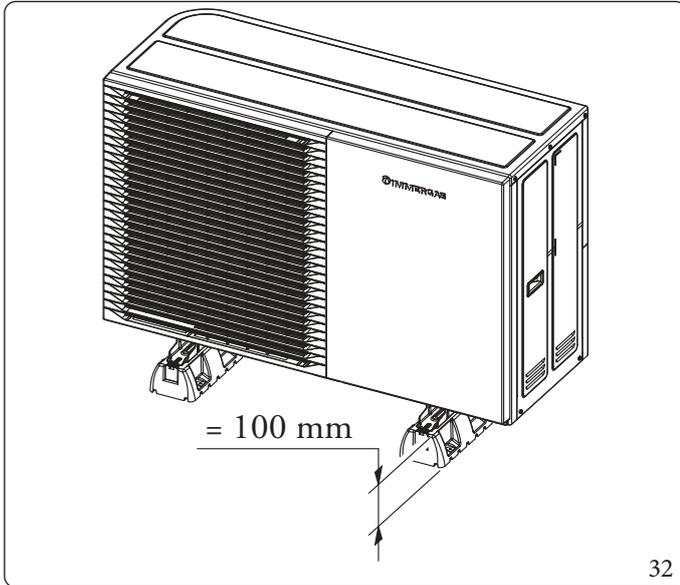


## 1.7 CONDENSATE DRAIN INSTALLATION

When the appliance works in central heating mode with low outdoor temperatures, ice can form on the outer surface of the finned heat exchanger.

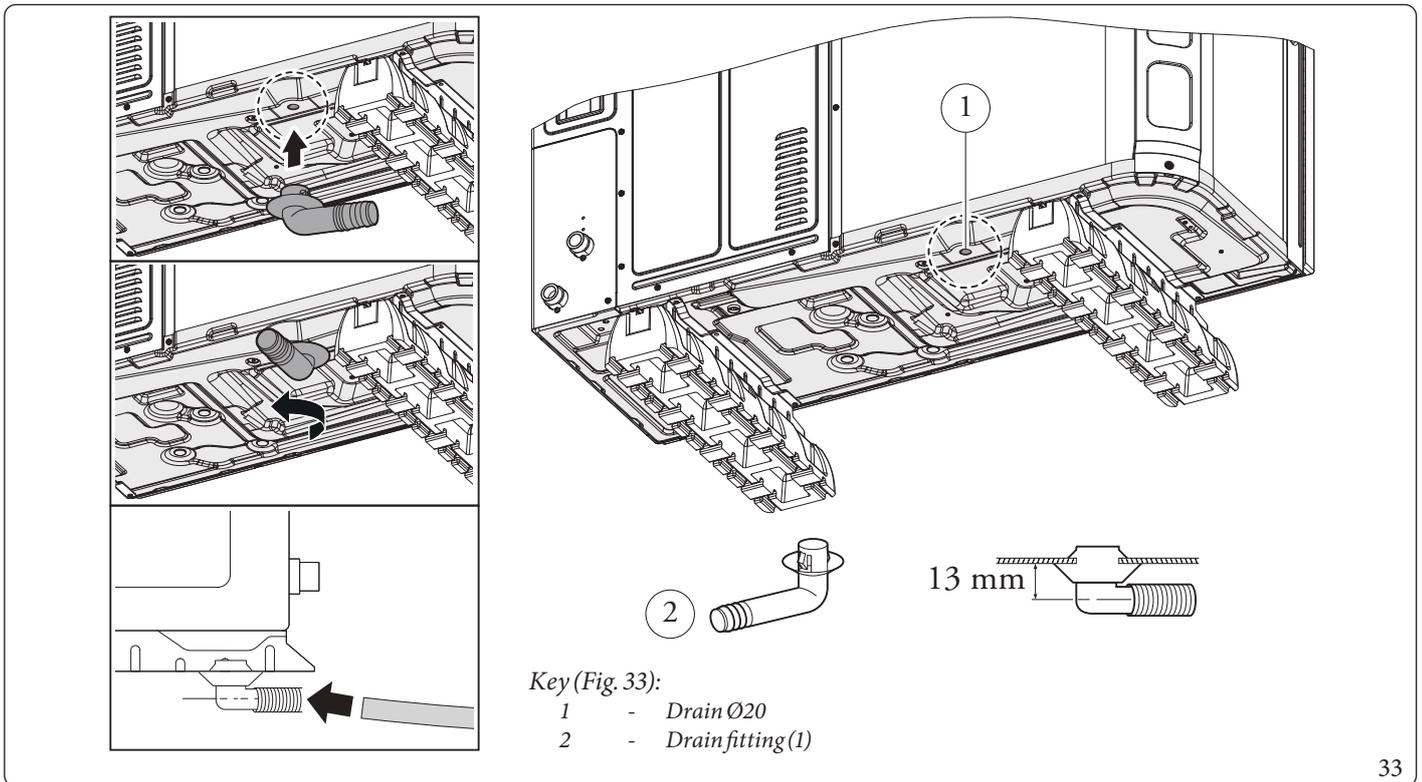
To prevent ice from building up, the system occasionally enters defrost mode and the ice on the surface melts.

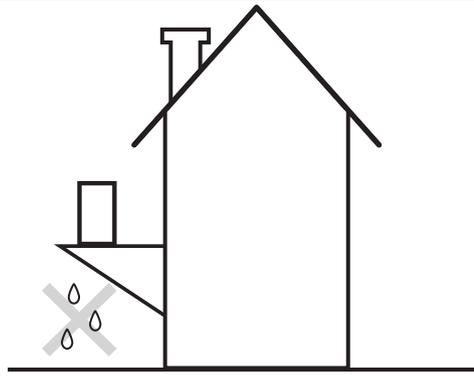
The water dripping from the finned heat exchanger is channelled through the drain holes to prevent ice from forming inside the base.



- If there is not sufficient space for natural drainage of condensate water from the HP, an additional drainage activity is required. Follow the instructions below.
- Provide a minimum clearance space on the ground of 100 mm.
- Insert the drain fitting in the hole at the bottom of the appliance.
- Connect the drain hose to the attachment of the drain fitting.
- Make sure that filth and debris cannot block drainage (flexible hose). Clean the base plate whenever necessary.
- Make sure that the water coming out of the drain fitting can always flow out safely.

 If drainage is inadequate, it can generate stagnant water and ice accumulation, causing performance issues and possible damage.





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1. If the water has difficulty flowing out of the unit, mount the unit on a cement block foundation, etc. (approximately 100 mm (3.93 in) high).
2. If the unit is installed on a frame, assemble a waterproof plate (about 100 mm) on the lower side of the unit to prevent the water from entering from below.
3. When the unit is installed in a place frequently exposed to snow, please pay particular attention to raise the foundation as high as possible.
4. If the unit is installed on a building structure, please install a waterproof tray (about 100 mm on the bottom side of the unit) so that the drain water does not flow out (see fig. 34):



Secure the HP properly before connecting the condensate water piping.



## 1.8 HYDRAULIC CONNECTION

The hydraulic connections must be carried out according to the general diagram supplied with the unit, observing the inlet and outlet of the water. If any air, residues or dust penetrate the water circuit, problems may occur. Therefore, always keep the following in mind when connecting the water circuit:

- Use clean pipes only.
- Keep the end of the pipe down while removing burrs.
- When inserting the end of a pipe into a wall, cover it in order to prevent dust and dirt from penetrating.
- Use a good fitting sealant to thread the connections. The fitting sealant must be able to withstand the system's pressures and temperatures.
- When non-brass metal pipes are used, make sure the two materials are insulated from each other to avoid galvanic corrosion.
- Since brass is a soft material, use suitable tools to connect the hydraulic circuit. Unsuitable tools can damage the pipes.



- If an additional vent needs to be installed inside the home at the highest point of the system, make sure to use a manual deaerator which must be closed after the system has started.
- Do not install safety valves inside the home; if absolutely necessary, use one with tripping pressure of 3 bar or more.
- Be careful not to deform the unit's pipes by exerting excessive force when connecting them. Deformed pipes may cause the unit to malfunction.
- Always use a spanner and backup spanner to tighten or loosen the water connections; tighten the connections with a torque wrench as specified in the following table. Otherwise, the connections and components could be damaged and be subject to leaks.
- The appliance can only be connected to closed circuits. Applying in an open water circuit would cause malfunctioning, corrosion or leaks in the heat exchangers.

Name	Tightening torque	
	kgf•cm	N•m
BSPP 1" fittings	350~380	34~37

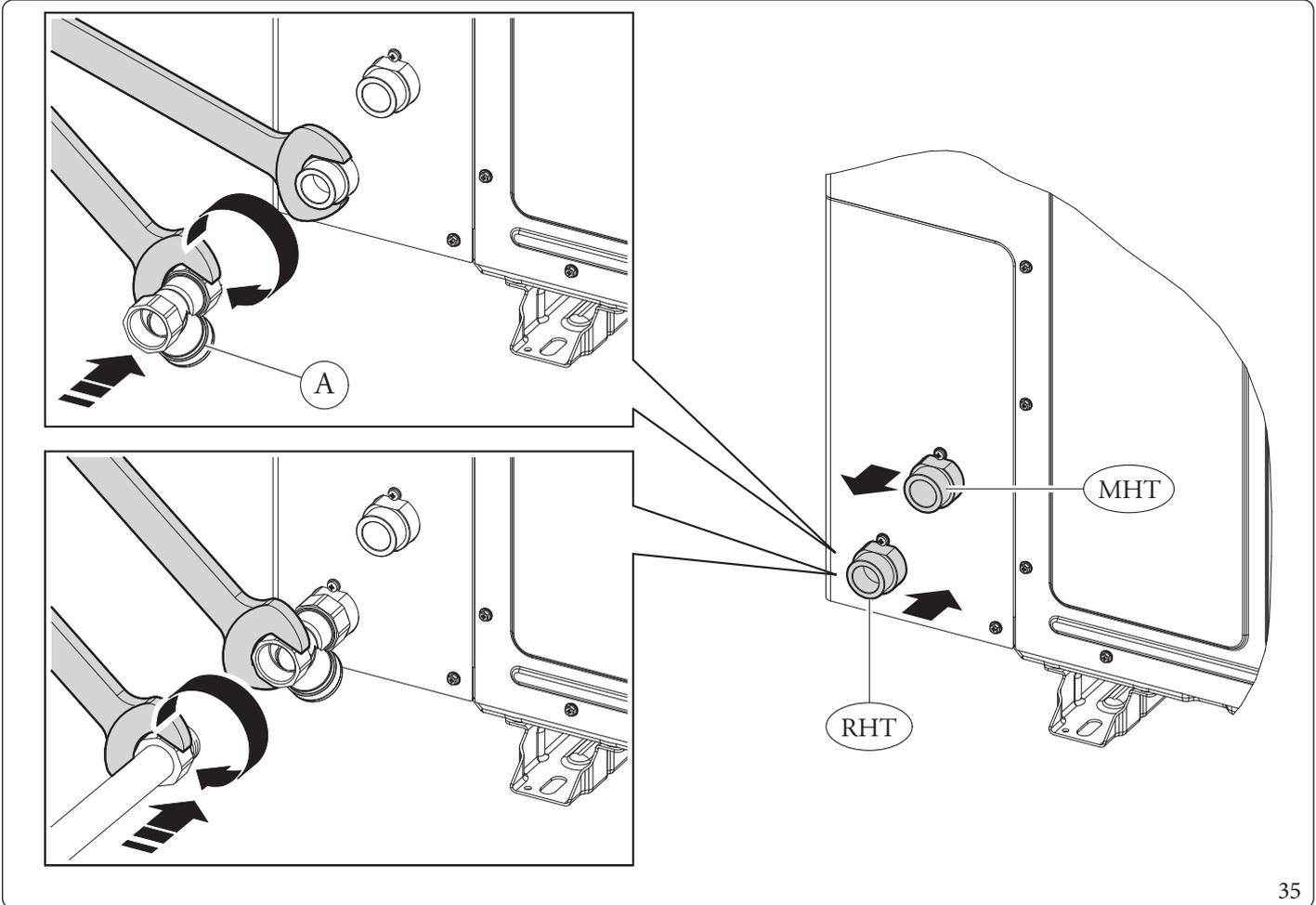
## Pipe connection

Connection of the water pipes typically follows the procedure below.

1. Connect the air pipe to the primary system circuit.
2. Connect the flexible drain hose to the drain.
3. Fill the primary system circuit with water.
4. Insulate the water pipe.



- Do not exert excessive force when connecting the piping. Deformed pipes may cause the unit to malfunction.
- Connect the Y filter to the system return line of the appliance, using a thread locker. In this case, the filter must face downwards to collect impurities.
- Connect the field pipe to the shut-off valve.
- Connect any shut-off valve to the appliance's system water return line using a thread locker.



Key (Fig. 35):

- MHT - System water flow
- RHT - System water return
- A - Y filter



### 1.8.1 Insulation of external water pipes of the system

The water circuit, including all pipes, must be insulated to prevent not only condensate formation during cooling and heating and cooling capacity reduction, but also freezing of outdoor water pipes during winter. The insulation materials must be at least 9 mm thick (with  $\lambda=0,035$  W/mK thermal conductivity) to prevent outside water pipes from freezing.

It is also necessary to add an anti-freeze liquid (glycol) to keep the external pipes from freezing (see paragraph 3.10.1.17 "Antifreeze protection").

If the temperature exceeds 30°C and relative humidity 80%, the insulation materials must be at least 20 mm thick to prevent the formation of condensate on the insulation surface.

Pipe length (m)	Minimum insulation thickness (mm)
< 20	19
20 ~ 30	32
30 ~ 40	40
40 ~ 50	50



This advice guarantees proper operation of the unit, however local regulations could be different and need to be followed.

### 1.8.2 System filling.

The product is not supplied with a filling cock; the installer must install an adequate filling system compliant with current standards on the central heating system.

When the pipes are connected, fill the system through the filling cock (not integrated).

It is recommended to fill to a pressure approximately 0.3 bar higher than nominal pressure to facilitate the automatic deaeration procedure.

### 1.8.3 System minimum water content.

For proper operation, make sure that the minimum water level in the system does not drop below the values displayed in the "General product data" table (see Chapter 5 "Technical data").

If this amount cannot be guaranteed for the part of the system where water always flows freely, an external storage tank needs to be added.

## 1.9 ELECTRICAL CONNECTION

### 1.9.1 Electrical connection precautions



- First of all, make sure that the hydraulic connections have been done before switching on power.
- Before removing or repositioning the appliance, disconnect power and the electric wiring in this order.
- Follow the local installation standards and regulations when performing the electrical connections. The electrical connections must be carried out by an operator or company qualified for electrical systems pursuant to current standards. Failure to comply with the above could lead to product damage, set off a fire and personal injury, electric shock or death.

- The appliance must be connected to an earthing system made compliant with Law.
- Make sure that the voltage and frequency of the power supply line are such that the appliance can tolerate and that the available power is sufficient for the appliance and all other utilities connected to the line.
- A device which ensures disconnection from the omnipolar mains, with a contact opening distance allowing complete disconnection under the conditions of overvoltage category III, must be installed on the power line, according to installation rules.
- Always check that the electrical connections (cable inlet, conductor gauge, protections, etc.) comply with the local regulatory specifications and the installation standards, and follow the instructions provided in the paragraph of the aforementioned booklet. The appliance must be connected in compliance with current standards.
- Depending on power supply conditions, power or voltage instability can cause malfunctioning of parts or of the control system (do not use a power supply from an electric generator, like on a ship, etc.).



- Perform the earthing connection by means of the specific terminal inside the connections compartment.
- Install the circuit breaker switch.
  - Failed installation of a circuit breaker can cause risk of electric shocks (electrocution) and set off fires.
- Install the power cable and communication cable of the inner part and of the HP in compliance with IEC 60364-1.
- Install both a residual current device and a circuit breaker sized as required by local standards in force.
  - Otherwise electrocution and fire risks would occur.



- Have a Company authorised for electrical systems according to current standards check the compatibility of the system with the appliance.



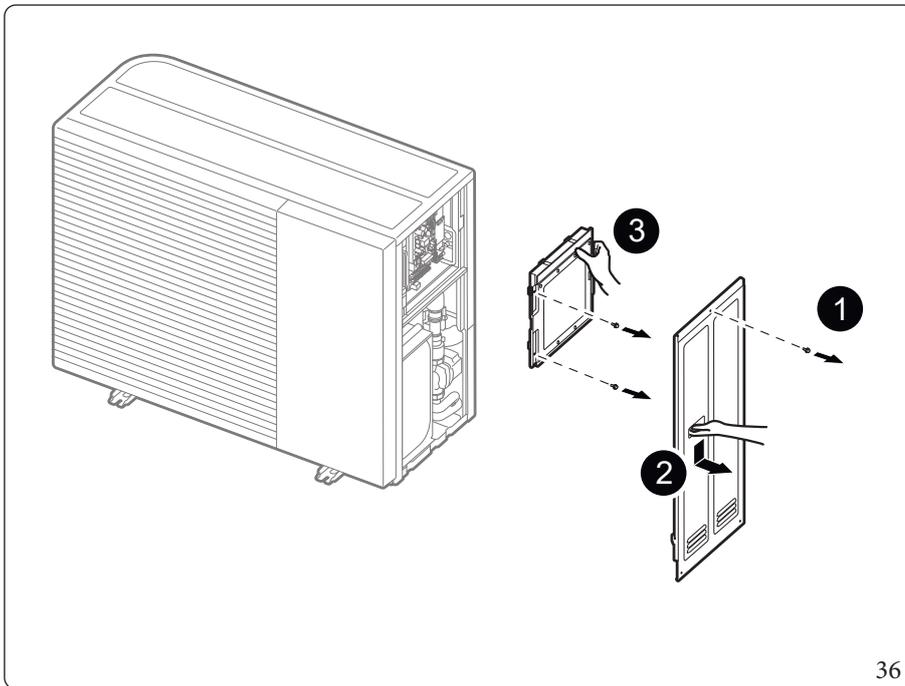
### 1.9.2 External electrical connection

The power cables must be connected to the terminal block and secured with a clamp.

- Two cables must be connected on the HP:
- Shielded communication cable between indoor control unit and HP.
- Power cable between HP and omnipolar auxiliary switch, from the data nameplate of the model find the absorbed current, from which the cross-sections of the power cable suitable for the power line are taken.
- Before installation, in particular on European and Russian markets, the electricity provider must be contacted to determine the impedance of the power supply system to guarantee its conformity.



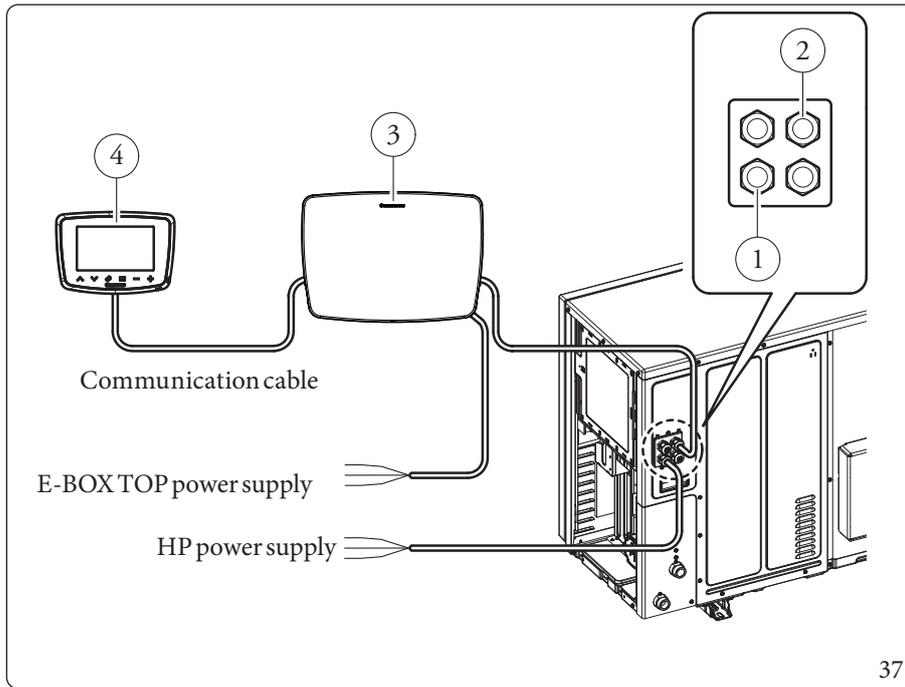
- The power cables must be connected to the dedicated terminal block located in the connections compartment. The individual cables must be secured with a clamp.
- For three-phase power supply, unbalancing voltage between the phases must not exceed 2%.
  - If the power supply is strongly unbalanced, the life of the electric components could shorten. If the unbalanced power supply exceeds 4%, the control system will stop the HP and display the specific error.
- To protect the product against water and shocks, the power cable and connection cable of the control kit and of the outdoor units must be inserted inside conduits and/or pipes (with protection degree IP and appropriate material for the specific application).
- Install a residual current device with type A or F or B tripping characteristic on the power line.



To access the connections compartment, unscrew the 2 fixing screws, remove the side casing of the appliance and open the cover of the electric panel as indicated in Figure 36.

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### 1.9.3 Electrical Connection Diagram



Key (Fig. 37):

- 1 - Power supply
- 2 - Communication with E-BOX TOP
- 3 - E-BOX TOP
- 4 - NEXIS control panel (wired)

#### 1.9.3.1 Power cables specifications

##### Single-phase

- The power cable is not supplied with the product.
- The power cable must be suitable for outdoor installation and must have at least a flexible polychloroprene sheath (Code IEC:60245 IEC 57 / CENELEC:H05RN-F).
- Appliance compliant with Standard IEC 61000-3-12.

HP	Rated		Tolerable Voltage Range		MCA	MFA
	Hz	V	Min.	Max.	Maximum Current of the Circuit	Amp. Max. Fuse
Magis M5 TOP	50	220-240	198	264	16.1	17.6
Magis M8 TOP	50	220-240	198	264	26	28.6
Magis M12 TOP	50	220-240	198	264	32	35.2
Magis M16 TOP	50	220-240	198	264	32	35.2

##### Three phase

- The power cable is not supplied with the product.
- The power cable must be suitable for outdoor installation and must have at least a flexible polychloroprene sheath (Code IEC:60245 IEC 57 / CENELEC:H05RN-F).
- Appliance compliant with standard IEC 61000-3-12 as long as the short-circuit capacity SSC is greater than or equal to 3,3 [MVA] from the interface point between the user's power supply and the public grid. The installer, consulting with the energy provider if necessary, must guarantee that the appliance is connected only to a power supply with short circuit capacity (SSC) greater than or equal to 3,3 (MVA).

HP	Rated		Tolerable Voltage Range		MCA	MFA
	Hz	V	Min.	Max.	Maximum Current of the Circuit	Amp. Max. Fuse
Magis M12 T TOP	50	380-415	342	457	16.1	17.7
Magis M16 T TOP	50	380-415	342	457	16.1	17.7

INSTALLER

USER

CONTROL PANEL

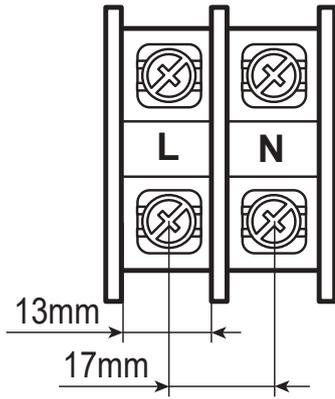
MAINTENANCE TECHNICIAN

TECHNICAL DATA



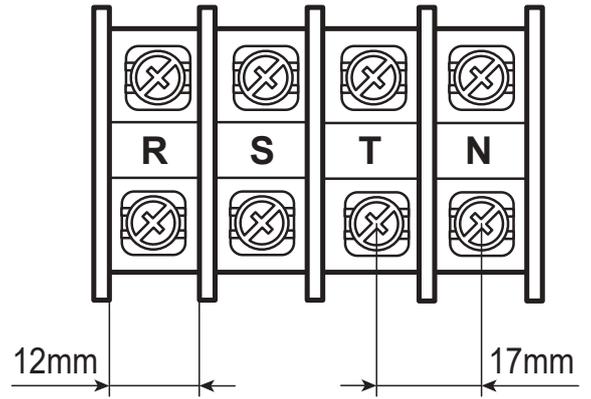
1.9.4 Specifications of terminal block

Single-phase -HP power supply: M5 screw



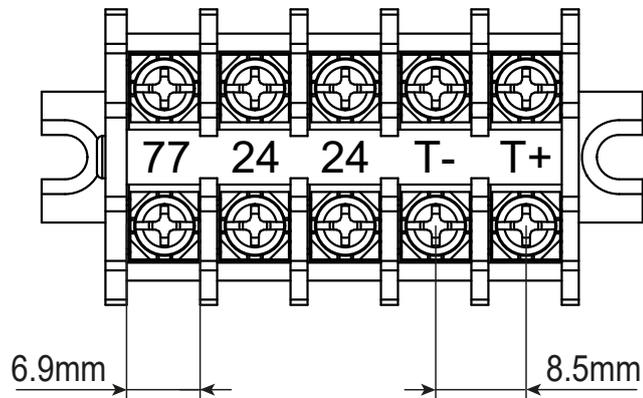
38

Three-phase -HP power supply: M5 screw



39

Communication: M4 Screw



40

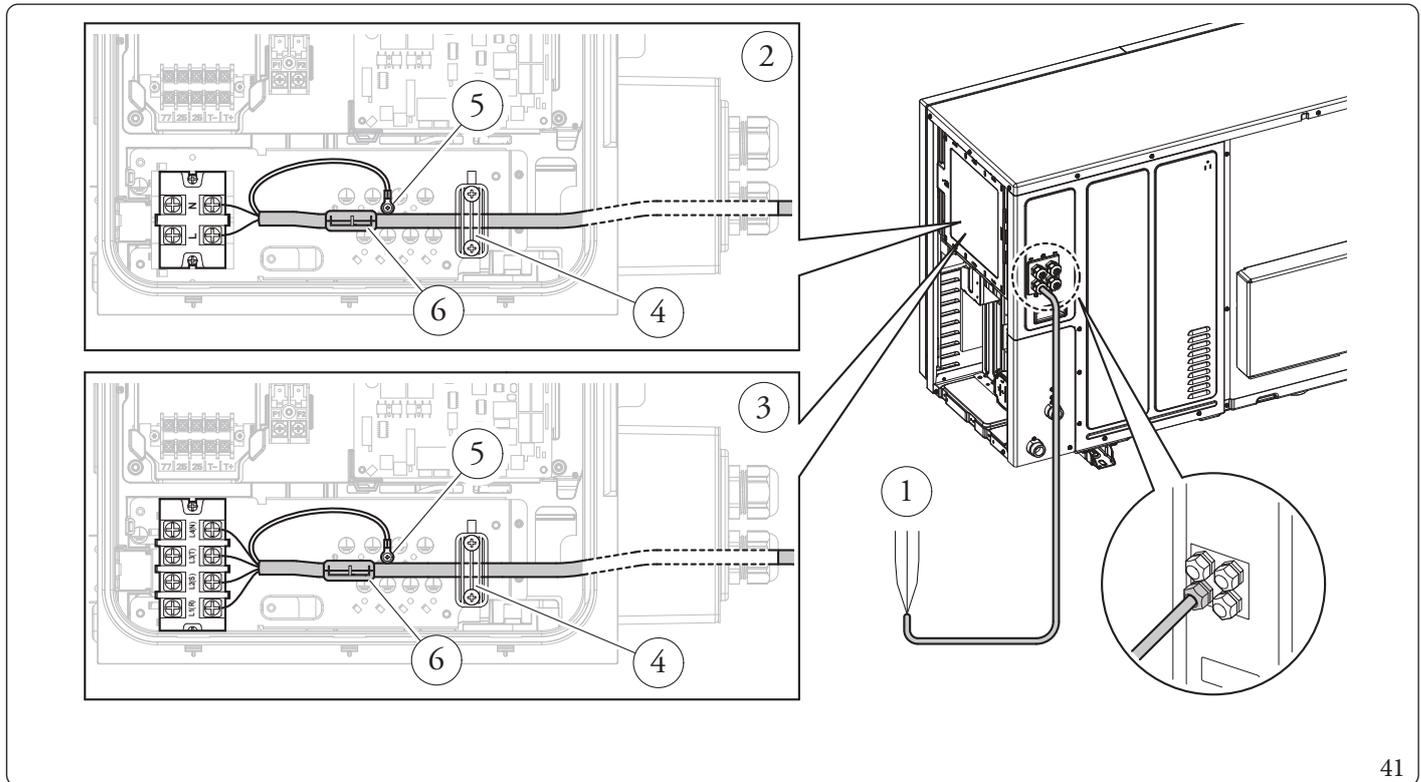
Tightening torque (kgf x cm)

M4	12~18	Communication: 77, 24, T-, T+
M5	20~30	Single phase mains HP power supply: L, N
		Three-phase mains HP power supply: L1(R), L2(S), L3(T), N

## 1.9.5 Power cable connection

### Route the cable through the frame

- Insert the power supply cable from the rear of the unit, passing it through the specific cable clamp as shown in Figure 41.
- Connect the cables to the terminal block and secure the power supply cable, locking it with the CABLE CLAMP (4) as shown in figure 41.



Key (Fig. 41):

- 1 - Power supply
- 2 - Single-phase connection (main power supply cable)
- 3 - Three-phase connection (main power supply cable)

- 4 - CABLECLAMP
- 5 - Earthing wire
- 6 - Sleeve in ferrite

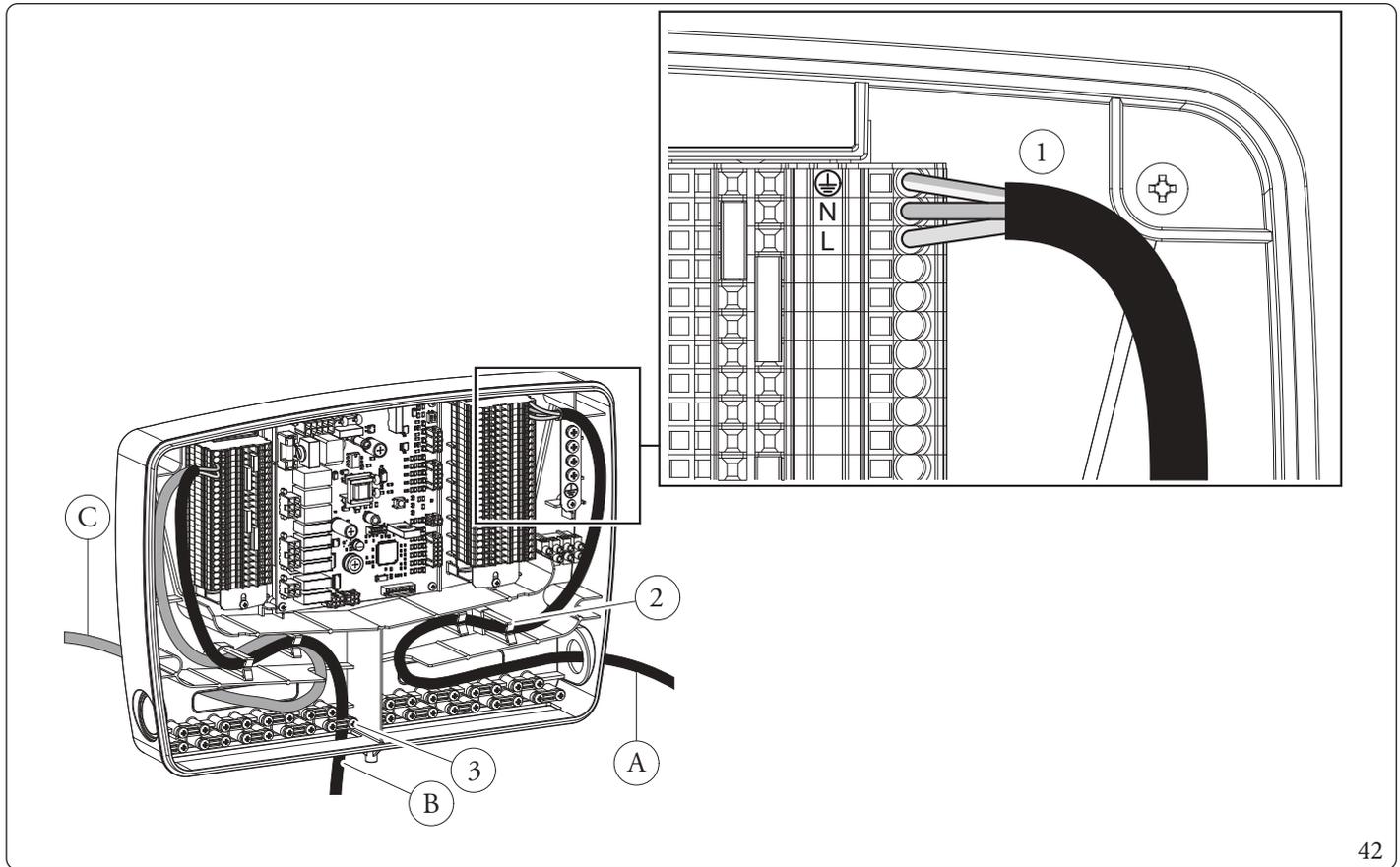
- Do not power up the cables when installing.
- A suitable ring cable lug (not supplied) must be used to connect the earthing cable
- Use H07RN-F or H05RN-F grade materials for the power supply cable.
- Apply the ferrite sleeve included in the accessories on the power cable.
- The power cables of parts of the outdoor appliances must be lighter than the flexible cables with polychloroprene sheath (designation code IEC: 60245 IEC 57 / CENELEC: H05RN-F or IEC: 60245 IEC 66 / CENELEC: H07RN-F).



## 1.9.6 E-BOX TOP power cable connection

### Route the cable through the enclosure

- It is possible to thread the cable into the enclosure through the bottom openings (Ref.B) using the STEAB cable clamps (Ref.3), through the side openings (Ref.A, opened by breaking the pre-cut sections) and using a pipe clamp and corrugated pipe to prevent infiltrations or through the rear openings (Ref.C, opened by breaking the pre-cut sections).
- Connect the cables to the terminal block and lock them with the specific CABLE CLAMPS (2) as shown in the figure 42.



42

Key (Fig. 42):

- 1 - Power supply
- 2 - Cable clamp
- 3 - Steab cable clamp

- Do not power up the cables when installing.
- A suitable ring cable lug (not supplied) must be used to connect the earthing cable
- Use H07RN-F or H05RN-F grade materials for the power supply cable.
- The power cables of parts of the outdoor appliances must be lighter than the flexible cables with polychloroprene sheath (designation code IEC: 60245 IEC 57 / CENELEC: H05RN-F or IEC: 60245 IEC 66 / CENELEC: H07RN-F).

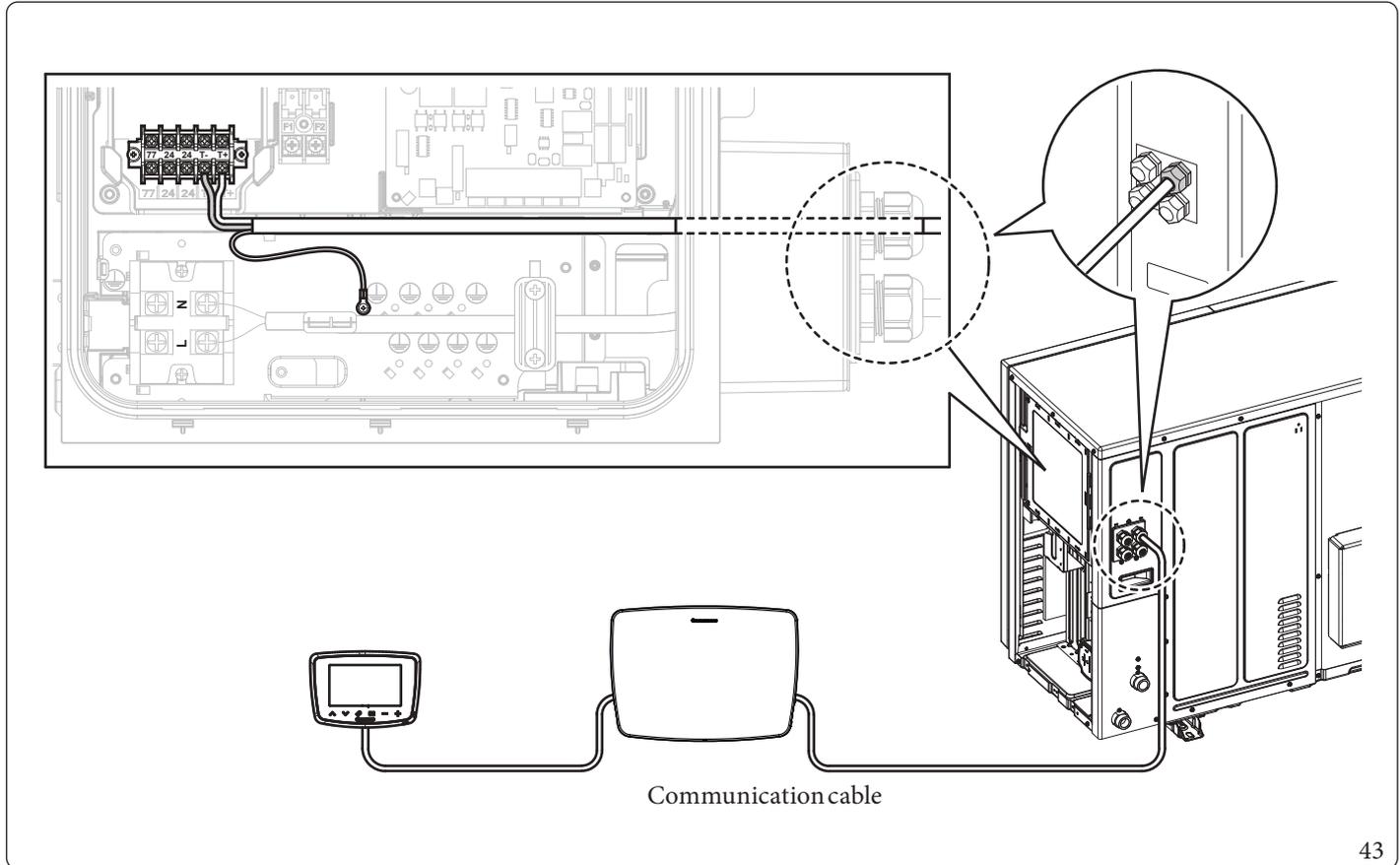
## 1.9.7 Communication cable connection

### Route the cable through the frame.

- Insert the communication cable (not included in the supply) from the rear of the unit, passing it through the specific cable gland as shown in Figure 43.
- Connect the cables to the terminal block as shown in figure 43.



The communication cable has 2 shielded cords to earth from both sides.



Communication cable	Specifications
0.75 mm <sup>2</sup> , 2 shielded cables, max. length 50 metres	LiYCY



For more information on the connection of the communication cable, refer to the wiring diagrams (See Fig. 65 and Fig. 66).



After having installed the system, to commission the heat pump (the operations listed below must only be performed by qualified personnel and in the presence of staff only):

6. Check connection to a 230V~50Hz power mains, correct L-N polarity and the earthing connection;

## 1.10 CIRCULATION PUMP

The appliance is supplied with a variable speed pump that optimises the speed to ensure the best possible performance.

Pump speed can be adjusted by means of the Menu / Advanced / Service / B settings (See paragraph 3.10.9 "List of Parameters B - Block Heat Pump Settings") as follows.

- **Fixed:** set parameter "B009" = 0 and then set parameter "B008" = desired fixed speed (%; value displayed in scale 10, e.g.: by setting 1000 the pump will run at 100%).
- **$\Delta T$  constant:** (default) set parameter "B009" = desired  $\Delta T$  ( $^{\circ}\text{C}$ ; value displayed in scale 10, e.g.: by setting 50 the pump will modulate to maintain  $\Delta T = 5^{\circ}\text{C}$ ).

### Pump release.

If after a long period of inactivity, the pump is blocked, disconnect power and adjust the screw in the centre of the head in order to manually release the crankshaft.

Take great care during this operation to avoid damage to the motor.

When the operation is complete, power up the appliance again.

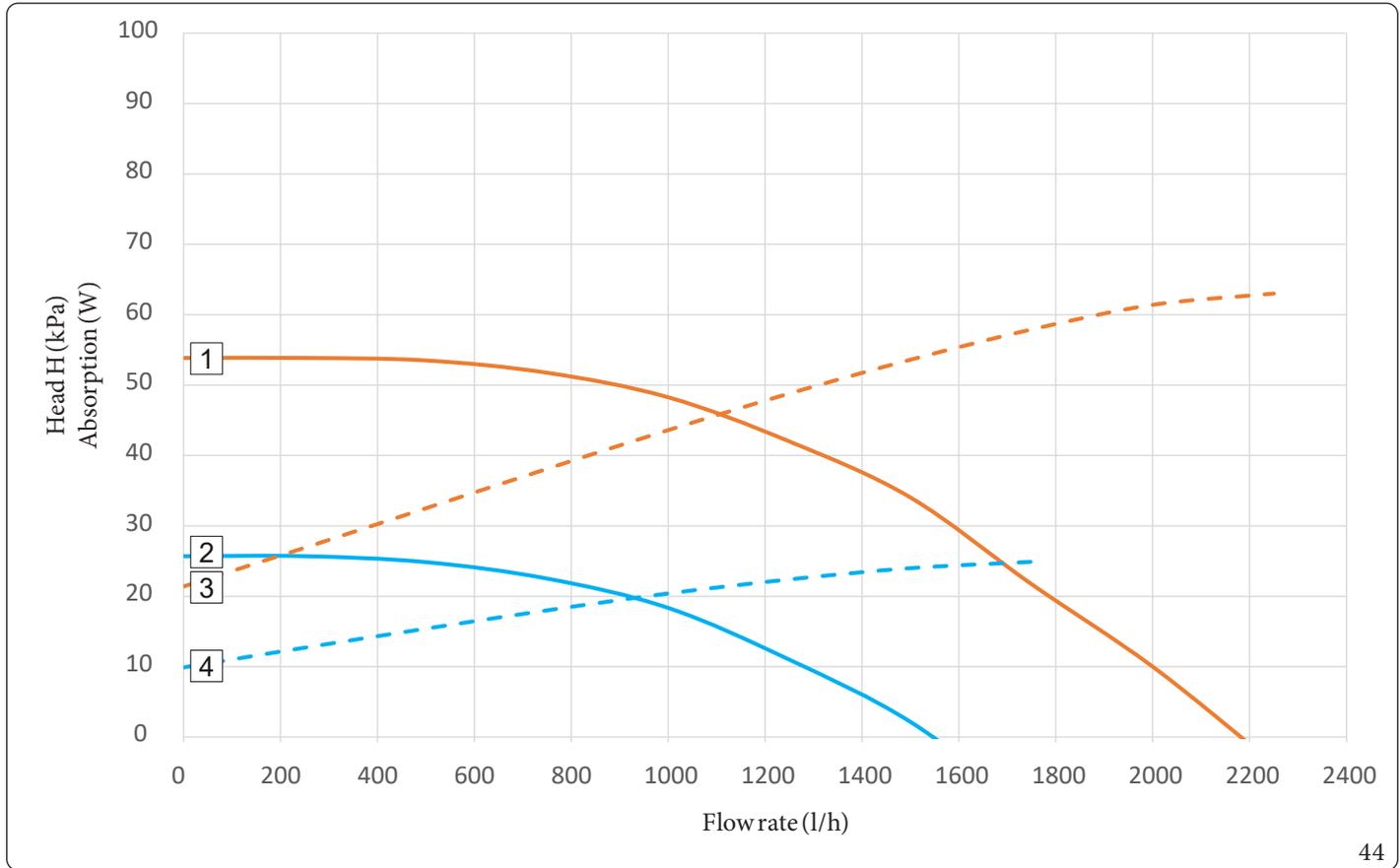


Hot water could escape.

## Head available to the system

The following graphs represent the available head of the appliance.  
Use the following graph to correctly size the connections pipes.

### Magis M5 - 8 TOP



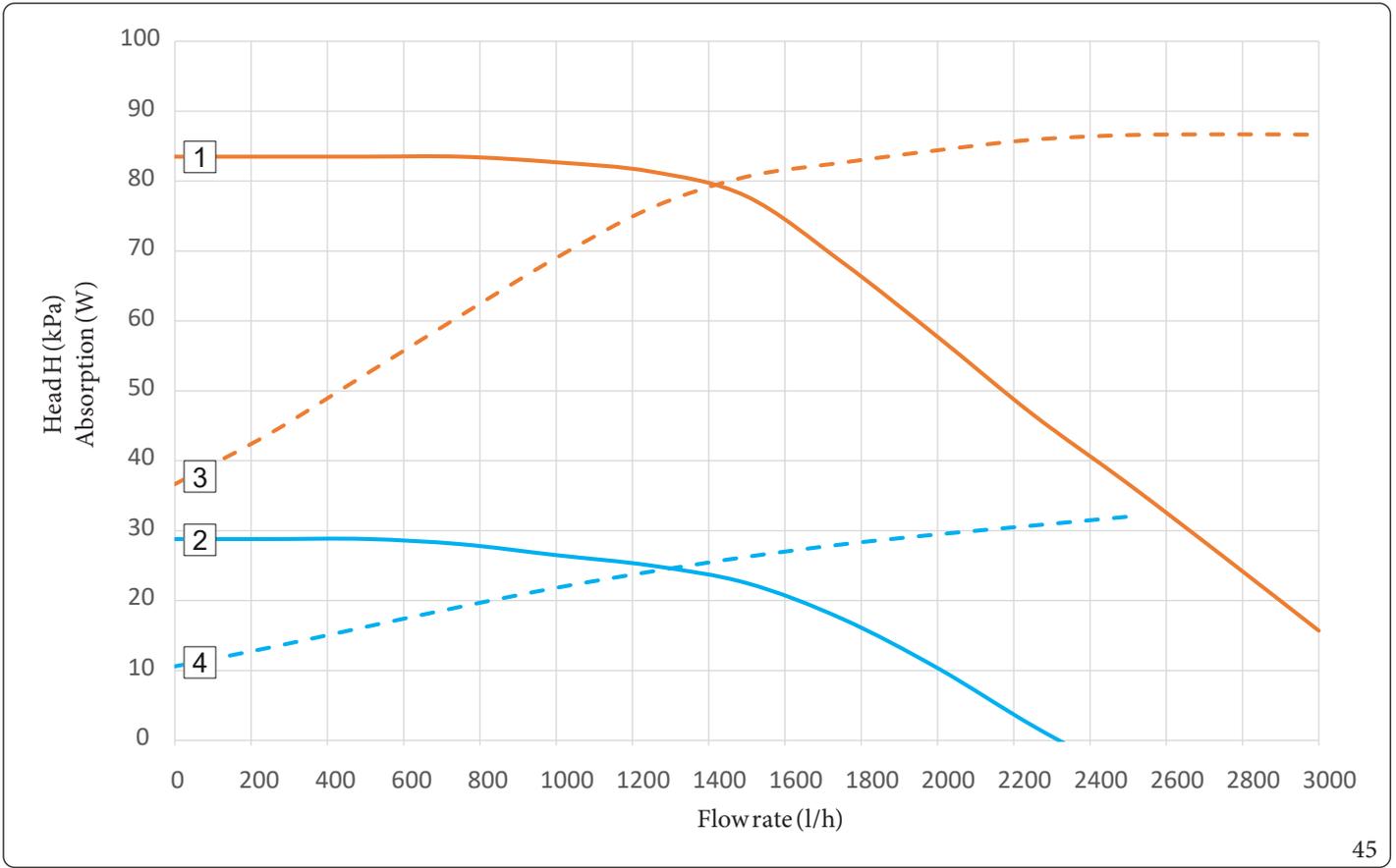
Key (Fig. 44):

- 1 = Head available to the system with maximum fixed speed
- 2 = Head available to the system with minimum fixed speed
- 3 = Absorbed power by the pump at maximum fixed speed
- 4 = Absorbed power by the pump at minimum fixed speed

Area between curves 1 and 2 = Available head

Area between curves 3 and 4 = Pump absorbed power





Key (Fig. 45):

- 1 = Head available to the system with maximum fixed speed
- 2 = Head available to the system with minimum fixed speed
- 3 = Absorbed power by the pump at maximum fixed speed
- 4 = Absorbed power by the pump at minimum fixed speed
- Area between curves 1 and 2 = Available head
- Area between curves 3 and 4 = Pump absorbed power



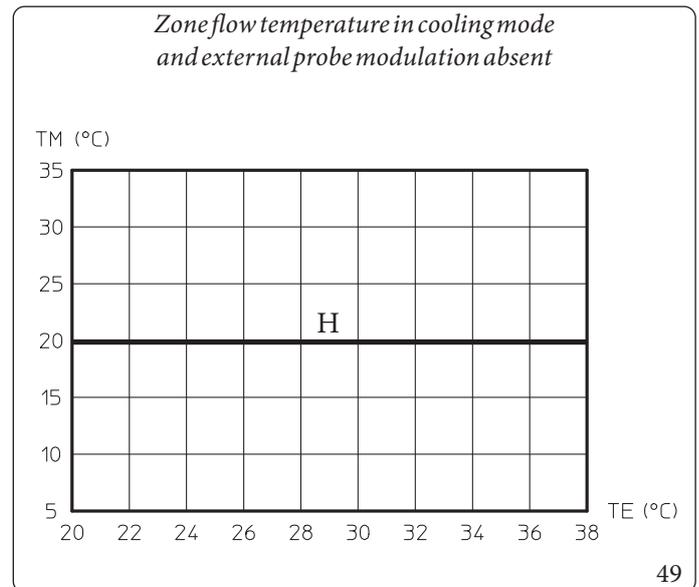
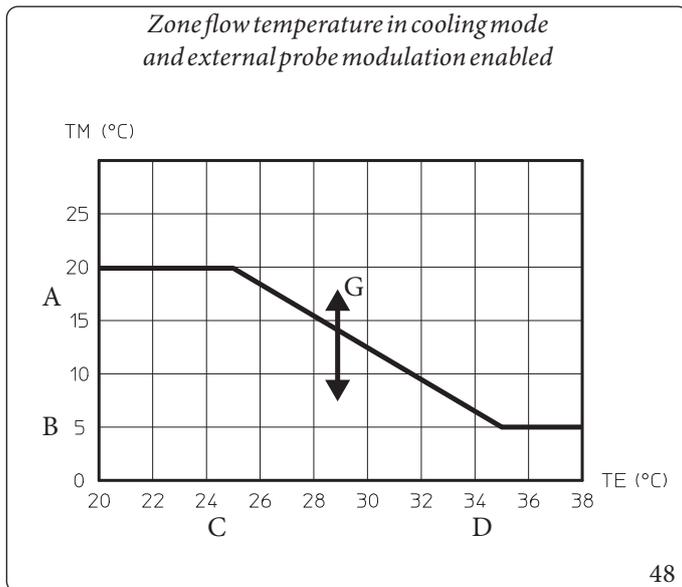
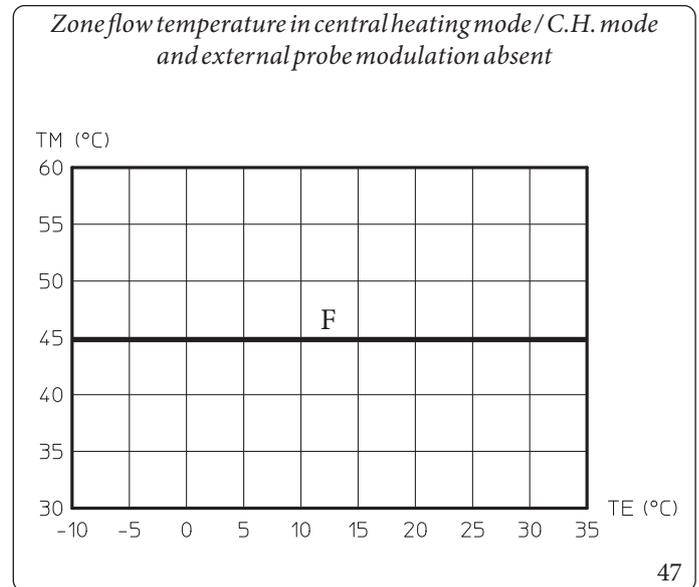
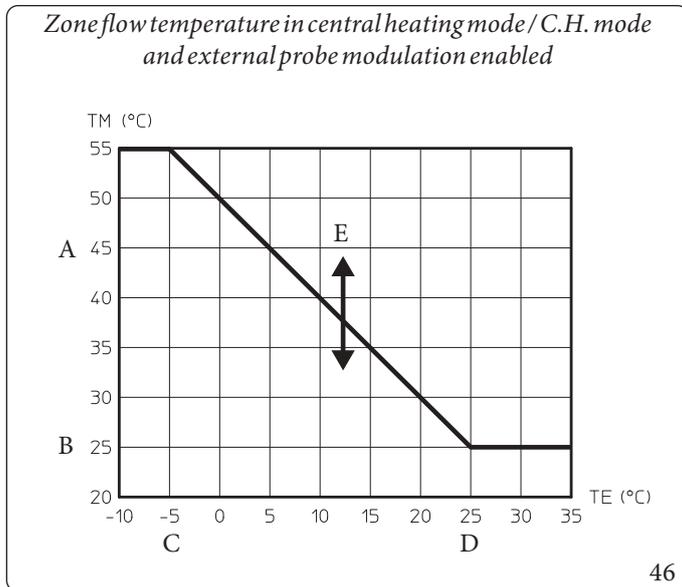
## 1.11 TEMPERATURE CONTROL SETTING

By setting the parameters in the menus

### Advanced/Service/R1/R130 and R131

it is possible to automatically adjust the flow temperature of each zone according to the outdoor temperature by enabling climate temperature control (external probe modulation).

The curves (Fig. 46, 47, 48, 49) show the default settings in the various operating modes available both with external probe and without.



Key (Fig. 46, 47, 48, 49)

- A - Maximum flow set
- B - Minimum flow set
- C - External minimum temperature
- D - External maximum temperature

- E - Central heating water correction
- F - Central heating / C.H. flow set
- G - Cooling water correction
- H - Cooling flow set

Enabling climate temperature control, by means of the menu

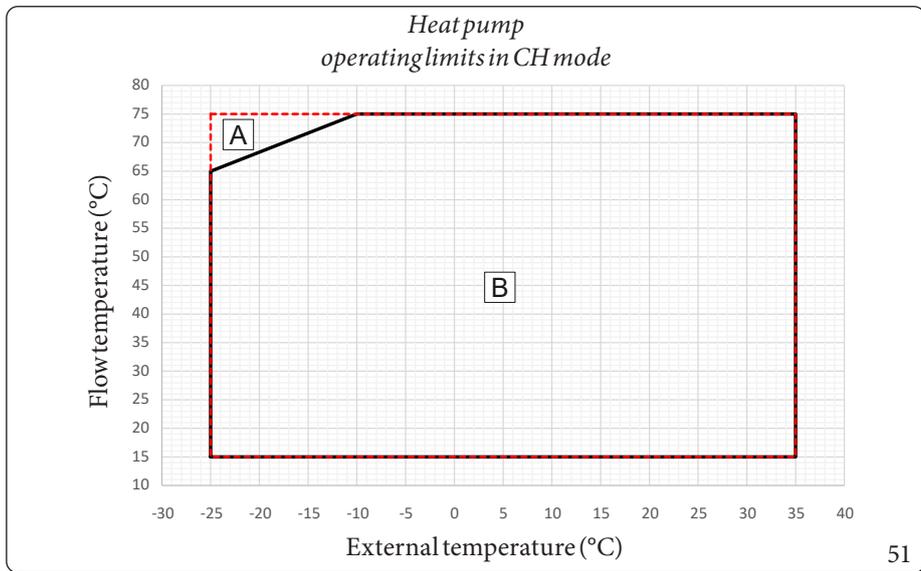
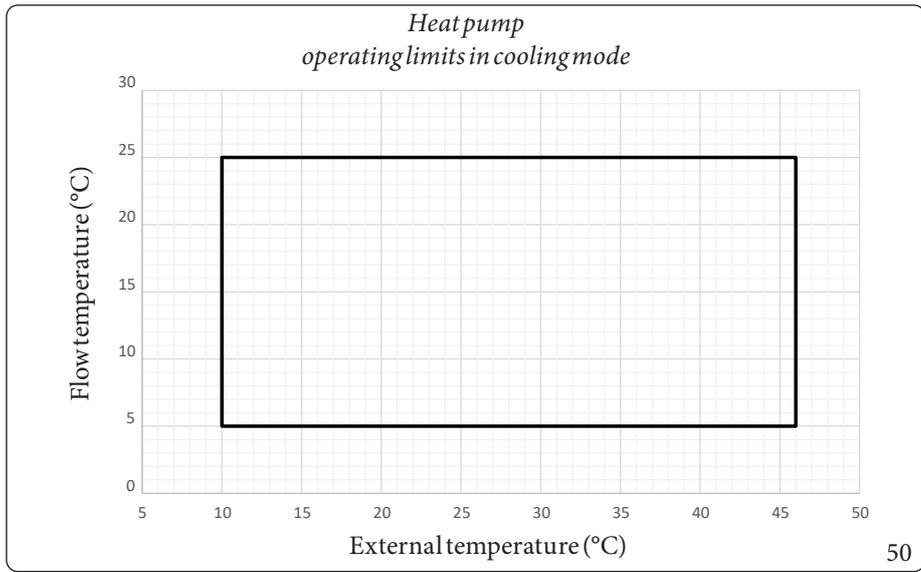
### Zone settings/Advanced zone settings

you may apply a correction to the calculated setpoint by means of the parameters: central heating water correction and cooling water correction.



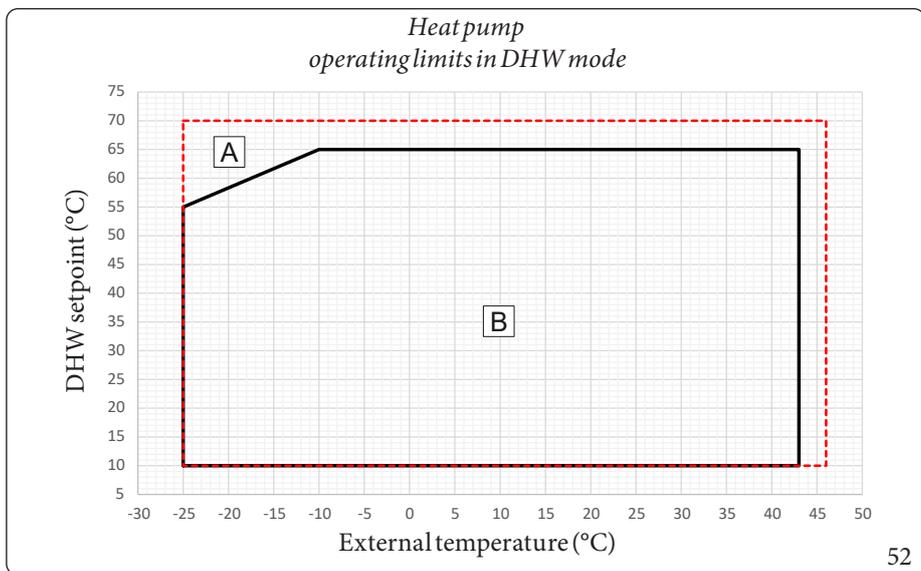
### 1.12 OPERATING LIMITS

The appliance was designed to work in a specific range of outdoor temperatures and at a specific maximum flow temperature. The chart (Fig. 50, 51, 52) shows these limits.



Key (Fig. 51):

- A = with system integration electric heater (optional) enabled
- B = without system integration heater (optional) enabled



Key (Fig. 52):

- A = with system integration electric heater (optional) enabled
- B = without system integration heater (optional) enabled

### 1.13 PRIMARY PUMP ANTI-BLOCK DEVICE

The unit is equipped with a function that periodically forces activation of the primary pump for 10 seconds in order to reduce the risk of the pump becoming blocked due to prolonged inactivity.

To modify its activation frequency, act on the parameter B017 by means of the Menu / Advanced / Service / B settings (see paragraph 3.10.9 "List of Parameters B - Block Heat Pump Settings").

### 1.14 KITS AVAILABLE ON REQUEST



Check the complete list of kits available and which can be combined with the product, consult the Immergas website, the Immergas Price List or the technical-commercial documentation (catalogues and data sheets).



### 1.15 NEXIS CONTROL PANEL INSTALLATION

Zone and entire system control panel (See Chapter 3 "Control panel" for details).

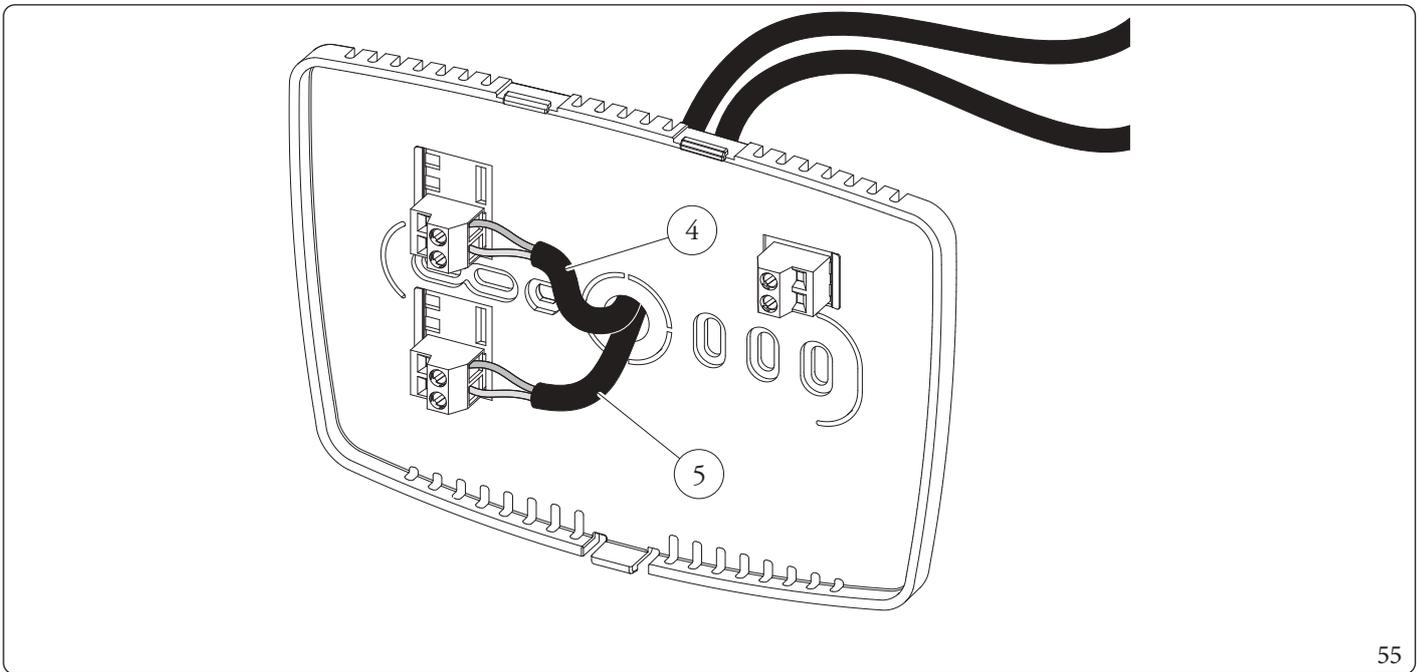
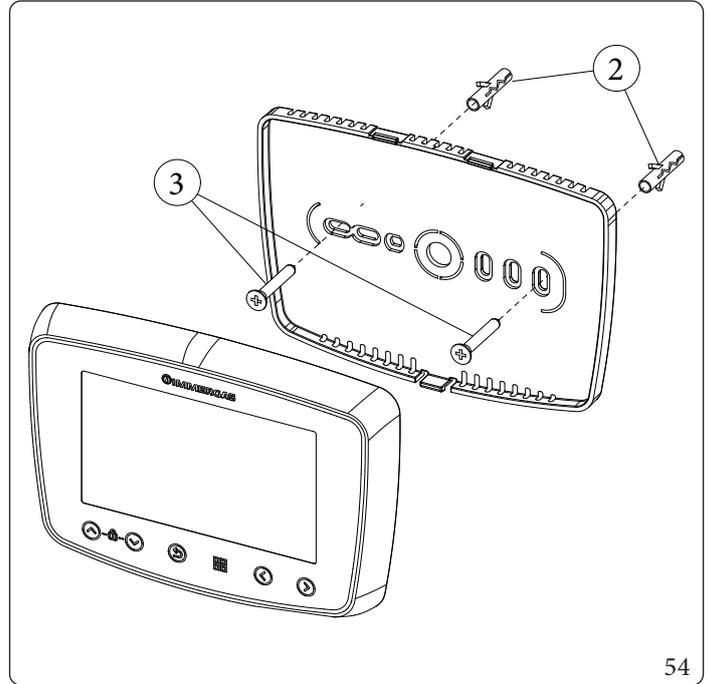
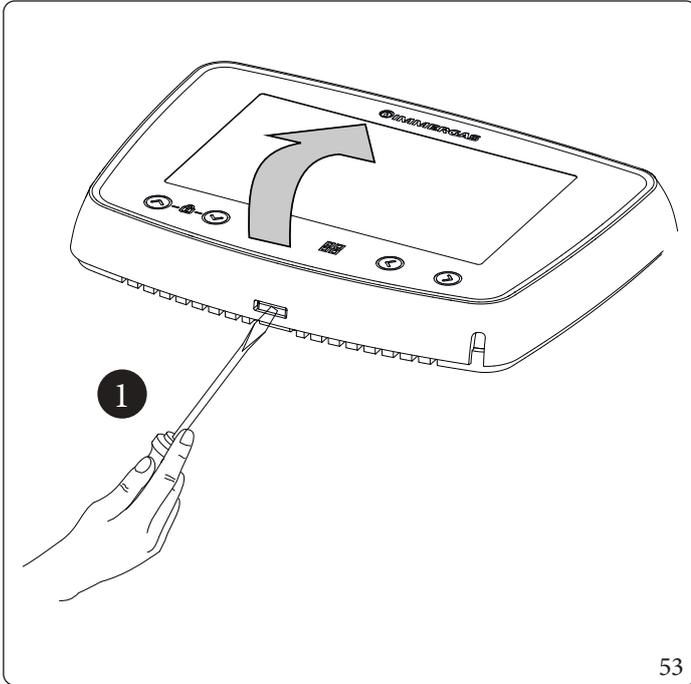
To install the Nexis control panel, separate the base from the front body prying on the specific recess Ref.1 Fig. 53).

Install the wall base by using the plugs (Ref.2) and screws (Ref.3) included in the supply (Fig. 54) or on the electric box (type 501, 502 or 503).

Connect the power cable (Ref.4) and the communication cable (Ref.5) as in Fig. 55.

For more details, see paragraph 1.21 "Wiring diagrams".

Refit the front body of the device on the wall base as per drawing (Fig. 54).



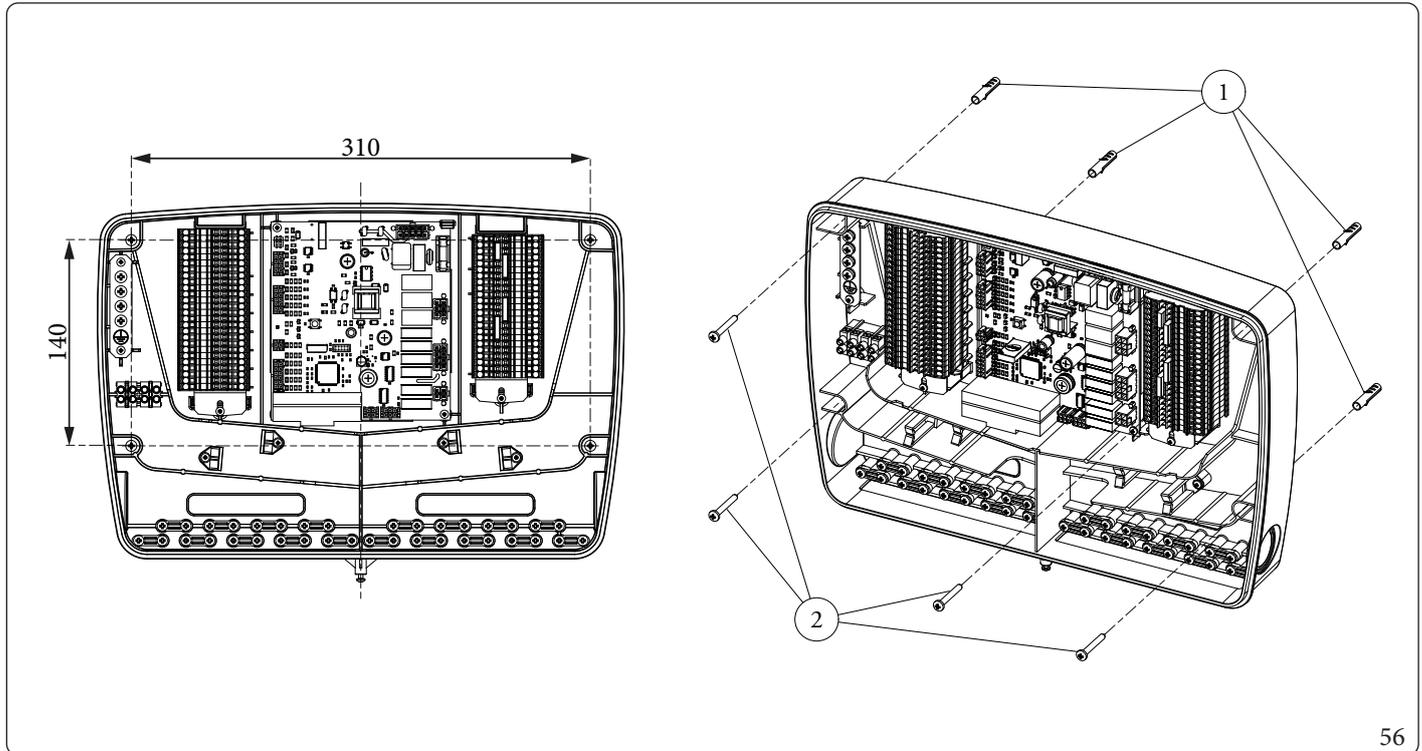
## 1.16 E-BOX TOP INSTALLATION

Supplies information on the flow temperature of the zone, room temperature contact and humidistat contacts; also checks opening of the valve and the zone pump.

Secure the E-BOX TOP box to the wall using the plugs (Ref.1) and screws (Ref.2) included in the supply (Fig. 56).

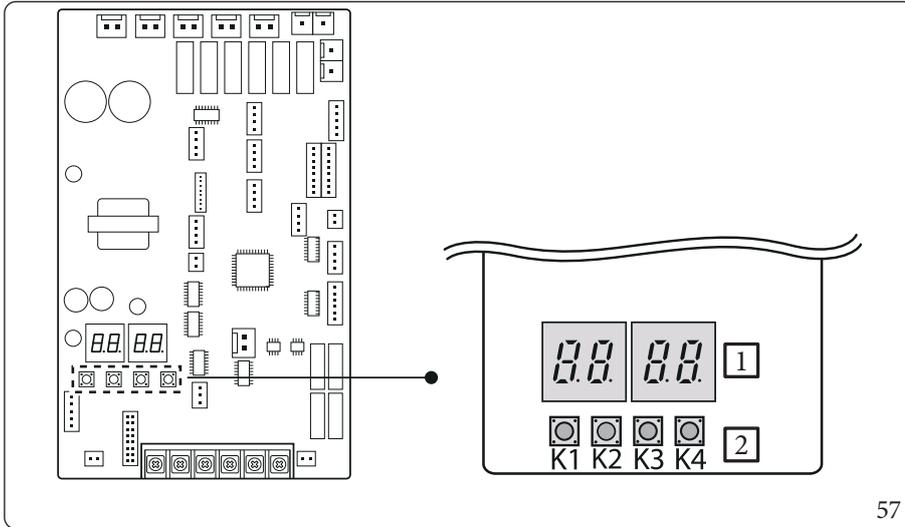
For electric wiring, see paragraph 1.9.6 "E-BOX TOP power cable connection".

For further details, see diagram "E-BOX TOP generic electrical connections diagram" (Fig. 64, paragraph 1.21 "Wiring diagrams").



## 1.17 MICRO-SWITCH SETTINGS AND KEY FUNCTIONS

The K switches allow you to test operation.



Key (Fig. 57):

- 1 - 7-segment display
- 2 - Button (K1~K4)

57

### 1.17.1 Testmode operating test

- Check the supply voltage line between the units and the circuit breaker switch.
- Single-phase power supply: L, N
- Three-phase power supply: R, S, T, N
- Check the E-BOX TOP and control panel.
- Check that the power and communication cables have been connected properly. (If the power cable and communication cables are connected incorrectly, the P.C.B. will suffer damage.)
- Make sure the system is not faulty.
- Use the K1 or K2 button on the heat pump PCB to start/stop the operating test.
- Set the machine in any operating mode other than standby.

K1 (Number of times pressed)	Using the BUTTON	7-segment display
Once	Test operation	"K" "1" "BLANK" "BLANK"
	in Central heating mode	
Twice	Suction (HP address 1)	"K" "2" "BLANK" "1"
3 times	Inverter Defect Detection (Comp #1)	"K" "3" "I" "1"
4 times	End of key operation	-

K2 (Number of times pressed)	Using the BUTTON	7-segment display
Once	Test operation in Cooling mode	"K" "4" "BLANK" "BLANK"
Twice	DC connection voltage discharge mode	"K" "5" "o" "k"
3 times	Forced defrost operation	"K" "6" "BLANK" "BLANK"
4 times	Compressor 1 inverter check	"K" "7" "BLANK" "BLANK"
5 times	End of key operation	-

K3 (Number of times pressed)	Using the BUTTON	7-segment display
Once	Initialisation settings (Reset)	Same as initial status

### 1.17.2 Edits the silent mode level

Silent mode is set by default at minimum noise.

To edit the reduction level, keep the key K2 pressed until 0000 appears on the display.

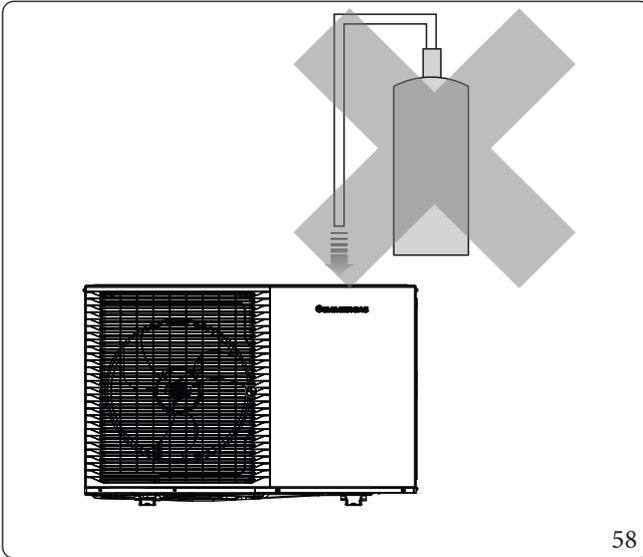
- Press the key K1 until 0300 is displayed.
- Press K2 again to set the following values:
  - **0300**: basic setting, minimum noise;
  - **0301**: noise level 1;
  - **0302**: noise level 2;
  - **0303**: noise level 3.
- To confirm, press and hold K2 until the entire display flashes.



## 1.18 INSERTING THE REFRIGERANT

Since Magis M TOP is a block unit, it is not necessary to add more coolant gas into the unit. The amount of coolant factory-charged into the appliance is already correct and does not need editing.

### Important information: used refrigerant regulation



58

Refrigerant type	GWP value
R290	3

- GWP: Global warming potential
- Calculation of tonnes of CO<sub>2</sub> equivalent: kg x GWP/1000



For the product's factory refrigerant charge, see the nameplate on the appliance (see paragraph 1.3 "Data plate").

## 1.19 TYPICAL INSTALLATION EXAMPLES



- The following functional diagrams are displayed by way of example.
- To ensure proper operation of the heat pump, a minimum amount of water must always be available in the system equal to the value indicated in paragraph 5 "Technical data" for each heat pump depending on size, then assess whether to insert an inertial storage tank.
- To ensure proper operation of the heat pump, a minimum flow rate must always be guaranteed equal to the value indicated in paragraph 5 "Technical data", then assess whether to insert an adjustable bypass.
- To ensure antifreeze protection in the event of a power failure, an alternative antifreeze valve with water sensor (optional) should be provided or else glycol should be added in the hydraulic pipes, in the right concentration; to install the antifreeze valve kit (optional) you must also install the anti-vibration kit (optional).
- Check the instruction booklets for the set up of the hydraulic and electric connections and for the cross-section of the cables.
- Check the instruction booklets for positioning of the components and maximum allowable distances.

INSTALLER

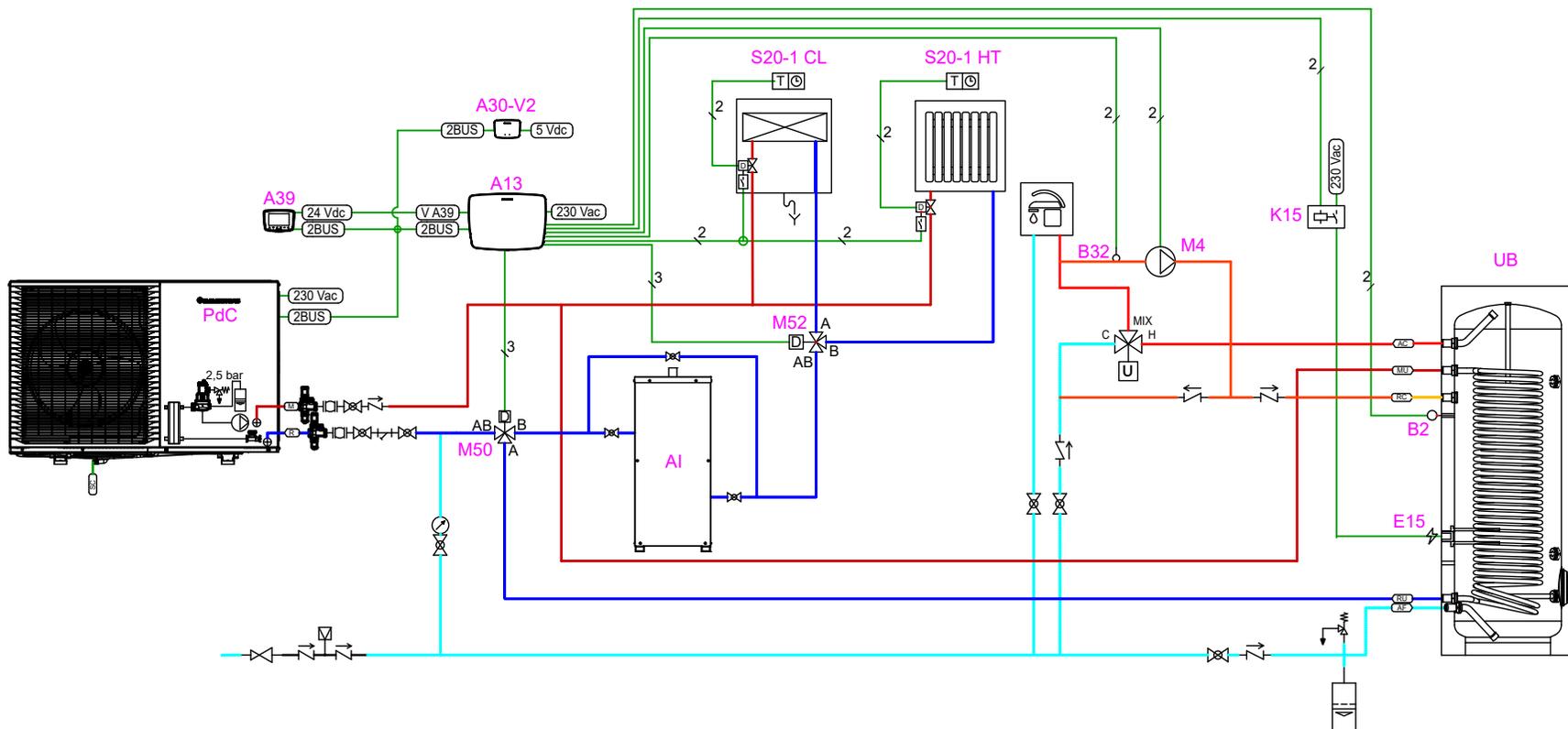
USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA





59

Key (Fig. 59):

A13 - E-BOX TOP system management board

A30-V2 - Gateway V2

A39 - NEXIS control panel (wired)

B2 - NTC DHW probe (code 3.019375)

B32 - NTC DHW recirculation probe (code 3.019375)

E15 - Domestic hot water integration resistance

K15 - DHW integrative resistance enabling relay

M4 - Domestic hot water recirculation pump

M50 - DHW priority 3-way valve

M52 - Summer/winter diverter valve

S20-1 - Zone 1 Room thermostat

AI - Inertial storage tank

PdC - Block heat pump with R290

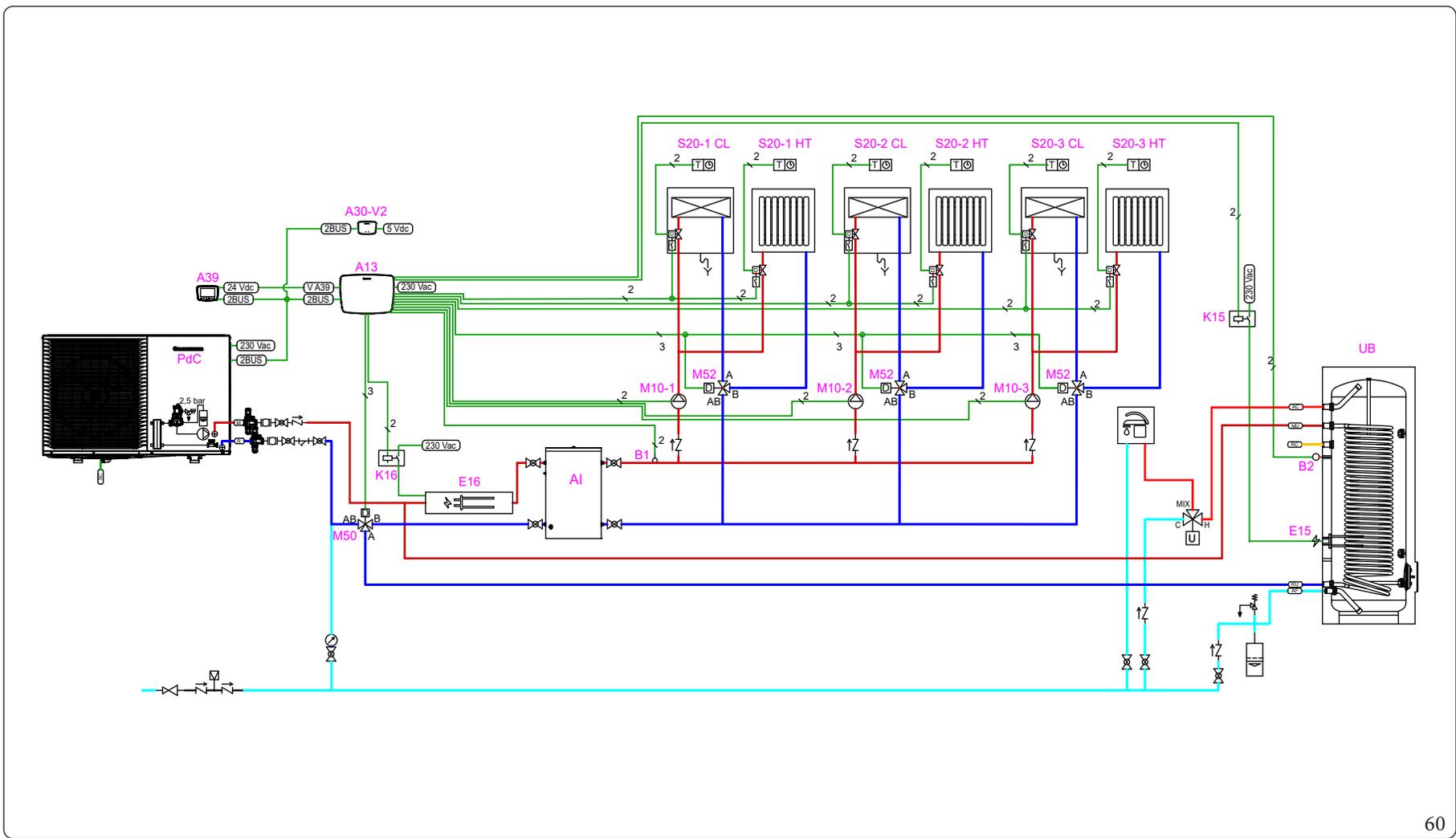
UB - DHW storage tank unit

For electrical connections and to set parameters in this configuration, see Fig. 69 (see paragraph 1.21 "Wiring diagrams").

MAGIS M TOP + S/W Diverter valve + DHW storage tank + Storage Tank Integrative Resistance + DHW recirculation



For electrical connections and to set parameters in this configuration, see Fig. 70 (see paragraph 1.21 "Wiring diagrams").

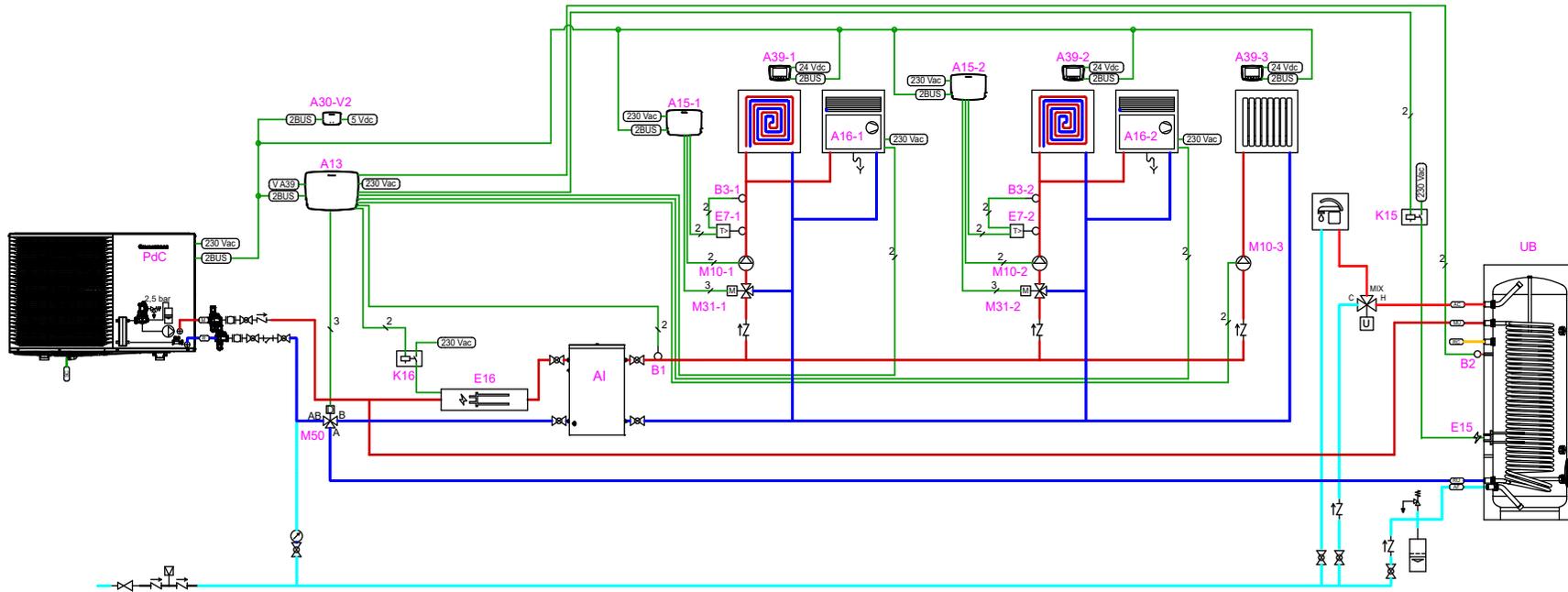


Key (Fig. 60):

- A13 - E-BOX TOP system management board
- A30-V2 - Gateway V2
- A39 - NEXIS control panel (wired)
- B1 - NTC flow probe (code 3.019375)
- B2 - NTC DHW probe (code 3.019375)
- E15 - Domestic hot water integration resistance
- E16 - System integrative resistance
- K15 - DHW integrative resistance enabling relay
- K16 - System integrative resistance enabling relay

- M50 - DHW priority 3-way valve
- M52 - Summer/winter diverter valve
- M10-1 - Zone 1 circulator
- M10-2 - Zone 2 pump
- M10-3 - Zone 3 Pump
- S20-1 - Zone 1 Room thermostat
- S20-2 - Zone 2 Room thermostat
- S20-3 - Zone 3 Room thermostat
- AI - Inertial storage tank
- PdC - Block heat pump with R290
- UB - DHW storage tank unit





61

## Key (Fig. 61):

- A13 - E-BOX TOP system management board
- A15-1 - E-BOX TOP expansion Zone 1
- A15-2 - E-BOX TOP expansion Zone 2
- A16-1 - Dehumidifier Zone 1
- A16-2 - Dehumidifier Zone 2
- A30-V2 - Gateway V2
- A39-1 - NEXIS control panel Zone 1 (wired)
- A39-2 - NEXIS control panel Zone 2 (wired)
- A39-3 - NEXIS control panel Zone 3 (wired)

- B1 - NTC flow probe (code 3.019375)
- B2 - NTC DHW probe (code 3.019375)
- B3-1 - Zone 1 flow probe
- B3-2 - Zone 2 flow probe
- E7-1 - Zone 1 safety thermostat
- E7-2 - Zone 2 safety thermostat
- E15 - Domestic hot water integrative resistance
- E16 - System integrative resistance
- K15 - DHW integrative resistance enabling relay
- K16 - System integrative resistance enabling relay

- M10-1 - Zone 1 circulator
- M10-2 - Zone 2 pump
- M10-3 - Zone 3 Pump
- M31-1 - Zone 1 mixing valve
- M31-2 - Zone 2 mixing valve
- M50 - DHW priority 3-way valve
- AI - Inertial storage tank
- PdC - Block heat pump with R290
- UB - DHW storage tank unit

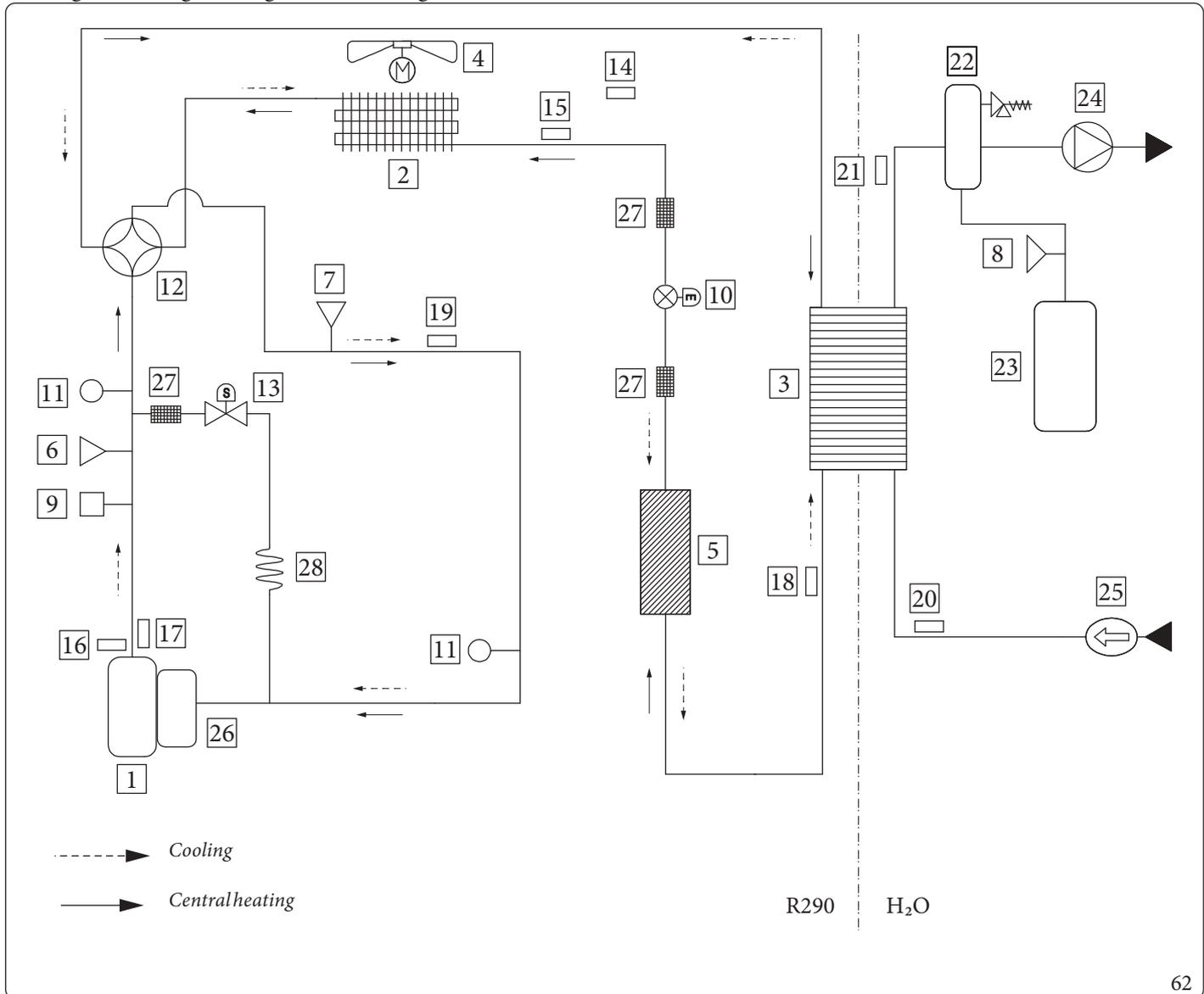
MAGIS M TOP + 3 booster zones (1 direct + 2 mixed with 2 expansions) with NEXIS panel + DHW storage tank + system integrative resistance + storage tank integrative resistance

For electrical connections and to set parameters in this configuration, see Fig. 71 (see paragraph 1.21 "Wiring diagrams").



## 1.20 HYDRAULIC DIAGRAMS

### Cooling circuit diagram Magis M5 TOP - Magis M8 TOP



Key (Fig. 62):

- |    |   |   |    |   |  |
|----|---|---|----|---|--|
| 1  | - | Compressor  | 16 | - | Compressor head temperature probe  |
| 2  | - | Heat Exchanger - Finned coil  | 17 | - | Compressor discharge temperature probe   |
| 3  | - | Plate heat exchanger  | 18 | - | Condenser outlet temperature probe in central heating (evaporator outlet in cooling) |
| 4  | - | Fan   | 19 | - | Intake temperature probe   |
| 5  | - | Liquid receiver   | 20 | - | H <sub>2</sub> O return temperature probe  |
| 6  | - | Pressure Sensor - High  | 21 | - | H <sub>2</sub> O flow temperature probe  |
| 7  | - | Pressure Sensor - Low   | 22 | - | Deaerator with safety valve  |
| 8  | - | Pressure Sensor - Water   | 23 | - | Expansion vessel   |
| 9  | - | Pressure switch - High  | 24 | - | Pump   |
| 10 | - | Electronic expansion valve  | 25 | - | Flow meter   |
| 11 | - | Maintenance Door - Load   | 26 | - | Liquid separator   |
| 12 | - | Solenoid valve - 4-way  | 27 | - | Filter   |
| 13 | - | Solenoid valve - Hot Gas Bypass   | 28 | - | Capillary  |
| 14 | - | External temperature probe  |    |   |  |
| 15 | - | Evaporator input temperature probe in heating (condenser outlet in cooling) |    |   |  |

INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



Cooling circuit diagram Magis M12 TOP - Magis M16 TOP - Magis M12 T TOP - Magis M16 T TOP

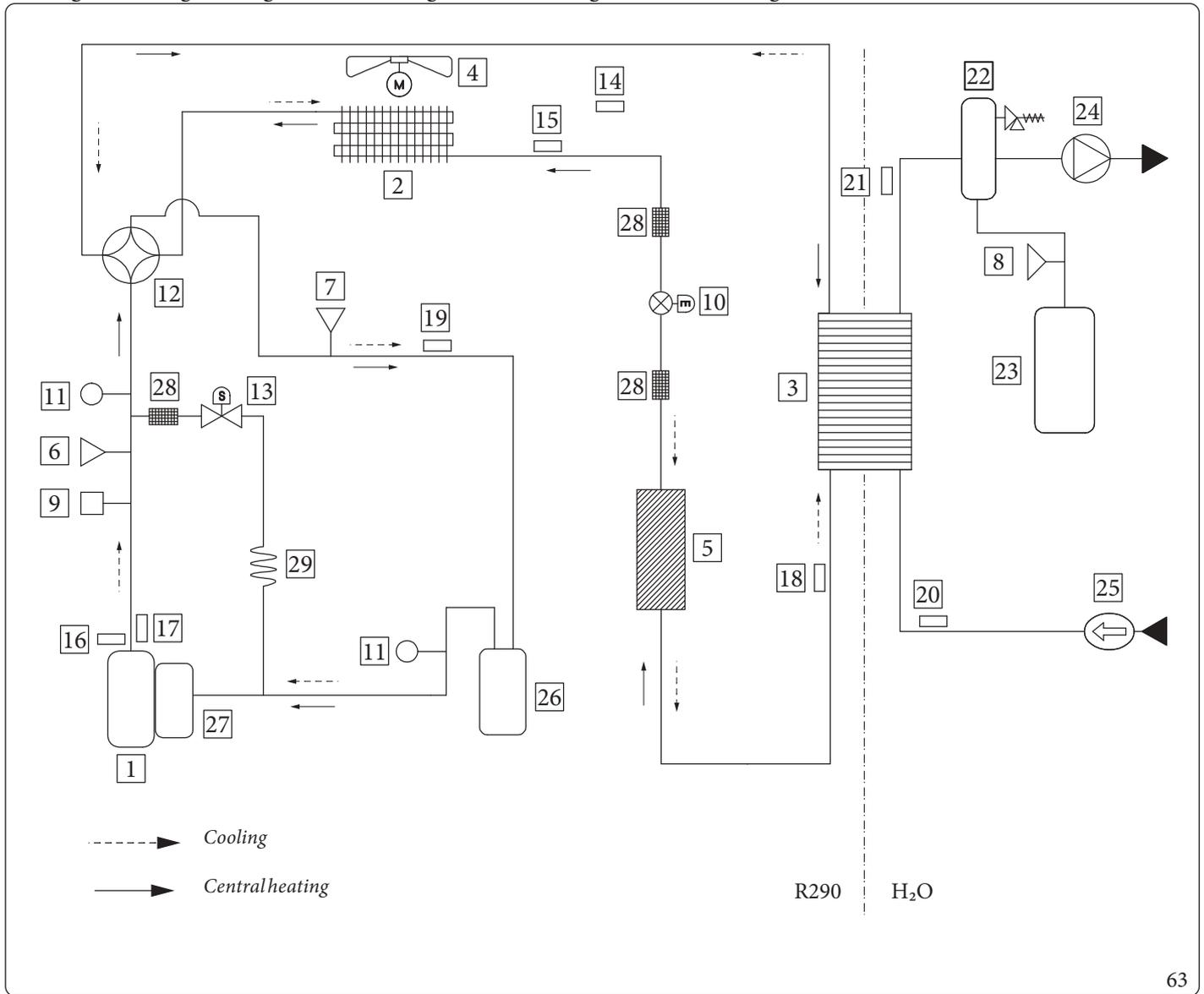
INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



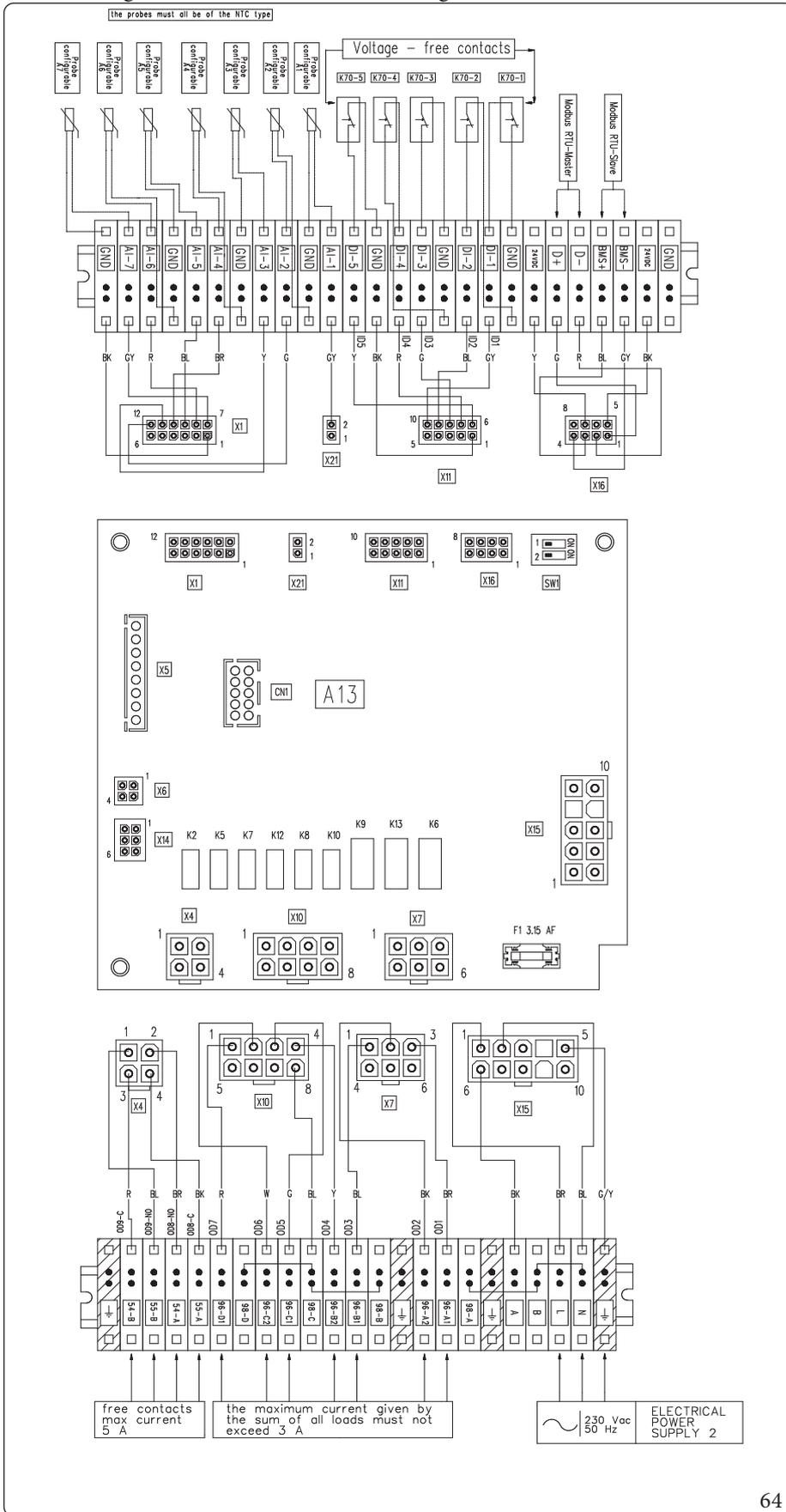
Key (Fig. 63):

- |  |   |
|--|---|
| 1 - Compressor   | 16 - Compressor head temperature probe  |
| 2 - Heat Exchanger - Finned coil   | 17 - Compressor discharge temperature probe   |
| 3 - Plate heat exchanger   | 18 - Condenser outlet temperature probe in central heating (evaporator outlet in cooling) |
| 4 - Fan  | 19 - Intake temperature probe   |
| 5 - Liquid receiver  | 20 - H <sub>2</sub> O return temperature probe  |
| 6 - Pressure Sensor- High  | 21 - H <sub>2</sub> O flow temperature probe  |
| 7 - Pressure Sensor- Low   | 22 - Deaerator with safety valve  |
| 8 - Pressure Sensor- Water   | 23 - Expansion vessel   |
| 9 - Pressure switch- High  | 24 - Pump   |
| 10 - Electronic expansion valve  | 25 - Flow meter   |
| 11 - Maintenance Door - Load   | 26 - Water storage tank   |
| 12 - Solenoid valve - 4-way  | 27 - Liquid separator   |
| 13 - Solenoid valve - Hot Gas Bypass   | 28 - Filter   |
| 14 - External temperature probe  | 29 - Capillary  |
| 15 - Evaporator input temperature probe in heating (condenser outlet in cooling) |   |



# 1.21 WIRING DIAGRAMS

## E-BOX TOP generic electrical connections diagram



Key (Fig. 64):

- A13 - System management board
- K70-1 - Multifunction relay
- K70-2 - Multifunction relay
- K70-3 - Multifunction relay
- K70-4 - Multifunction relay
- K70-5 - Multifunction relay
- K70-6 - Multifunction relay

Colour code key (Fig. 64):

- BK - Black
- BL - Blue
- BR - Brown
- CY - Cyan
- G - Green
- GY - Grey
- OR - Orange
- P - Purple
- PK - Pink
- R - Red
- W - White
- Y - Yellow
- G/Y - Yellow/Green



the maximum current given by the sum of all loads installed on relays 1 - 7 must not exceed 3 A.

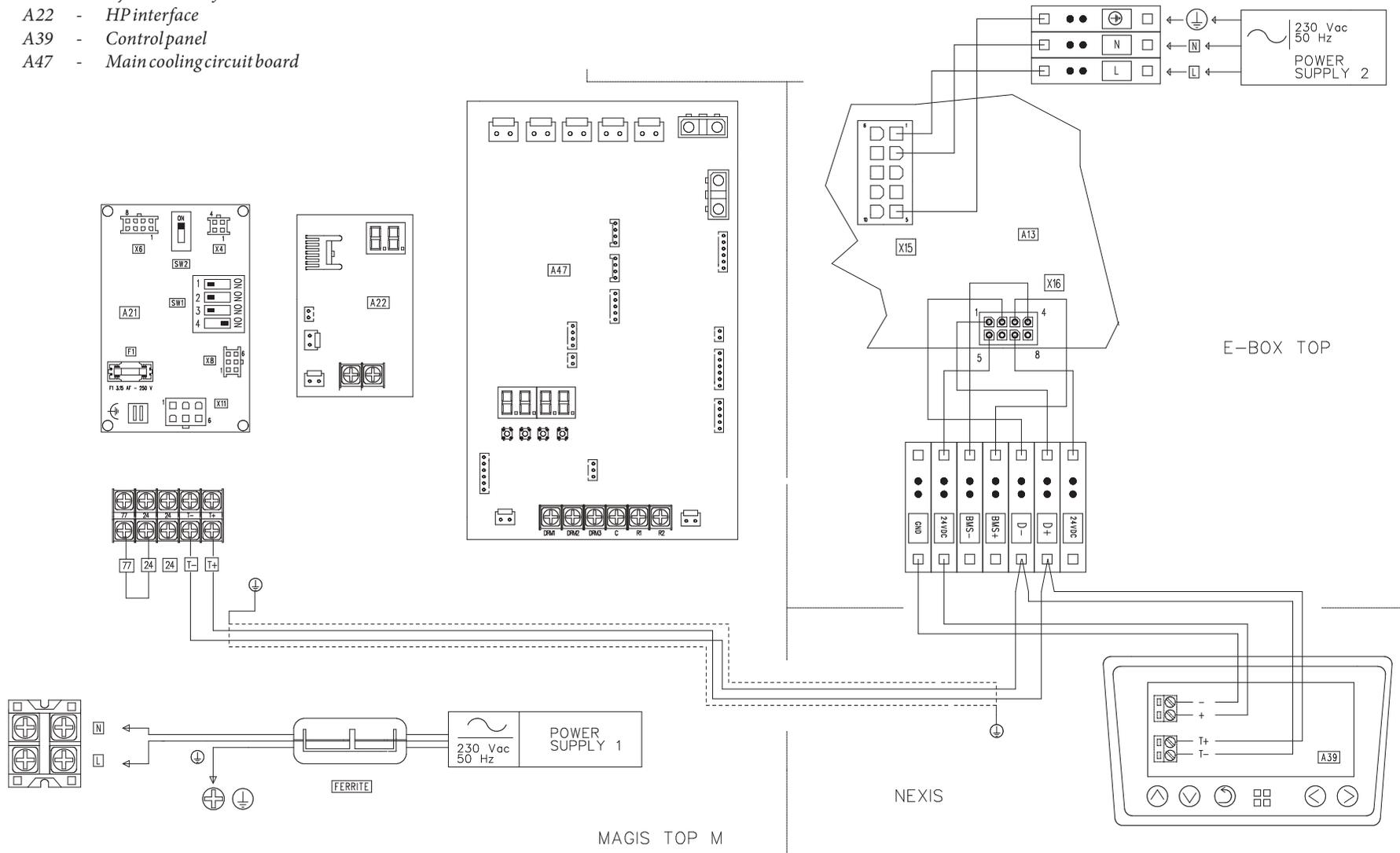


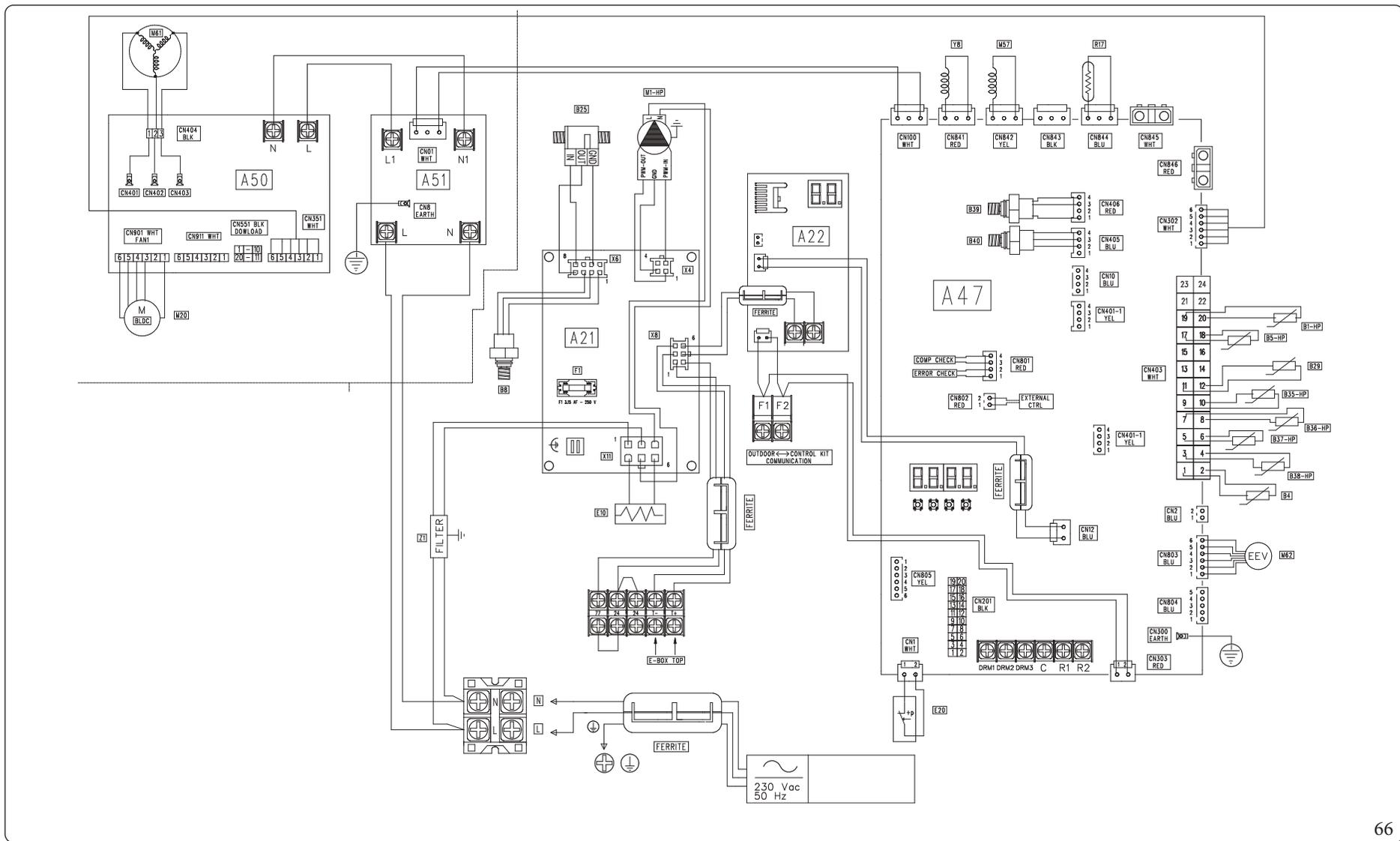
the maximum current given by the sum of all loads installed on relays 8 and 9 must not exceed 5 A.



Key (Fig. 65):

- A13 - Supervision board
- A21 - Hydronic interface board
- A22 - HP interface
- A39 - Control panel
- A47 - Main cooling circuit board





Key (Fig. 66):

- B1-HP - Heat pump flow probe
- B4 - External probe
- B5-HP - Heat pump return probe
- B8 - System pressure meter
- B25 - System flow-meter
- B29 - Liquid phase probe
- B35-HP - Compressor intake probe

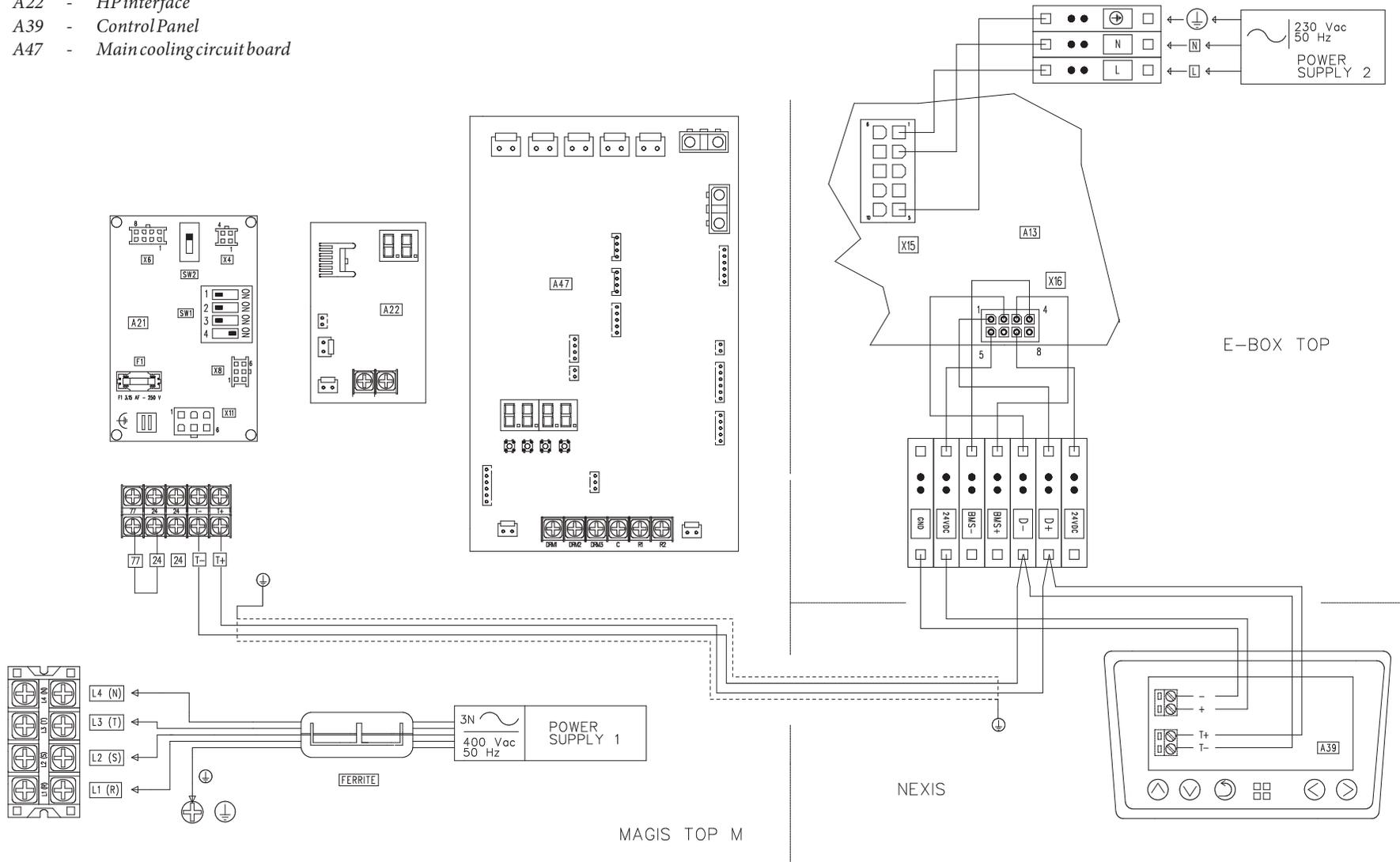
- B36-HP - Compressor high temperature probe
- B37-HP - Compressor outlet probe
- B38-HP - Condensate outlet probe
- B39 - High pressure sensor
- B40 - Low pressure sensor
- Y8 - Anti-freeze resistance
- E10 - High pressure thermostat
- E20 - Bypass valve

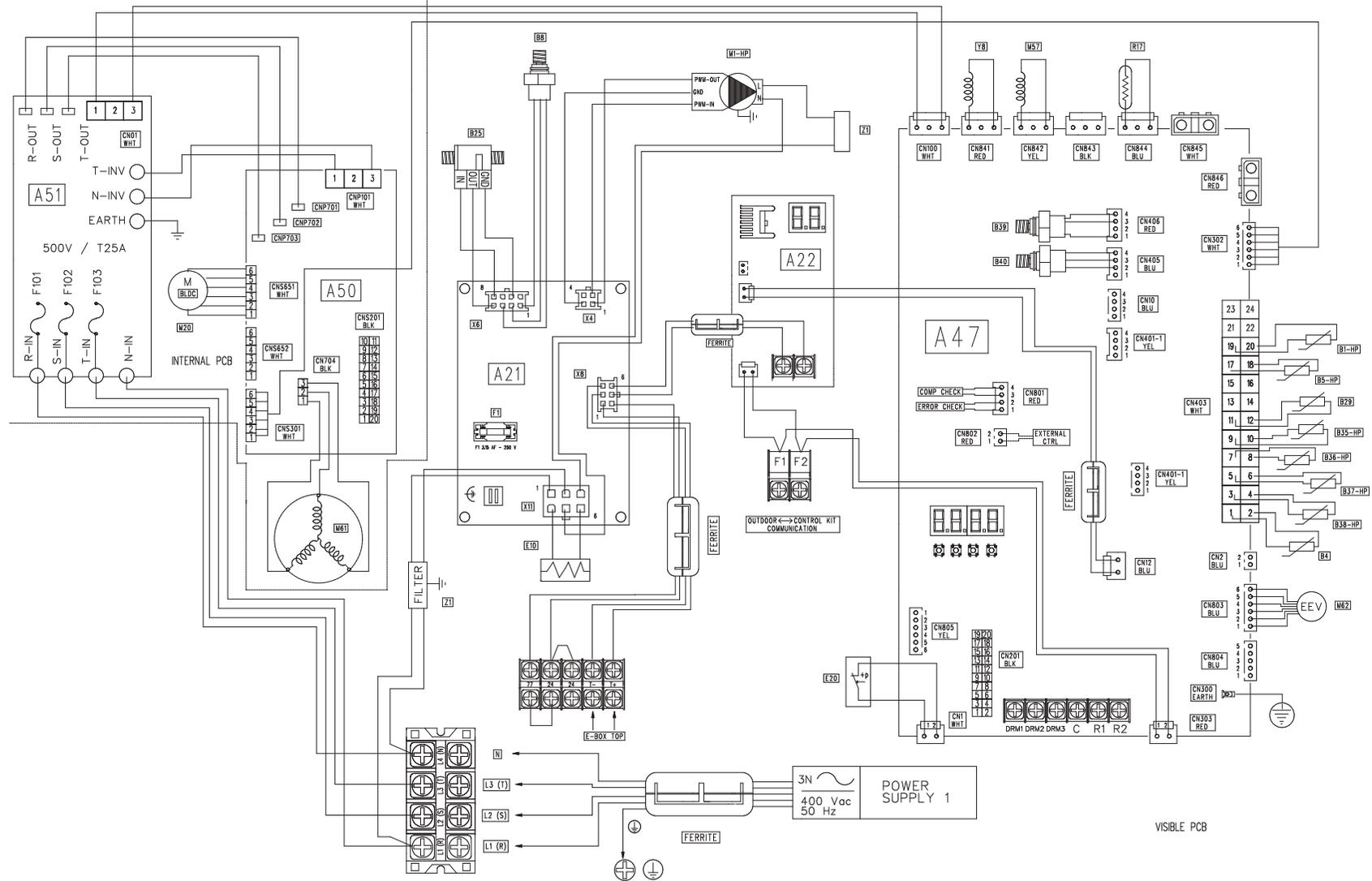
- M1-HP - Heat pump circulator
- M20 - Fan
- M57 - 4-way fan
- M61 - Heat pump compressor
- M62 - Expansion valve
- R17 - Frost resistance
- Z1 - Antijamming filter
- 1 - Internal boards
- 2 - Exposed boards



Key (Fig. 67):

- A13 - Supervision board
- A21 - Hydronic interface board
- A22 - HP interface
- A39 - Control Panel
- A47 - Main cooling circuit board





Key (Fig. 68):

- B1-HP - Heat pump flow probe
- B4 - External probe
- B5-HP - Heat pump return probe
- B8 - System pressure meter
- B25 - System flow-meter
- B29 - Liquid phase probe

- B35-HP - Compressor intake probe
- B36-HP - Compressor high temperature probe
- B37-HP - Compressor outlet probe
- B38-HP - Condensate outlet probe
- B39 - High pressure sensor
- B40 - Low pressure sensor

- Y8 - Anti-freeze resistance
- E10 - High pressure thermostat
- E20 - Bypass valve
- M1-HP - Heat pump circulator
- M20 - Fan
- M57 - 4-way fan
- M61 - Heat pump compressor

- M62 - Expansion valve
- R17 - Frost resistance
- Z1 - Antijamming filter
- 1 - Internal boards
- 2 - Exposed boards



Electrical connections diagram (Magis m top + S/W Diverter valve + DHW storage tank + storage tank integrative resistance + DHW recirculation)

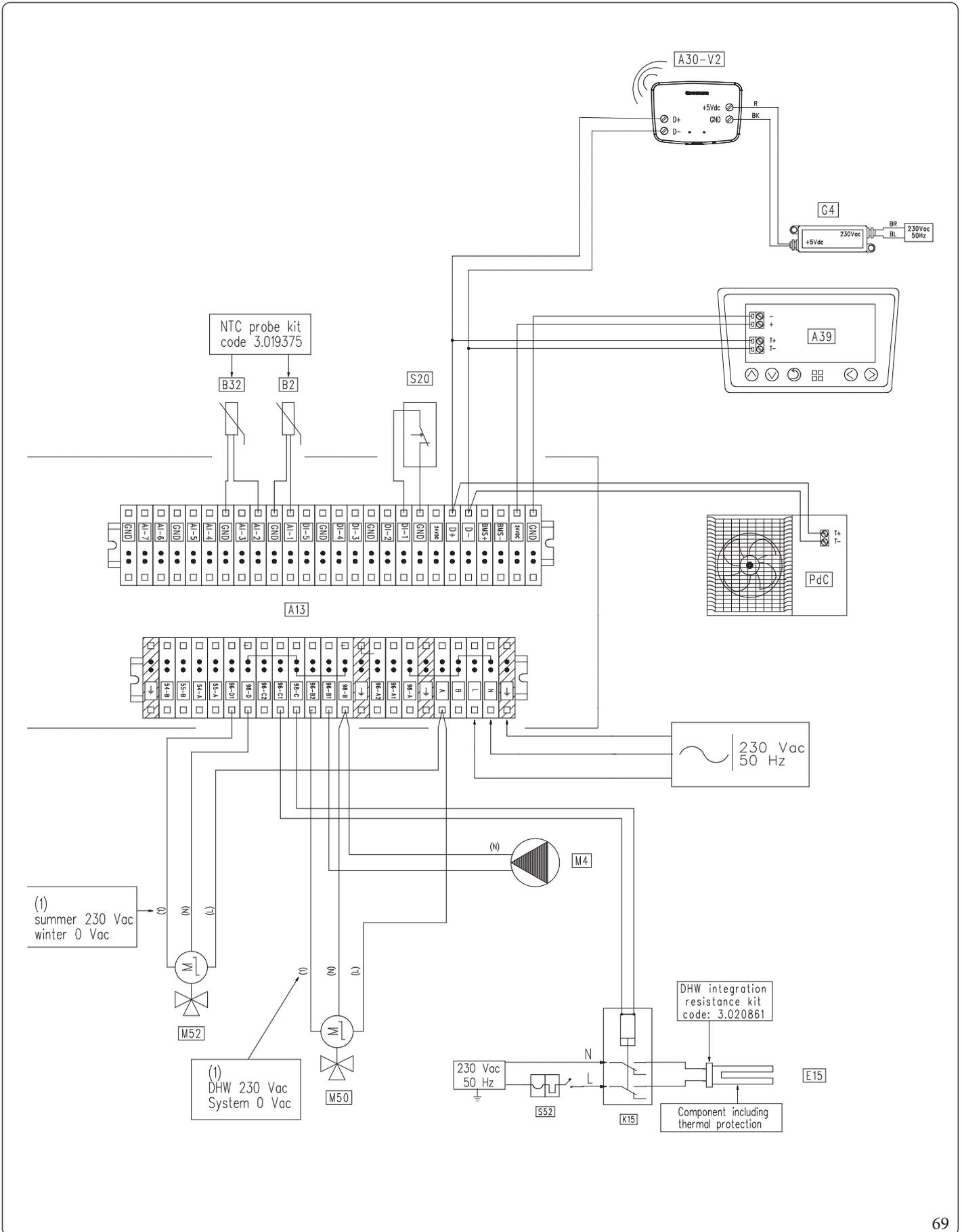
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Key (Fig. 69):

- A13 - E-BOXTOP board
- A30-V2 - Gateway V2 (optional)
- A39 - Nexis control panel
- B2 - Flow probe
- B32 - D.H.W. probe
- E15 - Domestic hot water integration resistance
- G4 - +5Vdc power supply (optional)
- K15 - DHW resistance relay (230 Vac, 25 A)
- M4 - Recirculation pump (230 Vac, 25 A)
- M50 - DHW 3-way valve
- M52 - S/W Diverter valve
- S20 - Zone 1 Room thermostat
- S52 - Circuit breaker switch

I/O configuration on Nexis (A39) (Fig. 69):

Parameter	Value
A101	1
A102	9
A108	3
A115	23
A116	11
A117	13
A119	21
A201	On
A209	On
A002	On
A003	On
A004	On
A014	On
A022	On
A054	On
R101	On
R102	On
I002	>0

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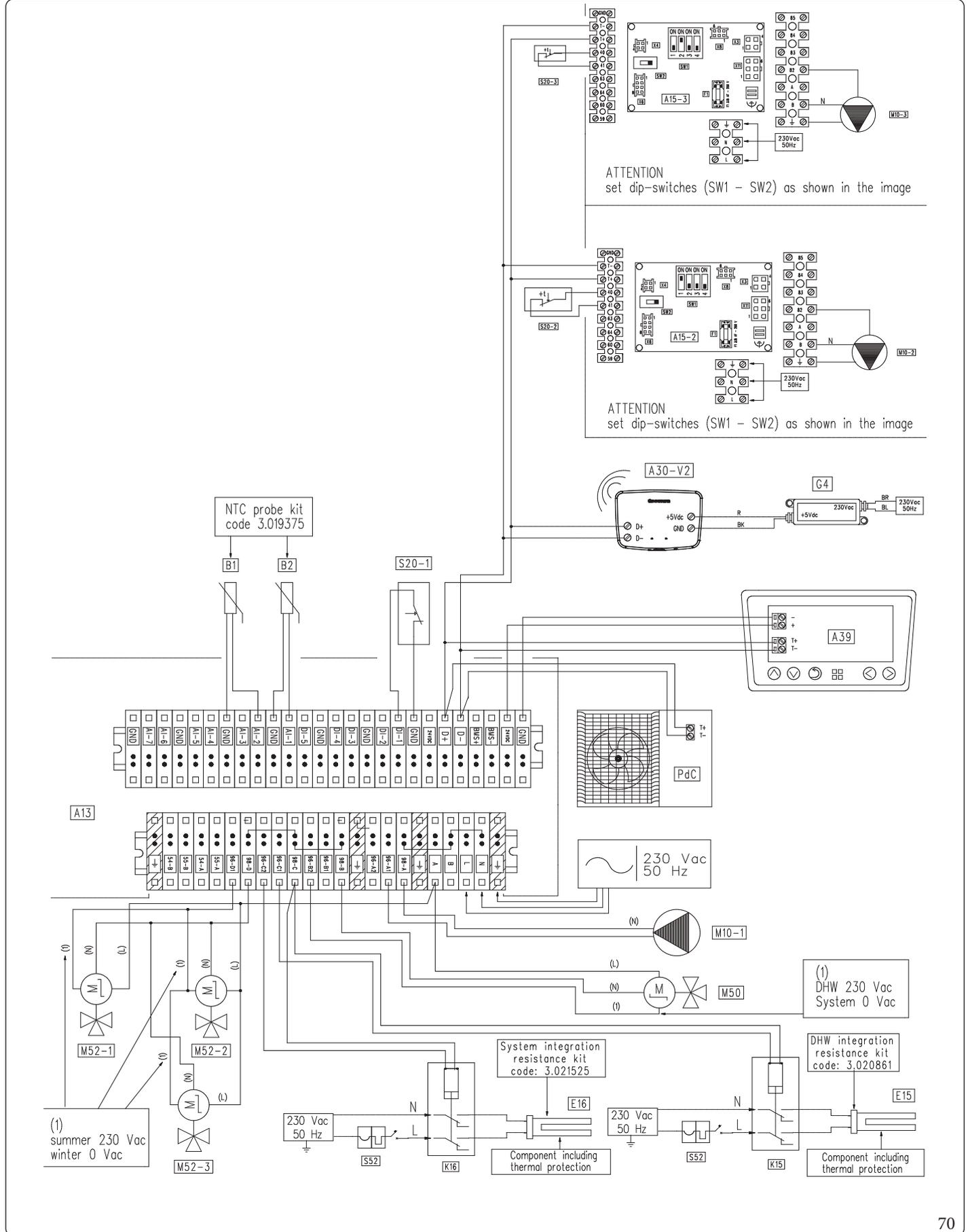
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Electrical connections diagram ( Magis M Top + 3 direct booster zones with T.A. + DHW storage tank + system integrative resistance+ storage tank integrative resistance+S/W diverter valve)



Key (Fig. 70):

- A13 - E-BOX TOP board
- A30-V2 - Gateway V2 (optional)
- A39 - Nexis control panel
- B1 - Flow probe
- B2 - D.H.W. probe
- E15 - Domestic hot water integration resistance
- E16 - System integrative resistance
- G4 - +5Vdc power supply (optional)
- K15 - DHW resistance relay (230 Vac, 25 A)
- K16 - System resistance relay (230 Vac, 25 A)
- M10-1 - Pump Zone 1 (230 Vac, 3A max)
- M10-2 - Pump Zone 2 (230 Vac, 3A max)
- M10-3 - Pump Zone 3 (230 Vac, 3A max)
- M50 - DHW 3-way valve
- M52-1 - S/W Diverter valve Zone 1
- M52-2 - S/W Diverter valve Zone 2
- M52-3 - S/W Diverter valve Zone 3
- S20-1 - Zone 1 Room thermostat
- S20-2 - Zone 2 Room thermostat
- S20-3 - Zone 3 Room thermostat
- S52 - Circuit breaker switch

I/O configuration on Nexis (A39) (Fig. 70):

Parameter	Value
A101	1
A102	8
A108	3
A109	4
A110	5
A113	22
A114	23
A115	24
A116	11
A117	13
A118	12
A119	21
A201	On
A209	On
A002	On
A003	On
A004	On
A014	On
A022	On
A057	On
R101	On
R102	On
R201	On
R202	On
R301	On
R302	On
I001	> 0
I002	> 0

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Key (Fig. 71):

- A13 - E-BOX TOP board
- A15-1 - Expansion Zone 1
- A15-2 - Expansion Zone 2
- A16-1 - Dehumidifier Zone 1
- A16-2 - Dehumidifier Zone 2
- A30-V2 - Gateway V2 (optional)
- A39-1 - NEXIS control panel Zone 1 (address 21)
- A39-2 - NEXIS control panel Zone 2 (address 22)
- A39-3 - NEXIS control panel Zone 3 (address 23)
- B1 - Flow probe
- B2 - D.H.W. probe
- B3-1 - Zone 1 flow probe
- B3-2 - Zone 2 flow probe
- E7-1 - Zone 1 safety thermostat
- E7-2 - Zone 2 safety thermostat
- E15 - Domestic hot water integration resistance
- E16 - System integrative resistance
- G4 - +24Vdc power supply
- G4-1 - +5Vdc Power supply
- K15 - DHW resistance relay (230 Vac, 25 A)
- K16 - System resistance relay (230 Vac, 25 A)
- M10-1 - Pump Zone 1 (230 Vac, 3A max)
- M10-2 - Pump Zone 2 (230 Vac, 3A max)
- M10-3 - Pump Zone 3 (230 Vac, 3A max)
- M31-1 - Zone 1 mixing valve
- M31-2 - Zone 2 mixing valve
- M50 - DHW 3-way valve
- S52 - Circuit breakers switch

I/O configuration on Nexis (A39) (Fig. 71):

Parameter	Value
A101	1
A102	8
A115	24
A116	11
A117	13
A118	12
A120	4
A121	5
A201	On
A209	On
A002	On
A003	On
A004	On
A014	On
A015	On
A016	On
A022	On
A023	On
A024	On
A054	On
A055	On
A056	On
R101	On
R102	On
R103	On
R105	On
R107	On
R201	On
R202	On
R203	On
R205	On
R207	On
R301	On
R305	On
I001	>0
I002	>0

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## 2 USER INSTRUCTIONS

### 2.1 GENERAL RECOMMENDATIONS



For safety purposes, the user must carefully read all that is in this manual in the section under their competence and should any doubts arise, before taking any initiative, must ask the installer or their maintenance technician (such as for example Immergas authorised service centre).



The device can be used by children at least 8 years old as well as by persons with reduced physical, sensory or mental capabilities, or lack of experience or required knowledge, provided that they are under surveillance, or after they have been instructed relating to the safe use and have understood the potential dangers.

Children must not play with the appliance.

Cleaning and maintenance destined to be performed by the user can not be carried out by unsupervised children.



If temporary shutdown of the HP is required, proceed as follows:

- a) drain the system if antifreeze is not used;
- b) shut off the electrical and water supply.



**Never clean the appliance or connected parts with easily flammable substances.**



Do not open or tamper with the appliance.



Only use the user interface devices listed in this section of the booklet.



**Do not climb on the appliance, do not use the appliance as a support base.**



In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts).

Do not attempt to modify or repair the appliance alone.



**Water at a temperature of more than 50 °C can cause serious burns.  
Always check the water temperature before any use.**



The temperatures indicated by the display have a tolerance of +/- 3°C due to environmental conditions that cannot be blamed on the appliance.



**If you smell burning or see smoke coming out of the appliance, switch it off, disconnect power and call an authorised company (e.g. Authorised Technical Assistance Centre).**



**At the end of its service life, the appliance must not be disposed of like normal household waste nor abandoned in the environment, but must be removed by a professionally authorised company as required by current legislation.  
Contact the manufacturer for disposal instructions.**



The use of components involving use of electrical power requires some fundamental rules to be observed such as:

- do not touch the appliance with wet or moist parts of the body;
- do not pull the electric cables;
- the appliance power cable must not be replaced by the user;
- in the event of damage to the cable, switch off the appliance and contact exclusively personnel professionally qualified pursuant to standards in force for its replacement;
- if the appliance is not to be used for a certain period, disconnect the main appliance external switch.

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## 2.2 CLEANING AND MAINTENANCE



To safeguard the integrity of the system and to keep its safety, performance and reliability features unchanged over time which distinguish the appliance, have maintenance carried out on a yearly basis (unless there are specific more stringent requirements due to the installation context and/or relevant legislation in force).

## 2.3 APPLIANCE SWITCH-OFF

Switch the appliance off by putting it in "off" mode and disconnect the main switch outside of the appliance. Never leave the appliance switched on if left unused for prolonged periods.

## 2.4 PROLONGED INACTIVITY

In case of prolonged inactivity (e.g. second home), we recommend:

1. to switch off the power supply;
2. completely empty the CH circuit (to be avoided if glycol is present in the system). In systems that are drained frequently, filling must be carried out with suitably treated water to limit hardness that can cause lime-scale.



If the appliance is shut down for a long time, protect the machine from freezing by installing the antifreeze valve kit or adding glycol to the circuit.

## 2.5 CLEANING THE CASE

1. Use damp cloths and neutral detergent to clean the appliance casing.



Never use abrasive or powder detergents.

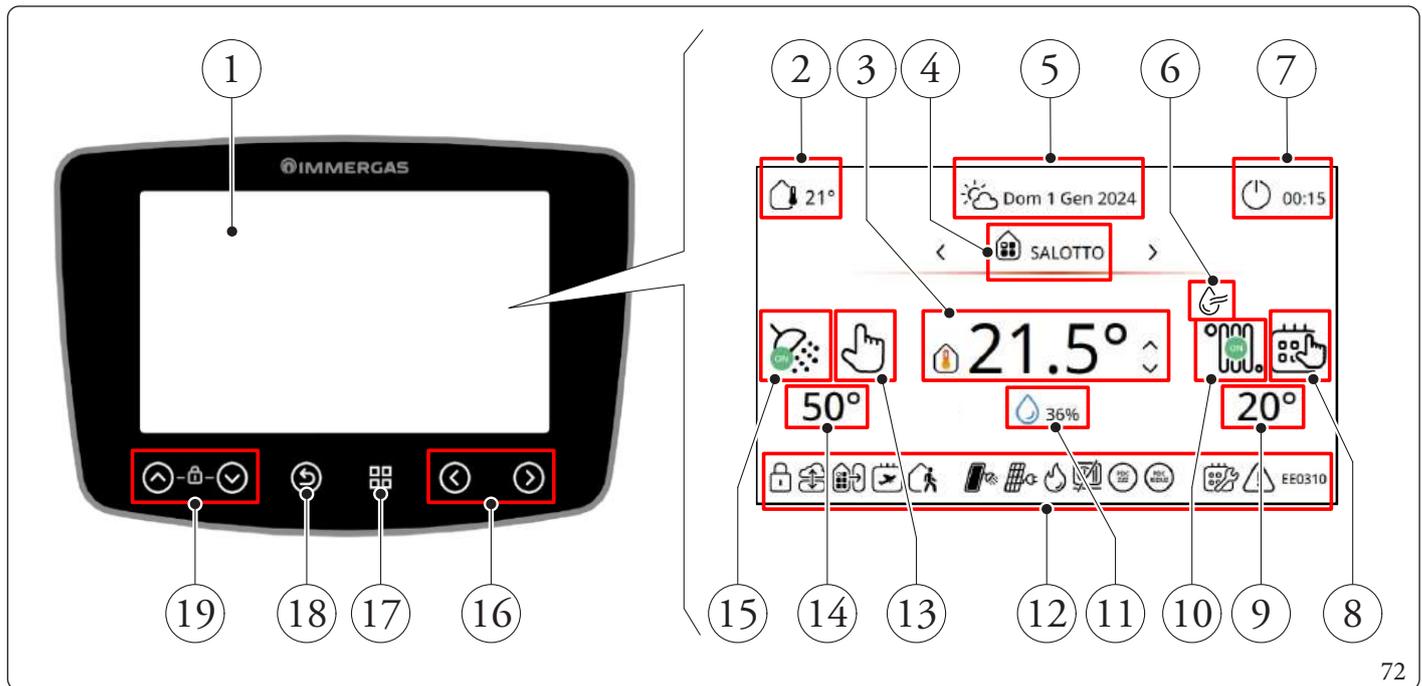
## 2.6 PERMANENT SHUTDOWN

Should the system be shut down permanently, have professional staff carry out the procedures, making sure that the electrical and water supply lines have been previously shut off.



# 3 CONTROL PANEL

## 3.1 HOME



Key (Fig. 72):

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 - Display.</li> <li>2 - Outdoor temperature display.</li> <li>3 - Room temperature of the displayed zone.</li> <li>4 - Name of the displayed zone.</li> <li>5 - Current date display.</li> <li>6 - "Dehumidifying in progress" icon.</li> <li>7 - View current operating mode and date.</li> <li>8 - View "zone mode".</li> <li>9 - Central heating flow set of the displayed zone.</li> <li>10 - "Generator status and zone request" display.</li> </ul> | <ul style="list-style-type: none"> <li>11 - Zone humidity value display.</li> <li>12 - View machine status icons.</li> <li>13 - View "DHW mode".</li> <li>14 - View "DHW set".</li> <li>15 - DHW status display.</li> <li>16 - Menu and zone change horizontal scrolling buttons.</li> <li>17 - Menu button (Confirm).</li> <li>18 - Back Button (Cancel).</li> <li>19 - Menu and temporary manual editing up and down scrolling buttons (press the buttons at the same time to lock/unlock the keyboard).</li> </ul> |
|--|---|

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### 3.1.1 System Use

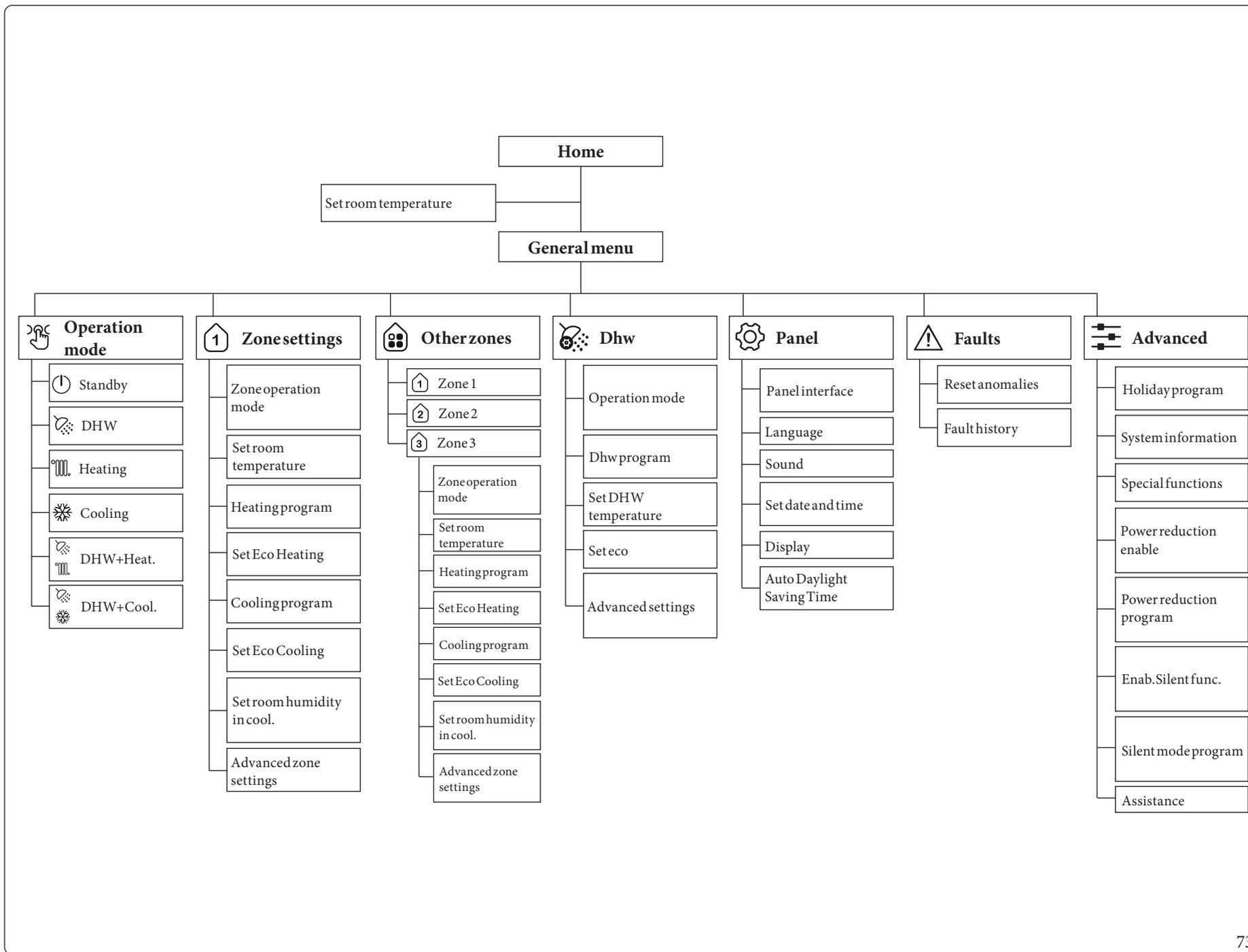
When switched on, the type of panel is displayed.

When switched on, the device will go to the status it was in before it was switched off.

The operating mode in use is indicated by its icon at the top of the display (Pos. 7, Fig. 72) and is unique for all zones. By pressing any button, the pushbutton panel lights up for a few seconds; in this way it is activated and ready to receive the subsequent commands. Depending on the system's configuration, the main screen displays various information regarding the system itself, amongst which:

Symbol	Description and operation
	Identification icon of zone controlled by Remote Panel (Temperature Humidity Probe or Remote Panel).
	Keyboard lock active
	Control from cloud on
	Control from external domotics on
	Scheduled maintenance
	Wi-Fi connection
	Zone temperature value
	Zone humidity value
	Zone mode (Off, Manual, Program, Temporary manual)
	Generator mode and zone heating/cooling request in progress
	Dehumidifier in progress
	Anomaly present
	Generator mode in stand-by
	DHW enabled/in progress/"Boost"

Symbol	Description and operation
	Holiday program
	"Away" function on
	Active photovoltaic function
	Compressor on
	Heat pump disabling
	DHW in manual/program/temporary manual mode
	Heat pump power reduction on
	"Silent mode" on
	Lower bar machine status icons
<b>EE0310</b>	



### 3.2 GENERAL MENU

Press the button  on the "Home" page to access the "General menu". Use the up/down scroll buttons  /  to scroll the menu functions and press the button  to access the selected submenu.

Symbol	Title	Description
	<b>Operation mode</b>	Allows you to select the desired operating mode.
	<b>Zone settings</b>	Allows you to set the desired parameters for the Zone assigned to the panel.
	<b>Other zones</b>	Allows you to set the desired parameters for other Zones.
	<b>Dhw</b>	Contains all the settings of the domestic hot water circuit.
	<b>Panel</b>	Contains the panel settings.
	<b>Faults</b>	Allows you to view the detected faults and the log.
	<b>Advanced</b>	Grants access to the advanced functions of the appliance.

### 3.3 OPERATION MODE

Select the desired operating mode by scrolling within the panel using the up/down scrolling buttons  / . Press the button  to confirm the selected mode.

Operating mode	Description	DHW	Cooling	Central heating	Protection function (antifreeze, ...)
	Standby	Disabled	Disabled	Disabled	Activated
	Dhw	Enabled	Disabled	Disabled	Activated
	Heating	Enabled	Disabled	Enabled	Activated
	Cooling	Disabled	Enabled	Disabled	Activated
	DHW + Heating	Enabled	Disabled	Enabled	Activated
	DHW + Cooling	Enabled	Enabled	Disabled	Activated



The Anti-legionella function is NOT active in the following modes: Off, Standby and Holiday mode active.



## 3.4 ZONE SETTINGS

### 3.4.1 Zone operation mode

Use the up/down scrolling buttons  /  to select the desired operating mode among those available:

- **Auto**  
Room temperature is controlled automatically by the system depending on the value set in the time slots set in the calendar; outside of these time slots, room temperature is controlled depending on the value set in **Set Eco Heating** (see paragraph 3.4.4) or **Set Eco Cooling** (see paragraph 3.4.4). It is nonetheless possible to set a value different from that scheduled by means of "4".

- **Man**  
Room temperature is controlled by the system exclusively depending on the value set in **Set room temperature** (see paragraph 3.4.2).
- **Off**

No set room temperature, the room is only protected against freezing.

### 3.4.2 Set room temperature

Once the submenu has been selected, click the key  to enter editing. Use the up/down scrolling keys /  /  to edit the desired temperature value: in **Auto** mode it is also possible to set how long the setting will be maintained or whether to terminate it immediately. Confirm the change by pressing  to confirm or undo the change by pressing .

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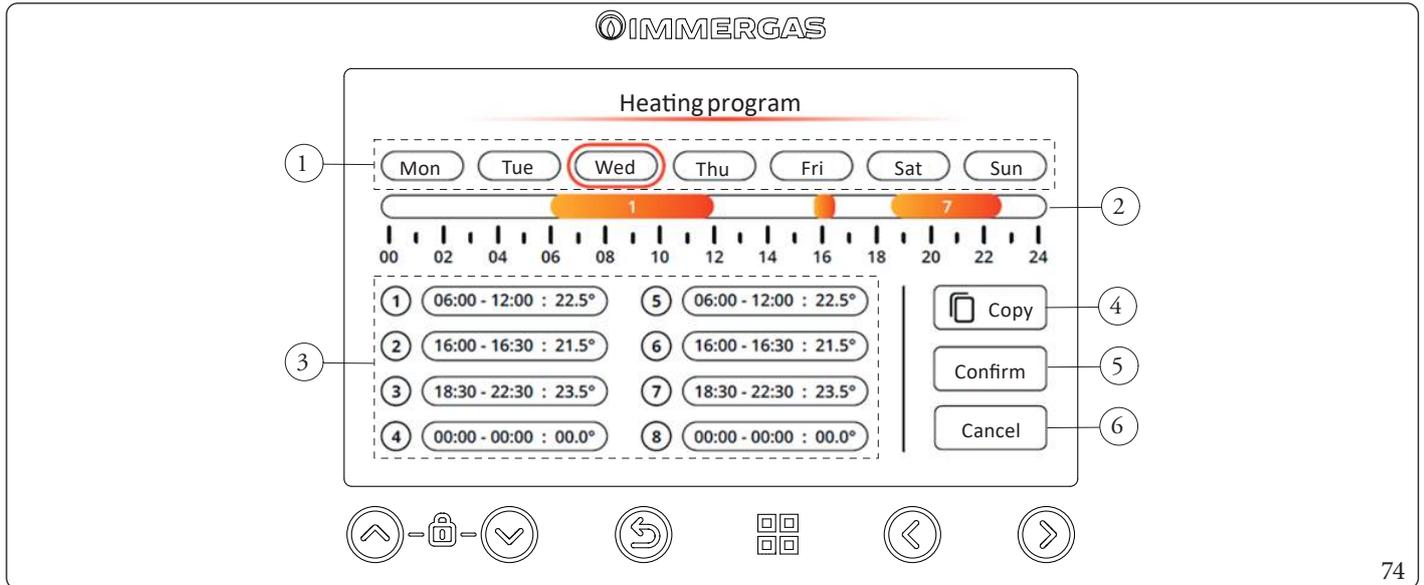
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### 3.4.3 Heating program

The page allows the weekly and daily programming of the system to be displayed and set.



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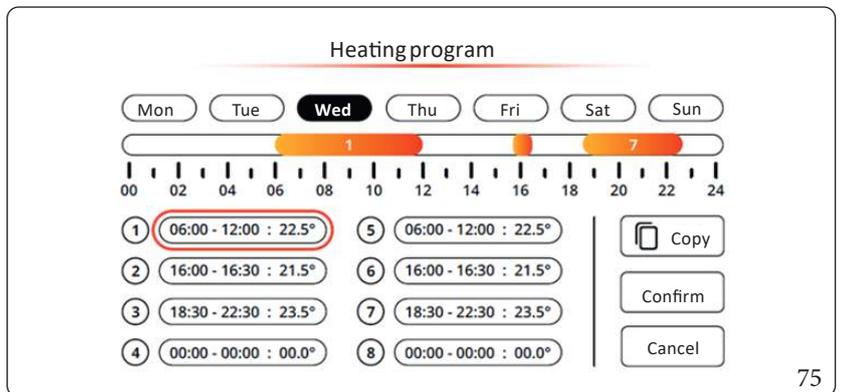
Key (Fig. 74):

- |  |                    |
|--|--------------------|
| 1 - Day of the week selection box.         | 4 - "Copy" button. |
| 2 - Graphic display of hourly programming. | 5 - Key "Confirm". |
| 3 - Programming time slots.                | 6 - Key "Cancel".  |

The vertical scroll buttons (up/down) and horizontal scroll buttons (left/right) allow you to navigate the page. Moving the cursor within the weekday box displays the daily schedule for the last selected day.

When the cursor leaves the day bar, the selected day is highlighted and switching does not change the start and end fields (if from time slot 5 I switch to Wednesday, going back to the time slots the cursor will automatically go back to 5).

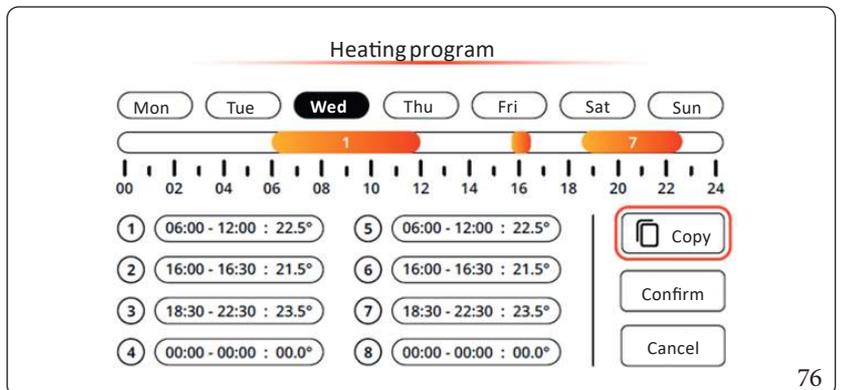
With the cursor on a time slot (Fig. 75), the grid icon button activates the "edit time slot" function, allowing the daily schedule to be changed by using the vertical scroll buttons (up/down) to select the switch-on and switch-off time and the required temperature.



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With the cursor on a day, the grid icon button selects the desired day and moves the cursor to "copy" (Fig. 76).

With the cursor on "copy" the grid icon button switches to "copy programming" mode (the key is highlighted and the cursor goes to the current day, considered the copy source).



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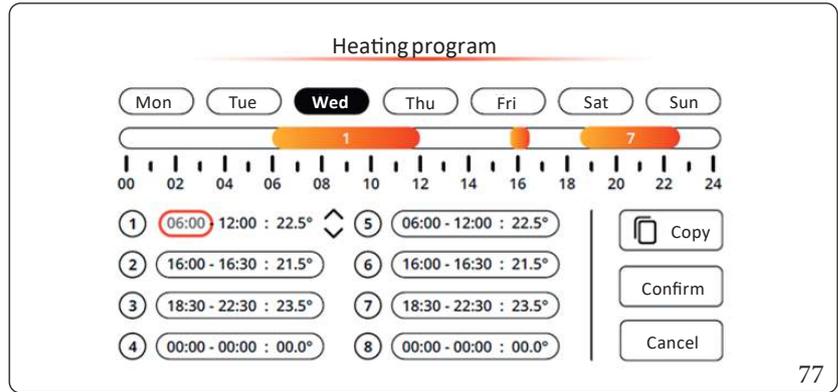
Press the grid icon button with the cursor on "Confirm" (Ref. 5 Fig. 74) to confirm any changes set and return the cursor to the last selected day. Press the grid icon button with the cursor on 'undo' (Ref. 6 Fig. 74) to delete any changes set and return the cursor to the last selected day.

- Edit Time Slot

In the "Edit Time Slot" mode, the horizontal scroll buttons (◀) / (▶) allow you to select start time, stop time and temperature value (Fig. 77).

With the up/down scrolling buttons (⬆) / (⬇) you may edit the values inside the selected field; the graphical display of the schedule (Ref.2 Fig. 74) will update accordingly.

Press the (⏪) button to exit "Edit Time Slot" mode. The cursor goes back to the original time slot without confirming any changes. If you continue to press the key, the panel goes back to the "Home" page (Fig. 72).

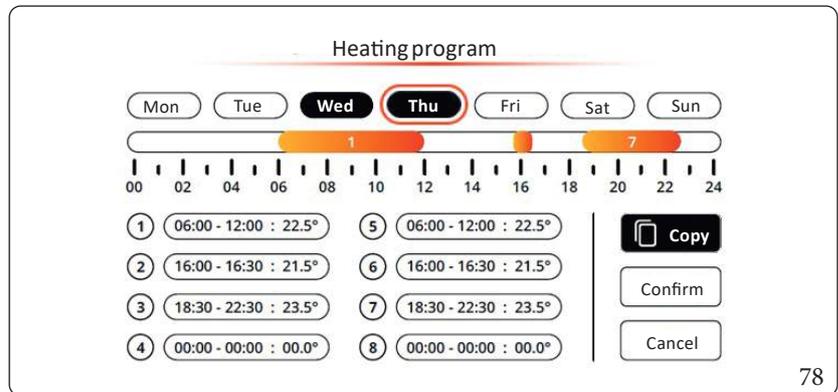


**N.B.:** it is not possible to move the cursor away from the time slot while being edited.

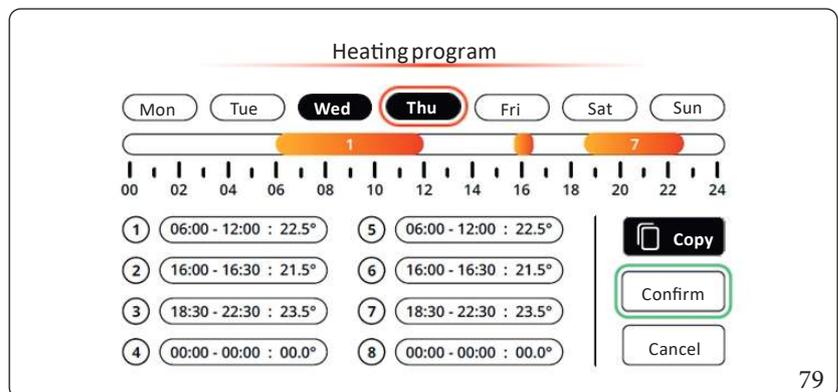
**N.B.:** the time slot value is only present if the request from room temperature probe or ambient adjustment are enabled.

• Copy Program

With "copy program" mode active, use the horizontal scroll buttons (◀) / (▶) to select the target days on which to copy the source program (copied from the last day of the week selected before clicking on the 'copy' command) (Fig. 78).



Once the target days have been selected, move the cursor to "Confirm" (Ref.5 Fig. 74) and click the (⏪) button to confirm the changes set and exit the "Copy Program" mode (Fig. 79).



Clicking the (⏪) button with the cursor on "Copy" or "Cancel" (Ref.4/6 Fig. 74) ends the "Copy Program" mode and cancels any changes made to the programming.

Pressing the (⏪) button exits the "Copy Program" mode with the cursor positioned on the "Copy" command (Ref.4 Fig. 74) without confirming any change. If you continue to press the key, the panel goes back to the "Home" page (Fig. 72).

**N.B.:** moving the cursor within the programming time slots will end the "Copy Program" mode without confirming any changes set.

3.4.4 Set Eco Heating

Use the up/down scrolling buttons (⬆) / (⬇) to select the desired temperature for central heating mode when the zone is not in time slot active. Confirm the required value by clicking (⏪).



### 3.4.5 Set Eco Cooling

Use the up/down scrolling buttons  /  to select the desired temperature for cooling mode when the zone is not in time slot active. Confirm the required value by clicking .

### 3.4.6 Cooling program

To set the **Cooling program** do the same as described in paragraph 3.4.3 "Heating program(Central Heating Program)".

### 3.4.7 Set room humidity in cool.

Use the up/down scrolling buttons  /  to select the humidity value for the dehumidify function. · Confirm the desired value by clicking .

### 3.4.8 Advanced zones settings

Use the up/down scrolling buttons  /  to move the cursor to the advanced settings to be edited and press  to change it.

- Room temperature control(On/Off)
- Climatic thermoregulation(On/Off)
- Heating water set(°C)
- Heating water correction(°C)
- Cooling water set(°C)
- Cooling water correction(°C)
- Dehumidifier disabling(On/Off)
- Start dehumidifier disabling(hh:mm)
- End dehumidifier disabling(hh:mm)
- Climatic zone name(Zone X, Kitchen, Bedroom, Living room, etc.)

By not enabling **Room Temperature Control** and **Climatic thermoregulation**, the system temperature can be set permanently with the Heating water set (and Cooling water set) parameter.

By enabling **Room Temperature Control**, the set system temperature is calculated automatically by the management board. The calculation includes reduction of the system set to the increase in room temperature.



**Note:** to activate this function, you must have a remote device to read the room temperature.

By enabling **Climatic thermoregulation**, the system set temperature is calculated automatically by the management board according to the measured outdoor temperature. The calculation is the result of the curve set by means of parameters R130- R131 (Zone 1), R230-R231 (Zone 2) and R330-R331 (Zone 3).

Once the curve has been set, you may change the system set by means of the Heating water correction (or Cooling water correction) parameters.

The system is set up, as per standard, to use the heat pump external probe or an optional external probe. It is possible to enable thermal adjustment for each individual zone.

## 3.5 OTHER ZONES

Select the desired zone by scrolling within the panel using the up/down scrolling buttons  / . Press the button  to open the settings of the desired Zone (See paragraph 3.4 "Zone settings").

## 3.6 DHW

### 3.6.1 Operation mode

Use the up/down scrolling buttons  /  to select the desired operating mode among those available:

- **Auto**(Automatic)

The required domestic hot water temperature is given by the value set in the time slot of the calendar and the "**Set DHW temperature**" value (see paragraph 3.6.3) outside.

- **Man**(Manual)

### 3.6.2 DhW program

To set the **DhW program** do the same as described in paragraph 3.4.3 "Heating program(Central Heating Program)".

### 3.6.3 Set DHW temperature

Once the submenu has been selected, click the key  to enter editing. Use the up/down scrolling buttons  /  to edit the desired temperature value. Confirm the change by pressing  to confirm or undo the change by pressing . In **Auto** mode you may also set for how long the setting will be maintained or whether to end it immediately.

### 3.6.4 Set eco

Use the up/down scrolling buttons  /  to select the desired temperature for DHW mode when the appliance is in Eco mode. Confirm the required value by clicking .

### 3.6.5 Advanced settings

Use the up/down scrolling buttons  /  to move the cursor to the advanced settings to be edited and press  to change it.

- **Boost functions**

Dhw operation takes place with the contribution of both the heat pump and the electrical resistance, with a logic that minimises storage tank charging time:

**On**: function always on regardless of programming.

- **Function Anti-legionella**

Function to perform a thermal shock on the storage tank:

**Every Mon-Tue-Wed-Thu-Fri-Sat-Sun**: the function is activated every week on the chosen day at the time set in **Anti-legion.cycle time**.

**Everyday**: the function is activated every day at the time set in **Anti-legion.cycle time**.

- **Anti-legion.cycle time**(hh:mm)

- **Enable DHW recirculation**

function provides the greatest possible comfort in domestic hot water supply by constantly circulating the water.

The **Enable DHW recirculation** function activates the pump in the time slots set with the recirculation program and in the time between these slots, it automatically switches the pump on and off to maintain the same DHW set temperature.

- **Recirculation program**

To set the **Recirculation program** do the same as described in paragraph 3.4.3 "Heating program(Central Heating Program)".



### 3.7 PANEL

Use the up/down scrolling buttons  /  to move the cursor to the advanced settings to be edited and press  to change it.

- Panel interface(Simple/Complete)
- Language
- Sound(On/Off)
- Set date and time(use the navigation keys  /  /  /  to set the date and time and then confirm
- Display(illumination time/illumination level/minimum illumination level)
- Auto Daylight Saving Time

### 3.8 FAULTS

Within the menu, it is possible to view the Fault history occurred and to carry out the Reset anomalies.

Use the navigation buttons  /  /  /  to move the cursor into the menu and select the desired submenu.



## 3.9 ADVANCED

### 3.9.1 Holiday program

If required, it is possible to pause system operation for an established period, during which the antifreeze function is nonetheless guaranteed.

Use the navigation buttons  /  /  /  and the button  to activate the mode and set its following parameters:

- Enable(On/Off)
- Start date(day:month:year)
- Start time(hh:mm)
- End date(day:month:year)
- End time(hh:mm)

### 3.9.2 System information

Use the navigation buttons  /  /  /  and the button  to browse inside the menu and view the system information.

#### System information

- Mode set
- Calculated system temperature set
- System flow temp.
- Return temperature
- Screed heater(days remaining)
- System status
- System flow rate

#### Zone Information

- Current room temp setpoint
- Current room temperature value
- Current room humidity setpoint
- Current room humidity value
- Requested system temperature
- Current system temperature
- Dew point temperature
- Room Thermostat Stat.

#### Heat Pump Information

- HP Mode test
- HP Mode heat
- HP Mode cool
- HP Thermal Power
- HP Flow Temperature
- HP Return Temperature
- Compressor Outlet Temp.
- Compressor Discharge Temp.
- Expansion Valve Position
- Exchanger Refrigerant Temp.
- Coil temperature
- HP External Temp.
- HP Frequency
- HP Operating Status
- System status
- HP Electrical Power
- Fan speed
- HP Setpoint
- Pump speed
- HP Flow Meter

#### Integration information (if any)

- System integration
- DHW integration
- Heat Pump COP
- Central heating integration hours
- DHW integration hours



**Board versions information**

- FW System management board
- Build System management board
- FW Control panel
- Build Control panel
- Heat pump
- Panels (if any)
- Zone µHydro (if any)
- Hydro Slave 1 (if any)
- T/H Board (if any)
- Relay Board (if any)

**3.9.3 Special functions**

Use the navigation buttons  /  /  /  and the button  to browse inside the menu and set the required functions.

- **Disable system integration**(On/Off)

The use of the system integration electrical resistances can be permanently disabled by setting the value on On.

- **Disable DHW integration**(On/Off)

The use of the DHW integration electrical resistances can be permanently disabled by setting the value on On.

- **Deaeration**(On/Off)

In the case of new systems and, in particular, for floor systems, it is very important that de-aeration is performed correctly. The function consists in the pumps and 3-way valve running cyclically for about 9 hours.

To activate the function, the appliance must be in standby mode.

The function is activated by setting the value on On.

- **Screed heater**(On/Off)

The HP is equipped with a function to perform the thermal shock on new radiant panel systems, as required by the applicable standard. Contact the manufacturer of the radiant panels for the thermal shock characteristics and its correct execution.

To be able to activate the function there must be no remote control connected, while in case of system divided into zones it must be properly connected, both hydraulically and electrically.

The active zone pumps are those with ongoing requests, made via the room thermostat input. The function lasts in total 7 days - 3 days at the lowest temperature set and 4 days at the highest temperature set.

To activate the function, the appliance must be in standby mode.

The function is activated by setting: General menu/Advanced/Special functions/Screed heater = On.

Only the Installer/Maintenance technician authorised by means of Assistance menu can edit the temperature parameters.

**3.9.4 Power reduction enable**

Use the up/down navigation buttons  /  and the button  to switch the function on/off.

**3.9.5 Power reduction program**

To set the Heat Pump Power reduction program, follow the procedure in paragraph 3.4.3 "Heating program(Central Heating Program)".

**3.9.6 Silent mode program**

To set the Silent operation program, follow the procedure in paragraph 3.4.3 "Heating program(Central Heating Program)".



## 3.10 ASSISTANCE

The functional parameters of the appliance can be edited in the menu.

Only the authorised Installer/Maintenance personnel may access the submenu, by entering the password.

### 3.10.1 Description of functions and parameter settings

#### 3.10.1.1 Zone adjustment and zone pump management

The product is supplied configured for operation on mixed or direct single zone systems (Zone 1). If needed, it can manage an additional zone pump, a mixing valve and a zone flow probe (not included in supply) to make Zone 1 mixed.

2 further OPTIONAL mixed or direct zones can be added (Zone 2 and Zone 3).

A mixed zone is defined automatically by configuring the mixing valve for that zone (by configuring the output, see List of parameters A1 or installation of the Additional Zone Expansion Kit)

In the case of mixed Zone 2 or Zone 3, it is necessary to install a 230 VAC mixing valve with actuating time equal to or greater than 120 seconds and a zone flow probe installed after the valve.

The zones are enabled from Menu / Advanced / Service / A (See paragraph 3.10.3 "List of Parameters A - System Definition") by means of parameters A014 (enable zone 1), A015 (enable zone 2) and A016 (enable zone 3).

Each zone can be paired to a zone remote panel or to a room probe and/or a room temperature room thermostat.

Set parameters A022-A024 at ON to enable the remote panels.

Set the parameters A030-A032 at ON to enable the room probes (humidity temperature).

To enable the room thermostats, configure the digital inputs setting parameters A108-A112 at the following values:

3 - Zone 1 room thermostat;

4 - Zone 2 room thermostat;

5 - Zone 3 room thermostat.



**Note:** failing to configure a digital input as room thermostat implies that that thermostat is always closed; the demand must be controlled by the room probe.



To enable the demand with room probe, enable one or more of the parameters R105 (enable room temperature probe for zone 1), R205 (enable room temperature probe for zone 2) and/or R305 (enable room temperature probe for zone 3) depending on the zones enabled.



In case of simultaneous installation of expansion board and dehumidifier board in the same area, the humidistat contact must be connected to the expansion board.

#### 3.10.1.2 Room Antifreeze Function

The room frost protection function serves to ensure the protection of system components. If the room temperature of the zone falls below the limit set in **Menu / Advanced / Service / R1 / R125** for zone 1 (R225 for zone 2 and R325 for zone 3), the heat pump is switched on until the set antifreeze temperature is reached.

To enable this function, a zone remote panel or a zone humidity temperature probe is required.

#### 3.10.1.3 DHW Antifreeze Function

The DHW antifreeze function protects the internal components of the system in standby mode.

If the temperature of the storage tank drops below 4°C, the system automatically switches on one of the generators available based on the environmental conditions, heat pump or electric resistance, to heat the storage tank until it reaches a temperature of 8°C.

#### 3.10.1.4 Integration with system electrical resistance

The heat pump can be added with a system electrical resistance (optional) to be installed inside the appliance, to have an alternative source of energy available for use in central heating mode.

Enabling the electrical resistance is done via a single parameter.

Modifying the parameter

##### Menu / Advanced / Service / I / I001

you enable and decide whether to activate the integrative electric resistance to perform the central heating mode alternately (I001 = 1) or simultaneously (I001 = 2).

Modifying the parameter

##### Menu / Advanced / Service / I / I003

you decide the time after which the electrical resistance is activated at the same time as the heat pump if the set flow setpoint is not reached.



If simultaneous mode is selected, there is another parameter

**Menu / Advanced / Service / I / I013**

with which to lower the setpoint temperature limit that must be reached by the heat pump within "Central heating wait time" before activating the integrative electric resistance.

With alternative integration mode, the wait time does not affect the functioning algorithm.

In normal operation, the integration resistance is only activated when the outdoor temperature is below the parameter

**Menu / Advanced / Service / I / I009**

- with alternative mode, only the resistance is activated;
  - with simultaneous mode, the resistance and heat pump are activated simultaneously after the heating wait time.
- The first served operating mode, in case of contemporaneity, is decided with the parameter:

**Menu / Advanced / Service / P / I012**

**3.10.1.5 Integration with DHW electrical resistance**

A DHW electric resistance can be added to the heat pump (optional).

Enabling the electrical resistance is done via a single parameter.

Modifying the parameter

**Menu / Advanced / Service / I / I002**

you enable and decide whether to activate the integrative electric resistance to perform the DHW mode alternately (I002 = 1) or simultaneously (I002 = 2).

Modifying the parameter

**Menu / Advanced / Service / I / I007**

you decide the time after which the electrical resistance is activated at the same time as the heat pump if the set DHW setpoint is not reached.

With alternative integration mode, the wait time does not affect the functioning algorithm.

In normal operation, the integration resistance is only activated when the outdoor temperature is below the parameter

**Menu / Advanced / Service / I / I006**

- with alternative mode, only the resistance is activated;
  - with simultaneous mode, the resistance and heat pump are activated simultaneously after the heating wait time.
- The first served operating mode, in case of contemporaneity, is decided with the parameter:

**Menu / Advanced / Service / P / I012**

The DHW Mode can have a maximum duration, settable with the parameter

**Menu / Advanced / Service / C / I015**

beyond which the alarm is signalled.

**3.10.1.6 Domestic hot water pump (optional)**

The DHW recirculation function provides the greatest possible comfort in domestic hot water supply by constantly circulating the water. The DHW recirculation function activates the pump in the time slots set with the recirculation program and in the time between these slots, it automatically switches the pump on and off to maintain the same DHW set temperature or a lower temperature corrected by means of the DHW recirculation offset function.

Recirculation can also be activated at the end of the anti-Legionella function for a time defined with the parameter, **C010** so as to extend thermal treatment to the recirculation circuit as well.

To enable the DHW recirculation function, it is necessary to:

- install the circulation probe and the circulation pump, configure them on the respective inputs/outputs (see paragraph 3.10.5 "List of Parameters A1 - Inputs/Outputs Definition"), and enable recirculation by editing the parameter:

**Menu / Advanced / Service / A / A007**

- To correct the recirculation temperature, which when reached stops the pump, the DHW recirculation offset must be set at a value other than zero.
- For example, DHW set 45°C, recirculation offset -5°C, the pump will stop when the temperature read by the recirculation probe reaches a value of 40°C.
- To set it, adjust the parameter:

**Menu / Advanced / Service / C / C004**

- It is possible to activate the anti-Legionella function on the DHW recirculation circuit at the end of the anti-Legionella function. The mixing valve should be present with this configuration.



- - To set it, adjust the parameter:

### **Menu / Advanced / Service / C / C003**

The operation of the pump can be further reduced by setting the time slots as desired in the DHW advanced settings menu.

#### **3.10.1.7 Silent mode**

To enable this heat pump noise reduction function, you must configure the board as described in chapter **SETTING MICROSWITCHES AND FUNCTION KEYS**:

### **Menu / Advanced / Enable silent mode = On**

One can then choose whether to activate the noise reduction function according to a schedule by setting time slots in the menu:

#### **Silent mode program.**

#### **3.10.1.8 System Setpoint correction**

In the presence of hydraulic disconnections on the system downstream of the appliance distribution circuit, it is possible to activate a function that makes it possible to correct the request setpoint to the generator to approach the set zone setpoint as much as possible. The corrections can be made either in central heating or in cooling mode and, if enabled, apply to all active zones.

To activate this FUNCTION also in direct zone it is necessary to install the zone flow probe (optional) connected to the terminal block of the supervision board.

Activation takes place by setting the parameters

**A008**(Enable Flow Setpoint Correction) = On

**P007**(Central heating generator maximum flow) > 0°C

**P008**(Cooling generator minimum flow) > 0°C

**P020**(Maximum flow offset) > 0°C

Otherwise, if you wish to compensate the heat losses between the generator and distribution manifold, you may use this function in reference to the system flow probe (optional) by setting in **Menu/Advanced/Service/A1** an analogue input = 8.

#### **3.10.1.9 DHW diverter valve management**

Setting a digital output = 11 in **Menu/Advanced/Service//A1** allows you to manage a DHW diverter valve.

Contact closure occurs in DHW mode.

#### **3.10.1.10 Summer/winter diverter valve control**

Setting a digital output = 21 in **Menu/Advanced/Service//A1** allows you to manage a summer/winter diverter valve.

Contact closure occurs in Summer mode.

#### **3.10.1.11 Conjunction function**

In case of simultaneous DHW (Domestic hot water) and system request, the system decides which to service to perform on the basis of an alternating logic determined by the system.

It is possible to modify this logic, so that the system simultaneously deals with both services, using the generators available.

This mode can be activated by setting the parameter I010 (see paragraph 3.10.10 "List of parameters I - Integration Settings").

You must also enable the DHW electric resistance by setting the parameter I002 (see paragraph 3.10.10 "List of parameters I - Integration Settings").

#### **3.10.1.12 Dehumidification function**

The dehumidification function with dehumidifiers (optional) can be carried out based on two different modes (neutral air or cooled air) and based on three different types of devices:

2. Zone remote panel;
3. Temperature/humidity sensor.
4. Humidistat.

#### **Neutral air mode.**

with the first and second type of devices, only the dehumidification request is activated if the humidity value detected by the panel/humidity sensor exceeds the value set in the "Zone Settings" menu.

In the third case, as soon as the humidistat On/Off contact is closed.

The dehumidification request in neutral air means starting up the Immergas dehumidifier (optional) so as to reduce the humidity without modifying the room temperature.



**Cooled air mode.**

With the first device, Cooled Air mode starts up if, both the humidity and temperature read by the panel/remote control are higher than the set values.

With the second device, the Cooled Air mode starts up if, in addition to the humidity read by the probe is greater than the set value, the On/Off contact of the thermostat also closes.

With the third, it is activated when both On/Off contacts of the zone humidistat and thermostat are closed. The cooled air dehumidification request means activating the Immergas dehumidifier (optional, the Dehumidifier board kit is required) in a different mode that adds an additional room cooling capacity, in addition to dehumidification.

In the presence of a floor system, it is necessary to avoid the formation of condensate in the floor by enabling the use of the dew temperature calculation, provided a zone remote panel or a temperature/humidity probe has been installed and configured as probe:

**Menu/Advanced/Service/R1/R110=ON**

To enable it in zones 2 and 3, configure the corresponding parameter **R210** And **R310**.

**3.10.1.13 Deaeration function**

In the case of new systems and, in particular, for floor systems, it is very important that de-aeration is performed correctly.

The function consists of the cyclic activation of the pumps and 3-way valves.

The function is activated by setting

**Menu/Advanced/Service/M/M001 = On**

De-aeration lasts 17 hours and it can be interrupted by setting

**Menu/Advanced/Service/M/M001 = OFF**

**3.10.1.14 Testmode function**

When using block heat pump test operation or Test mode, you must set the HP in an operating mode other than "Stand-by".

The Testmode function can be used by means of the K microswitch (see paragraph 1.17-.17 "Testmode operating test").

The alarm 183 is triggered during the test, meaning "Test mode" in progress.

**3.10.1.15 Photovoltaic function**

It is possible to configure the appliance so that the energy produced by a photovoltaic system is used to store it in the DHW storage tank by increasing the set point to 65°C.

The activation of the Photovoltaic function is generated by the closing of a digital contact configured =13 (potential-free contact) from the photovoltaic inverter. It is signalled by a specific symbol on the control panel.

**3.10.1.16 Anti-Legionella function**

The appliance is equipped with a function to perform a thermal shock on the storage tank.

This function brings the appliance temperature to the maximum allowed.

Reaching a temperature of 65°C automatically activates the holding function. With holding function active, recirculation enabled and recirculation calendar in slot ON, the DHW recirculation pump is activated until the recirculation probe detects the set DHW temperature set point.

The function is managed by means of the parameters described in paragraph 3.10.8 "List of Parameters C - DHW Settings"



Install a thermostatic valve on the domestic hot water outlet to prevent scalding.

**3.10.1.17 Antifreeze protection**

In order to prevent the hydraulic components from freezing, the appliance is equipped with frost protection functions which, at low temperatures, activate the pump, the generator and a heating cable (provided by standard). Activation of the components is managed by logics that aim to guarantee protection with a view to save energy.

Nevertheless, if the power supply fails these functions cannot guarantee protection, and this is why it is necessary to perform one of the following actions in order to protect the circuit from frost:

- Install the antifreeze protection valves (not supplied by Immergas) with the maximum tripping temperature of 4°C, which drain water from the unit before it can freeze. If the heat pump is installed for cooling as well, it is recommended to install an antifreeze valve model (not supplied by Immergas) equipped with air sensor.
- Add glycol to the system with the aim of lowering the freezing point. (for the features, see paragraph "Unit protection with antifreeze liquid (glycol)").

## Protection with antifreeze function and antifreeze valves

This function protects the unit down to a minimum temperature of -15°C if powered correctly.

In the event of a power failure, these functions are not capable of guaranteeing protection. It is therefore necessary to install antifreeze protection valves with air sensor (not supplied by Immergas) which drain the water from the unit before it can freeze.



With rigid outside temperatures, the antifreeze protection functions could trigger the generator frequently, thus contributing to raise consumption.



The anti-freeze protection for the unit through the antifreeze functions is only ensured if:

- The units (Magis M TOP and E-BOX TOP) and the control panel are correctly connected to the power supply circuit and constantly supplied and connected to each other;
- The essential components of the antifreeze unit and/or kit are not faulty.

## Unit protection with antifreeze liquid (glycol)

The heat pump's hydraulic circuit is always protected against frost, even with a power failure, by always using an antifreeze liquid.

In this case, it will be necessary to disable the antifreeze functions by configuring the presence of glycol in the system with parameter **Menu/Advanced/Service/B/B001 = On**, which are enabled as per standard.

In the presence of antifreeze liquid, the unit is protected down to a minimum temperature of -25°C.

Protect the central heating circuit from freezing by inserting a good-quality antifreeze liquid, which is specially suited for central heating systems and which is manufacturer guaranteed not to cause damage to the heat exchanger or other components of the units.

The freezing protection solutions must be based on propylene glycol with toxicity degree class 1, as indicated in the volume "Clinical Toxicology of Commercial Products", 5<sup>th</sup> edition.

The materials used for the central heating circuit of Immergas units resist ethylene and glycol based antifreeze liquids (if the mixtures are prepared perfectly). Adding glycol lowers the freezing point of water.

The required concentration depends on the lowest expected outdoor temperature. Add glycol according to the indications of the table below.

An aqueous solution must be made with potential pollution class of water 2 (EN 1717:2002).

For life and possible disposal, follow the supplier's instructions.

Freezing points of propylene glycol - mixed in water

Percentage of propylene glycol [weight. %]	Freezing point [° F]	Freezing point [° C]
0	32	0
10	26	-3
20	20	-7
30	10	-12
36	0	-18
40	-4	-20
43	-9	-23
45	-13	-25
48	-20	-29



The warranty does not cover damage resulting from failure to use the antifreeze liquid or the antifreeze valves in case of a power failure or failure to comply with that set out in the previous paragraphs.

In climatic and plant engineering conditions where the aforementioned conditions cannot occur, it is possible not to adopt the above two options; the choice is only made once the plant engineer has made a careful assessment and Immergas shall not be held liable in case of damage to persons, animals and property.



Ensure proper frost protection of the outdoor connection pipes between unit and system.



If glycol is added to water, do NOT install the antifreeze valves (not supplied by Immergas) so that glycol does not leak from the antifreeze valves into the environment.



### 3.10.2 List of Parameters R - Zone Settings

Menu item			Function	Description	Range	Default	Customised value
Zone 1	Zone 2	Zone 3					
R101	R201	R301	Zone enabled for Central heating	Enables the zone for central heating	On/Off	ON	
R102	R202	R302	Zone enabled for Cooling	Enables the zone for cooling	On/Off	ON	
R103	R203	R303	Zone enabled for Dehumidification	<p>If the system is paired to a humidistat (optional) or to a zone remote panel (optional) or to a temperature and humidity probe (optional), room humidity can be controlled in the summer air-conditioning phase.</p> <p>– When paired to a humidistat, set the humidity degree on the humidistat itself (see relative instruction booklet).</p> <p>– If the system is paired to a humidity temperature sensor or to a zone remote panel, set the humidity percentage in the relative User menu in Room humidity set in cooling mode</p>	On/Off	OFF	
R104	R204	R304	Reserved		On/Off	OFF	
R105	R205	R305	Enable Room Temperature Probe	Defines control of the room temperature with room probe (Remote panel or H/T probe)	On/Off	OFF	
R106	R206	R306	Enable Room probe modulation	Enable modulation with room probe (copy of the parameter Room. probe modul. in the user manual)	On/Off	OFF	
R107	R207	R307	Enable Room Humidity Probe	Defines control of the room humidity with room probe (Remote panel or H/T probe)	On/Off	OFF	
R108	R208	R308	Dehumidifier disabling	Parameter to disable dehumidifier (copy of the parameter Dehumidifier disabling in the user manual)	On/Off	OFF	
R109	R209	R309	Enable climate modulation	enable modulation with external probe (copy of the parameter Climatic thermoregulation in the user manual)	On/Off	OFF	
R110	R210	R310	Dew point enabling	In the presence of a remote device to detect room temperature, enables calculation of the dew point	On/Off	OFF	

Menu item			Function	Description	Range	Default	Customised value
Zone 1	Zone 2	Zone 3					
R115	R215	R315	Room probe correction (temperature)	Correction of room temperature read by remote device sensor	-10 - 10 (°C)	0	
R116	R216	R316	Room probe correction (humidity)	Correction of room humidity read by remote device sensor	-20 ÷ 20 (%)	0	
R117	R217	R317	Cooling Max Flow Set	With Enable Climate Modulation=OFF it defines the maximum flow that the user can set in cooling mode. With Enable Climate Modulation=ON present it defines the maximum flow temperature in cooling corresponding to operation with Cooling Min External Temperature	Cooling Min External Temperature - Cooling Generator Maximum Flow (°C)	20	
R118	R218	R318	C.H. Max Flow Set	With Enable Climate Modulation=OFF it defines the maximum flow that the user can set in CH mode. With Enable Climate Modulation=ON present it defines the maximum flow temperature in central heating corresponding to operation with CH Min External Temperature	CH Min External Temperature - CH Generator Maximum Flow (°C)	55	
R119	R219	R319	Cooling Min Flow Set	With Enable Climate Modulation=OFF it defines the minimum flow that the user can set in cooling mode. With Enable Climate Modulation=ON present it defines the minimum flow temperature in cooling corresponding to operation with Cooling Max External Temperature	Cooling Generator Minimum Flow - Cooling Max Flow Set (°C)	7	
R120	R220	R320	C.H. Min Flow Set	With Enable Climate Modulation=OFF it defines the minimum flow that the user can set in CH mode. With Enable Climate Modulation=ON present it defines the minimum flow temperature in central heating corresponding to operation with CH Max External Temperature	CH Generator Minimum Flow - CH Max Flow Set (°C)	20	

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Menu item			Function	Description	Range	Default	Customised value
Zone 1	Zone 2	Zone 3					
R121	R221	R321	Max Cooling external temperature	With Enable Climate Modulation=ON it defines at which maximum external temperature the system must operate at Max Cooling Flow Set	20 - Min Cooling External Temperature > (°C)	25	
R122	R222	R322	Max CH external temperature	With Enable Climate Modulation=ON it defines at which maximum external temperature the system must operate at Max CH Flow Set	-25 - Min CH External Temperature > (°C)	-5	
R123	R223	R323	Min Cooling External Temperature	With Enable Climate Modulation=ON it defines at which maximum external temperature the system must operate at Min Cooling Flow Set	Max Cooling external temperature -46 (°C)	35	
R124	R224	R324	Min CH External Temperature	With Enable Climate Modulation=ON it defines at which maximum external temperature the system must operate at Min CH Flow Set	Max CH external temperature - 45 (°C)	25	
R125	R225	R325	Room Antifreeze SetPoint (0.1°C)	Minimum room setpoint below which the antifreeze protection is triggered	4 - 10 (°C)	4	
R126	R226	R326	Reserved			180	
R128	R228	R328	Reserved				
R129	R229	R329	Neutral Air Dehumidify Flow Set	Reserved/Not used	5 - 50 (°C)	20	
R130	R230	R330	Climatic curve heat	Menu to define with Enable Climatic modulation=ON the climatic curve in central heating			
R131	R231	R331	Climatic curve cool	Menu to define with Enable Climatic modulation=ON the climatic curve in cooling			

### 3.10.3 List of Parameters A - System Definition

Menu item	Function	Description	Range	Default	Customised value
A001	Board configuration (0:Master, 1: slave)			0	
A002	Central heating mode enabling	Enables the system to operate in central heating	On/Off	On	
A003	Cooling mode enabling	Enables the system to operate in cooling	On/Off	On	
A004	DHW mode enabling	Enables the system to operate in DHW	On/Off	Off	
A005	DHW Boost enabling	Enables the system to activate the DHW boost	On/Off	Off	
A006	Anti-legionella enabling	Enables the system to activate the disinfection function (thermal shock)	On/Off	Off	
A007	Enable recirculation	Enables the system to activate the recirculation function	On/Off	Off	
A008	Enable flow setpoint correction		On/Off	Off	
A009	Enable Holiday Program	Enables the system to activate the Holiday function			
A010	Reserved				
A011	Disable system integrative resistance	Disable the system integration resistance (copy of the parameter Disable system integration in the user menu)			
A012	Disable DHW integration resistance	Disable DHW integration resistance (copy of the parameter Disable system integration in the user menu)			
A013	Enabling Gateway WiFi	Enabling connection to WiFi remote device	On/Off	Off	
A014	Enabling Zone 1	Enabling zone 1 of the system	On/Off	On	
A015	Enabling Zone 2	Enabling zone 2 of the system	On/Off	Off	
A016	Enabling Zone 3	Enabling zone 3 of the system	On/Off	Off	
A017	Reserved				
A018	Reserved				
A019	Reserved				
A020	Reserved				
A021	Reserved				
A022	Zone 1 remote panel enabling	Enabling the remote panel of zone 1 of the system	On/Off	On	
A023	Zone 2 remote panel enabling	Enabling the remote panel of zone 2 of the system	On/Off	Off	
A024	Zone 3 remote panel enabling	Enabling the remote panel of zone 3 of the system	On/Off	Off	
A025	Reserved				
A026	Reserved				
A027	Reserved				
A028	Reserved				
A029	Reserved				

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### 3.10.4 List of Parameters A - System Definition

Menuitem	Function	Description	Range	Default	Customised value
A030	Modbus zone 1 temp./humidity probe enabling		On / Off	Off	
A031	Modbus zone 2 temp./humidity probe enabling		On / Off	Off	
A032	Modbus zone 3 temp./humidity probe enabling		On / Off	Off	
A033	Reserved				
A034	Reserved				
A035	Reserved				
A036	Reserved				
A037	Reserved				
A038	Enabling expansion deum zone 1		On / Off	Off	
A039	Enabling expansion deum zone 2		On / Off	Off	
A040	Enabling expansion deum zone 3		On / Off	Off	
A041	Reserved				
A042	Reserved				
A043	Reserved				
A044	Reserved				
A045	Reserved				
A046	Reserved		On / Off	Off	
A047	Reserved		On / Off	Off	
A048	Reserved		On / Off	Off	
A049	Reserved				
A050	Reserved				
A051	Reserved				
A052	Reserved				
A053	Reserved				
A054	Reserved				
A055	Enabling expansion E-BOX zone 1	Enabling expansion for zone 1 to control a mixed zone	On / Off	Off	
A056	Enabling expansion E-BOX zone 2	Enabling expansion for zone 2 to control a mixed zone	On / Off	Off	
A057	Enabling expansion E-BOX zone 3	Enabling expansion for zone 3 to control a mixed zone	On / Off	Off	
A058	Reserved				
A059	Reserved				
A060	Reserved				
A061	Reserved				
A062	Reserved				



### 3.10.5 List of Parameters A1 - Inputs/Outputs Definition

Menu item	Function	Description	Range	Default	Customised value
A101	Analogue input 1	Parameter for configuring analogue input 1 AI-1 0. Off 1. DHW probe 2. Reserved 3. Reserved 4. Reserved 5. Zone 1 flow probe 6. Zone 2 flow probe 7. Zone 3 flow probe 8. System flow probe 9. DHW recirculation probe 10. External probe	0 ÷ 10	0	
A102	Analogue input 2	Parameter for configuring analogue input 2 AI-2. See notes Analogue input 1	0 ÷ 10	0	
A103	Analogue input 3	Parameter for configuring analogue input 3 AI-3. See notes Analogue input 1	0 ÷ 10	0	
A104	Analogue input 4	Parameter for configuring analogue input 4 AI-4. See notes Analogue input 1	0 ÷ 10	0	
A105	Analogue input 5	Parameter for configuring analogue input 5 AI-5. See notes Analogue input 1	0 ÷ 10	0	
A106	Analogue input 6	Parameter for configuring analogue input 6 AI-6. See notes Analogue input 1	0 ÷ 10	0	
A107	Analogue input 7	Parameter for configuring analogue input 7 AI-7. See notes Analogue input 1	0 ÷ 10	0	
A108	Digital input 1	Parameter for configuring digital input 1 DI-1 0. Off 1. Reserved 2. Reserved 3. Zone 1 room thermostat 4. Zone 2 room thermostat 5. Zone 3 room thermostat 6. Zone 1 humidistat 7. Zone 2 humidistat 8. Zone 3 humidistat 9. Zone 1 dehumidifier alarm 10. Zone 2 dehumidifier alarm 11. Zone 3 dehumidifier alarm 12. Disable HP 13. Photovoltaic 1 (smart grid1) 14. Reserved 15. Heating/cooling contact 16. Zone 1 safety thermostat 17. Zone 2 safety thermostat 18. Zone 3 safety thermostat	0 ÷ 18	0	



Only the pumps in digital outputs 1, 2 and 3 can be configured.  
Only the pumps in digital outputs 8 and 9 can be configured.  
It is not possible to apply the same configuration to two different digital outputs.

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Menuitem	Function	Description	Range	Default	Customised value
A109	Digital input 2	Parameter for configuring digital input 2 DI-2. See notes Digital input 1	0 ÷ 18	0	
A110	Digital input 3	Parameter for configuring digital input 3 DI-3. See notes Digital input 1	0 ÷ 18	0	
A111	Digital input 4	Parameter for configuring digital input 4 DI-4. See notes Digital input 1	0 ÷ 18	0	
A112	Digital input 5	Parameter for configuring digital input 5 DI-5. See notes Digital input 1	0 ÷ 18	0	
A113	Digital output 1	Parameter for configuring digital output 1 relay 10A 96-A10. Off 1. Dehumidification control in cooled air zone 1 2. Dehumidification control in cooled air zone 2 3. Dehumidification control in cooled air zone 3 4. Dehumidification control in cooled air zone 1 5. Dehumidification control in cooled air zone 2 6. Dehumidification control in cooled air zone 3 7. Generic alarm 8. Reserved 9. Reserved 10. Reserved 11. DHW diverter valve 12. CH integrative resistance 13. DHW integrative resistance 14. Reserved 15. Zone 1 mixing valve (open) 16. Zone 1 mixing valve (close) 17. Zone 2 mixing valve (open) 18. Zone 2 mixing valve (close) 19. Zone 3 mixing valve (open) 20. Zone 3 mixing valve (close) 21. Summer/winter diverter valve (Summer) 22. Zone 1 pump 23. Zone 2 pump 24. Zone 3 pump 25. System booster pump/System phase active 26. DHW recirculation control 28. DHW booster pump/DHW phase active	0 ÷ 28	0	



Only the pumps in digital outputs 1, 2 and 3 can be configured.  
Only the pumps in digital outputs 8 and 9 can be configured.  
It is not possible to apply the same configuration to two different digital outputs.

Menuitem	Function	Description	Range	Default	Customised value
A114	Digital output 2	Parameter for configuring digital output 2 relay 10A 96-A2. See notes Digital output 1	0 ÷ 28	0	
A115	Digital output 3	Parameter for configuring digital output 3 relay 10A 96-B1. See notes Digital output 1	0 ÷ 28	0	
A116	Digital output 4	Parameter for configuring digital output 4 relay 5A 96-B2. See notes Digital output 1	0 ÷ 28	0	
A117	Digital output 5	Parameter for configuring digital output 5 relay 5A 96-C1. See notes Digital output 1	0 ÷ 28	0	
A118	Digital output 6	Parameter for configuring digital output 6 relay 5A 96-C2. See notes Digital output 1	0 ÷ 28	0	
A119	Digital output 7	Parameter for configuring digital output 7 relay 5A 96-D1. See notes Digital output 1	0 ÷ 28	0	
A120	Digital output 8	Parameter for configuring digital output 8 potential-free contact relay 55-A 54-A. See notes Digital output 1	0 ÷ 28	0	
A121	Digital output 9	Parameter for configuring digital output 9 potential-free contact relay 55-B 54-B. See notes Digital output 1	0 ÷ 28	0	



Only the pumps in digital outputs 1, 2 and 3 can be configured.  
 Only the pumps in digital outputs 8 and 9 can be configured.  
 It is not possible to apply the same configuration to two different digital outputs.

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### 3.10.6 List of Parameters A2 - Generator Definition

Menuitem	Function	Description	Range	Default	Customised value
A201	Heat pump 1	Enabling of heat pump 1	On / Off	On	
A202	Reserved		On / Off	Off	
A203	Reserved		On / Off	Off	
A204	Reserved		On / Off	Off	
A205	Reserved		On / Off	Off	
A206	Reserved		On / Off	Off	
A209	Heat pump 1 for DWH	Enabling of heat pump 1 for DHW operation. Configuration required to manage DHW demands with this heat pump	On / Off	On	
A210	Reserved		On / Off	Off	
A211	Reserved		On / Off	Off	
A212	Reserved		On / Off	Off	
A213	Reserved		On / Off	Off	
A214	Reserved		On / Off	Off	



### 3.10.7 List of Parameters P - System Settings

Menu item	Function	Description	Range	Default	Customised value
P001	Power reduction enable	Parameter for enabling the heat pump maximum power reduction. (copy of parameter in user menu) Enabling this function will reduce the maximum operating power of the heat pump by the percentage set in the power reduction program.	On/Off	Off	
P002	Reserved				
P003	Reserved		On/Off	Off	
P004	Reserved		On/Off	Off	
P005	Maximum system flow correction	Generator required setpoint correction hysteresis	-10 - 10 (°C)	0	
P006	Cooling Generator Maximum Flow	Maximum settable flow setpoint for generator in cooling	Cooling Generator Minimum Flow - 5 (°C)	25	
P007	Central Heating Generator Maximum Flow	Maximum settable flow setpoint for generator in central heating	Central Heating Generator Minimum Flow - 15 (°C)	75	
P008	Cooling Generator Minimum Flow	Minimum settable flow setpoint for generator in cooling	5 - Cooling Generator Maximum Flow	5	
P009	Central Heating Generator Minimum Flow	Minimum settable flow setpoint for generator in central heating	15 - Central Heating Generator Maximum Flow	15	
P012	DHW priority	Defines the order with which to manage a DHW demand. 0: it meets the first demand received until it is fully met 1: the system and DHW demands are managed alternately for a maximum time of Previous DHW time and Previous system time 2: the DHW demand always overrides the system demand		0	
P015	Reserved			80	
P016	Reserved			0	

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Menuitem	Function	Description	Range	Default	Customised value
P017	Reserved			0	
P018	Reserved			0	
P019	Reserved			60	
P020	Reserved			0	
P021	Enabling BMS connection	Enabling for connection with BMS device	On/Off	Off	
P022	BMS connection address	Communication address with BMS device configuration	1 ÷ 247	1	
P023	BMS connection Parity-Stop	Communication Stop bit and Parity with BMS device configuration	0:Odd, 1 Stop bit 1:Even, 1 Stop bit 2:None, 1 Stop bit 3:Reserved 4.Odd, 2 Stop bit 5:Even, 2 Stop bit 6:None, 2 Stop bit	0 ÷ 6	
P024	BMS connection Baudrate	Communication Baudrate with BMS device configuration	0: 1200 1: 2400 2: 4800 3: 9600 4: 19200 5: 38400	0 ÷ 5	
P025	External probe correction	Correction of the external probe value	-7 - 7 (K)	0	

### 3.10.8 List of Parameters C - DHW Settings

Menu item	Function	Description	Range	Default	Customised value
C001	Anti-legionella cycle day	Day of activation of the Anti-legionella thermal treatment of the DHW storage tank		LB: 1 HB: 02:00	
C002	Anti-legionella cycle time	Time of activation of the Anti-legionella thermal treatment of the DHW storage tank		LB: 1 HB: 02:00	
C003	Enabling Anti-legionella on DHW recirculation	Enabling Anti-legionella on DHW recirculation branch			
C004	DHW recirculation offset	DHW recirculation offset correction respect to DHW setpoint	0 - 10 (°C)	3	
C005	Reserved			65	
C008	Anti-legionella holding	Time the DHW storage tank holds at Anti-legionella setpoint.	0 - 600 (min)	60	
C009	Maximum Anti-legionella time	Time after which an alarm is signalled due to incomplete anti-legionella cycle.	1 - 24 (h)	5	
C010	Anti-legionella on DHW recirculation time	Time of activation of the recirculation pump after the Anti-legionella function		30	
C011	Anti-legionella DHW hysteresis	The system activation temperature in DHW for Anti-legionella is given by the set Anti-legionella DHW – Anti-legionella DHW hysteresis	0 - 10 (°C)	2	
C013	DHW hysteresis	The system activation temperature in DHW is given by the set DHW – DHW hysteresis	1 - 10 (°C)	5	
C014	DHW (Domestic hot water) flow offset	The DHW flow temperature is given by the DHW set + DHW flow offset	1 - 30 (°C)	10	
C015	DHW maximum time	Time after which an alarm is signalled for incomplete DHW (Domestic hot water).	1 - 48 (h)	5	

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### 3.10.9 List of Parameters B - Block Heat Pump Settings

Menuitem	Function	Description	Range	Default	Customised value
B001	Glycol Function	Enabling frost protection with anti-freeze liquid	On / Off	Off	
B003	Reserved			1	
B008	Maximum fixed speed	Defines the maximum operating speed of the system pump	0 ÷ 100 (%)	100	
B009	Circulator mode	0 = Fixed 1 - 10 = modulating at constant $\Delta T$	0 - 10 (°C)	5	
B015	Anti-cycle time	Timer to manage compressor restarts	3 - 20 (min)	3	
B017	Anti-block device time	Pump reactivation frequency for anti-block device	0 - 24 (h)	24	



### 3.10.10 List of parameters I - Integration Settings

Menu item	Function	Description	Range	Default	Customised value
I001	System integration enabling	Enabling and tripping mode of the system integration electric heater. 0: disabled 1: Altern. 2: Cont.	0 ÷ 2	0	
I002	DHW integration enabling	Enabling and tripping mode of the DHW integration electric heater. 0: disabled 1: Altern. 2: Cont.	0 ÷ 2	0	
I003	Central heating wait time	Waiting time to reach the setting set before activation of the integration in room central heating / C.H.	20 - 540 (min)	60	
I004	Reserved			10	
I005	Reserved			60	
I006	Minimum DHW integration temperature	Temperature threshold below which system integration is activated at the heat pump in DHW	-25 - 43 (°C)	-20	
I007	DHW wait time	Waiting time to reach the setting set before activation of the DHW integration	20 - 540 (min)	120	
I008	Reserved			5	
I009	Minimum system integration temperature	Temperature threshold below which system integration is activated at the heat pump in DHW	-25 - 35 (°C)	-20	
I010	Concomitant mode	Enabling of conjunction function 0 = No 1 = CH/Cool. 2 = CH only. 3 = Cooling only	0 ÷ 3	0	
I011	Domestic hot water priority time	Maximum operation time in DHW in case of simultaneous DHW and system demand and configuration of DHW priority parameter= 1	20 - 255 (min)	120	
I012	System priority time	Maximum operation time in DHW in case of simultaneous DHW and system demand and configuration of DHW priority parameter= 1	20 - 255 (min)	90	

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Menuitem	Function	Description	Range	Default	Customised value
I013	Activation band	Establishes a temperature range around the calculated temperature to determine which generator to switch on	4 - 20 (K)	5	
I014	System electrical integration power	System side electrical integration power	1 - 16 (kW)	3	
I015	DHW electrical integration power	DHW side electrical integration power	1 - 16 (kW)	3	

### 3.10.11 List of Parameters M - Manual Drives

Menuitem	Function	Description	Range	Default	Customised value
M001	Deaeration	The function consists in the pump and 3-way valve running cyclically. The function lasts about 17 hours	On / Off	Off	
M002	Screed heater activation	Activation of the screed heater function	On / Off	Off	
M003	Screed heater maximum flow set	Defines the maximum delivery temperature of the screed heater function	25 ÷ 55 (°C)	45	
M004	Screed heater minimum flow set	Defines the minimum delivery temperature of the screed heater function	20 ÷ 45 (°C)	25	
M005	Screed heater - dwell time at maximum set	Defines the time spent at maximum operating temperature during the active function	1 - 7 (dd)	3 (dd)	
M006	Screed heater - dwell time at minimum set	Defines the time spent at minimum operating temperature during the active function	1 - 14 (dd)	4 (dd)	

### 3.10.12 List of Parameters M1 - HP Manual Drives

Menuitem	Function	Description	Range	Default	Customised value
M1101	Circulator speed	Forcing of the speed of the primary pump (PWM control)	0 ÷ 100 (%)	0	
M1102	Heat pump flowmeter flow rate	Shows the flow rate read on the flowmeter	0 - 4000 (L/h)		
M1103	Force relay 1	Forcing of relay 1	On / Off	Off	
Apply Relay	Apply Relay	Activate current status of relay forcings. You must set this item at On whenever forcing of a relay changes	On / Off	Off	



### 3.10.13 List of Parameters M2 - E-BOX TOP Manual Drives

Menu item	Function	Description	Range	Default	Customised value
M2001	Forcerelay 1	Forcing of relay 1	On/Off	Off	
M2002	Forcerelay 2	Forcing of relay 2	On/Off	Off	
M2003	Forcerelay 3	Forcing of relay 3	On/Off	Off	
M2004	Forcerelay 4	Forcing of relay 4	On/Off	Off	
M2005	Forcerelay 5	Forcing of relay 5	On/Off	Off	
M2006	Forcerelay 6	Forcing of relay 6	On/Off	Off	
M2007	Forcerelay 7	Forcing of relay 7	On/Off	Off	
M2008	Forcerelay 8	Forcing of relay 8	On/Off	Off	
M2009	Forcerelay 9	Forcing of relay 9	On/Off	Off	
M2010	Apply Relay	Activate current status of relay forcings. You must set this item at On whenever forcing of a relay changes	On/Off	Off	

### 3.10.14 List of Parameters M3 - Zone 1 Expansion Manual Drives

Menu item			Function	Description	Range	Default	Customised value
Zone 1	Zone 2	Zone 3					
M3101	M3201	M3301	Force relay 1	Forcing of relay 1	On/Off	Off	
M3102	M3202	M3302	Force relay 2	Forcing of relay 2	On/Off	Off	
M3103	M3203	M3303	Force relay 3	Forcing of relay 3	On/Off	Off	
M3104	M3204	M3304	Apply Relay	Activate current status of relay forcings. You must set this item at On whenever forcing of a relay changes	On/Off	Off	

### 3.10.15 Parameter List N - Advanced panel configuration

Menu item	Function	Description	Range	Default	Customised value
N1	Device address	Address to be configured based on the zone in which the device is installed (e.g.: zone 1 = 21, zone 2 = 22, zone 3 = 23, etc.)	21 ÷ 28	21	
N2	Bitrate	Connection speed	9600 19200 38400	9600	
N3	Parity	Parity bit	None Even Odd	Even	
N4	Stop bits	Stop Bit	1.2	1	
N5	Factory settings	Reset panel to factory settings			

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### 3.11 CONFIGURATIONS LIST

#### 3.11.1 Analogue inputs

0	-	Off
1	-	D.H.W. probe
5	-	Zone 1 flow probe
6	-	Zone 2 flow probe
7	-	Zone 3 flow probe
8	-	System flow probe
9	-	DHW recirculation probe
10	-	External probe

#### 3.11.2 Digital inputs

0	-	Off
3	-	Zone 1 Room thermostat
4	-	Zone 2 Room thermostat
5	-	Zone 3 Room thermostat
6	-	Zone 1 humidistat
7	-	Zone 2 humidistat
8	-	Zone 3 humidistat
9	-	Zone 1 dehumidifier alarm
10	-	Zone 2 dehumidifier alarm
11	-	Zone 3 dehumidifier alarm
12	-	Disable HP
13	-	Photovoltaic 1 (smartgrid1)
15	-	Central heating/cooling contact
16	-	Zone 1 safety thermostat
17	-	Zone 2 safety thermostat
18	-	Zone 3 safety thermostat

#### 3.11.3 Digital outputs (Relay)

0	-	Off
1	-	Dehumidification control in cooled air Zone 1 (only DO8 and DO9)
2	-	Dehumidification control in cooled air Zone 2 (only DO8 and DO9)
3	-	Dehumidification control in cooled air Zone 3 (only DO8 and DO9)
4	-	Dehumidification control in neutral air Zone 1 (only DO8 and DO9)
5	-	Dehumidification control in neutral air Zone 2 (only DO8 and DO9)
6	-	Dehumidification control in neutral air Zone 3 (only DO8 and DO9)
7	-	Generic alarm (D08 and D09 only)
11	-	DHW diverter valve
12	-	CH integrative resistance
13	-	DHW integrative resistance
15	-	Zone 1 mixing valve (open)
16	-	Zone 1 mixing valve (close)
17	-	Zone 2 mixing valve (open)
18	-	Zone 2 mixing valve (close)
19	-	Zone 3 mixing valve (open)
20	-	Zone 3 mixing valve (close)
21	-	Summer/winter diverter valve (Summer)
22	-	Pump Zone 1 (only DO1, DO2 and DO3)
23	-	Pump Zone 2 (only DO1, DO2 and DO3)
24	-	Pump Zone 3 (only DO1, DO2 and DO3)
25	-	System booster pump/System phase active (only DO1, DO2 and DO3)
26	-	DHW recirculation control (only DO1, DO2 and DO3)
28	-	DHW booster pump/DHW phase active (only DO1, DO2 and DO3)



### 3.12 FAULT AND ANOMALY SIGNALS

Error Code	Anomaly signalled	Cause	Appliance status / Solution	Source of Error
5	<b>Delivery probe fault</b>	The board detects an anomaly on the flow NTC probe.	The system does not start (1).	PDC
8	<b>Incorrect operation/fault reset</b>	Number of allowed resets already performed.	The anomaly can be reset 5 consecutive times, after which the function is inhibited for at least one hour and it is possible to try once every hour, for a maximum of 5 attempts. By switching the appliance on and off again, the 5 attempts are re-acquired	E-BOX
10	<b>Insufficient system pressure</b>	Water pressure inside the central heating circuit that is sufficient to guarantee the correct operation of the boiler is not detected.	Check that system pressure is between 1-1.2 bar and restore the correct pressure, if necessary.	PDC
12	<b>Storage tank probe anomaly</b>	The board detects an anomaly on the storage tank probe	The appliance cannot produce domestic hot water (1).	E-BOX
14	<b>Pressure sensor anomaly</b>	Detected cooling gas pressure out of range	Water pressure sensor faulty or system circuit empty (1)	PDC
23	<b>Return probe anomaly</b>	The board detects an anomaly on the return NTC probe	The appliance does not start (1)	PDC
26	<b>Flowmeter anomaly</b>	The board detects a flowmeter anomaly. Any booster pump always in operation.	The system does not start. Make sure the booster pump (optional) only activates when requested. Press the reset button (1)	PDC
27	<b>Circulation insufficient</b>	This occurs if there is overheating in the hydronic module due to insufficient water circulating in the primary circuit; the causes can be: - blocked heat pump; the pump must be unblocked; - damaged flow meter.	Check system circulation and flowmeter.   Press the Reset button (1).	PDC
31	<b>Perdita comunicazione comando remoto</b>	Non è presente il colloquio tra scheda e remoto.	Il pannello Nexis non risulta collegato al sistema: verificare i collegamenti elettrici, la configurazione del sistema e del pannello Nexis	NEXIS
32	<b>Zone 2 probe anomaly (low temperature)</b>	If the board detects an anomaly on the zone 2 low temperature probe, the system cannot work in the affected area.	(1)	E-BOX

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

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Error Code	Anomaly signalled	Cause	Appliance status / Solution	Source of Error
33	<b>Zone 3 probe anomaly (low temperature)</b>	If the board detects an anomaly on the zone 3 low temperature probe; the system cannot work in the affected area.	(1)	E-BOX
34	<b>Zone 2 safety thermostat tripping (low temperature)+</b>	During normal operation, if an anomaly causes excessive overheating of the flow temperature in the low temperature zone 2, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement. (1)	E-BOX
35	<b>Zone 3 safety thermostat tripping (low temperature)</b>	During normal operation, if an anomaly causes excessive overheating of the flow temperature in the low temperature zone 3, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement. (1)	E-BOX
37	<b>Low power supply voltage value</b>	This occurs when the power supply voltage is lower than the allowed limits for correct system operation.	If normal conditions are restored, the system restarts without having to be reset (1)	PDC
46	<b>Safety thermostat intervention zone 1</b>	During normal operation, if an anomaly causes excessive overheating of the flow temperature in zone 1, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement (1).	E-BOX
50	<b>External probe anomaly</b>	In the event the external probe is not connected or is faulty, the anomaly is indicated.	Check the connection of the external probe.   The system continues to operate with the external probe integrated in the HP (1). In case of replacement of the external probe, repeat the installation operations.	E-BOX
55	<b>Zone 1 temperature probe anomaly</b>	The zone 1 flow probe has an out-of-range resistive value	(1)	E-BOX
60	<b>Modulating pump anomaly</b>			PDC
81	<b>System memory faulty or absent</b>	system management board memory faulty or absent		

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

Error Code	Anomaly signalled	Cause	Appliance status / Solution	Source of Error
101	Heat pump and E-BOX timeout alarm	Modbus communication failure between heat pump and E-BOX		
102	Zone 1 uHydro p.c.b. offline alarm		Eliminate zone-demand	
103	Zone 2 uHydro p.c.b. offline alarm		Eliminate zone-demand	
104	Zone 3 uHydro p.c.b. offline alarm		Eliminate zone-demand	
120	High set alarm for dehumidification - zone 1	The cooling flow set calculated for dehumidification is higher than the limit set in zone 1	The calculated flow set is higher than the limit allowed by the dehumidifier. Cool the room and wait for the dew temperature to go back within acceptable values (1).	E-BOX
121	Zone 1 device offline alarm	The device connected to zone 1 is offline	(1)	E-BOX
122	Zone 2 device offline alarm	The device connected to zone 2 is offline	(1)	E-BOX
123	Zone 3 device offline alarm	The device connected to zone 3 is offline.	(1)	E-BOX
125	Zone 1 room temperature probe error	The zone 1 room probe has an out of range resistive value	(1)	E-BOX
126	Zone 2 room temperature probe error	The zone 2 room probe has an out of range resistive value	(1)	E-BOX
127	Zone 3 room temperature probe error	The zone 3 room probe has an out of range resistive value.	(1)	E-BOX
129	Zone 1 humidity probe error	Anomaly on the zone 1 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1). Zone humidity cannot be checked.	E-BOX

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

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Error Code	Anomaly signalled	Cause	Appliance status / Solution	Source of Error
130	<b>Zone 2 humidity probe error</b>	Anomaly on the zone 2 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1). Zone humidity cannot be checked.	E-BOX
131	<b>Zone 3 humidity probe error</b>	Anomaly on the zone 3 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1). Zone humidity cannot be checked.	E-BOX
132	<b>High set alarm for dehumidification - zone 2</b>	The cooling flow set calculated for dehumidification is higher than the limit set in zone 2	The calculated flow set exceeds the limit permitted by the dehumidifier. Cool the room and wait for the dew temperature to go back within acceptable values (1).	E-BOX
133	<b>Zone 1 dehumidifier fault alarm</b>	Anomaly coming from the dehumidifier (optional) on zone 1	The system does not dehumidify in the relative zone (1)	E-BOX
134	<b>Zone 2 dehumidifier fault alarm</b>	Anomaly coming from the dehumidifier (optional) in zone 2	The system does not dehumidify in the relative zone (1)	E-BOX
135	<b>Zone 3 dehumidifier fault alarm</b>	Anomaly coming from the dehumidifier (optional) on zone 3	The system does not dehumidify in the relative zone (1)	E-BOX
136	<b>High set alarm for dehumidification- zone 3</b>	The cooling flow set calculated for dehumidification exceeds the limit set in zone 3	The calculated flow set is higher than the limit allowed by the dehumidifier. Cool the room and wait for the dew temperature to go back within acceptable values (1).	E-BOX
138	<b>Floordrying function running</b>			E-BOX
139	<b>De-aeration in progress</b>	Deaeration function in progress	No demand can be made until the end of the function in progress (1)	E-BOX
142	<b>Dominus Offline Error</b>	Communication with Dominus is offline	(1)	E-BOX
143	<b>Recirculation probe alarm</b>	The board detects an anomaly on the D.H.W. recirculation probe	The system does not recirculate DHW (1)	E-BOX
144	<b>BMS Offline Alarm</b>	The BMS interface has lost communication with the master	(1)	E-BOX
146	<b>System pressure too high</b>	The system pressure transducer has detected very high pressure.	The appliance stops working (1)	PDC

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

Error Code	Anomaly signalled	Cause	Appliance status / Solution	Source of Error
177	<b>DHW maximum time alarm</b>	Domestic hot water production is not met within the pre-established time	Press the reset button (1).	E-BOX
178	<b>Block: Anti-Legionella not successful</b>	The Anti-Legionella cycle is run without success within the pre-established time	Press the Reset button (1)	E-BOX
179	<b>Liquid phase probe anomaly</b>	The board detects an anomaly on the liquid phase NTC probe.	The system does not start (1).	PDC
182	<b>Condensing unit alarm</b>			PDC
183	<b>Block heat pump in testmode</b>	It is indicated that the block heat pump is in Test Mode	During this time, room heating/air conditioning and domestic hot water production requirements cannot be met.	PDC
188	<b>Request out of operating range</b>	A request is made with the outdoor temperature exceeding the operating limits	The system does not start (1). Wait for the HP to return within operating limits.	PDC
189	<b>Time out alarm with communication board</b>	If communication between the printed circuit boards is lost, an anomaly is signalled.	The system does not start (1). Check communication between the P.C.B. and the interface board.	PDC
194	<b>Outdoor unit disabled</b>	Opening of HP disabling jumper on uHydro,		PDC
196	<b>High flow temp. block</b>	An excessively high temperature is detected on the heat pump flow circuit	Check the hydraulic circuit. Press the reset button (1).	PDC
197	<b>Communication board configuration error</b>	An incorrect communication board configuration has been detected	The system does not start (1).	PDC
209	<b>Low circulation block in TEST MODE</b>	An insufficient amount of water circulation to guarantee operation of the compressor during TEST MODE was detected	The system does not start. Check the correct flow rate read on the flow meter (1).	PDC
313	<b>Zone 3 dehumidifier expansion offline alarm</b>		Eliminate zone-demand	

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

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Error Code	Anomaly signalled	Cause	Appliance status/ Solution	Source of Error
210	<b>Low circulation block during defrosting cycle</b>	An insufficient amount of water circulation to guarantee operation of the compressor during the defrosting cycle was detected	The system does not start. Check the correct flow rate read on the flow meter (1).	PDC
221	<b>Block heat pump air temperature sensor error</b>	In the event the external probe is not connected or is faulty, the anomaly is indicated.	Check the connection of the external probe. The system continues to operate with the external probe integrated in the HP (1). In case of replacement of the external probe, repeat the installation operations.	PDC
281	<b>Zone 1 wired probe offline alarm</b>		the demand switches to calendar TA+	
282	<b>Zone 2 wired probe offline alarm</b>		the demand switches to calendar TA+	
283	<b>Zone 3 wired probe offline alarm</b>		the demand switches to calendar TA+	
311	<b>Zone 1 dehumidifier expansion offline alarm</b>		Eliminate zone-demand	
312	<b>Zone 2 dehumidifier expansion offline alarm</b>		Eliminate zone-demand	
313	<b>Zone 3 dehumidifier expansion offline alarm</b>		Eliminate zone-demand	

(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).



Error code	Error description	Source of Error
10101	Assy PCB Commkit - Assy PCB Main communication error	Cooling Circuit Boards
10108	Settings Address Duplicate Error	Cooling Circuit Boards
10162	EEPROM HP error	Cooling Circuit Boards
10163	EEPROM OPTION SETTING error	Cooling Circuit Boards
10201	CONTROL KIT/HP communication error (coupling error)	Cooling Circuit Boards
10202	CONTROL KIT/HP communication error	Cooling Circuit Boards
10205	Communication Error between Micom Inv - Micom Fan Motor HP	Cooling Circuit Boards
10221	Outdoor Temperature Sensor Error (open/short)	Cooling Circuit Boards
10231	COND_OUT Main Temperature Sensor Error (open/short)	Cooling Circuit Boards
10241	HP sensor breakage error CONDO OUT	Cooling Circuit Boards
10251	Discharge Temperature Sensor Error (open/short)	Cooling Circuit Boards
10262	Exhaust Sensor breakage error	Cooling Circuit Boards
10266	Comp Upper Sensor breakage error	Cooling Circuit Boards
10269	INTAKE Sensor breakage error	Cooling Circuit Boards
10276	Compressor Upper Main Temperature Sensor Error (open/short)	Cooling Circuit Boards
10291	Pressure Sensor Error (open/short)	Cooling Circuit Boards
10296	Low Pressure Sensor Error (open/short)	Cooling Circuit Boards
10308	Intake Sensor Error (open/short)	Cooling Circuit Boards
10321	EVI input sensor error (open/shorted)	Cooling Circuit Boards
10322	EVI output sensor error (open/shorted)	Cooling Circuit Boards
10381	Overheating of the controller PCB of the external inverter 1	Cooling Circuit Boards
10403	Anti-Freeze Protection Control Error	Cooling Circuit Boards
10407	COMP off due to High Pressure Sensor Protection Control	Cooling Circuit Boards
10410	COMP off due to Low Pressure Sensor Protection Control	Cooling Circuit Boards
10416	Comp off due to Discharge Temperature	Cooling Circuit Boards
10425	External Reverse Phase Error or Phase Detection Missing	Cooling Circuit Boards
10428	COMP off due to Compression Rate Control Error	Cooling Circuit Boards
10436	Burst from Freezing Control Error	Cooling Circuit Boards
10438	EVI EEV Opening Error	Cooling Circuit Boards
10439	Refrigerant Leak Error (find where the system does not work)	Cooling Circuit Boards
10440	Heat mode prohibited when the Outdoor Temperature is above 43°C	Cooling Circuit Boards
10441	Cooling mode prohibited when the Outdoor Temperature is below 10°C	Cooling Circuit Boards
10443	No start up due to Low-pressure	Cooling Circuit Boards
10469	DC Connection Sensor Error	Cooling Circuit Boards
10471	[Inverter] OTP Error → HP EEPROM Read/Write Error (OTP error)	Cooling Circuit Boards
10973	Water pressure sensor search (Short/Open)	Cooling Circuit Boards



Anomalies are indicated with "10 + codeError" for heat pump 1, "20 + codeError" for heat pump 2 etc...

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Error code	Error description	Source of Error
10458	External Fan Error	Cooling Circuit Boards
10461	[Inverter] COMP Operation Fault	Cooling Circuit Boards
10462	Stop of all COMP diffusion controls Or Low diffusion CT2	Cooling Circuit Boards
10464	[Inverter] DC peak error	Cooling Circuit Boards
10465	V compressor limit error	Cooling Circuit Boards
10466	[Inverter] DC connection too low/high error	Cooling Circuit Boards
10474	[Inverter] IPM Heat Dissipator Error	Cooling Circuit Boards
10475	External BLDC Fan Error	Cooling Circuit Boards
10483	H/WDC connection overvoltage error	Cooling Circuit Boards
10484	PCF overload error	Cooling Circuit Boards
10485	[Inverter] Input Current Sensor Error (open/short)	Cooling Circuit Boards
10488	AC Input Voltage Sensor Error	Cooling Circuit Boards
10500	IPM Overheating Error for COMP Inverter	Cooling Circuit Boards
10507	Comp Off due to high pressure or High Pressure Switch Open	Cooling Circuit Boards
10536	PHE refrigerant leak error	Cooling Circuit Boards
10554	Refrigerant leak error (detection during system operation)	Cooling Circuit Boards
10563	INDOOR UNIT Mixed Installation Error	Cooling Circuit Boards
10590	[Inverter] Data flash error	Cooling Circuit Boards
10901	Water Inlet Sensor Error (open/short)	Cooling Circuit Boards
10902	Water Outlet Sensor Error (open/short)	Cooling Circuit Boards
10906	External EVA Sensor Error (open/short)	Cooling Circuit Boards
10973	Water pressure sensor search (Short/Open)	Cooling Circuit Boards



Anomalies are indicated with "10 + codeError" for heat pump 1, "20 + codeError" for heat pump 2 etc...

# 4 MAINTENANCE AND SERVICE.

## 4.1 MAINTENANCE WARNINGS



### Checks in the area.

Before starting work on systems containing flammable refrigerants, safety checks must be performed to guarantee that the risk of ignition is reduced to a minimum. Before performing repairs on chilling systems, follow the precautions below.



### Work procedure.

The jobs must be carried out according to a consolidated safety procedure to reduce the risk of refrigerant or flammable vapour leaks during work to a minimum.



### Work area.

All maintenance personnel and anyone else working in the involved area must be instructed as to the nature of the work carried out. Avoid working in confined spaces. The area in the immediate vicinity of the work field must be appropriately delimited. Make sure that safety conditions are met within the area to prevent the risk of refrigerant leaks.



### Ventilated area.

Make sure that the area is in the open or adequately ventilated before entering therein or performing work involving naked flames or that can produce heat and/or sparks (brazing, grinding, welding etc.). A certain ventilation level must also be guaranteed while carrying out the work. Ventilation must be sufficient so that any gas released does not reach a hazardous concentration.



### Checks on the chilling equipment.

When replacing electric components, these must be suitable for the purpose for which they are used and comply with the correct specifications. The manufacturer's guidelines for maintenance and service must be complied with that all times. Should any doubts arise, contact the Authorised Immergas Technical Service for assistance.

- The markings on the appliance must be visible and legible.



### Checks on electrical devices.

Repair and maintenance operations on electric components must include preventive safety checks and inspection procedures of the components. If a fault occurs that could jeopardise safety, the circuit must not be powered until the issue has been resolved in a satisfactory way.

The initial safety checks include making sure:

- That the capacitors are discharged: this is essential to avoid the possibility of electrical discharges;
- That there are no live components or cables during charging, recovery or purging of the circuit;
- That there is continuity in the earth connection

If it is not possible to immediately eliminate the fault, but the system needs to keep running, a temporary solution must be found. This must be communicated to the owner of the equipment so that all parties are informed thereof.

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**Repair of sealed components.**

- a) During repairs of sealed components, all power supplies must be disconnected from the appliance in operation before removing the sealed covers, etc. If it is absolutely necessary that the appliance be energised during maintenance, a permanently operated leak detection device must be used, at the most critical point, to prevent a potentially hazardous situation.
- b) Special attention must be paid to the following to make sure that, while working on electric parts, the enclosure is not tampered with in such a way as to alter the protection level. This includes damage to cables, an excessive number of connections, terminals non-conforming to the original specifications, damage to gaskets, incorrect assembly of cable glands, etc.
  - Check that the appliance is installed in compliance with standards in force.
  - Make sure that the gaskets or sealing materials are not degraded to such a point that flammable atmospheres may enter. The spare parts must comply with the specifications of the manufacturer.

The use of silicone sealant could inhibit the effectiveness of some types of leak detection equipment. Inherently safe components must not be isolated before working on them.

**Repair of inherently safe components.**

Do not apply permanent inductive or capacitive loads to the circuit without first having checked that they do not exceed the voltage and current allowed for the instruments in use. Inherently safe components are the only ones on which it is possible to work when live in the presence of a flammable atmosphere. The test equipment must be correctly classified. Only replace the components with the spare parts indicated by the manufacturer. The use of other components could trigger refrigerant flammability following a leak into the atmosphere.

**Wiring.**

Check that wiring is not subject to wear, corrosion, excessive pressure, vibrations, sharp edges or other adverse environmental effects. The check must also take into consideration the consequences of aging or of continuous vibrations coming from sources such as compressors or fans.

**Leak detection methods.**

Do not use possible sources of ignition when searching for leaks. Under no circumstances must naked flame detectors be used. Electronic leak detectors must be used to detect flammable refrigerants, but their sensitivity might not be adequate or require recalibration (leak detectors must be calibrated in a refrigerant-free area). Make sure that the detector is not a potential source of ignition and that it is suitable for the refrigerant. The leak detection appliance must be set at an LFL (lower flammability limit) percentage of the refrigerant and calibrated for the refrigerant used; the appropriate percentage of gas is confirmed (25% at maximum). Leak detection fluids can be used with the majority of refrigerants, but detergents containing chlorine must not be used as this element can react with the refrigerant and corrode the copper pipes. If there is a suspected leak, all naked flames must be removed or put out.

**Removal and discharge.**

When interacting on the refrigerant circuit to perform repairs or for any other purpose, conventional procedures must be followed. It will be important to abide by consolidated practice as flammability is a very important factor to be taken into consideration. The following procedure must be complied with:

- Remove the refrigerant;
- Purge the circuit with inert gas;
- Discharge;
- Purge again with inert gas;
- Restore the circuit by cutting or performing a brazing intervention.

The refrigerant charge must be recovered in appropriate recovery cylinders. The circuit must be washed with nitrogen to remove impurities from the appliance. This process might need to be repeated several times.

Compressed air or oxygen must not be used for this activity.

Make sure that the vent of the vacuum pump is not exposed to triggering sources with a simultaneous ventilation source.





### Decommissioning.

Before performing this operation, the technician must have extensive knowledge of the appliance and all its details.

- a) Become acquainted with the appliance and its operation.
- b) Disconnect the electric power to the appliance.
- c) Before starting the activity, proceed as follows:
  - Ascertain, where necessary, the availability of mechanical equipment to handle the refrigerant cylinders.
  - Check that personal protective equipment is available and used correctly.
  - Make sure that the recovery operation is constantly supervised by qualified personnel certified pursuant to standards in force.
  - The equipment and the recovery cylinders comply with current regulations.
- d) Empty the chilling circuit by means of the specific service ports.
- e) If it is not possible to discharge the circuit by means of the specific service ports, make a “manifold” so that the refrigerant can be removed from other points of the system.
- f) Make sure that the cylinder is placed on the scale before proceeding with recovery.
- g) Start the recovery machine and follow the instructions given by the manufacturer.
- h) Do not overfill the cylinders. (Do not exceed 80% of the charge volume of the liquid).
- i) Do not exceed the maximum working pressure of the cylinder, not even temporarily.
- j) When the cylinders have been filled to the maximum capacity and the intervention has been completed, make sure that these and the equipment are immediately removed from the area and that all shut-off valves on the equipment are closed.
- k) The recovered refrigerant cannot be recharged into another chilling system unless it has been recycled or regenerated.

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### Labelling.

The appliance must be labelled with an indication that it has been decommissioned and the refrigerant emptied. The label must be dated and signed. Make sure that there are labels on the appliance indicating that it contains flammable refrigerant.

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## 4.2 MAINTENANCE.

For safety purposes, the maintenance technician is required to carefully read the contents of this manual.

To guarantee ideal operation of the product, a series of checks and inspections on it and its electrical connections from and to the product must be performed at regular intervals.

Maintenance must be carried out by an authorised Immergas technician.



### ELECTRICAL SPARK

- **Before performing any maintenance or repairs, disconnect power to the electric control switchgear.**
- **Do not touch any live part for at least 10 minutes after disconnecting power.**
- **The compressor heater can even work in standby.**
- **It is prohibited to touch conductive parts.**
- **It is prohibited to leave the unit unattended if the protective casing has been removed.**

The following checks must be carried out **at least once a year** by companies qualified and certified pursuant to standards in force (unless there are more stringent provisions depending on the installation context and/or current relevant legislation).

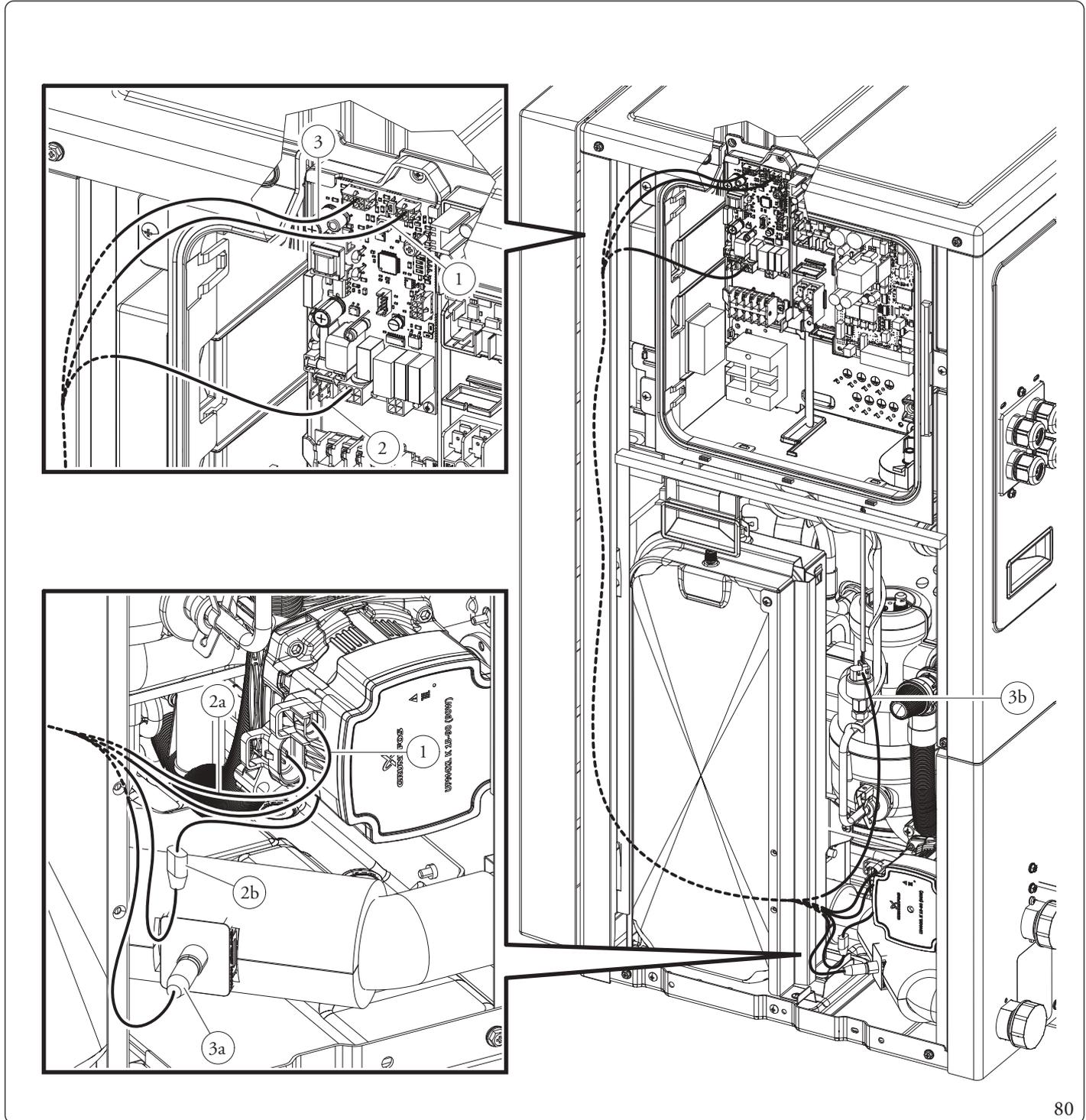
- Water pressure.
  - Check the water pressure: if below 1 bar, restore it.
- Water filter.
  - Clean the water filter.
- Safety valve.
  - Check that the safety valve works properly by turning the black knob on the valve anti-clockwise:
    - If no noise is heard, contact an authorised Immergas technician.
    - If water continues to leak from the unit, first close the water inlet and outlet shut-off valves and then contact an authorised Immergas technician.
- Flexible hose of the safety valve.
  - Check that the flexible hose of the pressure relief valve is positioned appropriately to drain water.
- Electrical switchgear of the unit.
  - Perform a thorough visual inspection of the electrical switchgear, looking for evident defects such as loose connections or faulty wiring.
  - Check that the contactors work properly using a tester. All the contacts of these contactors must be in the open position.
- Use of glycol (see paragraph 3.10.1.17 "Antifreeze protection").
  - Record the concentration of glycol and the pH value in the water circuit at least once a year.
  - A pH value lower than 8.0 indicates that the inhibitor is running out and another inhibitor must be added.
  - When the pH value is lower than 7.0, it indicates glycol oxidation. The hydraulic circuit must be drained and rinsed thoroughly before causing serious damage.

Make sure that the glycol solution is disposed of in compliance with local standards and regulations.



## Electrical connection to the hydronic interface board

Models 5-8 kW



Key (Fig. 80):

- 1 - Pump connection (PWM)
- 2 - Pump (2a) and heating cable (2b) power supply connection
- 3 - Flow meter (3a) and pressure transducer (3b) connection

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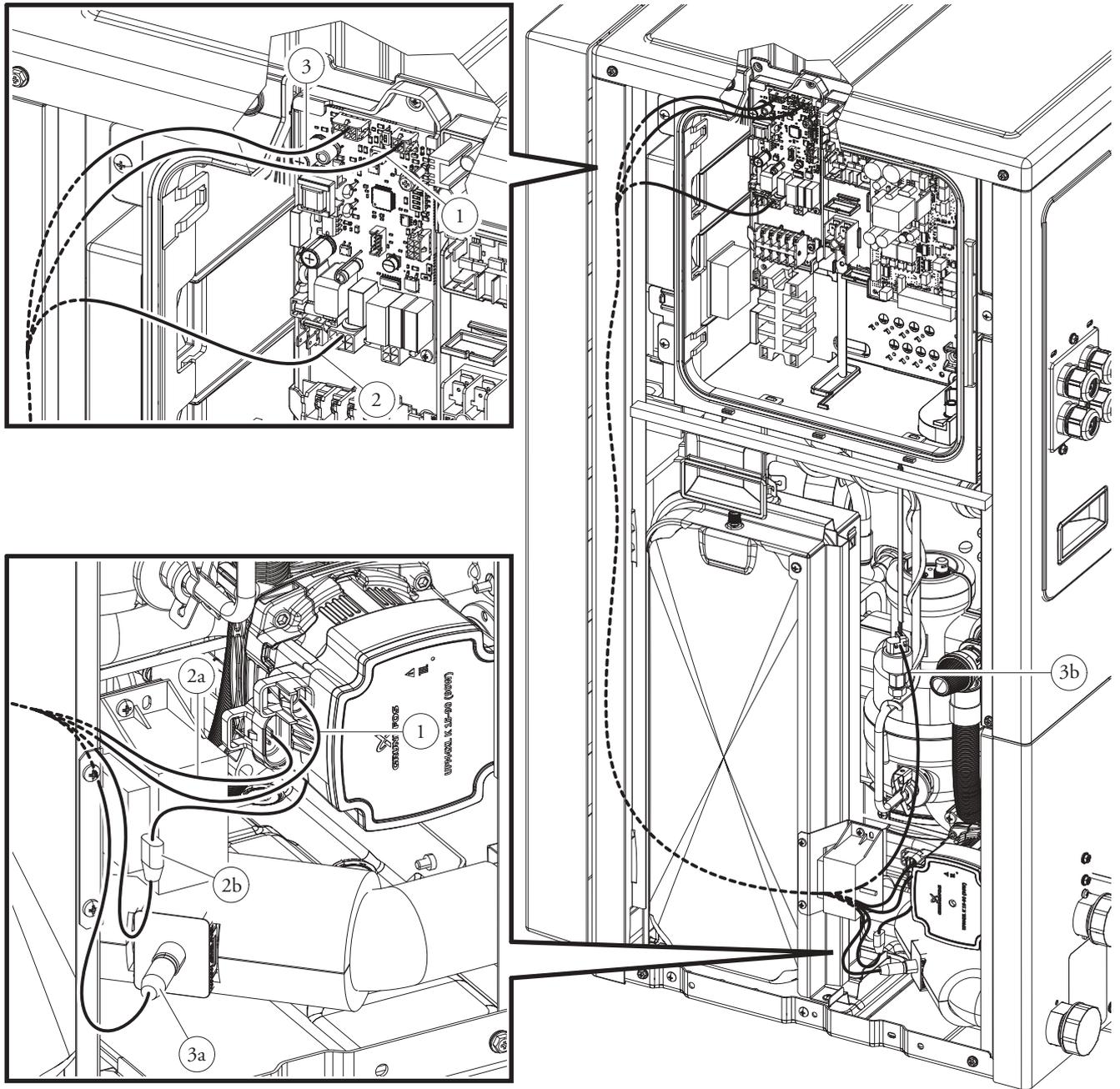
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Key (Fig. 81):

- 1 - Pump connection (PWM)
- 2 - Pump (2a) and heating cable (2b) power supply connection
- 3 - Flow meter (3a) and pressure transducer (3b) connection

# 5 TECHNICAL DATA

## 5.1 GENERAL PRODUCT DATA (SINGLE-PHASE)

		MAGISM5 TOP	MAGISM8 TOP	MAGISM12 TOP	MAGISM16 TOP
<b>Coolant</b>					
Type of refrigerant	-	R290			
Coolant load	g	630	870	1250	
GWP	-	0,02			
tCO <sub>2</sub> equivalent	-	0,00001	0,00002	0,00003	
Control method	-	EEV			
<b>Fan</b>					
Number	-	1			
Air flow rate (heating)	m <sup>3</sup> /h	3120	3900	5700	
Air flow rate (cooling)	m <sup>3</sup> /h	3300	4140	5400	5640
<b>Compressor</b>					
Type	-	Rotary		Scroll	
Type of oil	-	Mineral		Kixx RFP85 (GSC)	
Oil load	cc	590	850	1100	
<b>Primary circuit</b>					
Nominal water volume	l	11,7		12,1	
Expansion vessel: Total volume	l	8,31		8,05	
Expansion vessel: Nominal volume	l	10			
Expansion vessel: Useful volume	l	3,56		3,45	
Expansion vessel: Pre-charge	kPa (bar)	100 (1)			
System filling pressure	kPa (bar)	100 (1)			
Maximum operating pressure	kPa (bar)	250 (2,5)			
Maximum operating temperature	°C	75			
<b>System</b>					
Minimum circulation flow rate	l/h	500			
Minimum volume (including nominal water volume)*	l	30		50	
<b>Weight and dimensions</b>					
Weight of unit (with primary circuit full)	kg	119,4	131,4	162,0	
Weight of unit (with primary circuit empty)	kg	107,0	119,7	149,9	
Weight of unit with packaging	kg	128,2	140,2	171,4	
Dimensions (LxHxD)	mm	1270 x 850 x 550		1270 x 1018 x 550	
Dimensions with packaging (LxHxD)	mm	1330 x 1018 x 630		1330 x 1226 x 630	
<b>Water connections</b>					
System side water connections - inlet	inches	1,0			
System side water connections - outlet	inches	1,0			
Condensate drain	mm	Ø20			
<b>Power supply electrical features 1 (by standard)</b>					
Electrical connection		220 - 240V ~ 50Hz			
Maximum current absorbed	W	-			
Rated absorbed current	A	16,1	26,0	35,2	

\* The water volume must always be available to the machine.

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		MAGISM5 TOP	MAGISM8 TOP	MAGISM12 TOP	MAGISM16 TOP
<b>Other electrical data</b>					
Protection class		IPX4D			
Primary pump rated power	W	63		90	
Primary pump rated current	A	0,58		0,77	
EEL primary pump		≤0,20 - Part.3			
<b>Power cable specification</b>					
Cable designation code		IEC:60245 IEC 57 CENELEC:H05RN-F			
Voltage field	Min/Max	198..264			
MCA (Minimum circuit amperes)	A	16,1	26	32	
MFA (Maximum fuse amperes)	A	17,6	28.6	35.2	
<b>Communication cable specification</b>					
Number of wires	-	2			
Type	-	Twisted and shielded			
Single wire gauge	mm <sup>2</sup>	0,75			
<b>Sound level</b>					
Sound power at nominal load, heating (A7 W35)**	dB(A)	55	59	60	65
Sound power at nominal load, cooling (A35 W7)**	dB(A)	55	59	60	65
Sound power at partial load, heating (A7 W35)***	dB(A)	46	51	52	54
Sound power at partial load, heating for ErP Labelling (A7 W55)***	dB(A)	47	52		55
Sound pressure at nominal load, cooling (A35 W7)****	dB(A)	41	45	47	51

\*\* Measurement made following the procedure from ISO 3741

\*\*\* Measurement made following the procedure from ISO 3743-1 and according to EN12102

\*\*\*\* Sound pressure level measurement

## 5.2 GENERAL PRODUCT DATA (THREE-PHASE)

		MAGISM12T TOP	MAGISM16T TOP
<b>Coolant</b>			
Type of refrigerant	-	R290	
Coolant load	g	1250	
GWP	-	0,02	
tCO <sub>2</sub> equivalent	-	0,00003	
Control method	-	EEV	
<b>Fan</b>			
Number	-	1	
Air flow rate (heating)	m <sup>3</sup> /h	5700	
Air flow rate (cooling)	m <sup>3</sup> /h	5400	5640
<b>Compressor</b>			
Type	-	Scroll	
Type of oil	-	Kixx RFP85 (GSC)	
Oil load	cc	1100	
<b>Primary circuit</b>			
Nominal water volume	l	12,1	
Expansion vessel: Total volume	l	8,05	
Expansion vessel: Nominal volume	l	10	
Expansion vessel: Useful volume	l	3,45	
Expansion vessel: Pre-charge	kPa (bar)	100 (1)	
System filling pressure	kPa (bar)	100 (1)	
Maximum operating pressure	kPa (bar)	250 (2,5)	
Maximum operating temperature	°C	75	
<b>System</b>			
Minimum circulation flow rate	l/h	500	
Minimum volume (including nominal water volume)*	l	50	
<b>Weight and dimensions</b>			
Weight of unit (with primary circuit full)	kg	162,0	
Weight of unit (with primary circuit empty)	kg	149,9	
Weight of unit with packaging	kg	171,4	
Dimensions (LxHxD)	mm	1270 x 1018 x 550	
Dimensions with packaging (LxHxD)	mm	1330 x 1226 x 630	
<b>Water connections</b>			
System side water connections - inlet	inches	1,0	
System side water connections - outlet	inches	1,0	
Condensate drain	mm	Ø20	
<b>Power supply electrical features 1 (by standard)</b>			
Electrical connection		380 - 415 ~ 50Hz	
Maximum current absorbed	W	-	
Rated absorbed current	A	16,1	

\* The water volume must always be available to the machine.

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		MAGISM12 T TOP	MAGISM16 T TOP
<b>Other electrical data</b>			
Protection class		IPX4D	
Primary pump rated power	W	90	
Primary pump rated current	A	0,77	
EEL primary pump		≤ 0,20 - Part. 3	
<b>Power cable specification</b>			
Cable designation code		IEC:60245 IEC 57 CENELEC:H05RN-F	
Voltage field	Min/Max	342 .. 456	
MCA (Minimum circuit amperes)	A	16.1	
MFA (Maximum fuse amperes)	A	17.7	
<b>Communication cable specification</b>			
Number of wires	-	2	
Type	-	Twisted and shielded	
Single wire gauge	mm <sup>2</sup>	0,75	
<b>Sound level</b>			
Sound power at nominal load, heating (A7 W35)**	dB(A)	60	65
Sound power at nominal load, cooling (A35 W7)**	dB(A)	60	65
Sound power at partial load, heating (A7 W35)***	dB(A)	52	54
Sound power at partial load, heating for ErPLabelling (A7 W55)***	dB(A)	52	55
Sound pressure at nominal load, cooling (A35 W7)****	dB(A)	47	51

\*\* Measurement made following the procedure from ISO 3741

\*\*\* Measurement made following the procedure from ISO 3743-1 and according to EN12102

\*\*\*\* Sound pressure level measurement

### 5.3 E-BOX TOP GENERAL DATA

E-BOX TOP weight and dimensions		
Weight	kg	1,7
Dimensions (LxHxD)	mm	367 x 266 x 57,5
<b>Electrical features (E-BOX TOP)</b>		
Electrical connection		230 V ~ 50Hz
Rated absorbed power	W	4,5
Rated absorbed current	A	0.015
<b>Other electrical data</b>		
Protection class		IPX5D

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#### 5.4 PRODUCT OPERATING TEMPERATURES (SINGLE-PHASE)

		MAGISM5 TOP	MAGISM8 TOP	MAGISM12 TOP	MAGISM16 TOP
<b>Central heating</b>					
Adjustable central heating temperature (operating field)	°C			+15 ÷ +75	
Central heating / C.H. outdoor temperature (operating field)	°C			-25 ÷ +35	
Heating adjustable temperature with enabled integration (working range)	°C			+15 ÷ +75	
Heating external temperature with enabled integration (working range)	°C			-25 ÷ +35	
<b>Cooling</b>					
Cooling adjustable temperature (operating field)	°C			+5 ÷ +25	
Cooling outdoor temperature (operating field)	°C			+10 ÷ +46	
<b>DHW</b>					
DHW adjustable temperature without integration (working range)	°C			+10 ÷ +65	
DHW external temperature without integration (working range)	°C			-25 ÷ +43	
DHW adjustable temperature with enabled integration (working range)	°C			+10 ÷ +70	
DHW external temperature with enabled integration (working range)	°C			-25 ÷ +46	

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#### 5.5 PRODUCT OPERATING TEMPERATURES (THREE-PHASE)

		MAGISM12 T TOP		MAGISM16 TOP
<b>Central heating</b>				
Adjustable central heating temperature (operating field)	°C		+15 ÷ +75	
Central heating / C.H. outdoor temperature (operating field)	°C		-25 ÷ +35	
Heating adjustable temperature with enabled integration (working range)	°C		+15 ÷ +75	
Heating external temperature with enabled integration (working range)	°C		-25 ÷ +35	
<b>Cooling</b>				
Cooling adjustable temperature (operating field)	°C		+5 ÷ +25	
Cooling outdoor temperature (operating field)	°C		+10 ÷ +46	
<b>DHW</b>				
DHW adjustable temperature without integration (working range)	°C		+10 ÷ +65	
DHW external temperature without integration (working range)	°C		-25 ÷ +43	
DHW adjustable temperature with enabled integration (working range)	°C		+10 ÷ +70	
DHW external temperature with enabled integration (working range)	°C		-25 ÷ +46	



## 5.6 NOMINAL HEATING PERFORMANCE (SINGLE-PHASE)

		MAGISM5 TOP	MAGISM8 TOP	MAGISM12 TOP	MAGISM16 TOP
<b>Outside Air Temperature 7°C/6°C - Water Temperature 30°C/35°C</b>					
Output power	kW	5,00	8,00	12,00	16,00
Absorbed power	kW	0,98	1,63	2,50	3,55
COP		5,1	4,91	4,8	4,51
<b>Outside Air Temperature 7°C/6°C - Water Temperature 40°C/45°C</b>					
Output power	kW	5,00	8,00	12,00	16,00
Absorbed power	kW	1,32	2,16	3,24	4,57
COP		3,79	3,7	3,7	3,5
<b>Outside Air Temperature 7°C/6°C - Water Temperature 47°C/55°C</b>					
Output power	kW	5,00	8,00	12,00	16,00
Absorbed power	kW	1,61	2,67	4,00	5,52
COP		3,11	3,0	3,0	2,9
<b>Outside Air Temperature 2°C/1°C - Water Temperature 30°C/35°C</b>					
Output power	kW	4,95	7,95	11,90	15,50
Absorbed power	kW	1,30	2,15	3,31	4,70
COP		3,81	3,7	3,6	3,3
<b>Outside Air Temperature 7°C/8°C - Water Temperature 30°C/35°C</b>					
Output power	kW	4,95	7,50	11,45	12,46
Absorbed power	kW	1,77	2,78	4,16	4,62
COP		2,8	2,7	2,75	2,7

## 5.7 NOMINAL COOLING PERFORMANCE (SINGLE-PHASE)

		MAGISM5 TOP	MAGISM8 TOP	MAGISM12 TOP	MAGISM16 TOP
<b>Outside Air Temperature 35°C - Water Temperature 23°C/18°C</b>					
Output power	kW	5,00	8,00	12,00	14,00
Absorbed power	kW	1,28	2,05	3,00	3,68
EER		3,91	3,9	4,0	3,8
<b>Outside Air Temperature 35°C - Water Temperature 12°C/7°C</b>					
Output power	kW	3,90	5,70	9,00	10,40
Absorbed power	kW	1,28	1,90	3,10	3,59
EER		3,05	3,00	2,90	2,90

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**5.8 NOMINAL HEATING PERFORMANCE (THREE-PHASE)**

		MAGISM12T TOP	MAGISM16T TOP
<b>Outside Air Temperature 7°C/6°C - Water Temperature 30°C/35°C</b>			
Output power	kW	12,00	16,00
Absorbed power	kW	2,50	3,55
COP		4,8	4,51
<b>Outside Air Temperature 7°C/6°C - Water Temperature 40°C/45°C</b>			
Output power	kW	12,00	16,00
Absorbed power	kW	3,24	4,57
COP		3,7	3,5
<b>Outside Air Temperature 7°C/6°C - Water Temperature 47°C/55°C</b>			
Output power	kW	12,00	16,00
Absorbed power	kW	4,00	5,52
COP		3,0	2,9
<b>Outside Air Temperature 2°C/1°C - Water Temperature 30°C/35°C</b>			
Output power	kW	11,90	15,50
Absorbed power	kW	3,31	4,70
COP		3,6	3,3
<b>Outside Air Temperature 7°C/8°C - Water Temperature 30°C/35°C</b>			
Output power	kW	11,45	12,46
Absorbed power	kW	4,16	4,62
COP		2,75	2,7

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**5.9 NOMINAL COOLING PERFORMANCE (THREE-PHASE)**

		MAGISM12T TOP	MAGISM16T TOP
<b>Outside Air Temperature 35°C - Water Temperature 23°C/18°C</b>			
Output power	kW	12,00	14,00
Absorbed power	kW	3,00	3,68
EER		4,0	3,8
<b>Outside Air Temperature 35°C - Water Temperature 12°C/7°C</b>			
Output power	kW	9,00	10,40
Absorbed power	kW	3,10	3,59
EER		2,90	2,90



## 5.10 PRODUCT FICHE MAGIS M5 TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGISM5 TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	6
		Low temperature	kW	6
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	3148
		Low temperature	kWh	2221
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	141
		Low temperature	%	201
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	Yes\No	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	5
		Low temperature	kW	5
	Nominal heat output (warmer climate condition)	Average temperature	kW	6
		Low temperature	kW	6
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	3971
		Low temperature	kWh	2863
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	1533
		Low temperature	kWh	1054
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	121
		Low temperature	%	169
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	187
		Low temperature	%	271
<b>N</b>	Lwa sound power level outdoors	dB	47	

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## 5.11 TABLE 2 REGULATION 813/2013 (MAGIS M5 TOP)

Model		MAGISM5 TOP					
Air/water heat pump	YES	Low temperature heat pump			NO		
Water/water heat pump	NO	With Supplementary heater			NO		
Brine/water heat pump	NO	Mixed central heating device with heat pump:			NO		
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	6	kW	Room central heating seasonal energy efficiency	$\eta_s$	141	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	4,9	kW	$T_j = -7\text{ °C}$	$COP_d$	2,20	-
$T_j = +2\text{ °C}$	$P_{dh}$	3,0	kW	$T_j = +2\text{ °C}$	$COP_d$	3,60	-
$T_j = +7\text{ °C}$	$P_{dh}$	1,9	kW	$T_j = +7\text{ °C}$	$COP_d$	4,90	-
$T_j = +12\text{ °C}$	$P_{dh}$	1,7	kW	$T_j = +12\text{ °C}$	$COP_d$	5,80	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	4,9	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,20	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	4,8	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,7	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5520	$m^3/h$
Indoor/outdoor sound level	$L_{WA}$	-/47	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	$m^3/h$
Emissions of nitrogen oxide	$NO_x$	-	mg/kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Figure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

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## 5.12 PRODUCT FICHE MAGIS M8 TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGISM8 TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	8
		Low temperature	kW	8
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	4646
		Low temperature	kWh	3398
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	139
		Low temperature	%	191
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	Yes\No	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	8
		Low temperature	kW	8
	Nominal heat output (warmer climate condition)	Average temperature	kW	9
		Low temperature	kW	9
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	6034
		Low temperature	kWh	4636
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	2326
		Low temperature	kWh	1680
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	128
		Low temperature	%	167
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	191
		Low temperature	%	265
<b>N</b>	Lwa sound power level outdoors	dB	52	

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### 5.13 TABLE 2 REGULATION 813/2013 (MAGIS M8 TOP)

Model		MAGISM8 TOP					
Air/water heat pump	YES	Low temperature heat pump			NO		
Water/water heat pump	NO	With Supplementary heater			NO		
Brine/water heat pump	NO	Mixed central heating device with heat pump:			NO		
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	8	kW	Room central heating seasonal energy efficiency	$\eta_s$	139	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7^\circ\text{C}$	$P_{dh}$	7,1	kW	$T_j = -7^\circ\text{C}$	$COP_d$	2,00	-
$T_j = +2^\circ\text{C}$	$P_{dh}$	4,3	kW	$T_j = +2^\circ\text{C}$	$COP_d$	3,40	-
$T_j = +7^\circ\text{C}$	$P_{dh}$	2,8	kW	$T_j = +7^\circ\text{C}$	$COP_d$	5,10	-
$T_j = +12^\circ\text{C}$	$P_{dh}$	2,4	kW	$T_j = +12^\circ\text{C}$	$COP_d$	6,00	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	7,1	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,00	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	7,3	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15^\circ\text{C}$ (se TOL < -20°C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15^\circ\text{C}$ (se TOL < -20°C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,7	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5520	$\text{m}^3/\text{h}$
Indoor/outdoor sound level	$L_{WA}$	-/52	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	$\text{m}^3/\text{h}$
Emissions of nitrogen oxide	$NO_x$	-	$\text{mg}/\text{kWh}$				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Figure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

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## 5.14 PRODUCT FICHE MAGIS M12 TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGISM12 TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	12
		Low temperature	kW	12
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	6784
		Low temperature	kWh	5051
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	143
		Low temperature	%	193
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	Yes\No	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	12
		Low temperature	kW	12
	Nominal heat output (warmer climate condition)	Average temperature	kW	13
		Low temperature	kW	13
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	9336
		Low temperature	kWh	7001
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	3631
		Low temperature	kWh	2549
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	124
		Low temperature	%	166
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	180
		Low temperature	%	257
<b>N</b>	Lwa sound power level outdoors	dB	52	

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## 5.15 TABLE 2 REGULATION 813/2013 (MAGIS M12 TOP)

Model		MAGISM12 TOP					
Air/water heat pump	YES	Low temperature heat pump			NO		
Water/water heat pump	NO	With Supplementary heater			NO		
Brine/water heat pump	NO	Mixed central heating device with heat pump:			NO		
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	12	kW	Room central heating seasonal energy efficiency	$\eta_s$	143	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	10,6	kW	$T_j = -7\text{ °C}$	$COP_d$	2,20	-
$T_j = +2\text{ °C}$	$P_{dh}$	6,5	kW	$T_j = +2\text{ °C}$	$COP_d$	3,60	-
$T_j = +7\text{ °C}$	$P_{dh}$	4,2	kW	$T_j = +7\text{ °C}$	$COP_d$	4,90	-
$T_j = +12\text{ °C}$	$P_{dh}$	4,2	kW	$T_j = +12\text{ °C}$	$COP_d$	6,00	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	10,6	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,20	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	11,5	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,5	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5700	m <sup>3</sup> /h
Indoor/outdoor sound level	$L_{WA}$	-/52	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m <sup>3</sup> /h
Emissions of nitrogen oxide	$NO_x$	-	mg/kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Ligure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

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## 5.16 PRODUCT FICHE MAGIS M12 T TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGIS M12 T TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	12
		Low temperature	kW	12
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	6784
		Low temperature	kWh	5051
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	143
		Low temperature	%	193
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	Yes\No	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	12
		Low temperature	kW	12
	Nominal heat output (warmer climate condition)	Average temperature	kW	13
		Low temperature	kW	13
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	9336
		Low temperature	kWh	7001
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	3631
		Low temperature	kWh	2549
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	124
		Low temperature	%	166
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	180
		Low temperature	%	257
<b>N</b>	Lwa sound power level outdoors	dB	52	

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### 5.17 TABLE 2 REGULATION 813/2013 (MAGIS M12 T TOP)

Model		MAGISM12 T TOP					
Air/water heat pump	YES	Low temperature heat pump			NO		
Water/water heat pump	NO	With Supplementary heater			NO		
Brine/water heat pump	NO	Mixed central heating device with heat pump:			NO		
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	12	kW	Room central heating seasonal energy efficiency	$\eta_s$	143	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	10,60	kW	$T_j = -7\text{ °C}$	$COP_d$	2,20	-
$T_j = +2\text{ °C}$	$P_{dh}$	6,50	kW	$T_j = +2\text{ °C}$	$COP_d$	3,60	-
$T_j = +7\text{ °C}$	$P_{dh}$	4,20	kW	$T_j = +7\text{ °C}$	$COP_d$	4,90	-
$T_j = +12\text{ °C}$	$P_{dh}$	4,20	kW	$T_j = +12\text{ °C}$	$COP_d$	6,00	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	10,60	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,20	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	11,50	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,5	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5700	m <sup>3</sup> /h
Indoor/outdoor sound level	$L_{WA}$	-/52	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m <sup>3</sup> /h
Emissions of nitrogen oxide	$NO_x$	-	mg/kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Ligure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

INSTALLER

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CONTROL PANEL

MAINTENANCE TECHNICIAN

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## 5.18 PRODUCT FICHE MAGIS M16 TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGISM16TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	15
		Low temperature	kW	16
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	8403
		Low temperature	kWh	6793
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	139
		Low temperature	%	185
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	Yes\No	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	15
		Low temperature	kW	16
	Nominal heat output (warmer climate condition)	Average temperature	kW	15
		Low temperature	kW	16
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	11097
		Low temperature	kWh	9045
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	4087
		Low temperature	kWh	3151
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	126
		Low temperature	%	166
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	186
		Low temperature	%	259
<b>N</b>	Lwa sound power level outdoors	dB	55	

INSTALLER

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CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



### 5.19 TABLE 2 REGULATION 813/2013 (MAGIS M16 TOP)

Model		MAGISM16TOP					
Air/water heat pump	YES	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				NO	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				NO	
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	15	kW	Room central heating seasonal energy efficiency	$\eta_s$	139	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	12,8	kW	$T_j = -7\text{ °C}$	$COP_d$	2,00	-
$T_j = +2\text{ °C}$	$P_{dh}$	7,8	kW	$T_j = +2\text{ °C}$	$COP_d$	3,40	-
$T_j = +7\text{ °C}$	$P_{dh}$	5,0	kW	$T_j = +7\text{ °C}$	$COP_d$	5,10	-
$T_j = +12\text{ °C}$	$P_{dh}$	4,2	kW	$T_j = +12\text{ °C}$	$COP_d$	6,60	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	12,8	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,00	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	12,5	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	2,0	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5700	$m^3/h$
Indoor/outdoor sound level	$L_{WA}$	-/55	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	$m^3/h$
Emissions of nitrogen oxide	$NO_x$	-	mg\ kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Figure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

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CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 5.20 PRODUCT FICHE MAGIS M16 T TOP (IN COMPLIANCE WITH REGULATION 811/2013)

<b>A</b>	Supplier's name or trademark	-	Immergas	
<b>B</b>	Supplier's model identifier	-	MAGIS M16 T TOP	
<b>C</b>	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	-
<b>D</b>	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	-	
<b>E</b>	Nominal heat output (average climate condition)	Average temperature	kW	15
		Low temperature	kW	16
<b>F</b>	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	8403
		Low temperature	kWh	6793
	Annual energy consumption for water heating (average climate condition)	kWh	-	
<b>G</b>	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	139
		Low temperature	%	185
	Energy efficiency of water heating (average climate condition)	%	-	
<b>H</b>	Lwa sound power level indoors	dB	-	
<b>I</b>	Operation only during dead hours	-	No	
<b>J</b>	Specific precautions	-	-	
<b>K</b>	Nominal heat output (colder climate condition)	Average temperature	kW	15
		Low temperature	kW	16
	Nominal heat output (warmer climate condition)	Average temperature	kW	15
		Low temperature	kW	16
<b>L</b>	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	11097
		Low temperature	kWh	9045
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	4087
		Low temperature	kWh	3151
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
<b>M</b>	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	126
		Low temperature	%	166
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	186
		Low temperature	%	259
<b>N</b>	Lwa sound power level outdoors	dB	55	

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CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 5.21 TABLE 2 REGULATION 813/2013 (MAGIS M16 T TOP)

Model		MAGISM16 T TOP					
Air/water heat pump	YES	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				NO	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				NO	
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	$P_{rated}$	15	kW	Room central heating seasonal energy efficiency	$\eta_s$	139	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature $T_j$				Performance coefficient declared or primary energy index for partial load it, with indoor temperature equivalent to 20°C and outdoor temperature $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	12,8	kW	$T_j = -7\text{ °C}$	$COP_d$	2,00	-
$T_j = +2\text{ °C}$	$P_{dh}$	7,8	kW	$T_j = +2\text{ °C}$	$COP_d$	3,40	-
$T_j = +7\text{ °C}$	$P_{dh}$	5,0	kW	$T_j = +7\text{ °C}$	$COP_d$	5,10	-
$T_j = +12\text{ °C}$	$P_{dh}$	4,2	kW	$T_j = +12\text{ °C}$	$COP_d$	6,60	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	12,8	kW	$T_j = \text{bivalent temperature}$	$COP_d$	2,00	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	12,5	kW	$T_j = \text{operating limit temperature}$	$COP_d$	1,90	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	$COP_d$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cyc}$	-	kW	Cycle intervals efficiency	$COP_{cyc}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	75	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	2,0	kW
Thermostat mode off	$P_{TO}$	0,022	kW	Type of energy supply voltage	Electric		
Standby mode	$P_{SB}$	0,022	kW				
Guard heating mode	$P_{CK}$	0,000	kW				
Other items							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	5700	m <sup>3</sup> /h
Indoor/outdoor sound level	$L_{WA}$	-/55	dB	For water\water or brine\water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m <sup>3</sup> /h
Emissions of nitrogen oxide	$NO_x$	-	mg\ kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	$\eta_{wh}$	-	%
Daily electrical power consumption	$Q_{elec}$	kWh	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergas S.p.A. via Cisa Figure n.95							
(*) For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output $P_{nominal}$ is equal to the design load for central heating $P_{designh}$ and the nominal heat output of an additional heater $P_{sup}$ is equal to the additional central heating capacity $sup(T_j)$ .							
(**) If $C_{dh}$ is not determined by a measurement, the degradation coefficient is $C_{dh} = 0,9$ .							

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## 5.22 PARAMETERS FOR FILLING IN THE PACKAGE FICHE

If you wish to install an assembly, starting from this appliance, use the assembly charts in (Fig. 83).

For correct compilation, enter in the appropriate spaces (as shown in the facsimile overview sheet Fig. 82) the values given in the tables in the paragraph "Parameters to fill in the average temperature package fiche (47/55)".

The remaining values must be obtained from the technical data sheets of the products used to make up the assembly (e.g. solar devices, integration heat pumps, temperature controllers).

Use board (Fig. 83) for "assemblies" related to the central heating mode (e.g.: heat pump + temperature controller).



Since the product is standard supplied with a temperature controller, the package fiche must always be completed.

### Facsimile for filling in the package fiche for room central heating systems.

Room central heating seasonal energy efficiency of the heat pump

%

Temperature control  
From temperature  
control board

Class I = 1 %, Class II = 2 %,  
Class III = 1.5 %, Class IV = 2 %,  
Class V = 3 %, Class VI = 4 %,  
Class VII = 3.5 %, Class VIII = 5 %

+  %

Supplementary boiler  
From boiler board

Seasonal central heating energy efficiency of the room (%)

(  - 'I' ) x "II" = -  %

Solar contribution

From the board of the solar device

Dimensions of the manifold (in m<sup>2</sup>)

Volume of the tank (in m<sup>3</sup>)

Efficiency of the manifold (in %)

Classification of the tank  
A\* = 0.95, A = 0.91,  
B = 0.86, C = 0.83,  
D-G = 0.81

( 'III' x  + 'IV' x  ) x 0.45 x (  / 100 ) x  = +  %

Room central heating seasonal energy efficiency of the assemble in average climate conditions

%

Room central heating seasonal energy efficiency class of the assemble in average climate conditions

**G** **F** **E** **D** **C** **B** **A** **A<sup>+</sup>** **A<sup>++</sup>** **A<sup>+++</sup>**

< 30 % ≥ 30 % ≥ 34 % ≥ 36 % ≥ 75 % ≥ 82 % ≥ 90 % ≥ 98 % ≥ 125 % ≥ 150 %

Room central heating seasonal energy efficiency in colder and hotter climate conditions

Colder:

- 'V' =  %

Hotter:

+ 'VI' =  %

The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.



Parameters to fill in the average temperature package fiche (47/55)

INSTALLER

MAGISM5 TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	121	141	187
"II"	*	*	*
"III"	5,35	4,86	4,86
"IV"	2,09	1,9	1,9

USER

MAGISM8 TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	128	139	191
"II"	*	*	*
"III"	3,34	3,34	3,14
"IV"	1,31	1,31	1,23

CONTROL PANEL

MAGISM12 TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	124	143	180
"II"	*	*	*
"III"	2,23	2,23	2,14
"IV"	0,87	0,87	0,84

MAINTENANCE TECHNICIAN

MAGISM16 TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	126	139	186
"II"	*	*	*
"III"	1,84	1,84	1,84
"IV"	0,72	0,72	0,72

TECHNICAL DATA

MAGISM12 T TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	124	143	180
"II"	*	*	*
"III"	2,23	2,23	2,14
"IV"	0,87	0,87	0,84

MAGISM16 T TOP

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	126	139	186
"II"	*	*	*
"III"	1,84	1,84	1,84
"IV"	0,72	0,72	0,72

\* to be determined according to Regulation 811/2013 and transient calculation methods as per Notice of the European Community no. 207/2014.



Room central heating system package fiche.

Room central heating seasonal energy efficiency of the heat pump

%

Temperature control  
From temperature  
control board

Class I = 1 %, Class II = 2 %,  
Class III = 1.5 %, Class IV = 2 %,  
Class V = 3 %, Class VI = 4 %,  
Class VII = 3.5 %, Class VIII = 5 %

+  %

Supplementary boiler  
From boiler board

Seasonal central heating energy efficiency of the room (%)

(  -  ) x  = -  %

Solar contribution

From the board of the solar device

Dimensions of the manifold (in m<sup>2</sup>)

Volume of the tank (in m<sup>3</sup>)

Efficiency of the manifold (in %)

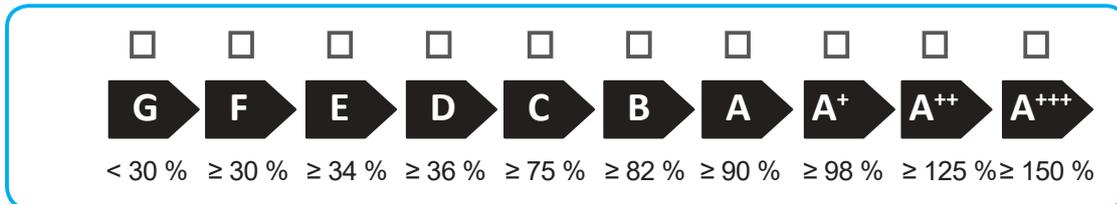
Classification of the tank  
A\* = 0.95, A = 0.91,  
B = 0.86, C = 0.83,  
D-G = 0.81

(  x  +  x  ) x 0.45 x (  / 100 ) x  = +  %

Room central heating seasonal energy efficiency of the assemble in average climate conditions

%

Room central heating seasonal energy efficiency class of the assemble in average climate conditions



Room central heating seasonal energy efficiency in colder and hotter climate conditions

Colder:  -  =  %

Hotter:  +  =  %

The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.

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TECHNICAL DATA



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This instruction booklet is made of ecological paper.

