

# MAGIS HERCULES MINIHYDRO 5/8/12

Heat pump comprising:

- indoor unit UI MMH
- outdoor unit UE HYDRO HP 5/8/12

**IE**

## Instructions and recom- mendations

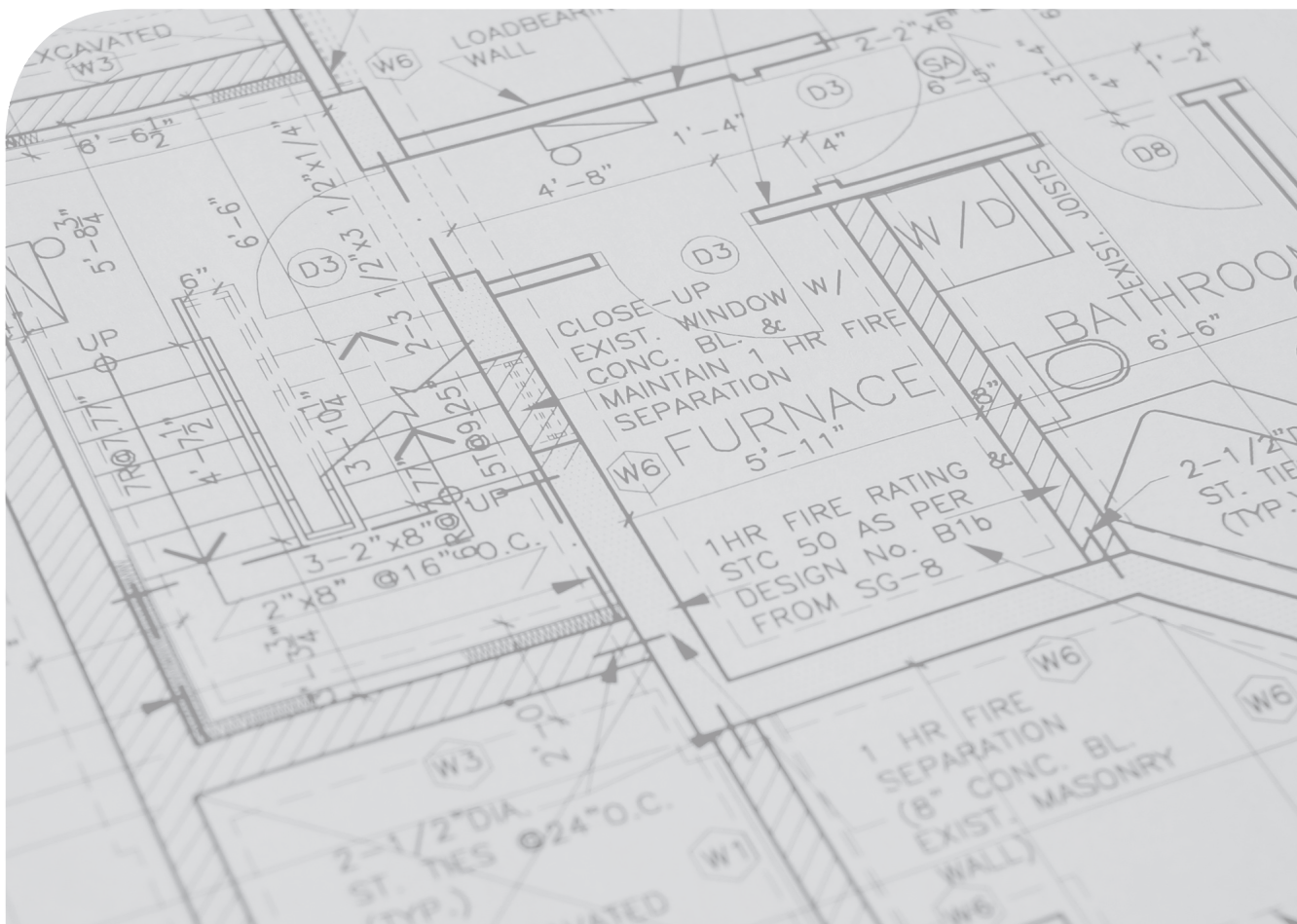
Installer

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.**

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 **UNI EN 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.





## GENERAL RECOMMENDATIONS

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).

For instructions on the UE HYDRO HP outdoor condensing unit, please refer to the relevant instruction manual;

- The user must carefully read the instructions in the specific section (sec. 2 and sect. 3).
- 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.
- It 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 the legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, meaning staff with specific technical skills in the plant sector, as provided for by Law.
- Improper installation or assembly of the Immergas device and/or components, accessories, kits and devices can cause unexpected problems for people, animals and objects. Read the instructions provided with the product carefully to ensure proper installation.
- This instructions 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 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.



## 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.



### LOW FLAMMABILITY MATERIAL

The symbol indicates that the appliance contains low flammability material.



### 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 INSTALLING THE INDOOR UNIT

## 1.1 DESCRIPTION OF THE PRODUCT

Magis Hercules Mini Hydro 5/8/12 is a heat pump consisting of:

- UIMMH indoor unit (hereinafter called, indoor unit or UIMMH).
- UE Hydro HP 5/8/12 outdoor unit (hereinafter called, outdoor unit or UE Hydro HP 5/8/12).

The product Magis Hercules Mini Hydro 5/8/12 is perfectly operational only if the two units are correctly powered and interconnected. The UIMMH indoor unit was designed solely for floor installation for heating and air conditioning and to produce domestic hot water for domestic use and similar purposes.

For normal operation it must be paired with one of the following outdoor units:

- UE Hydro HP 5 outdoor unit;
- UE Hydro HP 8 outdoor unit;
- UE Hydro HP 12 outdoor unit.

Accordingly, it is necessary to comply with all of the rules regarding safety and the use of both appliances.

## 1.2 INSTALLATION WARNINGS



**Operators who install and service the appliance must wear the personal protective equipment required by applicable law.**



The place of installation of the appliance and relative Immergas accessories must have suitable features (technical and structural), such as to allow for (always in safe, efficient and comfortable conditions):

- installation (according to the provisions of technical legislation and technical regulations);
- maintenance operations (including scheduled, periodic, routine and special maintenance);
- removal (to outdoors in the place for loading and transporting the appliances and components) as well as the eventual replacement of those with appliances and/or equivalent components.



Installation must be carried out according to regulation standards, current legislation and in compliance with local technical regulations and the required technical procedures.



**The outdoor unit operates with R32 refrigerant gas.**

**This gas is ODOURLESS.**

**Pay the utmost attention**

**Strictly follow the instruction handbook of the Outdoor Unit before installation and any type of operation on the chiller circuit.**



**R32 refrigerant gas belongs to the low flammability refrigerant category: class A2L according to standard ISO 817. It guarantees high performance with low environmental impact. The new gas reduces the potential environmental impact by one third compared to R410A, having less effect on global warming (GWP 675).**





**In any configuration do not install the Indoor Unit and Outdoor Unit at altitudes above 2000 m.**



The manufacturer declines all liability in the event of damage caused by appliances removed from other systems or for any non-conformities with such equipment.



Only a professionally enabled company is authorised to install Immergas appliances.



Check the environmental operating conditions of all parts relevant to installation, referring to this booklet.



If installing a kit or servicing the appliance, always empty the system's domestic hot water circuit first so as not to compromise the appliance's electrical safety (Par. 2.4, 2.5).

Always disconnect the appliance from voltage and, depending on the type of operation, decrease the pressure and/or bring it to zero in the gas and DHW circuits.



Before installing the appliance, ensure that it is delivered in perfect condition; if in doubt, contact the supplier immediately. Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children.

If the appliance is installed inside or between cabinets, ensure sufficient space for routine servicing; for minimum installation distances, see Fig. 4.



Keep all combustible material away from the appliance (paper, rags, plastic, polystyrene, etc.).



Any modification to the appliance that is not explicitly indicated in this section of the booklet is forbidden.

#### Installation standards



"UIMHMH" must only be installed inside in a place in which the temperature cannot fall below 5°C.



This type of installation is possible when permitted by the laws in force in the appliance's country of destination.



**Do not install in places/rooms that constitute public areas of apartment buildings, internal stairways or other escape routes (e.g. floor landings, entrance halls, etc.).**



**To prevent electrocution, fire or injury, always switch off the unit, disable the protective switch and, if smoke escapes or if the unit is extremely noisy, contact the Authorised After-Sales Technical Assistance Centre.**



**Do not install near sources of heat.**







**Pay attention not to generate sparks as follows:**

- Do not remove the fuses while the unit is on.
- Do not unplug the unit while it is on.

**It is recommended to install the outlet high up. Lay the cables in such a way that they do not get tangled.**



This Indoor Unit is used to heat water to below boiling temperature in atmospheric pressure.



They must be connected to a central heating system and domestic hot water circuit suited to their performance and capacity.



**For correct operation of the system, check that the minimum flow rate in operating conditions never drops below 500l/h for Magis Hercules Mini Hydro 5-8 models and 750 l/h for Magis Hercules Mini Hydro 12 models without system integrative resistance and 1000l/h if there is the system integrative resistance (optional).**



**The appliance is built to also operate in cooling mode.**

**If cold water production, during summer, could interfere and damage the central heating only systems, necessary precautions must be taken to prevent that an unintentional production of cold water enters the heating only system.**



**Failure to comply with the above implies personal responsibility and invalidates the warranty.**

**“Anti-legionella” thermal treatment of the accumulation storage tank.**



The anti-Legionella function is programmed directly on the control panel.

During this phase, the temperature of the water inside the tank exceeds 60°C with the subsequent risk of burns.

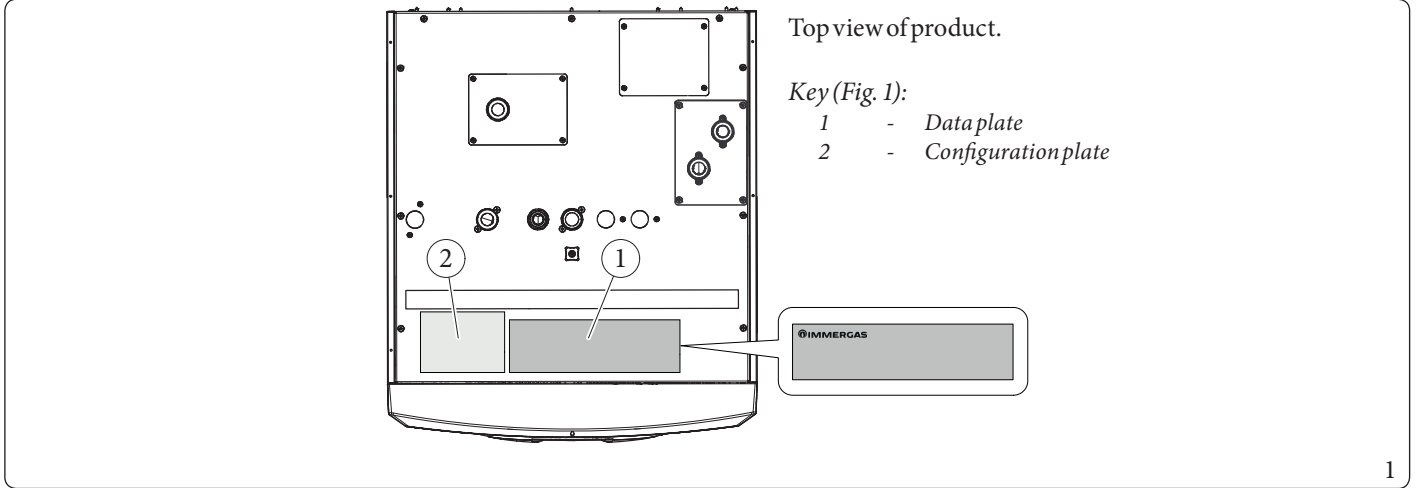
Keep this domestic hot water treatment under control (and inform the users) to prevent unforeseeable damage to people, animals, things.

If required install a thermostatic valve on the domestic hot water outlet to prevent scalding.



### 1.3 DATA NAMEPLATE AND CONFIGURATION PLATE

#### Data nameplate and configuration plate positioning



1

#### Key for data nameplate

Md.	Cod. Md.	Sr N°	
Type		DHW Tank	
		[1]	
Power Supply 1		Net weight	
Power Supply 2 / Optional			
CH - Max Temp:	Max Press:		
DHW - Max Temp:	Max Press:		

2



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

ENG	
Md.	Model
Cod. Md.	Model code
Sr N°	Serial Number
CHK	Check
Type	Type of appliance
DHW Tank	DHW tank capacity
1	Electric protection rating
Power Supply 1	Electric power supply 1 (voltage, frequency and rated power) of the heat pump (HP) and of the DHW electric resistance (DHW EH)
Net weight	Net weight
Power Supply 2 / Optional	Electric power supply 2 / Optional (voltage, frequency and rated power) of the central heating electric resistance
CH - Max Temp / Max Press	Maximum temperature / Maximum pressure in CH mode
DHW - Max Temp / Max Press	Maximum temperature / Maximum pressure in DHW mode



### Configuration plate

<input type="checkbox"/>	Magis Hercules Mini Hydro 5 (UI MHMH + UE HYDRO HP 5)
<input type="checkbox"/>	Magis Hercules Mini Hydro 8 (UI MHMH + UE HYDRO HP 8)
<input type="checkbox"/>	Magis Hercules Mini Hydro 12 (UI MHMH + UE HYDRO HP 12)



At the end of installation, use a permanent marker to mark the configuration label with installed indoor unit + outdoor unit combination.

INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



# 1.4 INDOOR UNIT MAIN DIMENSIONS

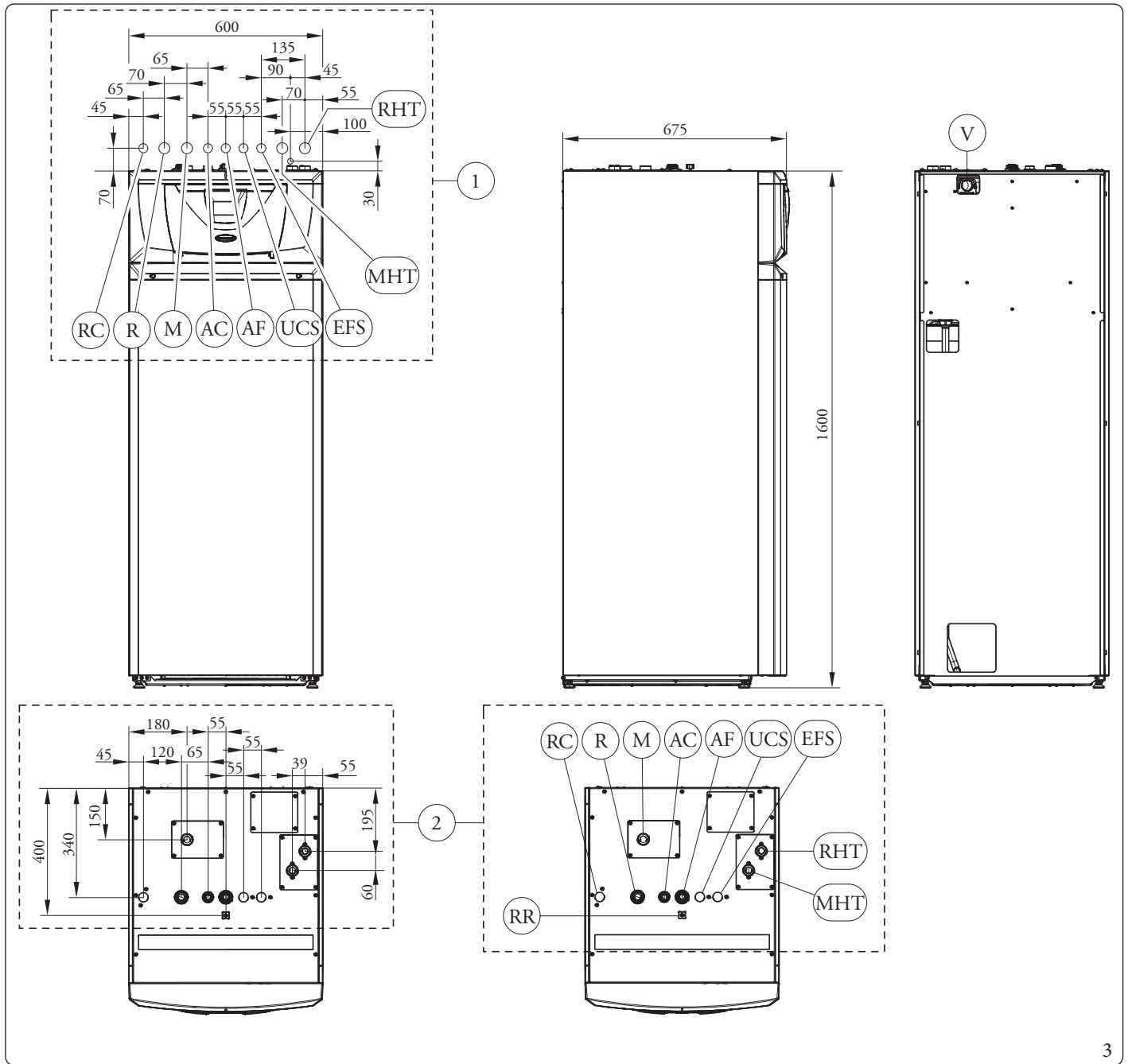
INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



Key (Fig. 3):

- RHT - Return to heat pump
- MHT - Flow from heat pump
- R - System return
- M - System flow
- AC - Domestic hot water outlet
- AF - DHW (Domestic hot water) water inlet
- RC - Pump (optional)

- UCS - Solar heat exchanger outlet (optional)
- EFS - Solar cold exchanger inlet (optional)
- V - Electrical connections
- RR - Filling

- 1 - Wall-mounted hydraulic connection with Immergas template (\*)
- 2 - Direct hydraulic connection in heat pump (\*)

Height (mm)	Width (mm)	Depth (mm)
1600	600	675

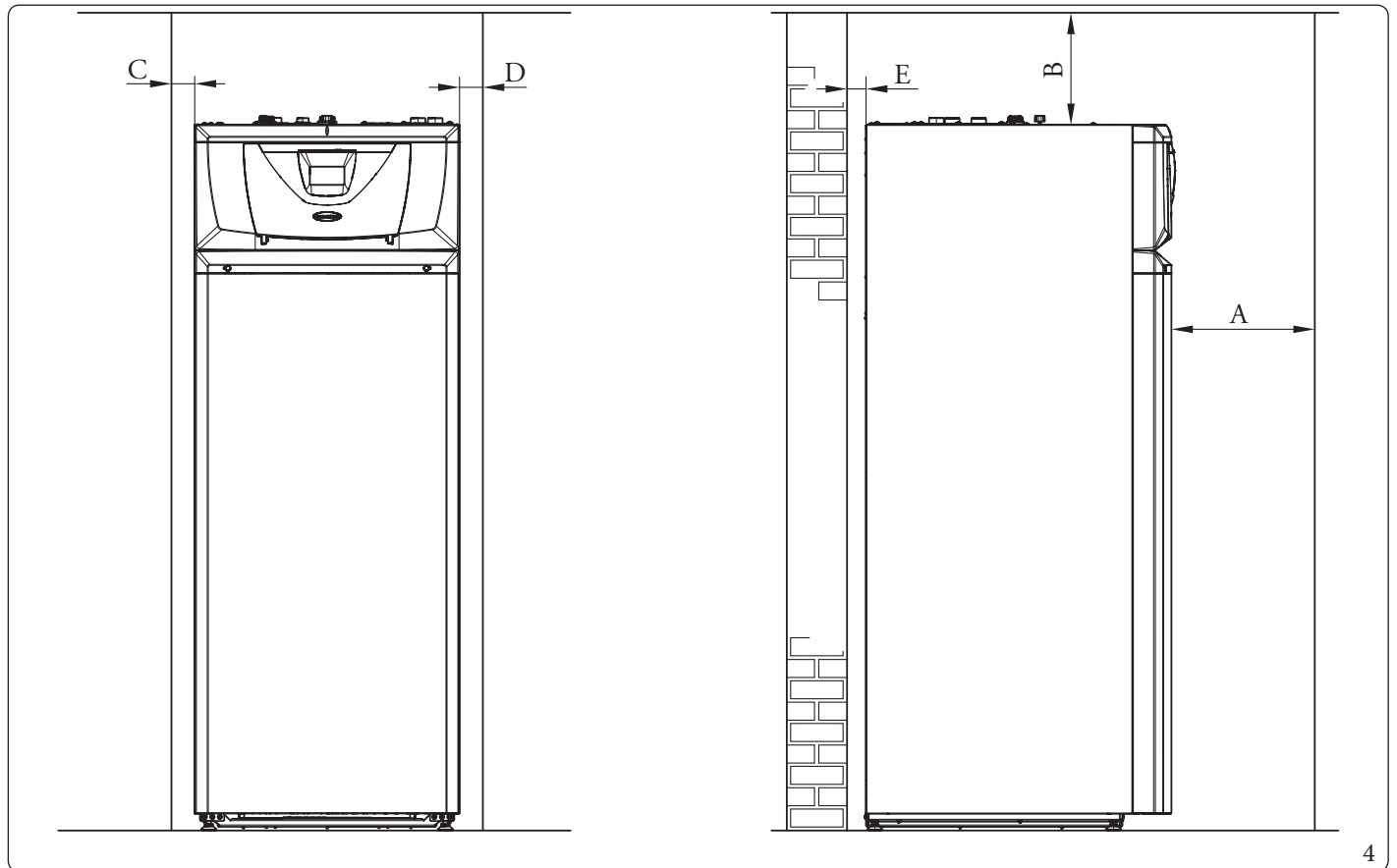
(\*) Connection dimensions see table on next page.



DIRECT HEAT PUMP CONNECTIONS					
HEAT PUMP	DOMESTIC HOT WATER		RECIRCULATION	SYSTEM	SOLAR SYSTEM
MHT-RHT	AC	AF	RC	M-R	UCS-EFS
G1"	G3/4"	G1"	G3/4"	G1"	G3/4"

WALL CONNECTIONS WITH TEMPLATE					
HEAT PUMP	DOMESTIC HOT WATER		RECIRCULATION	SYSTEM	SOLAR SYSTEM
MHT-RHT	AC	AF	RC	M-R	UCS-EFS
G1"	G3/4"	G3/4"	G3/4"	G1"	G3/4"

## 1.5 MINIMUM INDOOR UNIT INSTALLATION DISTANCES



Key (Fig. 4):

- A - 800 mm
- B - 300 mm
- C - 30 mm
- D - 30 mm
- E - 10 mm (maximum 150 mm)

INSTALLER

USER

CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 1.6 INDOOR UNIT HYDRAULIC CONNECTION

### 3 and 8 bar safety valve



The safety valves 3 and 8 bar are already connected to the drain pipe located at the back of the product. Connect the pipe to a drain fitting, as described in fig. 29. Otherwise, the appliance's manufacturer declines any responsibility in case of flooding if the drain valves cut.

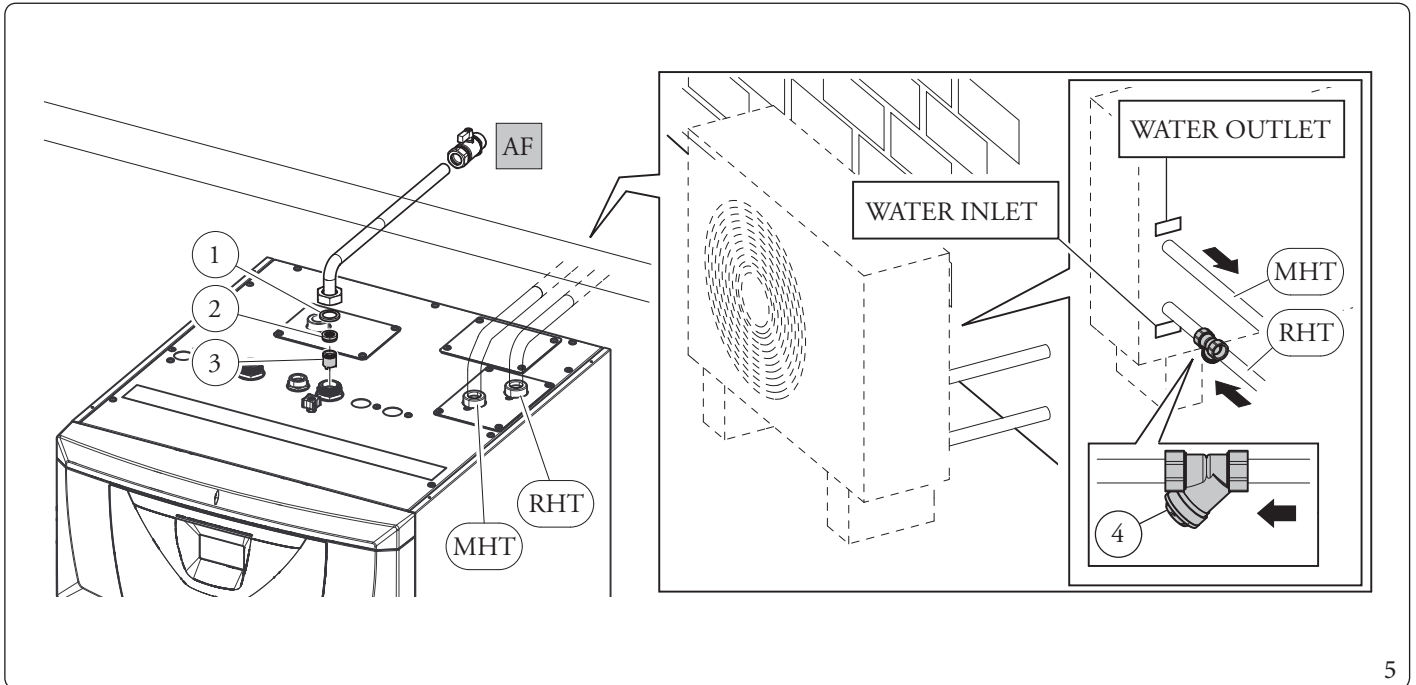
The current technical standards in force prescribes the washing and treatment of the water in the heating and water system, in order to protect the system and the appliance from deposits (e.g. scale), slurry or other hazardous deposits. Water connections must be made in a rational way using the couplings on the Indoor Unit template.



The manufacturer declines all liability in the event of damage caused by the installation of an automatic filling system.

In order to meet the system requirements established by EN 1717 in terms of pollution of drinking water, we recommend installing the IMMERGAS anti-backflow kit to be used upstream of the cold water inlet connection of the Indoor Unit. We also recommend using category 2 heat transfer fluid (ex: water + glycol) in the Indoor Unit primary circuit (heating and/or cooling circuit), as defined in standard EN 1717.

Make the hydraulic connection by placing the filter (pos. 1), the flow limiter (pos. 2) and the non return valve (pos. 3) on the cold water inlet tube as shown in the figure 5.



Key (Fig. 5):

- 1 - Sealed filter
- 2 - Flow limiter
- 3 - Non return valve
- 4 - Y filter

- AF - 3/4" Domestic cold water inlet
- MHT - Flow from heat pump
- RHT - Return to heat pump



To maintain proper operation of the manifold inside the hydraulic circuit, the Y filter (pos.4, Fig. 5) supplied with the product must be installed horizontally in the immediate vicinity of the inlet fitting of the Outdoor Unit (see Fig. 5). Finish the installation by insulating the Y filter with the specific insulation material.

## 1.7 ELECTRICAL CONNECTION

### Indoor unit electrical connection

The internal unit has an IPX5D degree of protection; electrical safety of the appliance is achieved only when it is properly connected to an efficient earthing system, as specified by current safety standards.



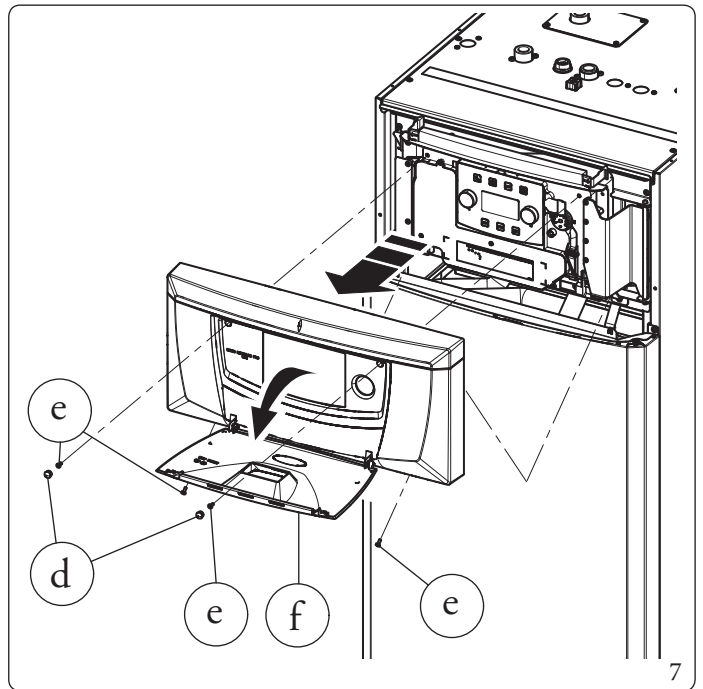
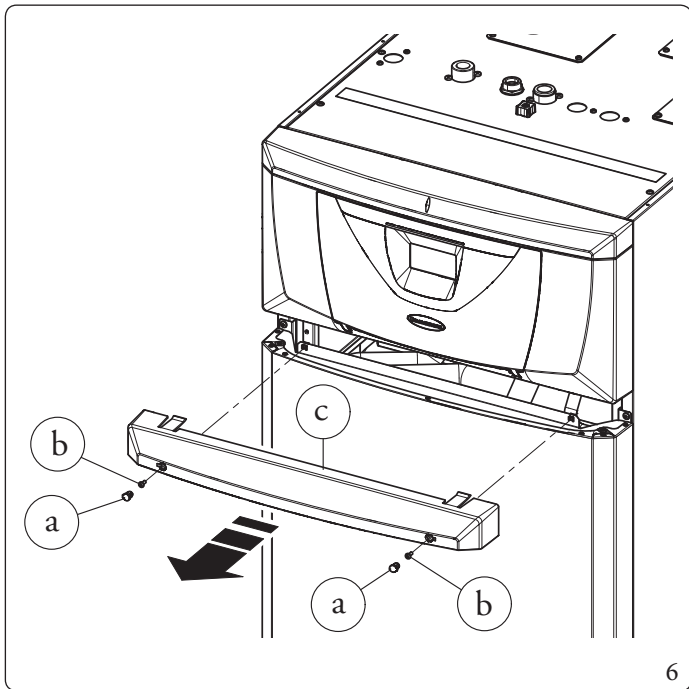
The manufacturer declines any responsibility for damage or physical injury caused by failure to connect the Indoor Unit to an efficient earthing system or failure to comply with the IEC reference standards.

Connections are provided to both the control panel and the main panel (see wiring diagram Fig. 15 and Fig. 14 respectively).

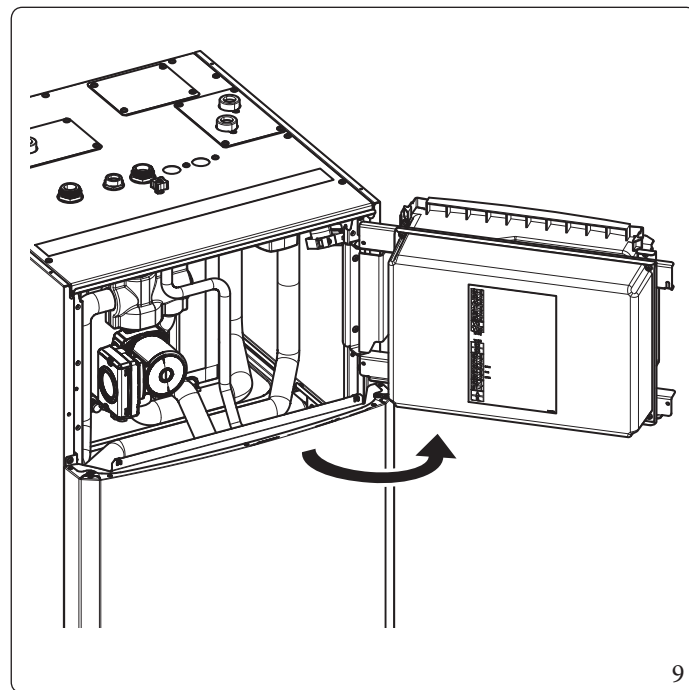
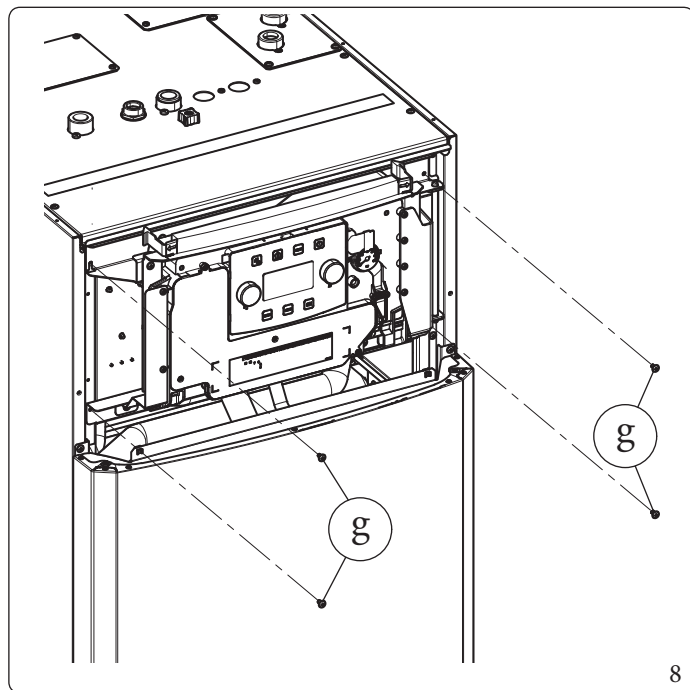
### Main panel opening

To open the main panel, simply follow the instructions below:

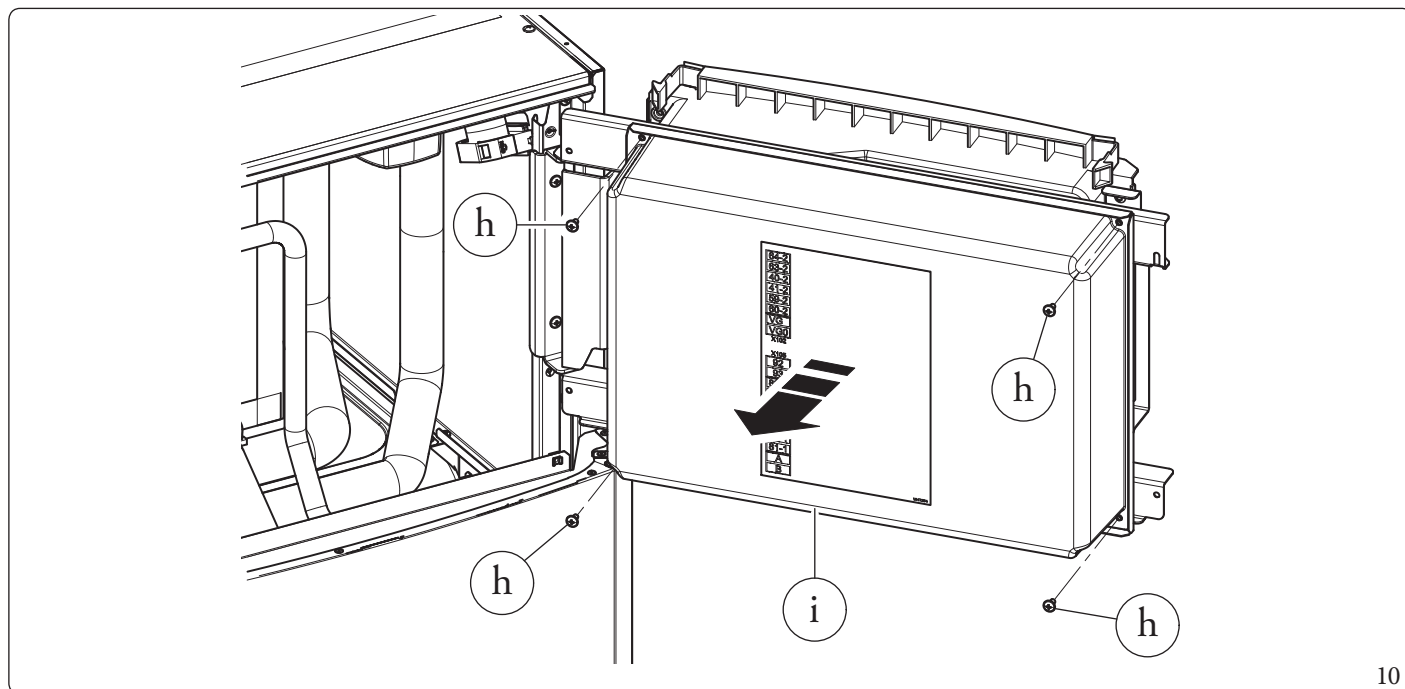
1. Remove the protection caps (a) and loosen the screws (b) to remove the aesthetic profile (c) (Fig. 6).
2. Open the cover door (f) to make it tilt. Remove the protection caps (d), loosen the two upper front screws and the lower screws (e) to remove the cover (f) (Fig. 7).



3. Unscrew the screws (g) (Fig. 8).
4. Open the main panel as shown in figure 9.



5. Undo the screws (h) and remove the cover (i) (Fig. 10).



Ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the indoor unit data nameplate.

Indoor units are supplied complete with an "X" type power cable (l, Fig. 11) without plug.

If a longer power cable is required, choose one with an adequate cross-section based on the rated current value indicated in the table "Indoor Unit data" on page 120 and according to the provisions of technical legislation and standards.

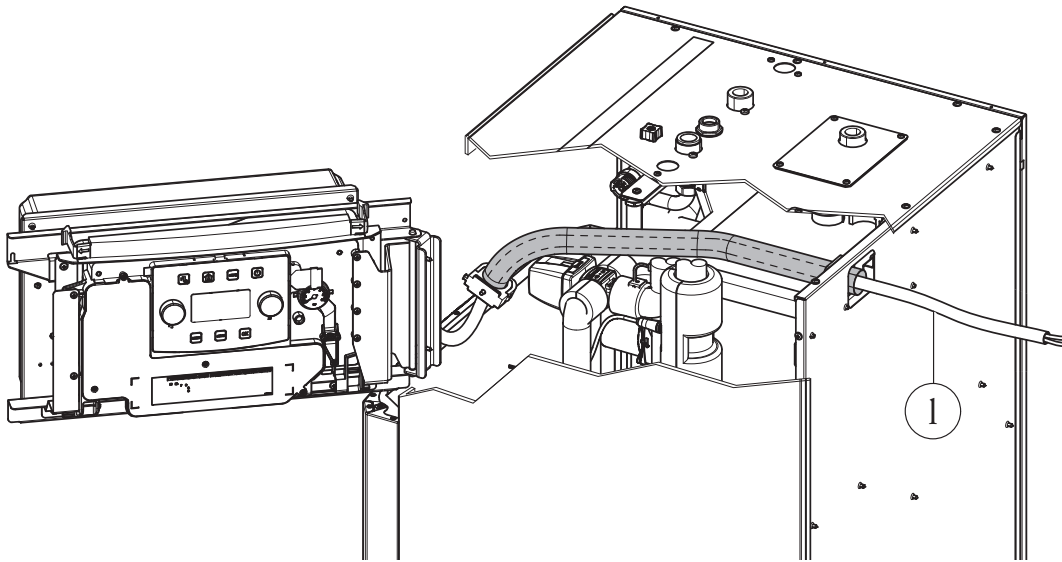
The device is equipped with two fuses:

- Control phase fuse (F1, Fig. 43): 3,15A F 250 V 5x20;
- Phase fuse for DHW integrative resistance (F2, Fig. 43): 12 A aM 500V CH10.

If fuses in the main electrical panel are to be replaced, this must also be done by qualified personnel.

The power supply cable (l) must be laid as shown (Fig. 11).





11



It is recommended to contact a qualified company (e.g. the Authorised After-Sales Technical Assistance Centre) for replacement to avoid a hazard.



To protect from possible dispersions of DC voltage, it is necessary to provide a type A differential safety device.



The power supply cable must be connected to a 230V  $\pm 10\%$  / 50Hz mains supply respecting L-N polarity and earth connection; this network must also have a multi-pole circuit breaker with class III overvoltage category in compliance with installation regulations.



An overcurrent limiting device with tripping curve "C" suitable for the maximum currents declared in chapter "Technical data" should be provided to protect against any overcurrent.



The connection cables to the X105 terminal block of the main panel (optional components) must follow the same path as the power cable (1, fig. 11)



To avoid the possible interference of communication signals, the connection cables to the X102 terminal board of the main panel and those made on the X108 and X109 terminal blocks of the control panel must be separated from the power cables and secured outside the corrugated duct of the power supply cable (1, fig. 11) using the specific openable cable ties supplied with the product.



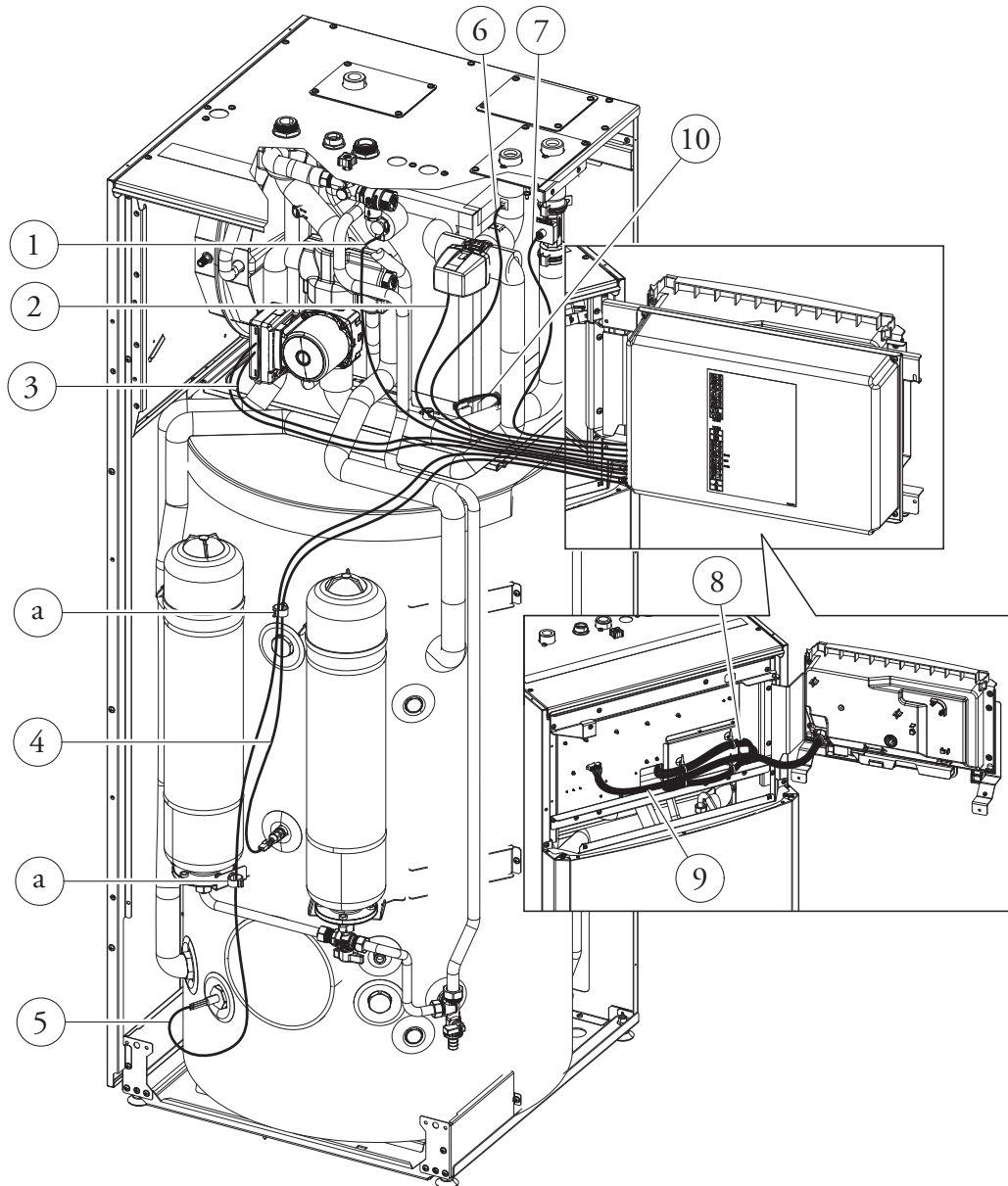
## Electrical connections to the main panel

The electrical connections available are:

- Zone 2 flow probe;
- Zone 2 humidistat;
- Zone 2 thermostat;
- Optional external system integrative resistances;
- Multifunction relay kit;
- Zone 1 pump;
- Zone 2 pump;
- Zone 2 Mixing Valve;
- Power connection of the expansion kit.

Key (Fig. 12):

- 1 - System resistance connection (optional)
- 2 - Three-way connection (M30)
- 3 - Pump connection (M1)
- 4 - Storage tank probe connection
- 5 - DHW (Domestic hot water) resistance connection (E15)
- 6 - Heat pump return probe connection
- 7 - Flow meter connection (B25)
- 8 - Main electrical panel connections
- 9 - Connection between the control panel and main panel
- 10 - Heat pump flow probe connection
- a - Cable gland

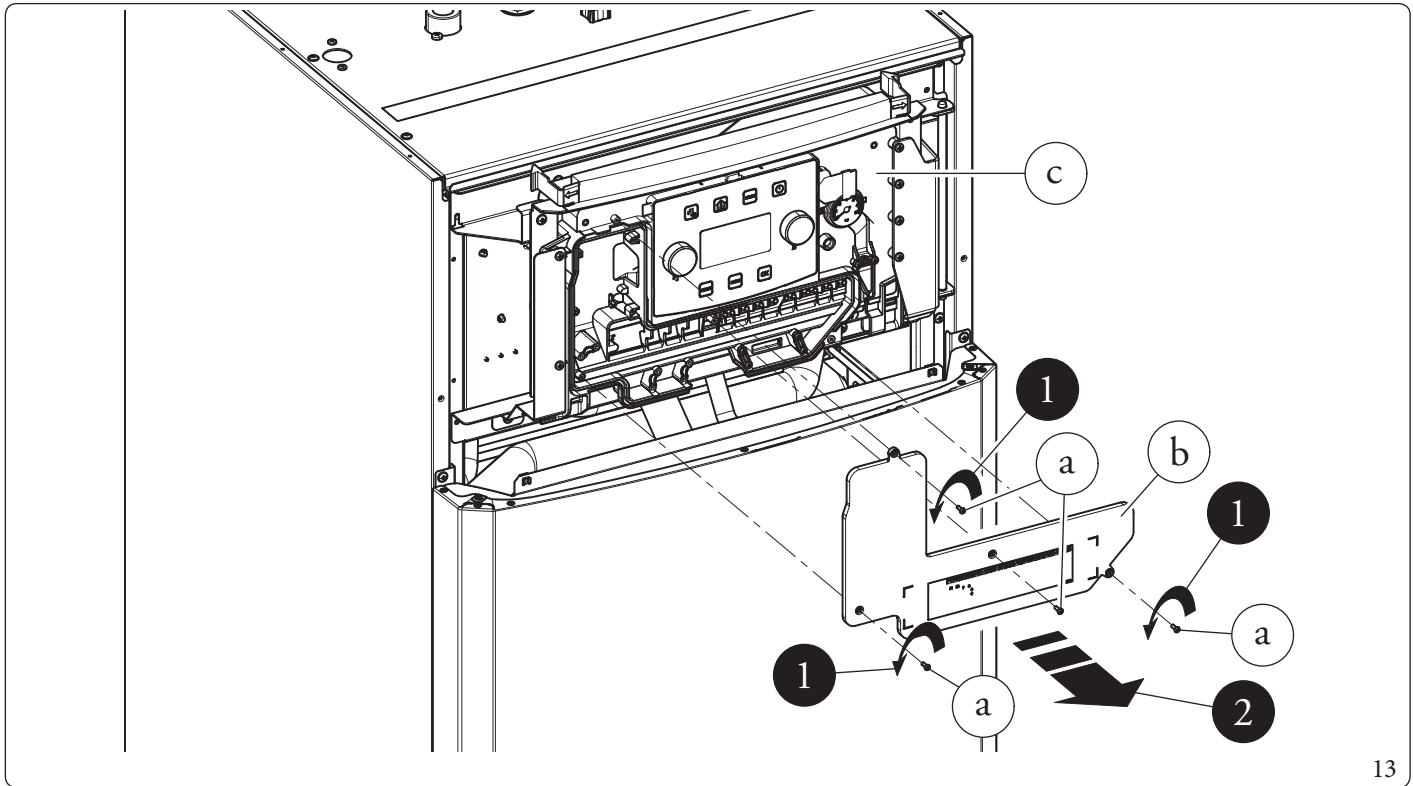


### Open the control panel connections compartment (Fig. 13).

To carry out electrical connections, all you have to do is open the connections compartment as follows.

1. Remove the cover and the aesthetic profile.
2. Disassemble the cover.
3. Loosen the screws (a).
4. Remove the cover (b) from the control panel (c).

At this point, you can access the terminal board.



13

### Electrical connections to the control panel

The electrical connections available are:

- Photovoltaic system: connecting the product to a photovoltaic system enhances use of the outdoor unit when the photovoltaic panels are operating.
- Dehumidifier zone 1.
- Zone 1 flow probe.
- Zone 1 humidistat.
- Zone 1 thermostat.
- Zone 1, 2 and 3 remote devices (Zone remote panel or Temperature/humidity probe), Dominus, ModBus communication expansion kit.
- External probe or alternatively DHW recirculation probe
- Cooling / Central heating mode selection contact.
- Heat pump communication.

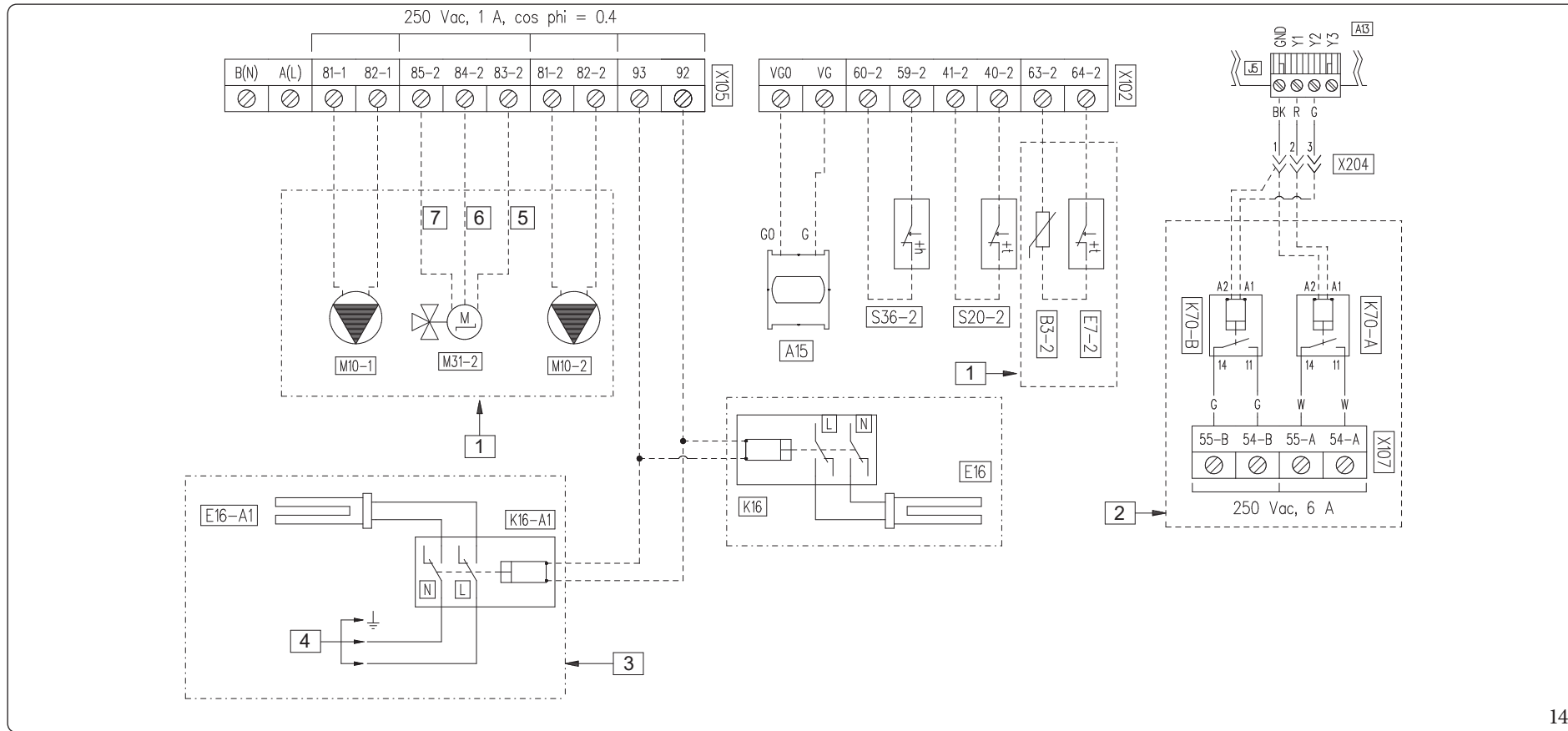
Connections must be made on the terminal board inside the control panel (Fig. 15) for zone 1 or in the main panel of the appliance (Fig. 14) for zone 2.

### Outdoor unit electrical connection

The indoor unit must be coupled to an outdoor unit by connecting terminals F1 and F2 as shown in the control panel connection diagram (Fig. 15). The power supply of the outdoor unit must be independent from the indoor unit.

Configure the parameter "HP Model" as indicated in the paragraph (Par. 3.3) according to the type of connected outdoor unit.

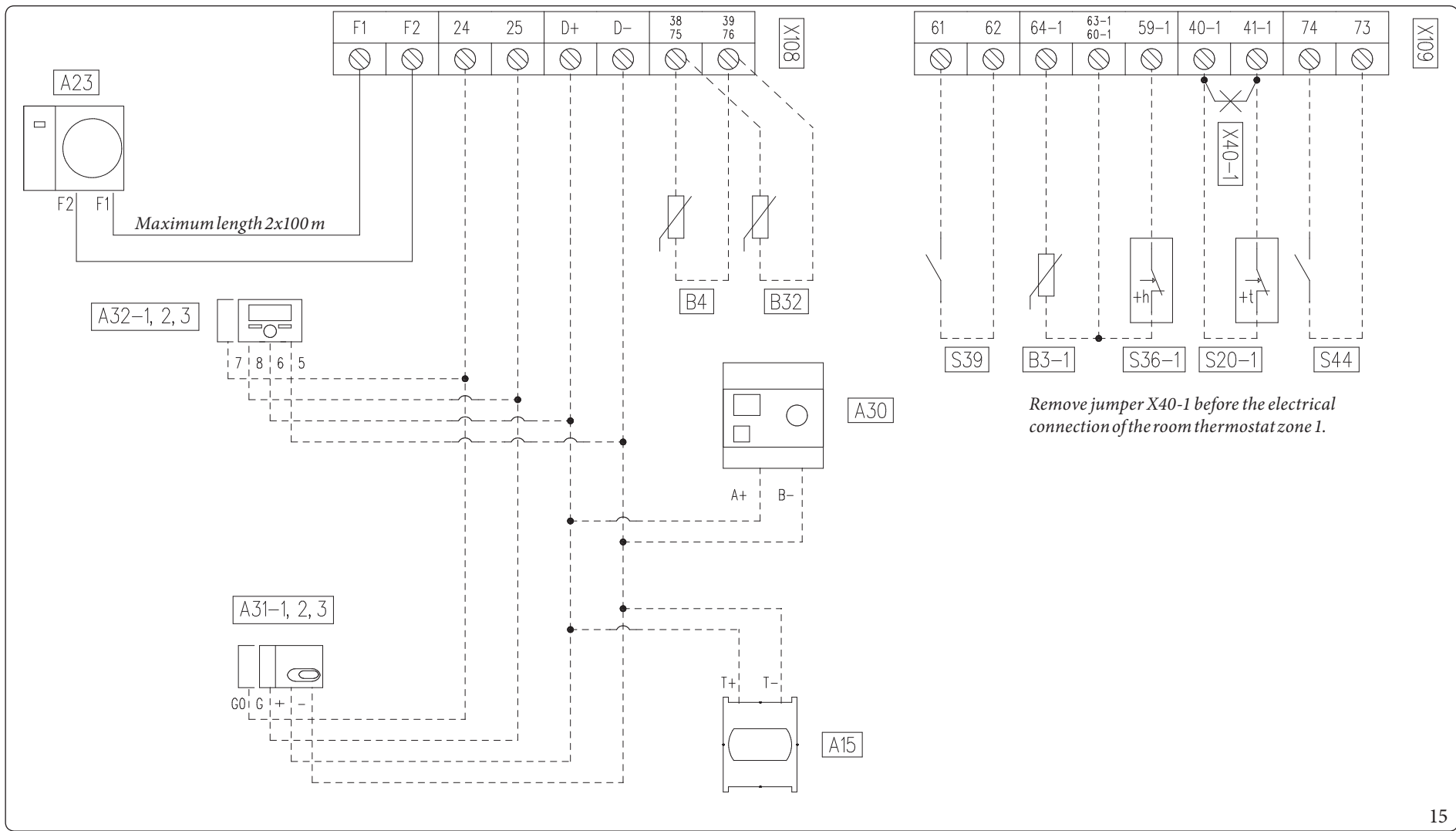




Key (Fig. 14):

- |          |   |    |   |
|----------|---|----|---|
| A13      | - Supervision board                                       | 1  | - Kit 2 zone (optional)                                     |
| A15      | - Electronic expansion board (optional)                   | 2  | - Two-relay kit (optional)                                  |
| B3-2     | - Zone 2 flow probe (optional)                            | 3  | - 3kW internal system integration resistance kit (optional) |
| E7-2     | - Zone 2 safety thermostat (low temperature) (optional)   | 4  | - 230 Vac - 50 Hz - 3 kW                                    |
| E16      | - External system integrative resistance (optional)       | 5  | - Closed  |
| E16-A1   | - Internal system integrative resistance (optional)       | 6  | - Common  |
| K16      | - System integration resistance relay (optional)          | 7  | - Open  |
| K16-A1   | - Internal system integrative resistance relay (optional) | BK | - Black   |
| K70-A, B | - Multifunction relay (optional)                          | G  | - Green   |
| M10-1    | - Zone 1 circulator pump (optional)                       | R  | - Red   |
| M10-2    | - Zone 2 circulator pump (optional)                       | W  | - White   |
| M31-2    | - Zone 2 mixing valve (optional)                          |    |   |
| S20-2    | - Zone 2 room thermostat (optional)                       |    |   |
| S36-2    | - Zone 2 humidistat (optional)                            |    |   |





**Key (Fig. 15):**

- |             |   |       |                                       |
|-------------|---|-------|---------------------------------------|
| A15         | - Electronic expansion board (optional)             | B4    | - External probe (optional)           |
| A23         | - Outdoor unit                                      | B32   | - Recirculation probe (optional)      |
| A30         | - Dominus (optional)                                | S20-1 | - Zone 1 room thermostat (optional)   |
| A31-1, 2, 3 | - MODBUS temperature sensor zone 1, 2, 3 (optional) | S36-1 | - Zone 1 humidistat (optional)        |
| A32-1, 2, 3 | - Zone 1, 2, 3 remote panel (optional)              | S39   | - Photovoltaic inlet (optional)       |
| B3-1        | - Zone 1 flow probe (optional)                      | S44   | - Heating/Cooling Selector (optional) |
|             |   | X40-1 | - Zone 1 room thermostat link         |



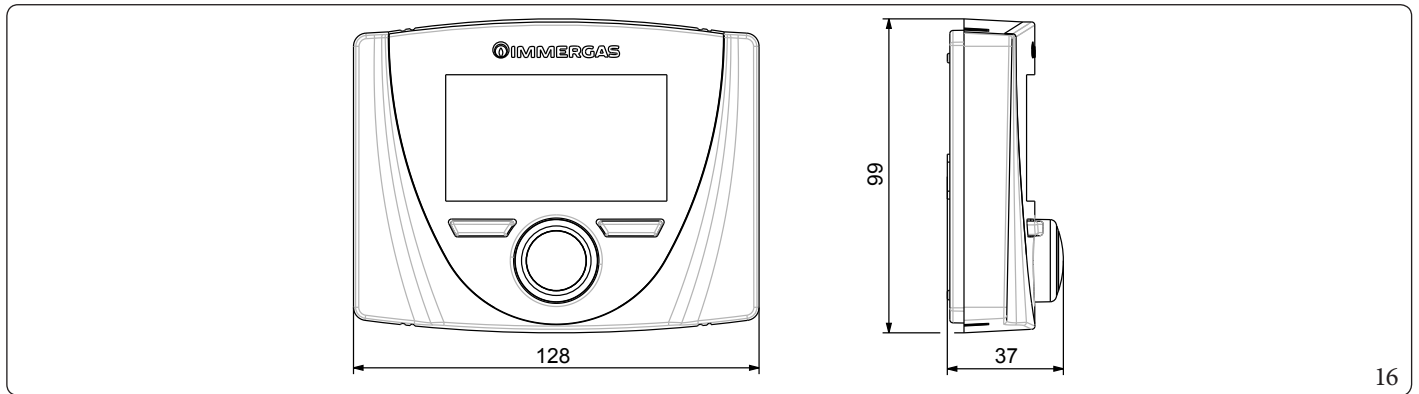
## 1.8 REMOTE ZONE CONTROL (OPTIONAL)

This remote device is used to adjust the setpoints and to view the main information of the zone where it was configured.

Make the connection to the appliance as shown (Fig. 15) and leave the jumper on terminals 40-1/41-1 for zone 1 and terminals 40-2/41-2 for zone 2.

To correctly configure the device, set the parameters as described below:

Assistance Menu -> Device configuration	
Slave address: Address to configure according to the zone where the device is installed	Zone 1 = 41
	Zone 2 = 42
	Zone 3 = 43
Baud Rate	9600
Parity bit	Even
Stop bits	1
Heat pump control	NO

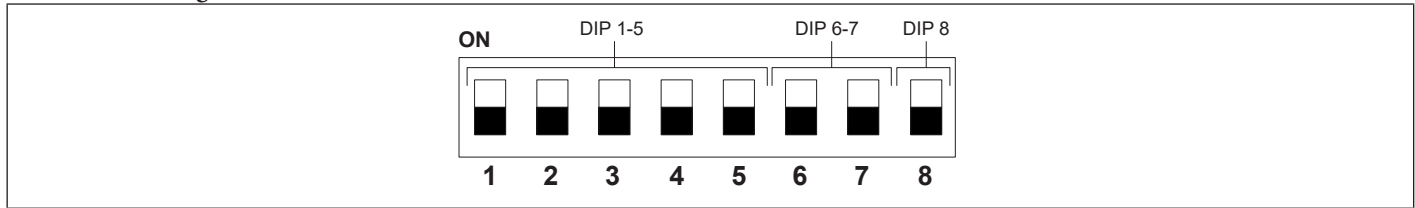


## 1.9 MODBUS TEMPERATURE AND HUMIDITY ROOM PROBES (OPTIONAL)

The Modbus temperature and humidity probe is used to detect the room temperature and humidity and to calculate the dew point. In addition, by setting the relative zone room setpoints available on the Control panel (see Par. 3.3), it is possible to check the temperature and humidity of a room.

Make the connection to the appliance as shown (Fig. 15) and set the DIP-switches on the probe.

**DIP-Switch configuration table**



DIP 1-5 (Address)		Zone 1 (Address 131)
		Zone 2 (Address 132)
		Zone 3 (Address 133)

DIP 6-7 (Type)		Modbus 1 - 8 - E - 1
-------------------	--	----------------------

DIP 8 (Speed)		9600 bit/s
------------------	--	------------

**i** In the same zone, only one of the two optionals between Zone remote panel and Modbus temperature and humidity room probe can be installed.

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## 1.10 ROOM CHRONO-THERMOSTATS (OPTIONAL)

The Indoor Unit is prepared for the application of room chrono-thermostats, which are available as optional kits. A maximum of 3 temperature controllers can be applied directly to the appliance. All Immergas chrono-thermostats are connected with 2 wires only. Carefully read the user and assembly instructions contained in the accessory kit.



**Disconnect power to the unit before making any electrical connections.**

### On/Off Immergas digital chrono-thermostat.

The chrono-thermostat allows:

- set two room temperature value: one for day (comfort temperature) and one for night (reduced temperature);
- set a weekly programme with four daily switch on and switch off times;
- selecting the required function mode from the various possible alternatives:
  - manual mode (with adjustable temperature);
  - automatic mode (with set programme);
  - forced automatic operation (momentarily changing the temperature of the automatic program).

The chrono-thermostat is powered by two 1.5V LR6 type alkaline batteries.

### On/Off chrono-thermostat electrical connection (Optional).



**The operations described below must be performed after having removed the voltage from the appliance.**

On/Off ambient thermostat or chrono-thermostat: must be connected to the 40-1 / 41-1 terminals, eliminating the X40-1 jumper for zone 1, 40-2 / 41-2 for zone 2 and U4 / U5 for zone 3 (optional expansion kit).

Make sure that the On/Off thermostat contact is of the “clean” type, i.e. independent of the mains voltage, otherwise the P.C.B. would be damaged.

The connections must be made on the terminal board inside the control panel (Fig. 15) or the appliance’s main panel (Fig. 14).



If any On/Off chrono-thermostat is used, arrange two separate lines in compliance with current regulations regarding electrical systems.

No indoor unit pipes must ever be used to earth the electric system or telephone lines.

Ensure elimination of this risk before making the indoor unit electrical connections.



## 1.11 HUMIDISTAT ON/OFF (OPTIONAL)

You can make a dehumidification demand by using a humidistat.

Connections must be made on the terminal board inside the control panel (Fig. 15) for zone 1 or in the main panel of the appliance (Fig. 14) for zone 2.

## 1.12 DEHUMIDIFIERS (OPTIONAL)

To use the dehumidification function required during the cooling function in the radiant systems, it is possible to install dehumidifiers and control them directly from the management board by installing the 2-relay kit (optional). Connect as shown in the kit's instructions sheet.

With the installation of a Immergas dehumidifier, it is possible to activate either the dehumidification function in neutral air or in cooled air (see dehumidifier kit manual for more details on the function).

## 1.13 CENTRAL HEATING / COOLING FUNCTION SELECTOR

An external potential-free contact can be used to set cooling or central heating mode.

The connections must be made on the main terminal block inside the control panel (ref. S44 of Fig. 15).

Closing of the contact S44 activates the MHMH unit in Cooling + Domestic hot water mode while with contact S44 open, the MHMH unit is in Central heating + DHW mode.

To enable this mode, set the parameter

**Menu / Support / Special parameters / Enab. Heat./cool.select. on Yes**

## 1.14 ZONE ADJUSTMENT MANAGEMENT

The "MHMH" system is intended as per standard for operation on single-zone systems (Zone 1), and, when needed, it can manage an additional Zone 1 pump (M10-1) not supplied as per standard to be connected as indicated in fig. 14.

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

The specialised technician selects the type of zone when configuring the system.

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 NTC 10KB3435 valve.

The expansion kit must also be installed to activate mixed Zone 3.



## 1.15 EXTERNAL TEMPERATURE PROBE (OPTIONAL)

An external probe is installed in the outdoor unit as per standard.

The external probe is used to:

- Thermoregulate the water flow temperature;
- Determine the use of additional generators (electrical resistances).

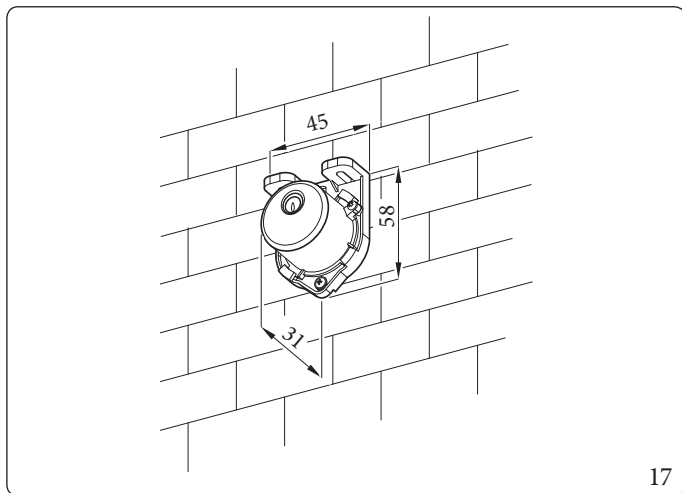
If the outdoor unit is positioned in an area that is not suitable for temperature reading, it is advisable to use an additional external probe (Fig. 17) which is available as an optional kit.

Refer to the relative instruction sheet for positioning of the external probe.

For the proper operation of the optional probe, it must be electrically connected where envisaged (Fig.15) and then enabled (Par. 4.27)

The presence of the external probe allows the system flow temperature to be set automatically based on the outdoor temperature in order to adapt the heating or cooling provided to the system.

The system flow temperature is determined by the setting on the "Zones" menu and by the "User" menu for the offset values based on the curves shown in the diagram (Par. 1.18).



If the system is divided into two or three zones, the flow temperature is calculated based on the zone with the higher temperature in central heating mode and with the lower temperature in cooling mode.



If the optional external probe is used, the DHW recirculation function cannot be used.

In the event of a failure of the optional external probe, after switching it off and back on, the outside temperature is automatically detected by the external probe on the outdoor unit.

## 1.16 DOMINUS (OPTIONAL)

The system can be remote controlled using the optional Dominus kit.

Connect the appliance as shown (Fig. 15).

The following is necessary to enable Dominus:

- position the Dip Switches: OFF-OFF-OFF-ON;
- set the parameter on the control panel **System supervision = Domin**;
- configure the Dominus APP profile on Magis Hercules Mini Hydro.



The Dominus firmware must be updated to at least revision 2.02.

For further information, consult the relative instruction sheet.

## 1.17 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).

## 1.18 TEMPERATURE CONTROL SETTING

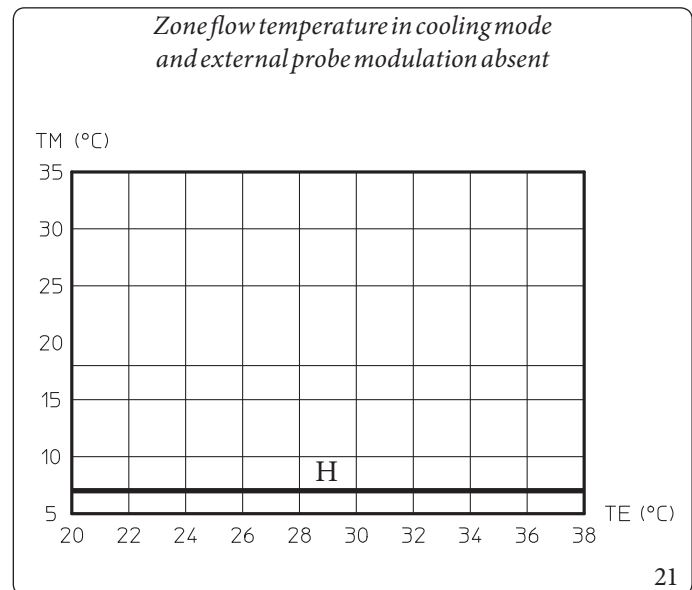
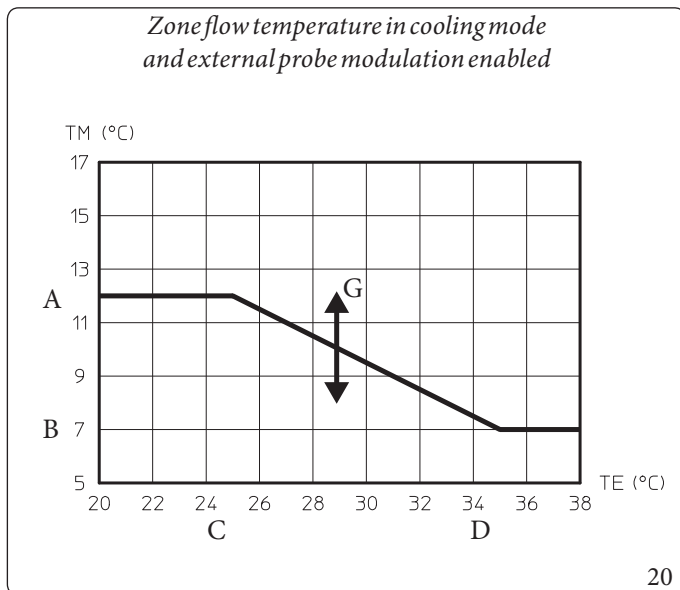
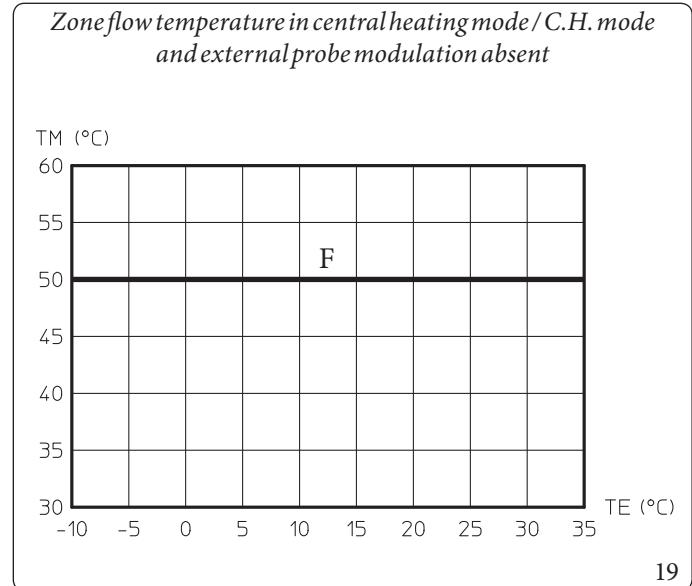
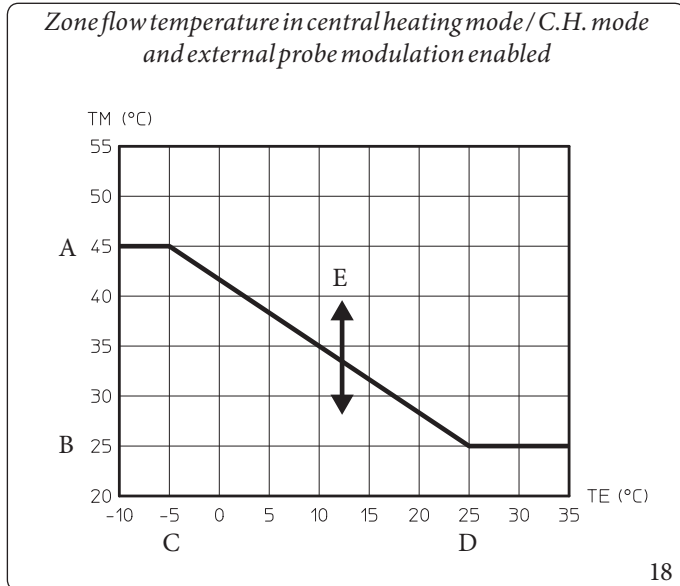
By setting the parameters in the menus

### Zones/Configuration

it is possible to automatically adjust the flow temperature of each zone according to the outdoor temperature. This can be done by enabling the external probe modulation in the menu

### Zones/Enablings

The curves (Fig. 18, 19, 20, 21) show the default settings in the various operating modes available both with external probe and without.



Key (Fig. 18, 19, 20, 21)

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

- E - C.H. flow temperature offset
- F - Central heating / C.H. flow set
- G - Cooling flow temperature offset
- H - Cooling flow set



## 1.19 ANTIFREEZE PROTECTION

Freezing may damage the system.

Freezing of components must therefore be prevented by performing one of the following actions:

### Protection with antifreeze functions:

- The product Magis Hercules Mini Hydro is equipped with special antifreeze protection functions, which activate the pump and one of the generators in the event of low temperatures.

In particular:

#### Internal Unit Protection

- The indoor unit has no protection as it is intended to be installed inside rooms whose minimum temperature does not drop below +5°C.

#### Outdoor Unit protection with antifreeze functions

- In case of low outside temperatures, the product Magis Hercules Mini Hydro activates the pump and the outdoor unit. In the event of a power failure, these functions are not capable of guaranteeing protection. It is therefore necessary to install antifreeze protection valves (not supplied by Immergas) with maximum tripping temperature of 4°C, which drain the 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. As per standard, these functions protect the outdoor unit down to a minimum temperature of -15°C.



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

#### Outdoor Unit protection with anti-freeze liquid

Using an anti-freeze liquid always protects both units against freezing, even in the event of power failures.

In this case, the Glycol function must be enabled in the "System definition" Menu.

In the presence of antifreeze liquid:

- the outdoor 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 antifreeze liquid must not be harmful to one's health.

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
48	-20	-29



In the event of failure to use antifreeze fluid, damage resulting from power failure and failure to comply with the preceding paragraphs shall be excluded for the effectiveness of the warranty.



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



## 1.20 SYSTEM FILLING

Once the indoor unit is connected, fill the system using the filling cock (6, Fig. 30).

The indoor unit has incorporated an automatic air vent valve on the internal inertia manifold.

It is also necessary to provide a vent at the highest point of the heat pump return branch. With the installation of the optional connection unit, a manual deaerator is provided.

It is also necessary to provide a vent at the highest point of the heat pump return branch. With the installation of the optional connection unit, a manual deaerator is already installed.



Make sure that the hoods are loosened.

The filling valve must be closed when the indoor unit pressure gauge indicates approximately 1.2 bar.



At the end of these operations, enable the manual "Deaeration" functions, which last about 9 hours.

## 1.21 SYSTEM MINIMUM WATER CONTENT

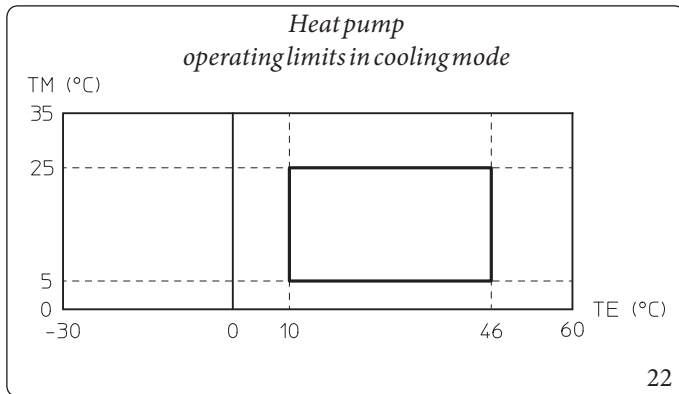
In versions Magis Hercules Mini Hydro 5 and Magis Hercules Mini Hydro 8, the water content sufficient for proper operation of the system (30l) is provided by the hydraulic manifold with the primary water inertial storage tank functions.

For the Magis Hercules Mini Hydro 12 version, a minimum of 50 litres of water is required. If this amount cannot be reached by adding the volume of the indoor unit of 30 litres to that of the rest of the system where water always flows freely, an external storage tank needs to be added.



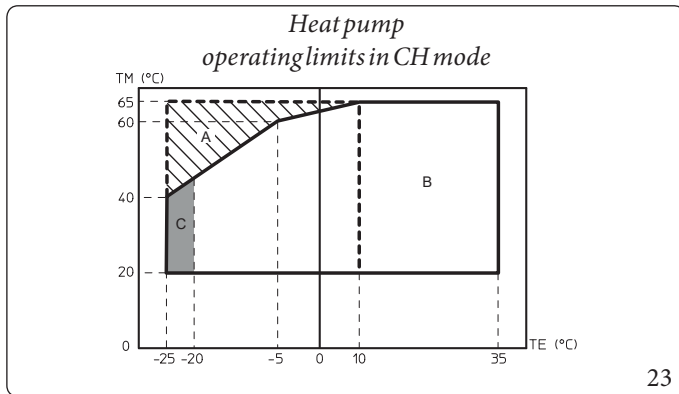
## 1.22 OPERATING LIMITS

The appliance was designed to work in a specific range of outdoor temperatures and at a specific maximum flow temperature. The chart (Fig. 22, 23, 24) shows these limits.



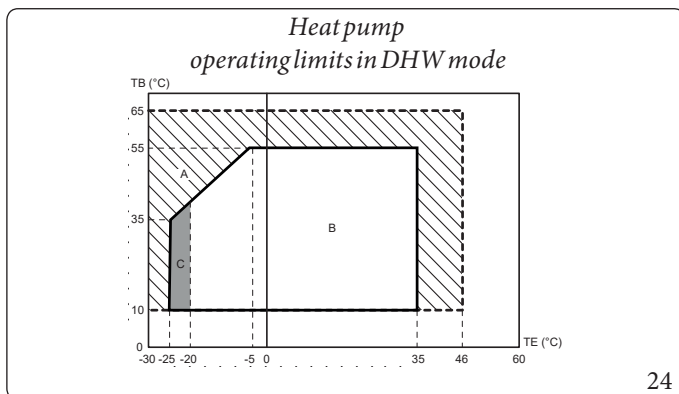
Key (Fig. 22):

- TE = External temperature
- TM = Flow temperature



Key (Fig. 23):

- TE = External temperature
- TM = Flow temperature
- A = With system electrical resistance (optional)
- B = Without electrical resistances enabled
- C = For outdoor temperatures below -20°C, the capacity of the heat pump is not guaranteed.



Key (Fig. 24):

- TE = External temperature
- TB = Storage tank temperature
- A = With integration electrical resistance
- B = Without electrical resistance enabled
- C = For outdoor temperatures below -20°C, the capacity of the heat pump is not guaranteed.

### 1.23 INDOOR UNIT START-UP (IGNITION).

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):

1. Check connection to a 230V~50Hz power mains, correct L-N polarity and the earthing connection;
2. Switch the indoor unit on and check correct ignition;
3. Check the intervention of the main switch located upstream from the indoor unit and in the indoor unit.
4. Set the first ignition parameters (Par. 4.9).



The system must not be started up if even only one of the checks should be negative.

### 1.24 CIRCULATION PUMP

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

The pump runs at variable speed and can be managed by means of the settings on the Menu / Support / Heat pump / Pump in the following way.

- **Fixed:** set the parameter "Pump mode" = Max Sp. and then set the parameter "Max pump speed" = required fixed speed.
- **$\Delta T$  constant:** set parameter "Pump mode" = Modul., the parameters "Min pump speed" and "Max pump speed" = define the minimum and maximum speed limit to maintain 5°C of  $\Delta T$  between flow and return.

#### Pump release.

If after a long period of inactivity, the circulator is blocked, adjust the screw in the centre of the head in order to manually release the motor shaft.

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

Disconnect power to the pump.

Remove the screw in the middle.

The shaft below features a groove.

Using a screwdriver and inserting it in the groove, turn the shaft of the pump in its direction of rotation until it blocks. After this, reapply the screw and power the pump back up.



Hot water could escape.



**Head available to the system**

The following graphics represent the available head of the indoor unit also considering the head losses of the outdoor unit. Use the following graph to correctly dimension the connection pipes between indoor unit and outdoor unit and to determine the available head for the system.

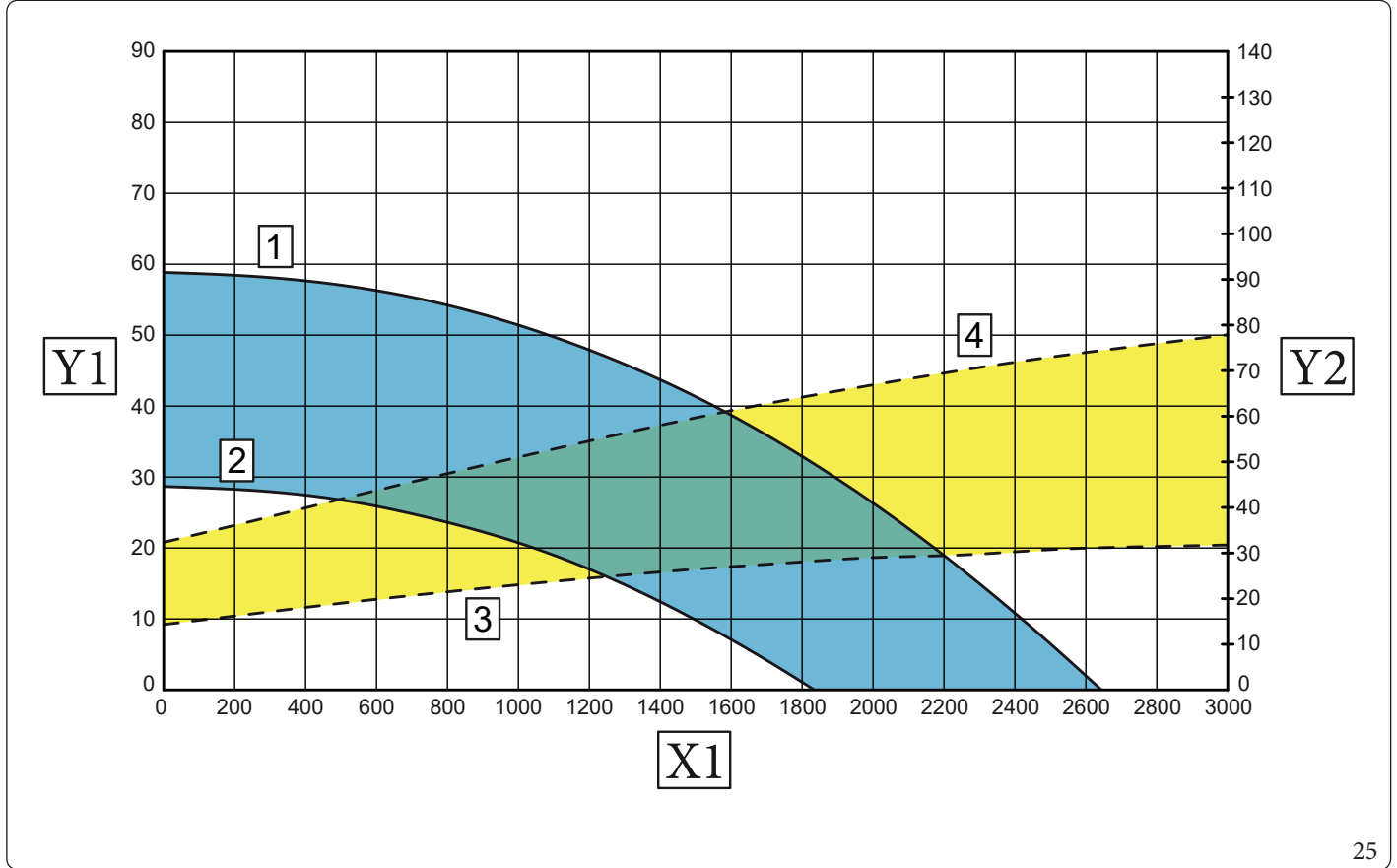
Refer to the relative instruction manual for head losses of the outdoor unit only.



It is recommended to install the indoor unit at least 10 metres from the outdoor unit.

**Magis Hercules Mini Hydro 5**

**Indoor unit (UIMMH) + Outdoor unit (UEHYDROHP 5)**



Key (Fig. 25):

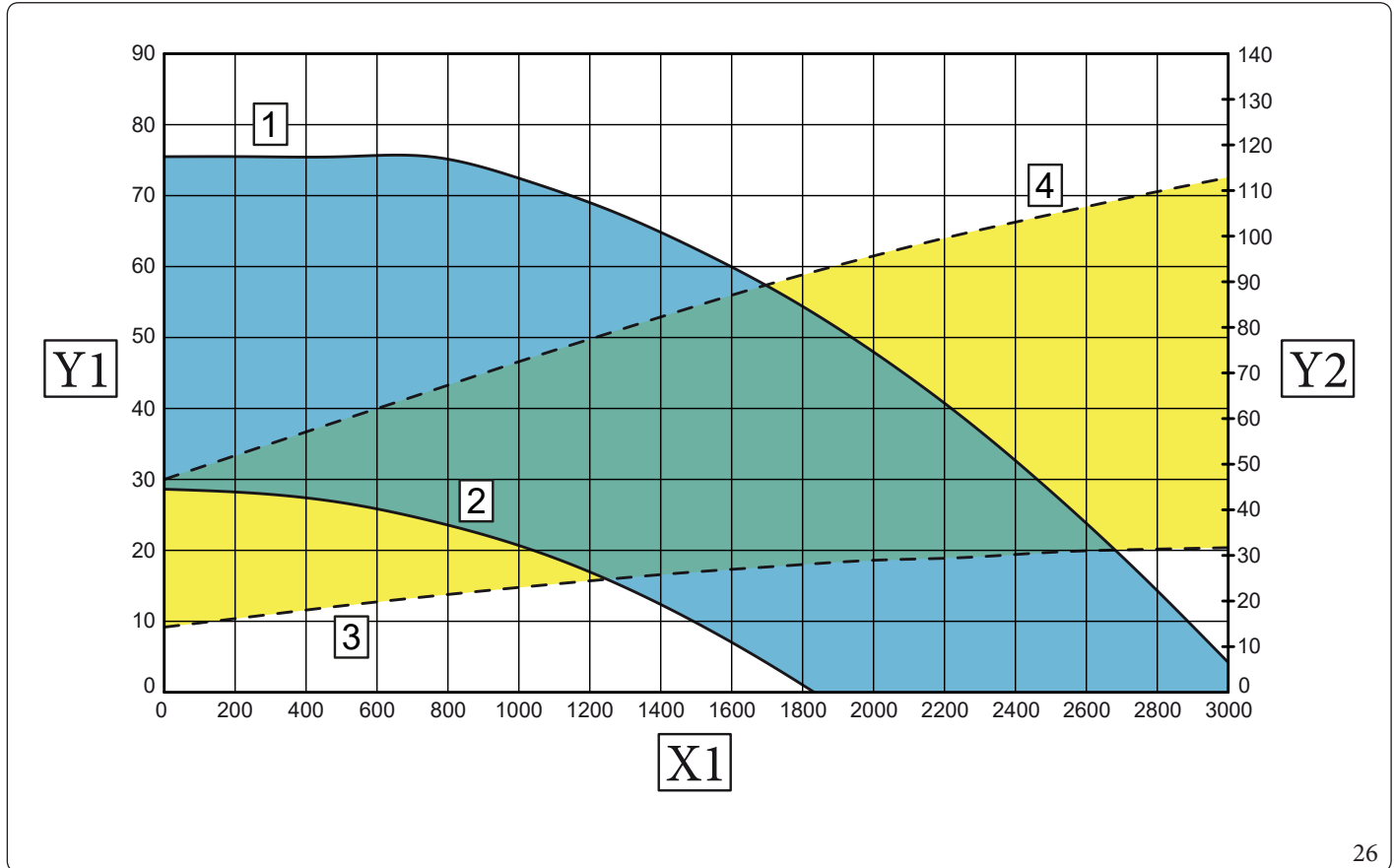
- 1 = Head available to the PWM system 70%
- 2 = Head available to the PWM system 50%
- 3 = Power absorbed by pump PWM 50%
- 4 = Power absorbed by pump PWM 70%
- X1 = Flow rate (l/h)
- Y1 = Head (kPa)
- Y2 = Circulator pump absorbed power (W)





# Magis Hercules Mini Hydro 8

Indoor unit (UIMHMH) + Outdoor unit (UEHYDRO HP 8)



Key (Fig. 26):

- 1 = Head available to the PWM system 80%
- 2 = Head available to the PWM system 50%
- 3 = Power absorbed by pump PWM 50%
- 4 = Power absorbed by pump PWM 80%
- X1 = Flow rate (l/h)
- Y1 = Head (kPa)
- Y2 = Circulator pump absorbed power (W)

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Magis Hercules Mini Hydro 12

Indoor unit (UIMHMH) + Outdoor unit (UEHYDRO HP 12)

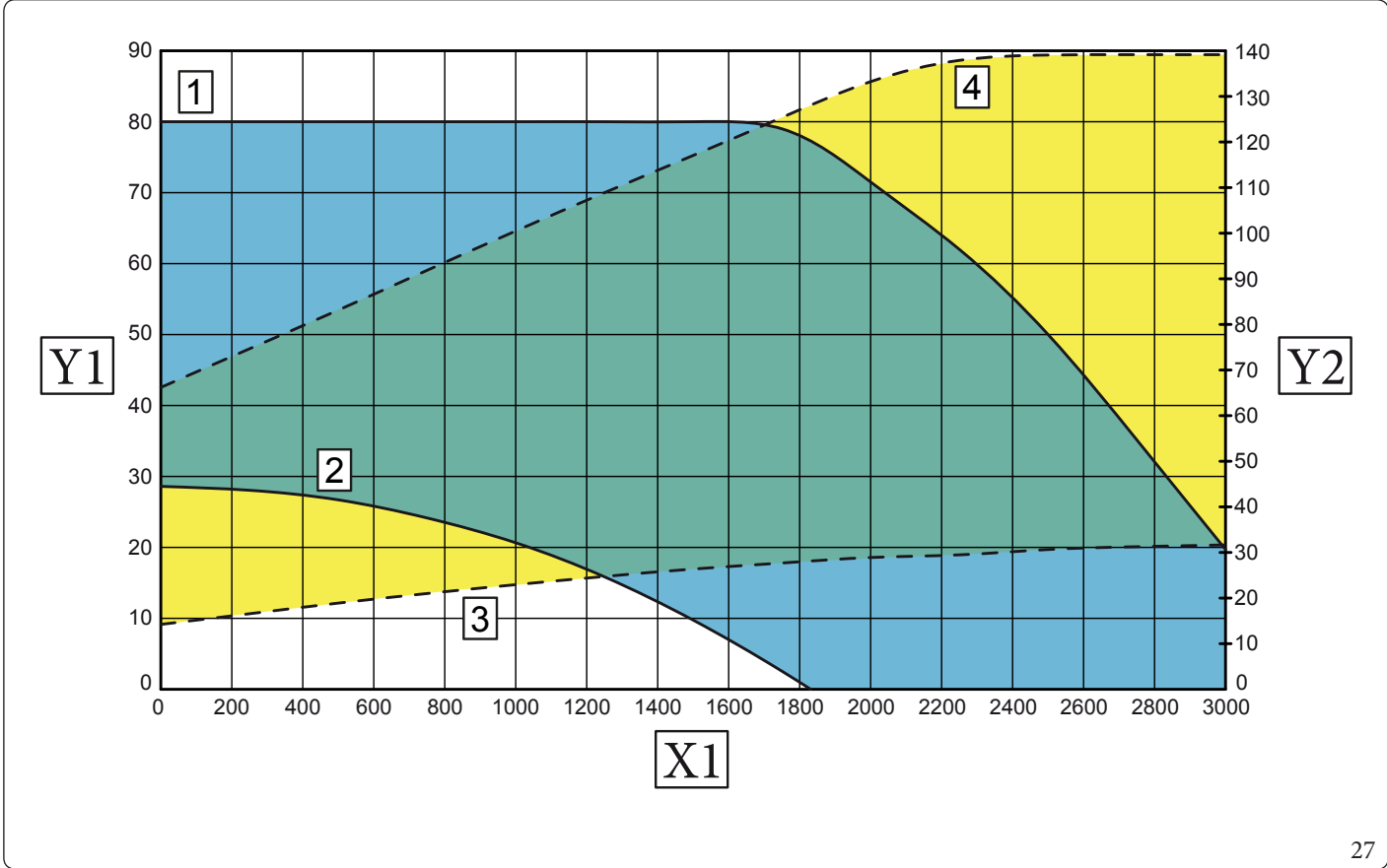
INSTALLER

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Key (Fig. 27):

- 1 = Head available to the PWM system 100%
- 2 = Head available to the PWM system 50%
- 3 = Power absorbed by pump PWM 50%
- 4 = Power absorbed by pump PWM 100%
- X1 = Flowrate (l/h)
- Y1 = Head (kPa)
- Y2 = Circulator pump absorbed power (W)



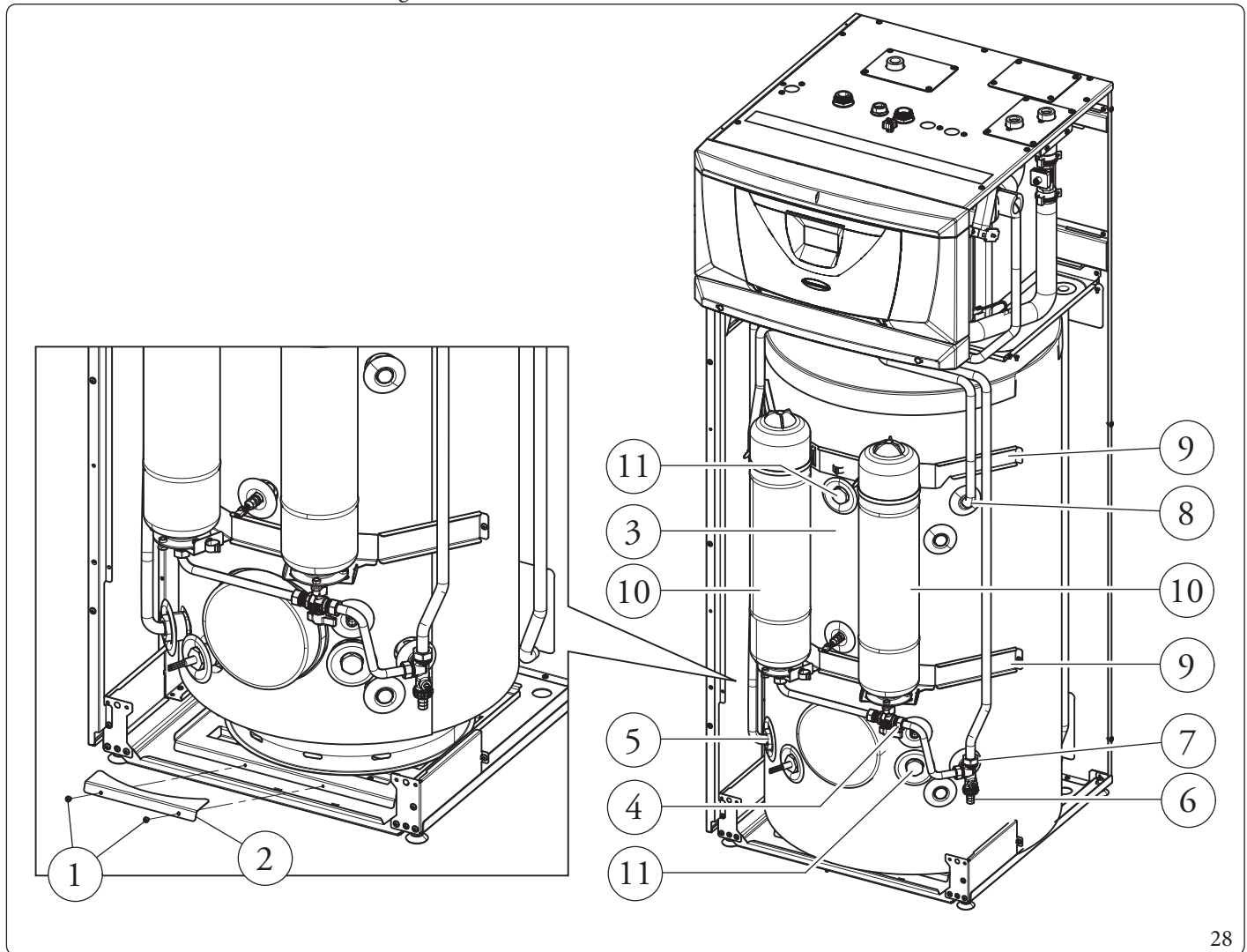
## 1.25 DOMESTIC HOT WATER STORAGE TANK UNIT

The storage tank in the appliance is an accumulation type with a capacity of 180 litres. It contains large coiled stainless steel heat exchanger pipes, which allow to notably reduce hot water production times. These storage tank units constructed with stainless steel casing and bottoms, guarantee long duration through time. The assembly concepts and welding (T.I.G.) are implemented to the minimum detail to ensure maximum reliability. The side inspection flange ensures practical control of the storage tank unit and the coiled heat exchanger and easy internal cleaning. The Magnesium Anode (11, Fig. 28) holder caps include the same, are supplied as standard for the internal protection of the storage tank from possible corrosion. These caps are positioned on the front of the storage tank (11, Fig. 28). For easy maintenance or particular handling requirements, remove the storage tank as described below.

### Storage tank disassembly (Fig.28).

- To disassemble the storage tank unit, empty the appliance system by acting on the relevant drain fitting. Before carrying out this operation, make sure that the system filling valves are closed.
- Close the cold water inlet valve and open any domestic hot water valve.
- Drain the storage tank by means of the draining valve (6).
- Loosen the nuts on the storage tank inlet pipes (5) and the cold inlet (7) and hot outlet (8) nuts on the storage tank (3). Loosen the nut (4) on the connection pipe to the DHW expansion vessel. Remove all freed pipes from their connection on the appliance.
- Unscrew the bracket screws (9) and remove the expansion vessels (10).
- Loosen the bracket (2) fixing screws (1) and remove the bracket itself.
- Slide the storage tank (3) to the front.

Work in reverse order to assemble the storage tank unit.



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**Condensate drainage present in the tray (Fig.29).**

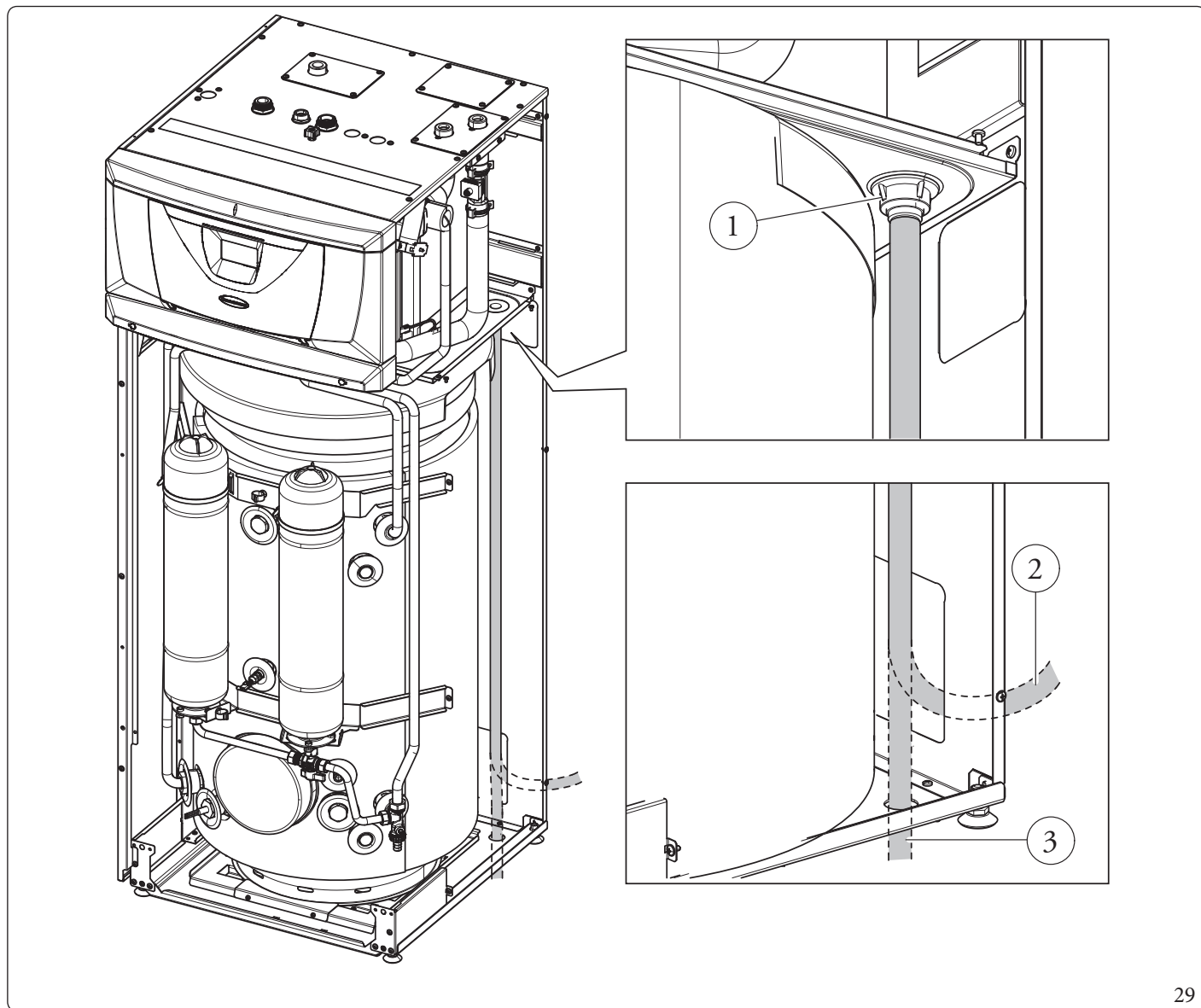
Under some operating conditions, condensate may form in the tray.

Make a drain hole on the ground towards the sewer system with an internal  $\varnothing$  of at least 22 mm and maximum  $\varnothing$  of 30 mm.

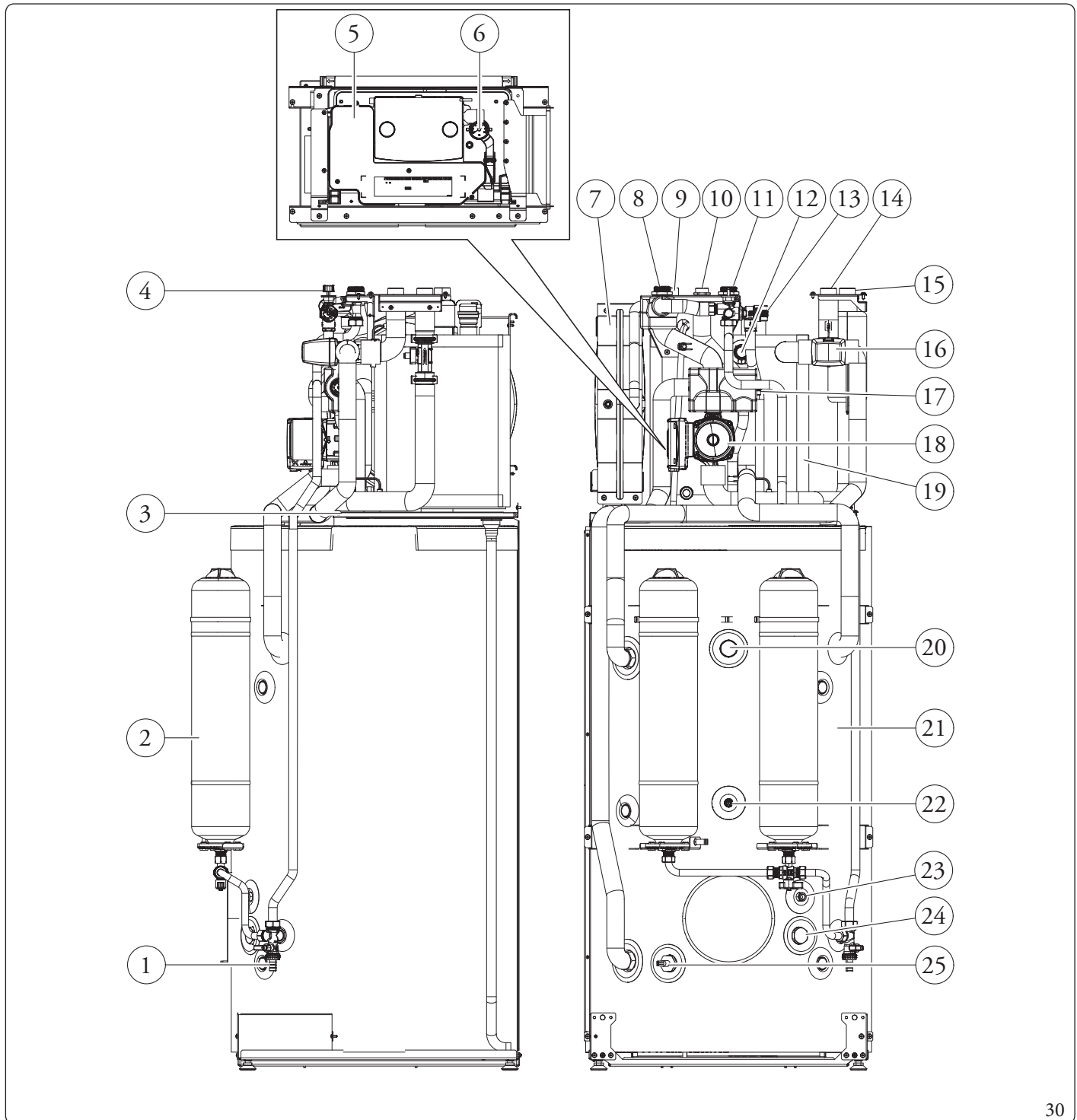
Connect the supplied flexible hose to the drainage elbow (1) and pull it out at the bottom of the unit as shown in figure 29 (pos. 2 or 3).

Make sure dust, debris and/or insects cannot enter this hose.

Also make sure that the liquid contained in it cannot freeze.



## 1.26 MAIN COMPONENTS



Key (Fig. 30):

- |   |   |                                   |    |   |   |    |   |                              |
|---|---|-----------------------------------|----|---|---|----|---|------------------------------|
| 1 | - | Storage tank draining valve       | 9  | - | System flow fitting                     | 17 | - | System safety valve          |
| 2 | - | DHW expansion vessel              | 10 | - | Cold water inlet fitting                | 18 | - | Heat pump circulator         |
| 3 | - | Condensate collection tray        | 11 | - | Hot water outlet fitting                | 19 | - | Inertial storage tank 25L    |
| 4 | - | Filling valve / tap               | 12 | - | System electrical resistance (Optional) | 20 | - | Sacrificial anode            |
| 5 | - | Electrical connection compartment | 13 | - | 8 bar safety valve                      | 21 | - | Stainless steel storage tank |
| 6 | - | System manometer                  | 14 | - | Flow from heat pump                     | 22 | - | D.H.W. probe                 |
| 7 | - | System expansion vessel           | 15 | - | Return to heat pump                     | 23 | - | Solar probe                  |
| 8 | - | System return fitting             | 16 | - | 3-way valve (motorised)                 | 24 | - | Sacrificial anode            |
|   |   |                                   |    |   |   | 25 | - | DHW electrical resistance    |

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## 2 INSTRUCTIONS FOR USE AND MAINTENANCE

### 2.1 GENERAL RECOMMENDATIONS



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 Indoor Unit is required, proceed as follows:

- a) drain the heating 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.**



**Never leave containers or flammable substances in the same environment as the appliance.**



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.



**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 touch when barefoot;
- never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.);
- 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 qualified staff for replacement;
- if the appliance is not to be used for a certain period, disconnect the main Indoor Unit external switch.





**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 Indoor Unit.



**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.**

## 2.2 CLEANING AND MAINTENANCE

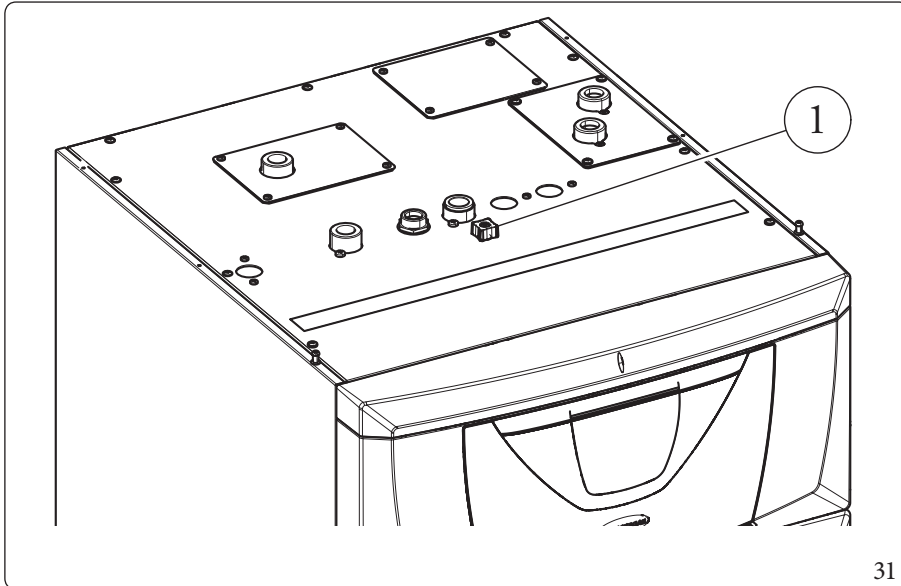


To preserve the system's integrity and keep the safety features, performance and reliability, which distinguish the assembly, unchanged over time, you must execute maintenance operations on a yearly basis in compliance with what is stated in the relative point at “annual check and maintenance of the appliance”, in compliance with national, regional, or local standards in force.



## 2.3 RESTORE CENTRAL HEATING SYSTEM PRESSURE

1. Periodically check the system water pressure (the Indoor Unit's pressure gauge hand must indicate a value between 1 and 1.2 bar).
2. If the pressure falls below 1 bar (with the system cold) restore normal pressure via the valve located at the top of the appliance (Fig. 31).
3. Close the valve after the operation.
4. If the pressure reaches values around 3 bar, there is a risk of tripping the safety valve (in this case, remove water from a radiator air vent valve until a pressure of 1 bar is achieved, or ask for assistance from professionally qualified personnel).
5. In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.



Key (Fig. 31):

1 - System filling valve

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## 2.4 DRAINING THE SYSTEM

1. Ensure that the filling valve is closed.
2. Open the draining cock (1, Fig. 30).
3. Open all vent valves.
4. At the end, close the draining valve.
5. Close all previously opened vent valves.



If fluid containing glycol was added to the system circuit, make sure it is recovered and disposed of in accordance with standard EN 1717.



## 2.5 EMPTYING THE D.H.W. CIRCUIT

To do this, always close the domestic cold water inlet upstream of the appliance.  
Open any domestic hot water tap to discharge the pressure from the circuit.  
Empty the storage tank completely as indicated in Par. 2.6

## 2.6 STORAGE TANK DRAINING

To drain the storage tank, use the relevant storage tank draining valve (Det. 1, Fig. 30).



Before performing this operation, close the cold water inlet valve and open any DHW system hot water valve in order to allow the inlet of air into the storage tank.

## 2.7 CLEANING THE CASE

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



Never use abrasive or powder detergents.

## 2.8 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.

INSTALLER

USER

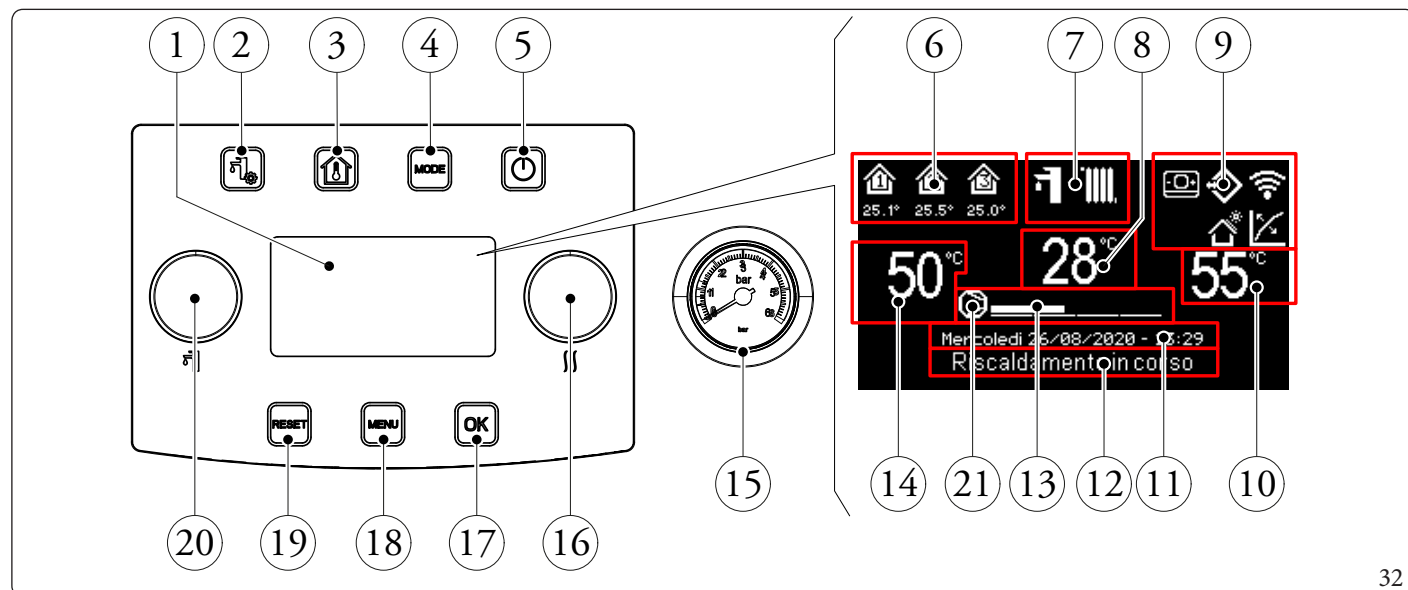
CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



### 3 CONTROL PANEL



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Key (Fig. 32):

- |    |   |   |    |   |                                       |
|----|---|---|----|---|---------------------------------------|
| 1  | - | Display.  | 11 | - | Current date and time display.        |
| 2  | - | “DHW (Domestic hot water)” menu button.             | 12 | - | System status display.                |
| 3  | - | “Zones” button.                                     | 13 | - | Heat pump power scale display.        |
| 4  | - | Functioning mode button.                            | 14 | - | DHW (Domestic hot water) set display. |
| 5  | - | ON/OFF Button.                                      | 15 | - | Pressure gauge.                       |
| 6  | - | Zones area (number and information of zone in use). | 16 | - | “Heating/cooling set” knob.           |
| 7  | - | Operating mode.                                     | 17 | - | Selection confirmation/ok button.     |
| 8  | - | Anomaly code/flow temperature display.              | 18 | - | “Menu” Button.                        |
| 9  | - | System general icon display.                        | 19 | - | Anomalies/esc. reset button.          |
| 10 | - | Central heating/ C.H. set display.                  | 20 | - | “Set DHW (Domestic hot water)” Knob.  |
|    |   |   | 21 | - | Internal pump running                 |

#### 3.1 SYSTEM USE



Before ignition make sure the heating system is filled with water and that the pressure gauge (Fig. 32) indicates a pressure of 1,2 - 1.2 bar.










The following are displayed upon ignition:

- Type of panel;
- Panel firmware version;
- Board firmware version.

Once the device has been powered, it goes into the status prior to switch-off. Press the “MODE” button to cyclically select the desired operating mode amongst those available.





The operating mode in use is indicated by its icon at the top of the display (Fig. 33) 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). During the central heating/cooling demand, the area inside the symbol is coloured, whereas in the absence of demand, the colour inside the symbol goes back to that of the display background. The values below the zone icon, respectively indicate the temperature and the humidity detected in such zone
	Identification icon of zone controlled by Room Thermostat. During the central heating/cooling demand, the area inside the symbol is coloured, whereas in the absence of demand, the colour inside the symbol goes back to that of the display background
	Dominus enabled
	Zone remote panel enabling
	Thermoregulation enabled on at least one zone
	Active holiday program
	Enabling of humidity temperature room probes or Home Automation Manager (BMS) enabled
	Active photovoltaic function
	Indoor unit pump running

INSTALLER

USER

Operating mode	Description	DHW	Cooling	Central heating	Protection function (antifreeze,...)
OFF	Off	Disabled	Disabled	Disabled	Disabled
	Summer	Enabled	Disabled	Disabled	Activated
	Summer with Cooling	Enabled	Enabled	Disabled	Activated
	Winter	Enabled	Disabled	Enabled	Activated
	Stand-by	Disabled	Disabled	Disabled	Activated

CONTROL PANEL

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

MAINTENANCE TECHNICIAN

TECHNICAL DATA



Below is a description of how to use the control panel, including:

- Enter the menus;
- Moving in the menus;
- Set a menu item;
- Confirming a change;
- Exit without saving.

- **Enter the menus**

The control panel menus can be accessed by pressing the buttons (Fig. 32):

- **Moving in the menus**

Simply rotate the “Set DHW (Domestic hot water)” knob to scroll the menu items.

The indication “[...]” next to the menu item indicates the availability of a submenu.

Press the “OK” button to access this submenu.

Pressing the “RESET” button goes back to the previous menu page.

- **Set menu item**

Go to the menu item to be set following the instructions given previously.

Once the menu item to be set is reached, press “OK” or rotate the “Set cooling/central heating / C.H.” knob to highlight the value to be changed.

Change the value by turning the “Set cooling/central heating / C.H.” knob.

- **Confirming a change**

At the end of the modification, press “OK” to confirm the change and go back to the previously selected menu item.

- **Exit without saving**

If at the end of the modification you press “RESET”, you will return to the previously selected menu item without confirming the modification.



## 3.2 OPERATING MODE

The indoor unit can work in the following modes:

- OFF;
- STAND-BY (❄️);
- SUMMER (🔥);
- SUMMER WITH COOLING (🔥 + ❄️);
- WINTER (🔥 + 🌊).

If the indoor unit is at “OFF”, press the button “🔌” to activate it. If this is not the case, go to the next point.

Then press the “MODE” button in sequence to set the system to stand-by ❄️, summer 🔥, summer with cooling 🔥 + ❄️, winter 🔥 + 🌊 position.

- **“OFF” mode**

By pressing this button, the display will show “Off” and the system will be off. In this mode, the safety functions are not guaranteed and the remote devices are disconnected (Fig.33).



**In these conditions the Indoor Unit is considered still live even if there are no functions active.**

- **“Stand-by” Mode**

Press the “MODE” button in succession until the ❄️ symbol appears.

In this mode, the system is able to ensure protection functions only, such as: antifreeze function, antiblock function and any anomaly signals (Fig. 33).



**In these conditions the system must still be considered powered.**

- **Summer**

Press the “MODE” button in succession until the 🔥 symbol appears.

In this mode the system allows the production of domestic hot water and ensures protection (Fig. 33).

- **Summer with cooling**

Press the “MODE” button in succession until the “🔥 + ❄️” symbol appears.

In this mode the system allows the production of domestic hot water, room cooling and dehumidification and ensures protection (Fig. 33).

- **Winter**

Press the “MODE” button in succession until the “🔥 + 🌊” symbol appears.

In this mode the system allows the production of domestic hot water and room central heating / C.H. and ensures protection (Fig. 33).

### List of functions

The following functions can be set on the internal unit:

- DHW (Domestic hot water);
- Central heating / C.H.;
- Cooling;
- Dehumidify.



**DHW**

The domestic hot water can be produced with the heat pump or with electrical resistance.

The system automatically manages the activation of the generators to heat up the domestic hot water in the storage tank.

When the set temperature is reached, the system stops the generators and turns them back on when the temperature inside the storage tank lowers by the value corresponding to parameter "DHW hysteresis".

During activation, 'DHW underway' appears on the display.

It is possible to set the domestic hot water temperature adjustment in two ways: MANUAL or AUTOMATIC.

The selection is made by entering the menu "DHW" ("DHW" button) and setting the parameter "Set Management".

Manual adjustment (Man)

Adjustment of the DHW temperature in MAN mode is done via the "DHW Set" knob (Fig. 32) or by changing the value "Manual set" within the "DHW" menu.

Confirmation can take place in two ways: by pressing the OK button or by waiting two minutes after changing the value.

Automatic adjustment (Auto)

The AUTOMATIC DHW temperature adjustment involves setting "Comfort Set" and "Economy Set" parameters in the "DHW" menu and choosing the calendar inside the menu:

**Clock and programs / DHW Program**

In the selected time slots, the DHW set will be automatically set to the "Comfort Set" value; outside these, the set DHW will be set to "Economy Set" value.

It is possible to temporarily modify the DHW set by setting a manual value using the "Set DHW" knob (Fig. 32).

This setting will be lost when the time slot is next changed.

**DHW (Domestic hot water) Boost**

Activating the "DHW Boost" function enables several additional functions for managing the DHW storage tank.

The DHW / Boost Function menu allow you to select the following operating modes:

**DHW / Boost Function = On**

DHW (Domestic hot water) operation takes place with the contribution of both the heat pump and the electrical resistance, with a logic that minimises storage tank charging time.



## Central heating

It is possible to set the central heating / C.H. activation parameters for each individual zone in three different ways: MANUAL, AUTOMATIC, OFF.

The selection is made by entering the "Zones"  menu and after having selected the zone of interest, access the menu

### Settings / Operation mode

There are two types of requests:

- request from TA (Room Thermostat);
- request from Immergas Remote Control (Temperature Humidity Probe or Remote Panel).

To check which device was set during configuration, verify the type of information under the zone symbol of the panel, as described in paragraph 3.1.

If a remote control is present, the system can operate in one of the following ways:

#### Manual adjustment (Man)

The central heating demand is activated until the fixed room setpoint is reached, corresponding to parameter "Manual set" to be set in the menu Zone / Setting / C.H. or by turning the knob on the remote panel (if present).

#### Automatic adjustment (Auto)

Compared to manual adjustment, this selection allows you to set two distinct room temperature setpoints:

- Comfort Set
- Economy Set

By associating a calendar with the relevant zone program, it is possible to determine the time slots for activating the central heating / C.H. comfort set. The time slots not set, correspond to the central heating / C.H. economy set.

The central heating demand is activated until the room setpoint is reached, corresponding to parameter "Comfort Set" or "Economy Set" to be set in the menu Zone / Setting / C.H. or directly from the zone setpoint menu of the remote panel (if present).

#### Adjustment OFF

Central heating / C.H. always off.

If a room thermostat is present, the system can operate in one of the following ways:

#### Manual adjustment (Man)

The central heating demand is activated according to the closing of the Room Thermostat contact of the relative zone.

#### Automatic adjustment (Auto)

The central heating demand is activated according to the closing of the Room Thermostat contact of the relative zone, while the zone is in the comfort slot, while it remains OFF in the Economy slot period.

#### Adjustment OFF

Central heating / C.H. always off.

During these central heating phases, the generator switches on to heat system water until the set temperature of the system is reached.

The system set temperature can be set in fixed mode with the parameter "Flow set" to be set in the menu Zone / Setting / C.H. or if temperature control is enabled, it is calculated automatically by the management board and can be modified if needed by means of the parameter "Flow offset" to be set in the menu Zone / Setting / C.H..

If the system set temperature is reached without the room setpoint temperature being reached, the generator switches off and the pump keeps running (ref. 21 fig. 32).

## Cooling

It is possible to set the cooling activation parameters for each individual zone in three different ways: MANUAL, AUTOMATIC, OFF.

The selection is made by entering the "Zones"  menu and after having selected the zone of interest, access the menu

### Settings / Operation mode

There are two types of requests:

- request from TA (Room Thermostat);
- request from Immergas Remote Control (Temperature Humidity Probe or Remote Panel).

To check which device was set during configuration, verify the type of information under the zone symbol of the panel, as described in paragraph 3.1.

If a remote control is present, the system can operate in one of the following ways:



Manual adjustment (Man)

The cooling demand is activated until the fixed room setpoint is reached, corresponding to parameter "Manual set" to be set in the menu Zone / Setting / Cooling or by turning the knob on the remote panel (if present).

Automatic adjustment (Auto)

Compared to manual adjustment, this selection allows you to set two distinct room temperature setpoints:

- Comfort Set
- Economy Set

By associating a calendar with the relevant zone program, it is possible to determine the time slots for activating the cooling comfort set. The time slots not set, correspond to the cooling economy set.

By associating a calendar with the relevant zone program, it is possible to determine the time slots for activating the cooling comfort set. The time slots not set, correspond to the cooling economy set.

The cooling demand is activated until the room setpoint is reached, corresponding to parameter "Comfort Set" or "Economy Set" to be set in the menu Zone / Setting / Cooling or directly from the zone setpoint menu of the remote panel (if present).

Adjustment OFF

Cooling always off.

If a room thermostat is present, the system can operate in one of the following ways:

Manual adjustment (Man)

The cooling demand is activated according to the closing of the Room Thermostat contact of the relative zone.

Automatic adjustment (Auto)

The cooling demand is activated according to the closing of the Room Thermostat contact of the relative zone, while the zone is in the comfort slot, while it remains OFF in the Economy slot period.

Adjustment OFF

Cooling always off.

During these cooling phases, the generator switches on to cool system water until the set temperature of the system is reached.


The system set temperature can be set in fixed mode with the parameter "Flow set" to be set in the menu Zone / Setting / Cooling or if temperature control is enabled, it is calculated automatically by the management board and can be modified if needed by means of the parameter "Flow offset" to be set in the menu Zone / Setting / Cooling.

If the system set temperature is reached without the room setpoint temperature being reached, the generator switches off and the pump keeps running (ref. 21 fig. 32).

**Dehumidify**

If the system is coupled to a humidistat (optional) or a remote zone panel (optional) or a temperature and humidity probe (optional), you can manage the room humidity in summer air conditioning mode.

- If coupled to a humidistat, set the degree of humidity on the humidistat itself (see the instruction booklet).
- If coupled to a humidity temperature sensor, set the humidity percentage in the relative user menu.
- If coupled to a zone remote panel, set the humidity percentage in the relative user menu of the control panel or directly in the menu of the panel (see instruction booklet).

The dehumidification adjustment parameters can be set by entering the "Zones"  menu and selecting the zone of interest by accessing the settings menu and finally the menu

**Dehumidification / Set humidity**Dehumidification disabling

It is possible to disable dehumidification for a time slot, typically a night time slot, by setting

**Dehumidification / Hourly disabling = Yes**

and the start and end times of disabling.

If there is only dehumidification demand, without cooling demand, the system sets a set temperature of 20°C.

This default value can be modified by an authorised technician during initial configuration of the system using the parameter "Dehum. flow set" in the menu Zone / Settings / Dehumidification.



In central heating or cooling request mode, if the temperature of the water in the system meets the request, the system can work simply by activating the circulator pump.




## Clock and programs

From this menu, it is possible to set the system's date and time as well as the time slots for operation in Comfort and Economy mode.

- **Date and time.**

The date and time can be set by modifying the parameters in the menu

### Clock and programs / Set date and time



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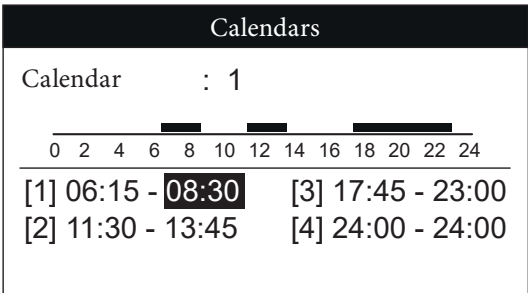
- **Time slots**

It is possible to set 4 calendars with 4 time operating slots in system comfort mode. The system will operate in economy mode during out-of-range time of these 4 time slots.

After setting these 4 calendars it is possible to associate them to the various days of the week in the zone programs, DHW (Domestic hot water) and recirculation according to one's needs.

Set the time slots by modifying the menu

### Clock and programs / Time slots



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INSTALLER

USER

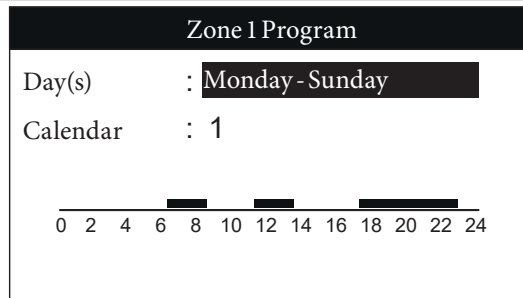
CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



- **Program for Zone 1, Zone 2 (if present), Zone 3 (if present), DHW (Domestic hot water) and recirculation.**  
Time ranges (calendars from 1 to 4) are assigned to Zone 1, Zone 2 (if present), Zone 3 (if present), DHW (Domestic hot water) and Central heating / C.H. in these menus.  
You can assign the calendar to a single day or to a group of days (single day, Monday - Friday, Saturday-Sunday, Monday - Saturday, Monday - Sunday).  
Therefore each day may be personalised with 4 different operating programs.  
For convenient selection, the bottom part displays the graphics of the relevant calendar being selected (Fig. 36).



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- **Information on zone operation:**

Accessing the menu

**Zone / Information**

allows you to read the main setting values and reading of the temperatures relative to that zone, such as:

- Room temperature
- Room humidity
- Dew temperature
- Room humidity set
- Set room temperature
- Flow set
- Flow temperature
- Operation status
- Room Thermostat Stat.



- **Information on operation of generators:**

Accessing the menu

**Information / Meters**

you can read the operating hours of the main generator, heat pump and of any integrative system or DHW resistances, if enabled.

- **Holiday program.**

If required, it is possible to pause system operation for an established period.

**Clock and programs / Holiday Program**

Set the period in which you wish to pause system operation. During this time, the previously set calendars will not be taken into consideration.

The antifreeze function is still ensured during the holiday period.

**Heat pump disabling**

It is possible to disable the heat pump operation for a certain time slot, by setting

**User / Disable HP = Yes**

and the start and end times of disabling.

**Integration Disabling**

The use of the integration electrical resistances can be permanently disabled by setting

**User / Disable Integration = Yes**



### Automatic Vent 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 the 3-way valve. The function is activated by setting

**User / Enable func. Deaeration = Yes**

De-aeration lasts 9 hours and it can be interrupted by setting

**User / Enable func. Deaeration = No**

### Screed Heater Function

The Indoor Unit 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 standard function lasts in total 7 days - 3 days at the lowest temperature set and 4 days at the highest temperature set (Fig. 37).

Duration can be changed by changing the value of the parameters

**Screed heater / Min dwell time set**

**Screed heater / Max dwell time set**

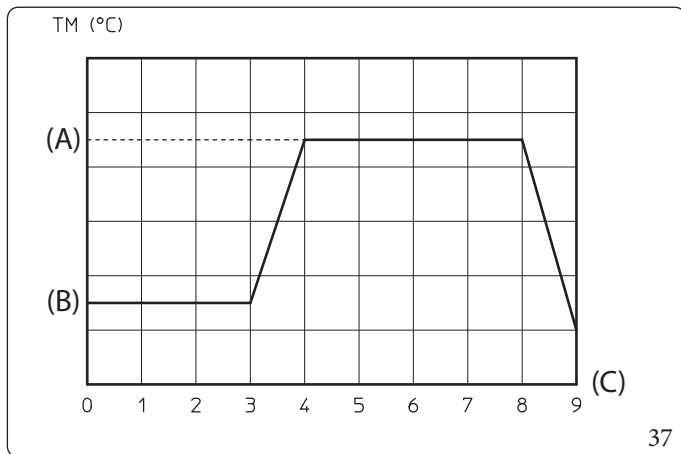
and the temperature gradients within the same menu.

The function is activated from the indoor unit in stand-by, by accessing the menu

**Screed heater / Activation**

At this point, "Screed heater underway" appears on the display.

In case of failure, the function is suspended and will resume when normal operating conditions are reset from the point where it was interrupted.



Key (Fig. 37):

(A) - Top set

(B) - Low set

(C) - Days

### Operation with external probe

It is possible to use the thermoregulation functions associated to an external probe.

The system is standard set up to use the outdoor unit external probe or an optional external probe.

With the external probe connected and the thermoregulation function active, the system flow setpoint for room central heating / C.H. or cooling is managed by the system according to the outdoor temperature measured (Par. 1.15).

You can correct the flow setpoint by choosing the offset value in the specific user menu.

It is possible to enable thermal adjustment for each individual zone. The symbol is present in case of thermoregulation of at least one zone.

### 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 the 'Special Parameters' menu, the heat pump is switched on until the set antifreeze protection temperature increased by 1°C is reached.

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



**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 5°C.



### 3.3 PARAMETERS MENU, INFORMATION AND P.C.B. PROGRAMMING

#### Menu "DHW".

Press the "DHW (Domestic hot water)" button to access a list of variables that enable you to customise use of the DHW (Domestic hot water).

The system is set up for possible programming of the operation parameters. By modifying these parameters as described below, the system can be adapted according to specific needs.

To view the advanced operating parameters, press the "Menu" button, enter the "General settings" submenu and select "Access level" and then select "**Login type = Service**" and enter the specific password, press "OK" and go back to the main screen using the "RESET" key.

Enter the "DHW" menu and adjust the parameters below as needed.

To save the parameter change, press the "OK" button (Fig. 32).

Exit the menu with access type "Service" waiting 4 minutes of inactivity and press the "Menu" button, go back into the "General settings" sub menu and select "Access level" then select "**Login type = User**" and enter the specific password, press "OK" to confirm.



The following menus refer to display board firmware rev. 3.00 and supervision board rev. 3.00

Hereunder is a list of all available menus:

DHW Settings					
Menu item	Description	Range	Default	Customised value	S
Boost Function	Enabling of DHW (Domestic hot water) BOOST function	Off/ On	Off		
Set Management	Enabling of the DHW (Domestic hot water) setpoint management in Automatic mode	Manual/ Auto	Manual		
Comfort Set	Domestic hot water accumulation setpoint in Comfort phase (Automatic mode)	20 ÷ 65°C	20°C		
Economy Set	Domestic hot water accumulation setpoint in Economy phase (Automatic mode)	10 ÷ 35°C	10°C		
Manual set	Domestic hot water accumulation setpoint in Manual phase	10 ÷ 65°C	10°C		
Temperature	Display of the DHW (Domestic hot water) temperature	-	-		
Anti-legionella	Manages the anti-legionella function.	-	-		S
Configuration	DHW (Domestic hot water) configuration parameters	-	-		S

S = menu entry only visible with "Service" access.

Set. DHW / Anti-legionella					
Menu item	Description	Range	Default	Customised value	S
Anti-legion.cycle time	Establishes the time of activation of the anti-legionella function.	00:00 – 23:59	02:00		S
Anti-legion.cycle day	Establishes the day of activation of the anti-legionella function.	None / Monday - Sunday / All	None		S
Max antilegion. time	Time after which an alarm is signalled for incomplete anti-legionella cycle.	1 - 48 (h)	3h		S

S = menu entry only visible with "Service" access.




Set. DHW / Configuration					
Menu item	Description	Range	Default	Customised value	S
DHW hysteresis	The system activation temperature in DHW (Domestic hot water) is given by the set DHW (Domestic hot water) – DHW (Domestic hot water) hysteresis	1 ÷ 12 °C	5 °C		S
DHW flow offset	The DHW (Domestic hot water) flow temperature is given by the DHW (Domestic hot water) set + DHW (Domestic hot water) flow offset	5 - 55 °C	10 °C		S
Priority	In case of simultaneous heat./cool. system and DHW request, the heat pump will give priority to DHW or to the system.	DHW / CH	DHW		S
Max time DHW	Time after which an alarm is signalled for incomplete DHW (Domestic hot water).	1 - 48 (h)	5h		S

S = menu entry only visible with "Service" access.



## Menu "Zones".

Press the "Zones" button  to access a list of variables that enable you to customise use of the zones.

The system is set up for possible programming of the operation parameters. By modifying these parameters as described below, the system can be adapted according to specific needs.

To view the advanced operating parameters, press the "Menu" button, enter the "General settings" submenu and select "Access level" and then select "**Login type = Service**" and enter the specific password, press "OK" and go back to the main screen using the "RESET" key.

Enter the "Zones" menu and adjust the parameters below as needed.

To save the parameter change, press the "OK" button (Fig. 32).

Exit the menu with access type "Service" waiting 4 minutes of inactivity and press the "Menu" button, go back into the "General settings" sub menu and select "Access level" then select "**Login type = User**" and enter the specific password, press "OK" to confirm.

Below is the complete list of available menus, some of which are only visible after enabling the component or activating the specific associated function:

Zones		
Menu item	Description	S
Zone 1	Defines the operating parameters to manage zone 1.	
Zone 2(*)	Defines the operating parameters to manage the zone 2 (if present).	
Zone 3(*)	Defines the operating parameters to manage the zone 3 (if present).	
General information	This display system operating data.	

S = menu entry only visible with "Service" access.

(\*) if present.

Zones / Zone 1		
Menu item	Description	S
Information	This displays the system operating data.	
Settings	Defines the operating parameters to manage zone 1.	
Configuration	Defines the configuration parameters to manage zone 1.	S

S = menu entry only visible with "Service" access.

Zones / Zone 1 / Information		
Menu item	Description	S
Room temperature	Room temperature on zone 1	
Room humidity	Zone 1 room humidity	
Dew temperature	Zone 1 dew temperature	
Room humidity set	Room humidity setpoint set on zone 1	
Set room temperature	Room setpoint set on zone 1	
Flow set	Flow setpoint on zone 1	
Flow temperature	Flow temperature set on zone 1	
Operation status	Description of the zone 1 operating mode Off = zone in OFF mode Economy = Zone in economy mode Comfort = zone in comfort mode Manual = zone in manual mode	S
Room Thermostat Stat.	Yes = Zone TA contact closed No = TA contact open	S

S = menu entry only visible with "Service" access.



Zones/Zone 1/Settings					
Menu item	Description	Range	Default	Customised value	S
Operation mode	Setting of the zone 1 operating mode. Off = zone in OFF mode Auto = Zone in Automatic mode Manual = zone in manual mode	Off/Manual/ Auto	Auto		
C.H.					
Cooling					
Dehumidification					

S = menu entry only visible with "Service" access.

Zones/Zone 1/Setting/C.H.					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room setpoint in central heating zone 1 Comfort mode (Auto mode)	10 ÷ 35°C	20°C		
Economy Set	Room setpoint in central heating zone 1 Economy mode (Auto mode)	5 ÷ 30°C	16°C		
Manual set	Room setpoint in central heating zone 1 manual mode	5 ÷ 35°C	20°C		
Flow set	Flow setpoint set for zone 1 in central heating/C.H.	10 – 65°C	25°C		
Flow offset	Offset temperature for central heating zone 1	-9 ÷ +9°C	0°C		

S = menu entry only visible with "Service" access.

Zones/Zone 1/Setting/Cooling					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room temperature in cooling zone 1 in Comfort mode (Auto mode)	10 ÷ 35°C	25°C		
Economy Set	Room temperature in cooling zone 1 in Economy mode (Auto mode)	5 ÷ 30°C	28°C		
Manual set	Room setpoint in cooling zone 1 manual mode	5 ÷ 35°C	25°C		
Flow set	Flow setpoint set for zone 1 in cooling	5 ÷ 25°C	20°C		
Flow offset	Offset temperature for cooling zone 1	-9 ÷ +9°C	0°C		

S = menu entry only visible with "Service" access.

Zones/Zone 1/Setting/Dehumidification					
Menu item	Description	Range	Default	Customised value	S
Set humidity	Humidity setpoint for zone 1	30 ÷ 70%	50%		
Hourly disabling	Disabling of request to the dehumidifier, according to the daily time slot	No/Yes	No		
Hourly disable start	Time of dehumidification request disabling phase start	0-23h	22h		
Hourly disable end	Time of dehumidification request disabling phase end	0-23h	8h		
Dehum. flow set	Flow setpoint for zone 1 in dehumidification mode	5-50°C	20°C		

S = menu entry only visible with "Service" access.





Zones / Zone 1 / Configuration		
Menu item	Description	S
Enablings		S
Thermoreg. CH	Central heating thermoregulation setting sub-menu	S
Thermoreg. Cool.	Cooling thermoregulation setting sub-menu	S

S = menu entry only visible with "Service" access.

Zones / Zone 1 / Config. / Enablings					
Menu item	Description	Range	Default	Customised value	S
Mode	Establishes the zone 1 operating mode	CH Cool. Cool+CH	Cool+CH		S
Enable remote contr.	Enables the operation of a remote device. - No = No remote control installed - Panel = Remote zone control - Probe = Temperature and humidity probe	No Panel Probe	No		S
Room. probe modul.	Enables modulation with room probe	Yes/No	Yes		S
Enable room thermostat	Enable operation of a room thermostat to check the zone	Yes/No	Yes		S
Enable dew point	In the presence of a remote device, calculation of the dew point. The calculation is particularly needed in case of radiant panel systems.	Yes/No	Yes		S
Enable humidistat	Enables the operation of a humidistat	No/Yes	No		S
Enable dehumidifiers	Enables the operation of a dehumidifier	Yes/No	No		S
Max dehum. temp.	Maximum flow temperature acceptable for the dehumidifier, beyond which it is kept switched off.	10 - 50 °C	25 °C		S
Dehum. alarm set	Maximum flow set calculated, acceptable by the dehumidifier.	10 - 50 °C	25 °C		S
Ext. probe modul.	Thermoregulation with external probe	No/Yes	No		S

S = menu entry only visible with "Service" access.

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Zones / Zone 1 / Config. / <b>Thermoreg. CH</b>					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	20 ÷ 65 °C	55 °C		S
Min flow set	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	20 ÷ 65 °C	20 °C		S
Min. outside temp.	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature	-25 ÷ +15 °C	-5 °C		S
Max. outside temp.	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature	-5 ÷ +45 °C	25 °C		S

S = menu entry only visible with "Service" access.

Zones / Zone 1 / Config. / <b>Thermoreg. Cool.</b>					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	5 ÷ 25 °C	20 °C		S
Min flow set	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	5 ÷ 25 °C	7 °C		S
Min. outside temp.	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 ÷ 45 °C	25 °C		S
Max. outside temp.	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	20 ÷ 45 °C	35 °C		S

S = menu entry only visible with "Service" access.

Zones / Zone 2 (*)		
Menu item	Description	S
Information	This displays the system operating data.	
Settings	Defines the operating parameters to manage the zone 2.	
Configuration	Defines the configuration parameters to manage zone 2.	S

S = menu entry only visible with "Service" access.

(\*) if present.

Zones / Zone 2 (*) / Information		
Menu item	Description	S
Room temperature	Room temperature on zone 2	
Room humidity	Zone 2 room humidity	
Dew temperature	Zone 2 dew temperature	
Room humidity set	Room humidity setpoint set on zone 2	
Set room temperature	Room setpoint set on zone 2	
Flow set	Flow setpoint on zone 2	
Flow temperature	Flow temperature set on zone 2	
Operation status (**)	Description of the zone 2 operating mode Off = zone in OFF mode Economy = Zone in economy mode Comfort = zone in comfort mode Manual = zone in manual mode	S
Room Thermostat Stat. (**)	Yes = Zone TA contact closed No = TA contact open	S

S = menu entry only visible with "Service" access.

(\*) if present.

Zones / Zone 2 (*) / Settings					
Menu item	Description	Range	Default	Customised value	S
Operation mode	Setting of the zone 2 operating mode. Off = zone in OFF mode Auto = Zone in Automatic mode Manual = zone in manual mode	Off / Manual / Auto	Auto		
C.H.					
Cooling					
Dehumidification					

S = menu entry only visible with "Service" access.

(\*) if present.

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Zones/Zone2(*)/Setting/C.H.					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room setpoint in central heating zone 2 Comfort mode (Auto mode)	10 ÷ 35 °C	20 °C		
Economy Set	Room setpoint in central heating zone 2 Economy mode (Auto mode)	5 ÷ 30 °C	16 °C		
Manual set	Room setpoint in central heating zone 2 manual mode	5 ÷ 35 °C	20 °C		
Flow set	Flow setpoint set for zone 2 in central heating/ C.H.	10 – 65 °C	25 °C		
Flow offset	Offset temperature for central heating zone 2	-9 ÷ +9 °C	0 °C		

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone2(*)/Setting/Cooling					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room temperature in cooling zone 2 in Comfort mode (Auto mode)	10 ÷ 35 °C	25 °C		
Economy Set	Room temperature in cooling zone 2 in Economy mode (Auto mode)	5 ÷ 30 °C	28 °C		
Manual set	Room setpoint in cooling zone 2 manual mode	5 ÷ 35 °C	25 °C		
Flow set	Flow setpoint set for zone 2 in cooling	5 ÷ 25 C	20 °C		
Flow offset	Offset temperature for cooling zone 2	-9 ÷ +9 °C	0 °C		

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone2(*)/Setting/Dehumidification					
Menu item	Description	Range	Default	Customised value	S
Set humidity	Humidity setpoint for zone 2	30 ÷ 70 %	50 %		
Hourly disabling	Disabling of request to the dehumidifier, according to the daily time slot	No/Yes	No		
Hourly disable start	Time of dehumidification request disabling phase start	0-23h	22h		
Hourly disable end	Time of dehumidification request disabling phase end	0-23h	8h		
Dehum. flow set	Flow setpoint for zone 2 in dehumidification mode	5-50 °C	20 °C		

S = menu entry only visible with "Service" access.

(\*) if present.



Zones / Zone 2 (*) / Configuration		
Menu item	Description	S
Enablings		S
Thermoreg. CH	Central heating thermoregulation setting sub-menu	S
Thermoreg. Cool.	Cooling thermoregulation setting sub-menu	S

S = menu entry only visible with "Service" access.  
 (\*) if present.

Zones / Zone 2 (*) / Config. / Enablings					
Menu item	Description	Range	Default	Customised value	S
Mode	Establishes the zone 2 operating mode	CH Cool. Cool+CH	Cool+CH		S
Enable remote contr.	Enables the operation of a remote device. - No = No remote control installed - Panel = Remote zone control - Probe = Temperature and humidity probe	No Panel Probe	No		S
Room. probe modul.	Enables modulation with room probe	Yes/No	Yes		S
Enable room thermostat	Enable operation of a room thermostat to check the zone	Yes/No	Yes		S
Enable dew point	In the presence of a remote device, calculation of the dew point. The calculation is particularly needed in case of radiant panel systems.	Yes/No	Yes		S
Enable humidistat	Enables the operation of a humidistat	No/Yes	No		S
Enable dehumidifiers	Enables the operation of a dehumidifier	Yes/No	No		S
Max dehum. temp.	Maximum flow temperature acceptable for the dehumidifier, beyond which it is kept switched off.	10 - 50°C	25°C		S
Dehum. alarm set	Maximum flow set calculated, acceptable by the dehumidifier.	10 - 50°C	25°C		S
Ext. probe modul.	Thermoregulation with external probe	No/Yes	No		S
Zone type	Determines the type of zone Direct = DIR mixed = MIX	MIX/DIR	MIX		S

S = menu entry only visible with "Service" access.  
 (\*) if present.

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Zones/Zone2(*)/Config./Thermoreg. CH					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	20 ÷ 65°C	45°C		S
Min flow set	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	20 ÷ 65°C	25°C		S
Min. outside temp.	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature	-25 ÷ +15°C	-5°C		S
Max. outside temp.	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature	-5 ÷ +45°C	25°C		S

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone2(*)/Config./Thermoreg. Cool.					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	5 ÷ 25°C	20°C		S
Min flow set	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	5 ÷ 25°C	18°C		S
Min. outside temp.	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 ÷ 45°C	25°C		S
Max. outside temp.	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	20 ÷ 45°C	35°C		S

S = menu entry only visible with "Service" access.

(\*) if present.



Zones / Zone 3 (*)		
Menu item	Description	S
Information	This displays the system operating data.	
Settings	Defines the operating parameters to manage the zone 3.	
Configuration	Defines the configuration parameters to manage zone 3.	S

S = menu entry only visible with "Service" access.  
 (\*) if present.

Zones / Zone 3 (*) / Information		
Menu item	Description	S
Room temperature	Room temperature on zone 3	
Room humidity	Zone 3 room humidity	
Dew temperature	Zone 3 dew temperature	
Room humidity set	Room humidity setpoint set on zone 3	
Set room temperature	Room setpoint set on zone 3	
Flow set	Flow setpoint on zone 3	
Flow temperature	Flow temperature set on zone 3	
Operation status (**)	Description of the zone 3 operating mode Off = zone in OFF mode Economy = Zone in economy mode Comfort = zone in comfort mode Manual = zone in manual mode	S
Room Thermostat Stat. (**)	Yes = Zone TA contact closed No = TA contact open	S

S = menu entry only visible with "Service" access.  
 (\*) if present.

Zones / Zone 3 (*) / Settings					
Menu item	Description	Range	Default	Customised value	S
Operation mode	Setting of the zone 3 operating mode. Off = zone in OFF mode Auto = Zone in Automatic mode Manual = zone in manual mode	Off / Manual / Auto	Auto		
C.H.					
Cooling					
Dehumidification					

S = menu entry only visible with "Service" access.  
 (\*) if present.

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Zones/Zone 3(*)/Setting/C.H.					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room setpoint in central heating zone 3 Comfort mode (Auto mode)	10 ÷ 35°C	20°C		
Economy Set	Room setpoint in central heating zone 3 Economy mode (Auto mode)	5 ÷ 30°C	16°C		
Manual set	Room setpoint in central heating zone 3 manual mode	5 ÷ 35°C	20°C		
Flow set	Flow setpoint set for zone 3 in central heating/ C.H.	10 – 65°C	25°C		
Flow offset	Offset temperature for central heating zone 3	-9 ÷ +9°C	0°C		

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone 3(*)/Setting/Cooling					
Menu item	Description	Range	Default	Customised value	S
Comfort Set	Room temperature in cooling zone 3 in Comfort mode (Auto mode)	10 ÷ 35°C	25°C		
Economy Set	Room temperature in cooling zone 3 in Economy mode (Auto mode)	5 ÷ 30°C	28°C		
Manual set	Room setpoint in cooling zone 3 manual mode	5 ÷ 35°C	25°C		
Flow set	Flow setpoint set for zone 3 in cooling	5 ÷ 25°C	20°C		
Flow offset	Offset temperature for cooling zone 3	-9 ÷ +9°C	0°C		

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone 3(*)/Setting/Dehumidification					
Menu item	Description	Range	Default	Customised value	S
Set humidity	Humidity setpoint for zone 3	30 ÷ 70 %	50 %		
Hourly disabling	Disabling of request to the dehumidifier, according to the daily time slot	No/Yes	No		
Hourly disable start	Time of dehumidification request disabling phase start	0-23h	22h		
Hourly disable end	Time of dehumidification request disabling phase end	0-23h	8h		
Dehum. flow set	Flow setpoint for zone 3 in dehumidification mode	5-50°C	20°C		

S = menu entry only visible with "Service" access.

(\*) if present.





Zones / Zone 3 (*) / Configuration		
Menu item	Description	S
Enablings		S
Thermoreg. CH	Central heating thermoregulation setting sub-menu	S
Thermoreg. Cool.	Cooling thermoregulation setting sub-menu	S

S = menu entry only visible with "Service" access.  
 (\*) if present.

Zones / Zone 3 (*) / Config. / Enablings					
Menu item	Description	Range	Default	Customised value	S
Mode	Establishes the zone 3 operating mode	CH Cool. Cool+CH	Cool+CH		S
Enable remote contr.	Enables the operation of a remote device. - No = No remote control installed - Panel = Remote zone control - Probe = Temperature and humidity probe	No Panel Probe	No		S
Room. probe modul.	Enables modulation with room probe	Yes/No	Yes		S
Enable room thermostat	Enable operation of a room thermostat to check the zone	Yes/No	Yes		S
Enable dew point	In the presence of a remote device, calculation of the dew point. The calculation is particularly needed in case of radiant panel systems.	Yes/No	Yes		S
Enable humidistat	Enables the operation of a humidistat	No/Yes	No		S
Enable dehumidifiers	Enables the operation of a dehumidifier	Yes/No	No		S
Max dehum. temp.	Maximum flow temperature acceptable for the dehumidifier, beyond which it is kept switched off.	10 - 50°C	25°C		S
Dehum. alarm set	Maximum flow set calculated, acceptable by the dehumidifier.	10 - 50°C	25°C		S
Ext. probe modul.	Thermoregulation with external probe	No/Yes	No		S
Zone type	Determines the type of zone Direct = DIR mixed = MIX	MIX/DIR	MIX		S

S = menu entry only visible with "Service" access.  
 (\*) if present.

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Zones/Zone 3 (*)/Config./Thermoreg. CH					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	20 ÷ 65 °C	45 °C		S
Min flow set	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	20 ÷ 65 °C	25 °C		S
Min. outside temp.	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature	-25 ÷ +15 °C	-5 °C		S
Max. outside temp.	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature	-5 ÷ +45 °C	25 °C		S

S = menu entry only visible with "Service" access.

(\*) if present.

Zones/Zone 3 (*)/Config./Thermoreg. Cool.					
Menu item	Description	Range	Default	Customised value	S
Max flow set	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	5 ÷ 25 °C	20 °C		S
Min flow set	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	5 ÷ 25 °C	18 °C		S
Min. outside temp.	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 ÷ 45 °C	25 °C		S
Max. outside temp.	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	20 ÷ 45 °C	35 °C		S
Zone type	Determines the type of zone Direct = DIR mixed = MIX	MIX/DIR	MIX		S

S = menu entry only visible with "Service" access.

(\*) if present.



Zones/ General information

Menuitem	Description	Range	Default	Customised value	S
Outside temperature	External temperature detected by the external probe	-	-		
System flow set	Flow temperature set on the system	-	-		
Zone 1 flow set	Flow temperature set on zone 1	-	-		
Zone 1 request	Request present on zone 1 No = no request CH = Central heating request Cool. = Cooling request Dehumid. = Dehumidification request in neutral air R. Air = Dehumidification request in cooled air R + D = Cooling and dehumidification requests in neutral air R + A = Cooling and dehumidification requests in cool air	No CH Cool. Dehumid. R. Air R + D R + A	-		
Zone 2 flow set (*)	Flow temperature set on zone 2 (if present)	-	-		
Zone 2 request (*)	Request present on zone 2 No = no request CH = Central heating request Cool. = Cooling request Dehumid. = Dehumidification request in neutral air R. Air = Dehumidification request in cooled air R + D = Cooling and dehumidification requests in neutral air R + A = Cooling and dehumidification requests in cool air	No CH Cool. Dehumid. R. Air R + D R + A	-		
Zone 3 flow set (*)	Flow temperature set on zone 3 (if present)	-	-		
Zone 3 request (*)	Request present on zone 3 No = no request CH = Central heating request Cool. = Cooling request Dehumid. = Dehumidification request in neutral air R. Air = Dehumidification request in cooled air R + D = Cooling and dehumidification requests in neutral air R + A = Cooling and dehumidification requests in cool air	No CH Cool. Dehumid. R. Air R + D R + A	-		

S = menu entry only visible with "Service" access.

(\*) if present.

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## Main Menu

Press the "Menu" button to access a list of variables that enable you to customise use of the system.

The system is set up for possible programming of the operation parameters. By modifying these parameters as described below, the system can be adapted according to specific needs.

To view the advanced operating parameters, press the "Menu" button, enter the "General settings" submenu and select "Access level" and then select "**Login type = Service**" and enter the specific password, press "OK" and go back to the main screen using the "RESET" key.

Enter the "Main Menu" and adjust the parameters below as needed.

To save the parameter change, press the "OK" button (Fig. 32).

Exit the menu with access type "Service" waiting 4 minutes of inactivity and press the "Menu" button, go back into the "General settings" sub menu and select "Access level" then select "**Login type = User**" and enter the specific password, press "OK" to confirm.

Below is the complete list of available menus, some of which are only visible after enabling the component or activating the specific associated function:

Menu		
Menu item	Description	S
Clock and programs	Defines the date/time and time operating slots	
User	Defines the system parameters that can be modified by the user	
Information	Display system operating data	
Faults management	Displays the list of the last 10 anomalies and resets the fault history	
General settings	Allows selecting the panel operating language, the display operating mode and to access the password-protected menus dedicated to a qualified technician.	
Support	Defines the advanced operating parameters	S

S = menu entry only visible with "Service" access.

Menu/ Clock and programs					
Menu item	Description	Range	Default	Customised value	S
Set date and time	Defines the system clock and calendar	-	-		
Automatic summer time	Defines whether to activate the summer time changeover	Yes/No	Yes		
Time slots	Set the 4 time slots of each calendar.	00.00 - 24.00h	-		
Zone 1 Program	Zone 1 time scheduling	-	-		
	Zone 1: Monday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Tuesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Wednesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Thursday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Friday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Saturday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 1: Sunday	CAL1,CAL2, CAL3,CAL4	CAL1		

S = menu entry only visible with "Service" access.



**Menu / Clock and programs**

Menu item	Description	Range	Default	Customised value	S
Zone 2 Program (*)	Zone 2 time scheduling (if present)	-	-		
	Zone 2: Monday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Tuesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Wednesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Thursday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Friday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Saturday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 2: Sunday	CAL1,CAL2, CAL3,CAL4	CAL1		
Zone 3 Program (*)	Zone 3 time scheduling (if present)	-	-		
	Zone 3: Monday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Tuesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Wednesday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Thursday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Friday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Saturday	CAL1,CAL2, CAL3,CAL4	CAL1		
	Zone 3: Sunday	CAL1,CAL2, CAL3,CAL4	CAL1		

S = menu entry only visible with "Service" access.  
 (\*) if present.

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Menu/ Clock and programs					
Menu item	Description	Range	Default	Customised value	S
DHW Program	DHW operation time programming	-	-		
	DHW: Monday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Tuesday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Wednesday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Thursday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Friday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Saturday	CAL1, CAL2, CAL3, CAL4	CAL1		
	DHW: Sunday	CAL1, CAL2, CAL3, CAL4	CAL1		
Recirculation Program	Recirculation operation time programming	-	-		
	Recirculation: Monday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Tuesday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Wednesday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Thursday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Friday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Saturday	CAL1, CAL2, CAL3, CAL4	CAL1		
	Recirculation: Sunday	CAL1, CAL2, CAL3, CAL4	CAL1		
Holiday Program	Defines the period during which the system disables both hot water heating and room central heating and/or cooling functions. At the end of the set days, the previously active functions will be reset.	Off/ 1 day - 30 days	Off		

S = menu entry only visible with "Service" access.



Menu / User					
Menu item	Description	Range	Default	Customised value	S
Disable HP	It allows you to disable the heat pump according to the set time slot or via the outdoor contact.	Yes / No	No		
Start hourly HP disab.	Allows to set when disabling starts.	0-23h	0h		
End hourly HP disab.	Allows to set when disabling ends.	0-23h	0h		
Disable Integration	Allows the integration device to be permanently disabled.	Yes / No	No		
Enable func. Deaeration	Enables the de-aeration function.	Yes / No	No		
Enab. Silent func.	Enables the noise reduction function of the outdoor unit	Yes / No	No		
Start Silent func.	Allows to set the starting time of the noise reduction function of the outdoor unit.	0-23h	0h		
End Silent func.	Allows to set the finish time of the noise reduction function of the outdoor unit.	0-23h	0h		
Screed heater		-	-		

S = menu entry only visible with "Service" access.

Menu / User / Screed heater					
Menu item	Description	Range	Default	Customised value	S
Min dwell time set	Defines the time spent at minimum operating temperature during the active function.	1 - 7 days	3 days		
Rise gradient	Defines the ascent gradient of the temperature	3 ÷ 30 °C/g	30 °C/g		
Max dwell time set	Defines the time spent at maximum operating temperature during the active function.	1 - 14 days	4 days		
Fall gradient	Defines the descent gradient of the temperature	3 ÷ 30 °C/g	30 °C/g		
Minimum flow set	Defines the minimum delivery temperature of the screed heater function	20 ÷ 45 °C	25 °C		
Maximum flow set	Defines the maximum delivery temperature of the screed heater function	25 ÷ 55 °C	45 °C		
Activation	Activation of the screed heater function	Yes / No	No		

S = menu entry only visible with "Service" access.

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Menu / Information		
Menu item	Description	S
Heat pump	Defines the heat pump operating parameters.	
Board revisions	This displays the system board revisions.	
Meters	This displays the operating data.	

S = menu entry only visible with "Service" access.

Menu / Information / Heat pump		
Menu item	Description	S
Flow temperature	Heat pump flow temperature	
Return temperature	Heat pump return temperature	
Compress.outlet temp.	Outdoor unit compressor temperature	
Compress. drain temp.	Outdoor unit compressor discharge temperature	
Compress.int.temp.	Not present	
Expan.valve pos.	Outdoor unit expansion valve position	
Heat exch.cool.temp.	Coolant temperature inside the plate heat exchanger	
Coil temperature	Outdoor unit coil temperature	
Outdoor HP temp.	External temperature	
HP frequency	Heat pump frequency	
HP request mode	Status of the request to heat pump	
HP Status	Heat pump status	
System resistance	System resistance active control	
DHW resistance 1	Standard DHW (Domestic hot water) resistance active control	
System state	Technical parameter (only for Immergas Assistance)	
Integration state	Technical parameter (only for Immergas Assistance)	
Output status	Technical parameter (only for Immergas Assistance)	
Disable HP	Heat pump activation/deactivation status	
Inverter current	Outdoor unit inverter current	
Fan speed (H)	Outdoor unit high fan speed	
Fan speed (L)	Outdoor unit low fan speed	
HP Setpoint	Request setpoint to heat pump	

S = menu entry only visible with "Service" access.





Menu / Information / <b>Heat pump</b>		
Menu item	Description	S
Pump speed	Heat pump circulator speed	
System flow temp.	System temperature	
Heat. set correc.	Current correction of the flow setpoint	
System flow rate	Heat pump circuit flow rate	
Photovoltaic	Operating status combined with a photovoltaic system	
Power reduction	Not used	
Hot/Cold three-way	Summer/Winter Three-way Position	
Recirculation pump	Active recirculation pump	
Interface board type	Communication board type	
Screed heater end days	Days left until the end of the screed heater	
Recirculation Temp.	DHW recirculation probe temperature	
Information 1	Heat pump configuration code	
Information 2	Flow temperature calculated after electrical resistance (multiplied by 10)	
Information 3	Not used	
Information 4	Not used	
Information 5	Parameter for internal use	
Information 6	Not used	
Information 7	Not used	
Information 8	Not used	
Information 9	Not used	
Information 10	Not used	

S = menu entry only visible with "Service" access.

Menu / Information / <b>Board revisions</b>		
Menu item	Description	S
Display board rev. SW	Remote panel software revision	
Display board rev. HW	Remote panel hardware revision	
Supervis. board SW	Supervision board software revision	
Supervis. board BIOS	Supervision board hardware revision	
EU main board rev. no.	Outdoor unit main board firmware revision	
EU main board rev. date	Outdoor unit main board firmware date	
EU inverter rev. no.	Outdoor unit inverter board firmware revision	
EU inverter rev. date	Outdoor unit inverter board firmware date	
UE eeprom rev. no.	Outdoor unit EEPROM firmware revision	
UE eeprom rev. data	Outdoor unit EEPROM firmware date	
EU interface rev. no.	Communication board firmware revision	
EU interface rev. date	Communication board firmware data	
Expans. board rev. (H)	Revision of the expansion board (top part)	
Expans. board rev. (L)	Revision of the expansion board (bottom part)	

S = menu entry only visible with "Service" access.

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Menu/Information/Meters		
Menu item	Description	S
HP running hours	Number of hours of operation of the compressor	
Resist. run hours Heating.	Hours of operating of the electrical resistance	
Resist. run hours DHW1	Hours of operation of the standard DHW (Domestic hot water) resistance	
Resist. run hours DHW2	Hours of operation of the optional DHW (Domestic hot water) resistance	

S = menu entry only visible with "Service" access.

Menu/Faults management		
Menu item	Description	S
Reset Log	Resets the list of anomalies	
Anomalies log		

S = menu entry only visible with "Service" access.

Menu/Gestione anomalie/Faults management		
Menu item	Description	S
History index		
Anomaly code	This displays the selected anomaly code	
Technical anomaly		

S = menu entry only visible with "Service" access.

Accessing the menu **Faults management / Anomalies log**, allows you to consult the type and date on which the last 10 errors were detected.



Only an Authorised Technical Service Centre can reset the faults history in order to collect and assess all the diagnostic information useful for evaluating the operational condition of the system.

Menu / General settings					
Menu item	Description	Range	Default	Customised value	S
Language	Defines the remote panel operation language	ITA - ALB - BUL - CZE - FRA - NLD - GER - ENG - GRE - LIT - POL - POR - RUM - RUS - SLO - SLV - SPA - HUN - TUR - UKR	ITA		
Display	It allows for various display adjustments.				
Access level	Allows the entry of an access code to access the parameter customisation menus according to ones needs (dedicated to a qualified technician)				
Factory setting	Allows to reset all parameters with factory values.	Yes/No			S

S = menu entry only visible with "Service" access.

Menu / General settings / Display					
Menu item	Description	Range	Default	Customised value	S
Contrast	Allows to adjust the display contrast	Min / 2 ÷ 9 / Max	5		
Display lighting	Allows to set the display operation mode	Off / Min / Auto / Max	Auto		

S = menu entry only visible with "Service" access.



The parameters referring to zone 2 can only be displayed if there is a zone 2 on the system and it is configured correctly.



The parameters referring to zone 3 can only be displayed if there is a zone 3 on the system and it is configured correctly.

Menu / Support		
Menu item	Description	S
System definition	Sub-menu to define the devices connected to the system	S
Heat pump	Heat pump operating parameters sub-menu	S
Integration	System integration setting sub-menu	S
Manual drives	Submenu for load operation check	S
Special parameters	Parameters for various uses	S

S = menu entry only visible with "Service" access.

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Menu/Support/Definit. System					
Menu item	Description	Range	Default	Customised value	S
Number of zones	Defines the number of zones present	1-3	1		S
External probe (*)	This defines the type of external probe enabled. - IU = indoor unit - OU = outdoor unit.	OU / IU	OU		S
External probe corr.	Correction of the external probe value	-9 +9	0		S
Photovoltaic function	Enables the operation combined with a photovoltaic system.	Yes/No	No		S
System supervision	Enabling connection to Dominus or System supervisor	No/Domin/ BMS	No		S
Activation time	Waiting time before activation of the system setpoint correction	1 - 120	20		S
Increase time	Time interval for the increase or decrease of 1°C of correction of the system setpoint	1 - 20	5		S
Max CH adjust	Max correction during central heating mode	0 - 10	0		S
Max Cool. adjust	Max correction during cooling mode.	0 - 10	0		S
Multifunction relay 1	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact. 6 = DHW/System valve contact 7 = Recirculation pump contact.	0 - 10	0		S
Multifunction relay 2	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact. 6 = DHW/system valve contact. 7 = Recirculation pump contact.	0 - 10	0		S
Multifunction relay 3	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact. 6 = DHW/System valve contact 7 = Recirculation pump contact. 8 = Not used 9 = Zone 3 in neutral air dehumidification contact. 10 = Zone 3 in cooled air dehumidification contact.	0 - 10	0		S
Glycol Function	Enabling frost protection with anti-freeze liquid	Yes/No	No		S

S = menu entry only visible with "Service" access.

(\*) It is not possible to use the external probe IU (optional) when using DHW recirculation.



Menu/Support/Heat pump					
Menu item	Description	Range	Default	Customised value	S
HP Type	Setting the indoor unit.	MHP / MHP Mini / MHM Hyd	MHMHyd		S
Powers					S
Timers					S
Pump					S

S = menu entry only visible with "Service" access.

Menu/Support / HP / Powers					
Menu item	Description	Range	Default	Customised value	S
HP Model	Setting the connected outdoor unit.	5 / 8 / 12	5		S
HP power off	Enable the Disabling function of the heat pump. "Reduct." mode is not enabled.	No / Yes	No		S
Power in reduced	Not used	10 ÷ 100 %	75 %		S
Enab.Silent func.	Enables the noise reduction function of the outdoor unit	No / Yes	No		S

S = menu entry only visible with "Service" access.

Menu / Support / HP / Timers					
Menu item	Description	Range	Default	Customised value	S
Anti-cycle time	Not used	0-840 s	180 s		S
Ramp time	Not used	0-840 s	0 s		S
Req.delay time TA	In the case of both the room thermostat and the Zone Panel, the request to the appliance occurs with a delay set with respect to the request to the zones.	0-600 s	0 s		S
Prec.end wait time	Not used	0-100 s	0 s		S

S = menu entry only visible with "Service" access.

Menu / Support / HP / Pump					
Menu item	Description	Range	Default	Customised value	S
Pump mode	Enable the pump operation with speed set "Max Sp." or the modulating mode with tracking of the modulating temperature ("Modul.") differential.	Max Sp. / Modul.	Modul.		S
Min pump speed	Value of minimum speed used in modulating operation	50 – 100 %	50 %		S
Max pump speed	Heat pump circulator speed	50 – 100 %	70 %		S
Pump T Delta	Temperature delta to be maintained with modulating operation.	5	5		S
Automatic vent	Not used	No / Yes	No		S

S = menu entry only visible with "Service" access.

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Menu/Support/Integration					
Menu item	Description	Range	Default	Customised value	S
Min. CH integr.temp.	Temperature threshold below which integration is activated at the heat pump in central heating.	-25 ÷ +35 °C (*)	-20 °C		S
DHW integration mode.	Mode of intervention of the DHW (Domestic hot water) integration and resistance	Met. / Altern.	Altern.		S
CH integration mode	Mode of intervention of the central heating / C.H. integration and resistance	Met. / Altern.	Altern.		S
Concomitant mode	Enabling of conjunction function 0 = No 1 = C.H./Cool. 2 = Only Cool. 3 = C.H. only	0 - 3	0		S
Enable DHW integr.	Enabling of generators for the DHW Mode	HP HP-Int Int	HP		S
Enable heat.integr.	Enabling of generators for the Central heating mode.	HP HP-Int Int	HP		S
CH wait time	Waiting time to reach the setting set before activation of the integration in room central heating / C.H.	20 ÷ 540'	60 min		S
DHW wait time	Waiting time to reach the setting set before activation of the integration in the production of domestic hot water	20 ÷ 540'	120 min		S
Integration band	Setting of the activation band equal to the activation delay time will activate the additional heater.	1 - 20 °C	5 °C		S
Reset HP meter	Reset the number of operating hours of the heat pump	Yes/No	No		S
Reset plant int. met.	Reset hours of operation of the central heating / C.H. integration	Yes/No	No		S
Reset sanitary int. met.	Reset hours of operation of the DHW (Domestic hot water) integration	Yes/No	No		S

S = menu entry only visible with "Service" access.

(\*) For outdoor temperatures below -20°C, the capacity of the heat pump is not guaranteed.



If an additional electric resistance is installed and enabled for heating the system, it is necessary to check and, if necessary, change the pump settings to ensure a minimum flow rate of 1000 l/h. Flow rate values below this limit can damage the resistance.



Menu / Support / Drive Manual(\*)

Menu item	Description	Range	Default	Customised value	S
Sys./DHW 3-way	Manual activation of the DHW (Domestic hot water) 3-way	Yes/No	No		S
Enable sys.resistance	Manual activation of the system resistance	Yes/No	No		S
Enable DHW resistance 1	Manual activation of the DHW (Domestic hot water) resistance 1	Yes/No	No		S
Zone 1 circulator	Manual activation of zone 1 pump	Yes/No	No		S
Dehumidifier zone 1	Manual activation of the dehumidifier in neutral air on zone 1	Yes/No	No		S
Zone 1 air conditioning	Manual activation of the dehumidifier in cooled air on zone 1	Yes/No	No		S
Zone 2 circulator	Manual activation of zone 2 pump	Yes/No	No		S
Dehumidifier zone 2	Manual activation of the dehumidifier in neutral air on zone 2	Yes/No	No		S
HP Flow meter	Shows the flow rate read on the flowmeter	0-4000l/h			S
Circulator speed		0-100%	0%		S
Mixer zone 2	Manual activation of the mixing valve on zone 2	Stop Close Open	Stop		S
Zone 2 air conditioning	Manual activation of the dehumidifier in cooled air on zone 2	Yes/No	No		S
Zone 3 mixing valve	Manual activation of the mixing valve on zone 3	Stop Close Open	Stop		S
Zone 3 circulator	Manual activation of zone 3 pump	Yes/No	No		S
Dehumidifier zone 3	Manual activation of the dehumidifier in neutral air on zone 3.	Yes/No	No		S
Zone 3 air conditioning	Manual activation of the air conditioner in cooled air in zone 3	Yes/No	No		S
Hot/Cold three-way	Manual activation of the summer/winter three-way valve (M52)	Yes/No	No		S
Enable DHW recirculation	Manual activation of the DHW recirculation pump, which can only be done if correctly set in the "Special parameters" Menu	Yes/No	No		S

S = menu entry only visible with "Service" access.

(\*) If you are within the "Manual drives" menu, the 4-minute time-out for exiting the "Support" menu is not taken into account.

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Menu/Support/Special parameters					
Menu item	Description	Range	Default	Customised value	S
Dehumid. in cool.air	Dehumidification control in cooled air	Zone 1 / Zone 2	Zone 2		S
Safety therm. Zone 2	Zone 2 safety thermostat	20÷80	45		S
Safety therm. Zone 3	Zone 3 safety thermostat	20÷80	45		S
Enable recirculation	DHW recirculation enabling	On/Off	Off		S
Integr.multiplier	Not used	1÷100	10		S
Enab.ext. CH resistance (*)	Enable external central heating integrated electrical resistance	Yes/No	No		S
Enab.Expansion	Enabling of expansion kit for managing optional functions	Yes/No	No		S
Enab.Heat./cool.select.	Enabling of central heating/cooling selector by means of external contact connected directly to the control panel (Fig. 15)	Yes/No	No		S
Parameter 1	Enable flow probe Zone 1 (0 = disabled, 1 = enabled)	0 ÷ 1	0		S
Parameter 2	System-side electrical integration power (value multiplied by a factor of 10, e.g. 30 corresponds to a 3kW resistance)	0 ÷ 100	30		S
Parameter 3	Room antifreeze protection setpoint (value multiplied by a factor of 10, 40 is equal to 4°C)	0 ÷ 100	50		S
Parameter 4	Boost dehumidification (0 = disabled, 1 = enabled)	0 ÷ 1	0		S
Parameter 5	Temperature threshold below which the DHW integration to the heat pump is activated (value multiplied by a factor of 10, e.g. -200 corresponds to -20°C)	-250 ÷ 350	-200		S
Parameter 6	DHW recirculation offset correction respect to DHW setpoint	-15 ÷ 0	0		S
Parameter 7	Enabling of anti-Legionella function on DHW recirculation loop (0 = disabled, 1 = enabled)	0 ÷ 1	0		S
Parameter 8	Do not use	-1000÷1000	0		S
Parameter 9	Do not use	-1000÷1000	0		S
Parameter 10	Enabling of Zone 2 direct flow probe (0 = disabled, 1 = enabled)	0 ÷ 1	0		S
Parameter 11	Enabling of Zone 3 direct flow probe (0 = disabled, 1 = enabled)	0 ÷ 1	0		S
Parameter 12	Do not use	-1000÷1000	0		S
Parameter 13	Do not use	-1000÷1000	0		S
Parameter 14	Do not use	-1000÷1000	0		S
Parameter 15	Do not use	-1000÷1000	0		S

S = menu entry only visible with "Service" access.

(\*) It is not possible to activate the recirculation function when using the external probe IU (optional).





### 3.4 FAULT AND ANOMALY SIGNALS

The indoor unit indicates a possible anomaly through a code flanked by the symbol of a key "🔑" in the centre of the display and the message "indoor unit anomaly" at the bottom of the display itself (Fig. 32).

If a fault is displayed, note down the code displayed in the centre of the display in addition to the phrase "indoor unit fault" or "outdoor unit fault" and report it to the technician authorised to carry out repairs and maintenance, if necessary.

Some of these alarms are associated with a temporary event, in which case you can attempt to reset the system and the alarm by pressing the RESET button on the display.

Error Code	Anomaly signalled	Cause	Appliance status / Solution
5	<b>Delivery probe fault</b>	The board detects an anomaly on the flow NTC probe.	The system does not start (1).
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
12	<b>Storage tank probe anomaly</b>	The board detects an anomaly on the storage tank probe	The hydronic module is unable to produce domestic hot water (1).
15	<b>Configuration error</b>	If the board detects an anomaly or incongruity on the electric wiring, the appliance will not start	If normal conditions are restored, the heat appliance restarts without having to be reset (1).
23	<b>Return probe anomaly</b>	The board detects an anomaly on the return NTC probe	The system does not start (1).
24	<b>Push button control panel anomaly</b>	The board detects an anomaly on the pushbutton panel.	If normal conditions are restored, the system restarts without having to be reset (1).
26	<b>Flowmeter anomaly</b>	The board detects an anomaly on the flowmeter. Booster pump, if any, always working.	The system does not start (1). Make sure the booster pump (optional) only activates when requested.
27	<b>Circulation insufficient</b>	This happens when the hydronic module overheats due to poor water circulation in the primary circuit. The causes can be: - pdc pump blocked; free the pump; - damaged flowmeter.	Check system circulation and flowmeter. Press the Reset button (1).
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).</b>			

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Error Code	Anomaly signalled	Cause	Appliance status / Solution
32	<b>Zone 2 Low Temperature probe anomaly</b>	If the board detects an anomaly on the zone 2 low temperature probe, the system cannot work in the affected area.	(1)
33	<b>Zone 3 low temperature probe anomaly</b>	If the board detects an anomaly on the zone 3 low temperature probe; the system cannot work in the affected area.	(1)
34	<b>Low-temperature Zone 2 safety thermostat intervention</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)
35	<b>Low-temperature zone 3 safety thermostat intervention</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)
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)
50	<b>External probe anomaly</b>	In the event the external probe is not connected or is faulty, the anomaly is indicated.	Check the external probe connection. The system continues to operate with the external probe integrated in the external unit (1). In case of replacement of the external probe, repeat the installation operations.
55	<b>Zone 1 temperature probe anomaly</b>	The zone 1 flow probe has an out-of-range resistive value	(1)
104	<b>Expansion off-line alarm</b>	The expansion device is offline	(1)
120	<b>Alarm set high for zone 1 dehumidification</b>	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).
121	<b>Zone 1 offline device alarm</b>	The device connected to zone 1 is offline	(1)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).</b>			

Error Code	Anomaly signalled	Cause	Appliance status / Solution
122	<b>Zone 2 offline device alarm</b>	The device connected to zone 2 is offline	(1)
123	<b>Zone 3 offline device alarm</b>	The device connected to zone 3 is offline.	(1)
125	<b>Zone 1 room temperature probe error</b>	The zone 1 room probe has an out of range resistive value	(1)
126	<b>Zone 2 room temperature probe error</b>	The zone 2 room probe has an out of range resistive value	(1)
127	<b>Zone 3 room temperature probe error</b>	The zone 3 room probe has an out of range resistive value.	(1)
129	<b>Zone 1 humidity probe error</b>	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.
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.
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.
132	<b>Alarm set high for zone 2 dehumidification</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).
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)
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)

(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
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)
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).
137	<b>Reset system alarm – Restart the system</b>	When the default parameters are restored, the system needs to be restarted.	Turn the system off and on.
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)
142	<b>Errore Dominus offline</b>	Communication with Dominus is offline	(1)
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)
177	<b>DHW maximum time alarm</b>	Domestic hot water production is not met within the pre-established time	The system continues to operate with non-optimal performance (1)
178	<b>Block: anti-legionella cycle not successful</b>	The anti-Legionella cycle is run without success within the pre-established time	Press the Reset button (1)
183	<b>Outdoor unit in test mode</b>	A signal notifies that the outdoor unit is in test mode.	During this time, room air conditioning and domestic hot water production requirements cannot be met
188	<b>Request out of operating range</b>	A request is made with the outdoor temperature exceeding the operating limits (Parag. 1.22)	The system does not start (1). Wait for the outdoor unit to be restored within operating limits.
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.
196	<b>High flow temp. block</b>	An excessively high temperature is detected on the heat pump flow circuit	Check the hydraulic circuit (1).
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).</b>			

Error Code	Anomaly signalled	Cause	Appliance status / Solution
197	<b>Communication board configuration error</b>	An incorrect communication board configuration has been detected	The system does not start (1).
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.
210	<b>Low circulation block during a 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.
250	<b>Anti-legionella function enabled with DHW integration absent alarm</b>	The system does not start.	Check the settings in the Integration menu.

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

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### List of outdoor unit anomalies

If the outdoor unit is faulty, the error code is displayed in the middle of the control panel (Fig. 32), with a key symbol next to it "🔑". In addition, the message "Outdoor unit anomaly" is displayed at the bottom of the display (Fig. 32).

If a fault is displayed, note down the code displayed in the centre of the display in addition to the phrase "indoor unit fault" or "outdoor unit fault" and report it to the technician authorised to carry out repairs and maintenance, if necessary. Alarms from the outdoor unit cannot be reset using the RESET button on the display. In this case you must first disconnect power to the outdoor unit, wait a few minutes, restore it and press the RESET button on the display.

Error Code	Anomaly signalled	Hydronic module status / Solution
101	<b>Outdoor unit communication error</b>	Check the communication cable to the outdoor unit. Check that the interface board works properly. (1)
109	<b>Communication error due to incorrect address of interface board</b>	Check the address on the interface board. (1)
111	<b>MODBUS communication error</b>	Check communication between the management board and interface boards. (1)
162	<b>EEPROM error</b>	Replace the main board of the outdoor unit (1)
177	<b>Emergency error</b>	(1)
198	<b>Error of thermal fuse terminal board (open)</b>	(1)
201	<b>Communication error (failed coupling) between interface board and outdoor unit</b>	Check the communication cable to the outdoor unit. Check that the interface board and main board of the outdoor unit work properly (1)
202	<b>Communication error (failed coupling) between indoor unit and interface board</b>	Check the communication cable to the outdoor unit. Check that the interface board and main board of the outdoor unit work properly (1)
203	<b>Communication error between Inverter and main board of the outdoor unit</b>	Check wiring of communication between the two boards. Replace the main board. Replace the inverter board (1)
221	<b>Outdoor unit air temperature sensor error</b>	Check the position of the sensor. Check the relative wiring Replace the sensor (1)

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



Error Code	Anomaly signalled	Hydronic module status/Solution
231	Condenser temperature sensor error	Check the position of the sensor. Check the relative wiring Replace the sensor (1)
251	Discharge temperature sensor error	Check the position of the sensor. Check the relative wiring Replace the sensor
320	Compressor sensor error (overload protection sensor)	Check the position of the sensor. Check the relative wiring Replace the sensor (1)
403	Freezing detection (during cooling operation)	Check the chiller cycle. Check the temperatures of the plate heat exchanger (1)
404	Protection of outdoor unit when in overload (during safety start-up, normal operating status)	Check the chiller cycle. Check the compressor connections. Check the resistances between the different phases of the compressor (1)
407	Compressor not working due to high pressure	Check the chiller cycle (1)
416	The compressor discharge is overheated	(1)
419	Outdoor unit EEV operation error	(1)
425	Not used on this model	(1)
440	Central heating blocked (outdoor temperature beyond 35°C)	(1)
441	Cooling blocked (outdoor temperature below 9°C)	(1)
458	Error of outdoor unit fan no.1	1
461	Compressor start-up error (Inverter)	Check the chiller cycle. Check the compressor connections. Check the resistances between the different phases of the compressor (1)

(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	Hydronic module status/ Solution
462	<b>Inverter total current overload error</b>	Check the inlet current. Check the refrigerant charge. Check normal operation of the fan. (1)
463	<b>Compressor overheated sensor</b>	Check the compressor sensor. (1)
464	<b>Inverter IPM current overload error</b>	Check the compressor connections and its normal operation. Check the refrigerant charge. Check whether there are obstacles around the outdoor unit. Check whether the service valve is open. Check whether the installation pipes are mounted properly. (1)
465	<b>Compressor overload error</b>	Check the compressor connections and its normal operation. Check the resistances between the different phases of the compressor. (1)
466	<b>Low voltage error of DC circuit</b>	Check the input voltage. Check the power connections. (1)
467	<b>Compressor rotation error</b>	Check the compressor connections. Check the resistances between the different phases of the compressor. (1)
468	<b>Current sensor error (inverter)</b>	Check the main board. (1)
469	<b>Voltage sensor error of DC circuit (inverter)</b>	Check the power connector of the inverter board. Check the connectors RY21 and R200 of the inverter board. (1)
470	<b>EEPROM reading/writing error of outdoor unit</b>	Check the main board. (1)
471	<b>EEPROM reading/writing error of outdoor unit</b>	Check the main board. (1)
474	<b>Inverter temperature sensor error</b>	Replace inverter board (1)
475	<b>Error of outdoor unit fan no.2 (where present)</b>	Check the wiring. Check that the fan is powered. Check the fuses in the main electrical panel. (1)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).</b>		



Error Code	Anomaly signalled	Hydronic module status/Solution
484	<b>PFC overload</b>	Check inductances. Replace inverter board. (1)
485	<b>Incoming current sensor error</b>	Replace inverter board. (1)
500	<b>IPM overheated</b>	Check temperature of inverter board. Switch the machine off. Wait for the inverter to cool down. Switch the machine back on. (1)
554	<b>Coolant gas leak error</b>	Check that the coolant is charged Check the liquid sensor of the indoor unit Check whether the service valve is open Check whether the installation pipes are mounted properly. (1)
590	<b>Inverter board error</b>	Check normal operation of the main board. Replace the main board (1)
601	<b>Not present</b>	(1)
604	<b>Not present</b>	(1)
653	<b>Not present</b>	(1)
654	<b>Not present</b>	(1)
899	<b>Not present</b>	(1)
900	<b>Not present</b>	(1)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).</b>		

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Error Code	Anomaly signalled	Hydronic module status/ Solution
901	Inlet water sensor error at plate heat exchanger	Outdoor unit error Check outdoor unit (1)
902	Outlet water sensor error at plate heat exchanger	Outdoor unit error Check outdoor unit (1)
903	Not used	Indoor unit error Check indoor unit (1)
904	Not used	Indoor unit error Check indoor unit (1)
906	Error of refrigerant sensor at liquid state	Outdoor unit error Check outdoor unit (1)
911	Not used	Indoor unit error Check indoor unit (1)
912	Not used	Indoor unit error Check indoor unit (1)
916	Not used	Indoor unit error Check indoor unit (1)
919	Not used	Indoor unit error Check indoor unit (1)

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

# 4 INSTRUCTIONS FOR MAINTENANCE AND INITIAL CHECK

## 4.1 GENERAL RECOMMENDATIONS



Operators who install and service the appliance must wear the personal protective equipment (PPE) required by applicable law.  
The list of possible PPE is not complete as they are indicated by the employer.

INSTALLER



Before carrying out any maintenance work, make sure that:

- you have disconnected the power to the appliance;
- you have discharged the pressure from the system and domestic hot water circuit.

USER



### Supply of spare parts

The device's warranty shall be rendered null and void if unapproved or unsuitable parts are used for maintenance or repairs. These will also compromise the product's compliance, and the said product may no longer be valid and fail to meet the current regulations. In regard to the above, only use original Immergas spare parts when replacing components.



If additional documentation needs to be consulted for extraordinary maintenance, contact the Authorised After-Sales Service.

CONTROL PANEL



The outdoor unit operates with R32 refrigerant gas.  
This gas is ODOURLESS.

### Pay the utmost attention

Strictly follow the instruction handbook of the Outdoor Unit before installation and any type of operation on the chiller circuit.

MAINTENANCE TECHNICIAN



R32 refrigerant gas belongs to the low flammability refrigerant category: class A2L according to standard ISO 817. It guarantees high performance with low environmental impact. The new gas reduces the potential environmental impact by one third compared to R410A, having less effect on global warming (GWP 675).

TECHNICAL DATA



## 4.2 INITIAL CHECK

### To commission the package, you must:

- Check connection to a 230V~50Hz power mains, correct L-N polarity and the earthing connection;
- make sure the central heating system is filled with water and the indoor unit pressure gauge reads a pressure of 1-1.2 bar;
- check the activation of the main switch located upstream of the indoor unit;
- ensure activation of all adjustment devices;
- ensure production of domestic hot water;
- check the tightness of the hydraulic circuits;



**Even if just one single safety check provides a negative result, do not commission the system.**

## 4.3 YEARLY APPLIANCE CHECK AND MAINTENANCE



The following checks and maintenance should be performed once a year to ensure operation, safety and efficiency of the appliance over time.

- Check for water leaks or oxidation from/on the fittings.
- Check, after discharging the system pressure and bringing it to zero (read on indoor unit pressure gauge), that the expansion vessel charge is at 1.0 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.
- Check the pressure of the two 2x12L DHW vessels.
- Visually check that the safety and control devices have not been tampered with and/or short-circuited.
- Check the conservation and integrity of the storage tank magnesium anode.
- Check the condition and integrity of the electrical system and in particular:
  - The power cables must be inside the cable fixings;
  - There must be no traces of blackening or burning.
- Check correct lighting and operation.
- Check correct operation of control and adjustment devices and in particular:
  - Tripping of regulation probes of outdoor unit.
  - Check mesh filter on outdoor unit return.
- Check the correct flow rate on plate heat exchanger.
- Check the integrity of the internal insulation.



In addition to yearly maintenance, one must also check the energy efficiency of the thermal system, with frequency and procedures that comply with the indications of the technical regulations in force.



## 4.4 FINNED AIR COIL MAINTENANCE



We recommend regularly inspecting the finned air coils to check the level of fouling.

This depends on the environment where the unit is installed.

The level of fouling will be worse in urban and industrial sites, as well as near trees that lose their leaves.

There are two maintenance levels to clean the coils:

- If the air heat exchangers are encrusted, clean them gently with a brush in a vertical direction.
- Turn off the fans before working on the air heat exchangers.
- To perform this type of intervention, stop the unit only if the maintenance considerations allow it.
- Perfectly clean air heat exchangers ensure an optimal operation of the unit. When the air heat exchangers begin to encrust, they must be cleaned. The cleaning frequency depends on the season and location of the unit (ventilated, wooded, dusty, etc.).
- Do not use pressurised water without a large diffuser. Do not use high-pressure cleaners for Cu/Cu and Cu/Al air coils.
- Concentrated and/or rotating water jets are strictly prohibited. Never use fluid with a temperature above 45°C to clean the air heat exchangers.
- Proper and frequent cleaning (approx. every three months) prevents 2/3 of corrosion problems.

Clean the air coil using suitable products.

INSTALLER

USER

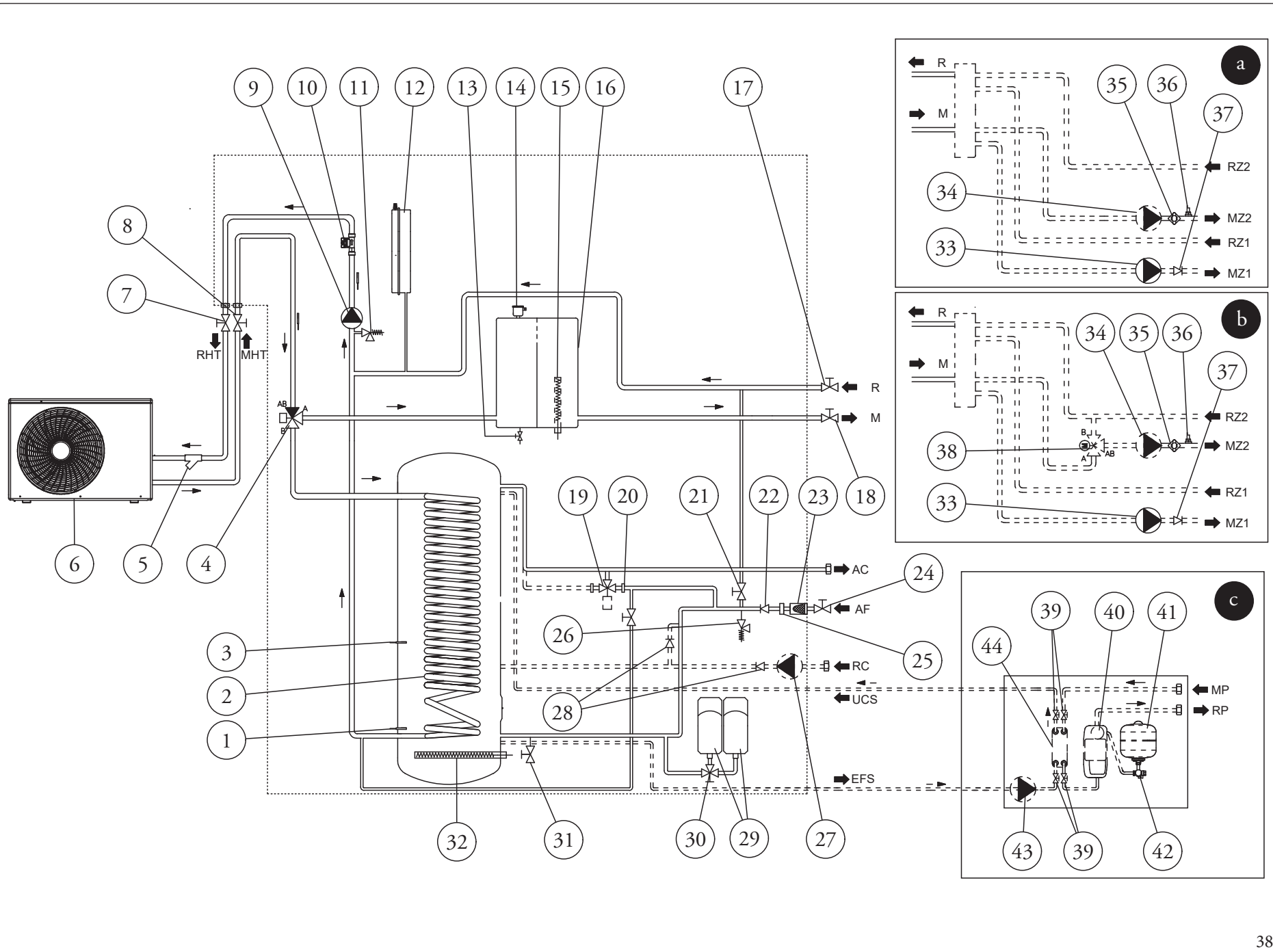
CONTROL PANEL

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4.5 HYDRAULIC DIAGRAM



Key (Fig. 38):

- |    |   |  |     |   |   |
|----|---|--|-----|---|---|
| 1  | - | Storage tank solar probe (Optional)        | 32  | - | DHW electrical resistance                               |
| 2  | - | Stainless steel coil for storage tank      | 33  | - | Direct zone 1 pump (Optional)                           |
| 3  | - | D.H.W. probe                               | 34  | - | Zone 2 circulator (Optional)                            |
| 4  | - | 3-way valve (motorised)                    | 35  | - | Zone 2 safety thermostat (Optional)                     |
| 5  | - | Filter that can be inspected               | 36  | - | Zone 2 low-temperature flow probe (Optional)            |
| 6  | - | UEHYDROHP outdoor unit                     | 37  | - | One-way valve   |
| 7  | - | Heat pump return shut-off cock             | 38  | - | Zone 2 mixing valve (Optional)                          |
| 8  | - | Heat pump flow shut-off cock               | 39  | - | Solar shut-off valves (Optional)                        |
| 9  | - | Heat pump circulator                       | 40  | - | Single solar circulation unit (Optional)                |
| 10 | - | System flow-meter                          | 41  | - | Solar expansion vessel (Optional)                       |
| 11 | - | Heat pump flow probe                       | 42  | - | Shut-off valve with solar system thermometer (Optional) |
| 12 | - | Plate heat exchanger                       | 43  | - | Solar pump (Optional)                                   |
| 13 | - | Heat pump return probe                     | 44  | - | Solar system plate heat exchanger (Optional)            |
| 14 | - | Liquid phase detection probe               |     |   |   |
| 15 | - | System electrical resistance (Optional)    | R   | - | System return   |
| 16 | - | Inertial storage tank                      | M   | - | System flow   |
| 17 | - | System return shut-off valve (Optional)    | RZ1 | - | Direct zone 1 system return (Optional)                  |
| 18 | - | System flow shut-off valve (Optional)      | MZ1 | - | Direct zone 1 system flow (Optional)                    |
| 19 | - | Solar system DHW mixing valve (Optional)   | RZ2 | - | Direct zone 2 system return (Optional)                  |
| 20 | - | Cap for solar kit installation             | MZ2 | - | Direct zone 2 system flow (Optional)                    |
| 21 | - | System filling valve                       | AC  | - | Domestic hot water outlet                               |
| 22 | - | Cold water inlet non-return valve          | AF  | - | Domestic cold water inlet                               |
| 23 | - | Cold water filter                          | RC  | - | Recirculation (Optional)                                |
| 24 | - | Cold water inlet valve                     | MP  | - | Flow from solar panels (Optional)                       |
| 25 | - | Flow limiter                               | RP  | - | Return to solar panels (Optional)                       |
| 26 | - | 8 bar safety valve                         | RHT | - | Return to heat pump                                     |
| 27 | - | DHW recirculation pump (Optional)          | MHT | - | Flow from heat pump                                     |
| 28 | - | DHW recirculation one-way valve (Optional) |     |   |   |
| 29 | - | Domestic hot water expansion vessel        | a   | - | 2 direct zones kit (Optional)                           |
| 30 | - | DHW expansion vessel valve                 | b   | - | 2 zone kit (1 direct and 1 mixed) (Optional)            |
| 31 | - | Storage tank draining valve                | c   | - | Solar kit (Optional)                                    |

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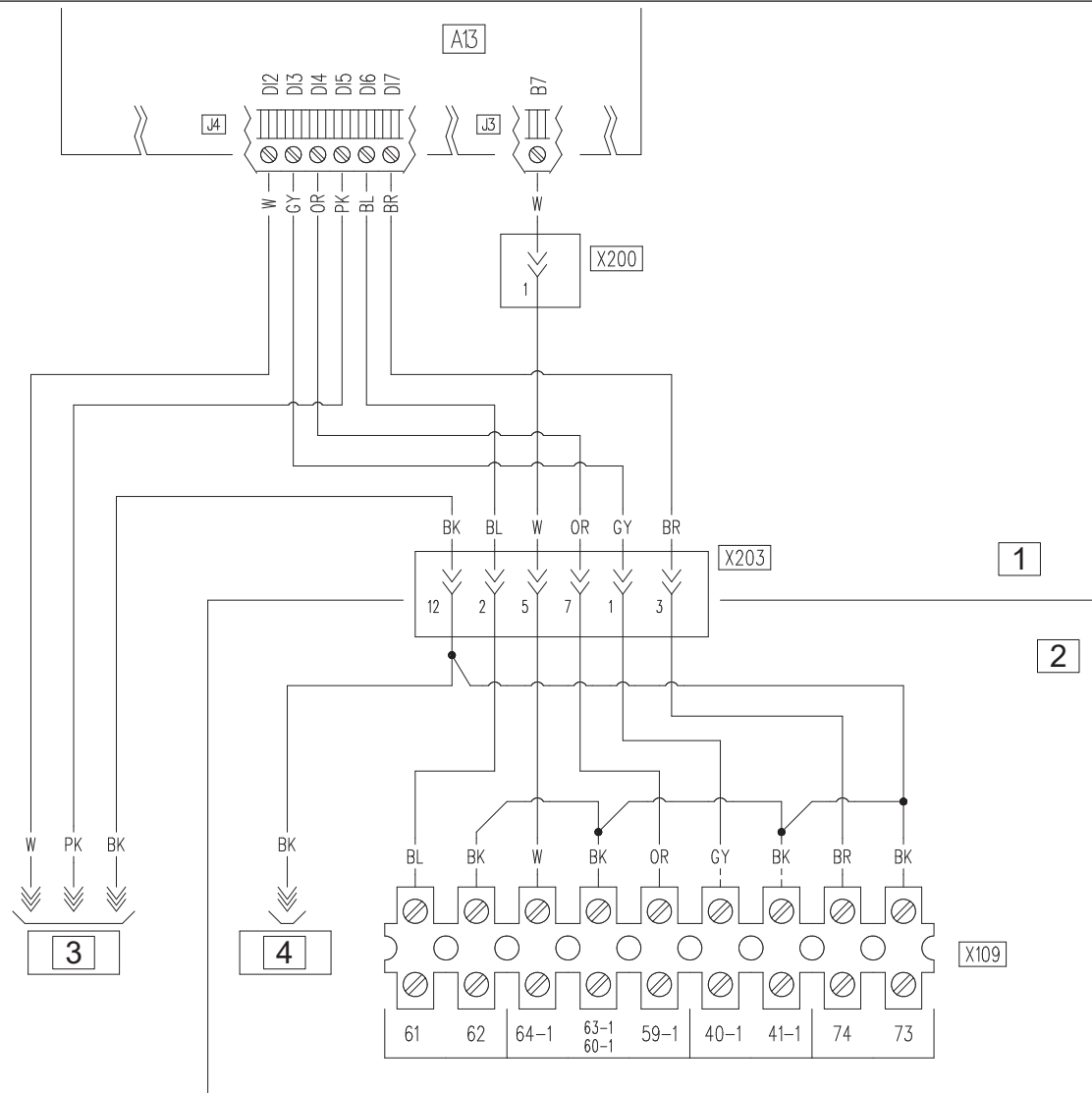
CONTROL PANEL

MAINTENANCE TECHNICIAN

TECHNICAL DATA



4.6 WIRING DIAGRAM  
X109 Terminal board connections diagram



Key (Fig. 39):

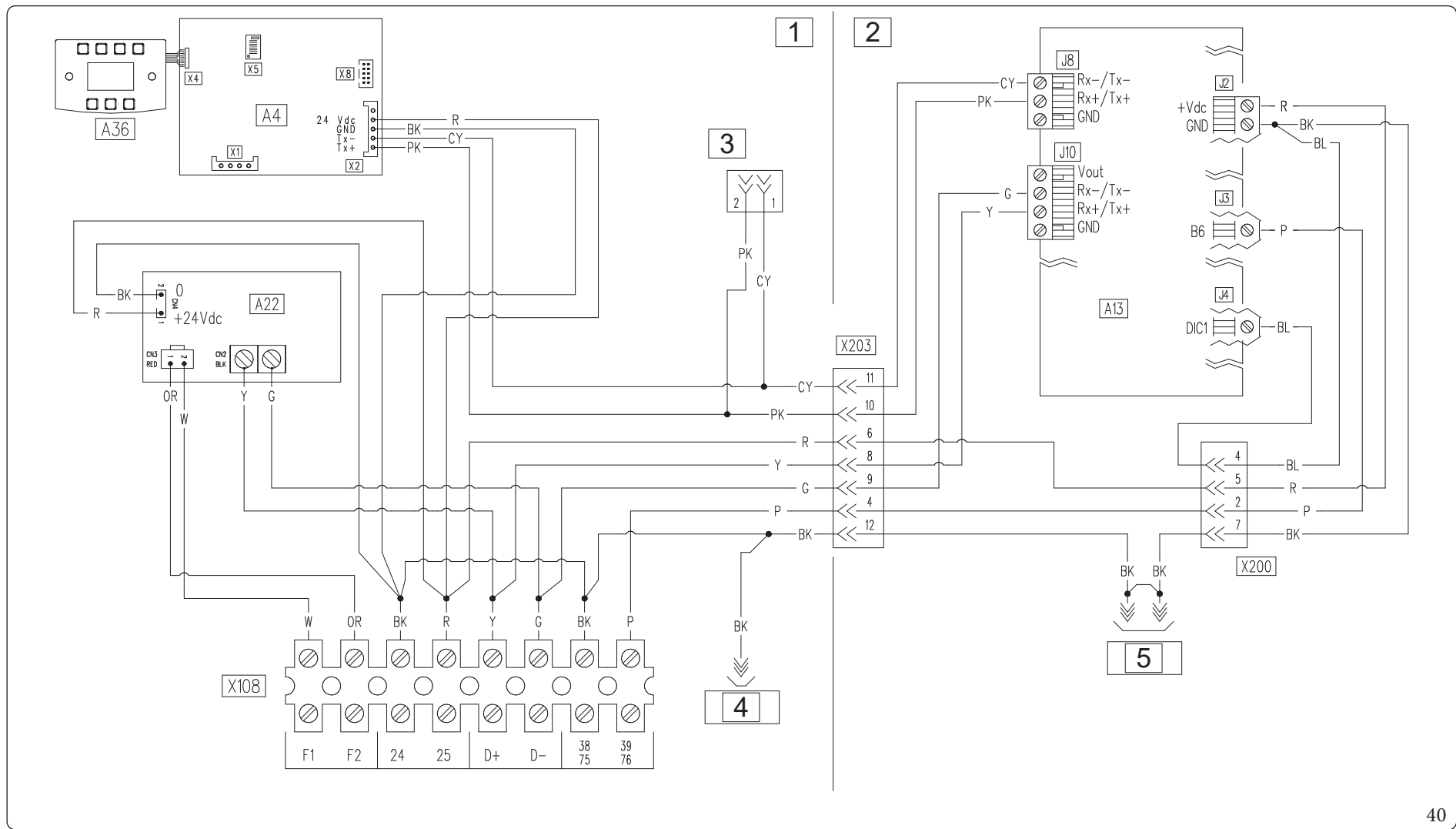
- A13 - Supervision board
- 1 - Main panel
- 2 - Control panel
- 3 - Diagram X102
- 4 - Diagram X108

- BK - Black
- BL - Blue
- BR - Brown
- GY - Grey

- OR - Orange
- PK - Pink
- W - White







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Key (Fig. 40):

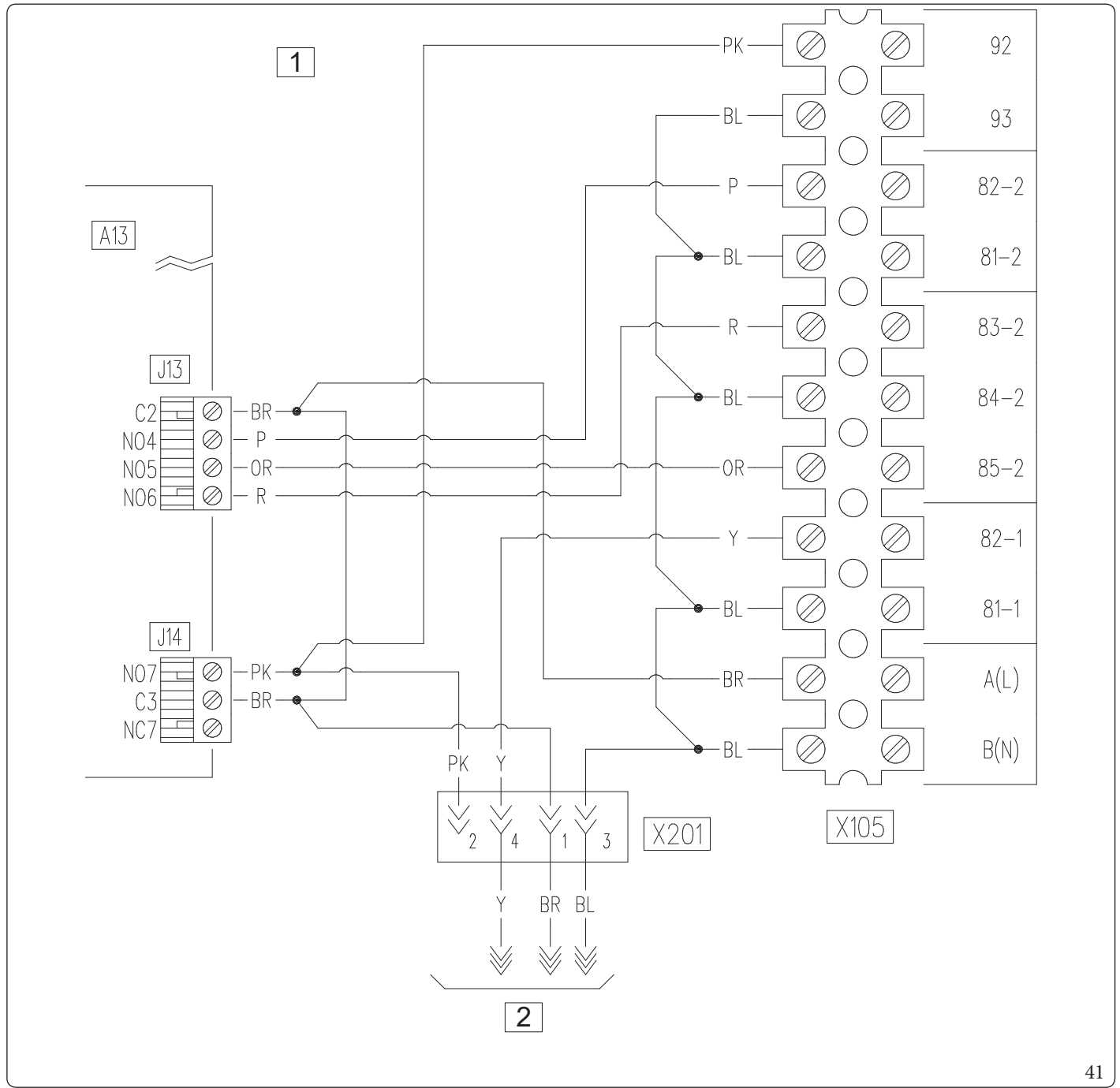
- A4 - Displayboard
- A13 - Supervision board
- A22 - Condensing unit interface board
- A36 - Touch keyboard
- 1 - Control panel
- 2 - Main panel
- 3 - Test connector

- 4 - Diagram X109
- 5 - Diagram X102
- BK - Black
- BL - Blue
- BR - Brown
- CY - Cyan
- G - Green
- GY - Grey

- OR - Orange
- P - Purple
- PK - Pink
- R - Red
- W - White
- Y - Yellow



### X105 Terminal board connections diagram



Key (Fig. 41):

A13 - Supervision board

1 - Main panel

2 - Electric power supply 1 diagram

BL - Blue

BR - Brown

OR - Orange

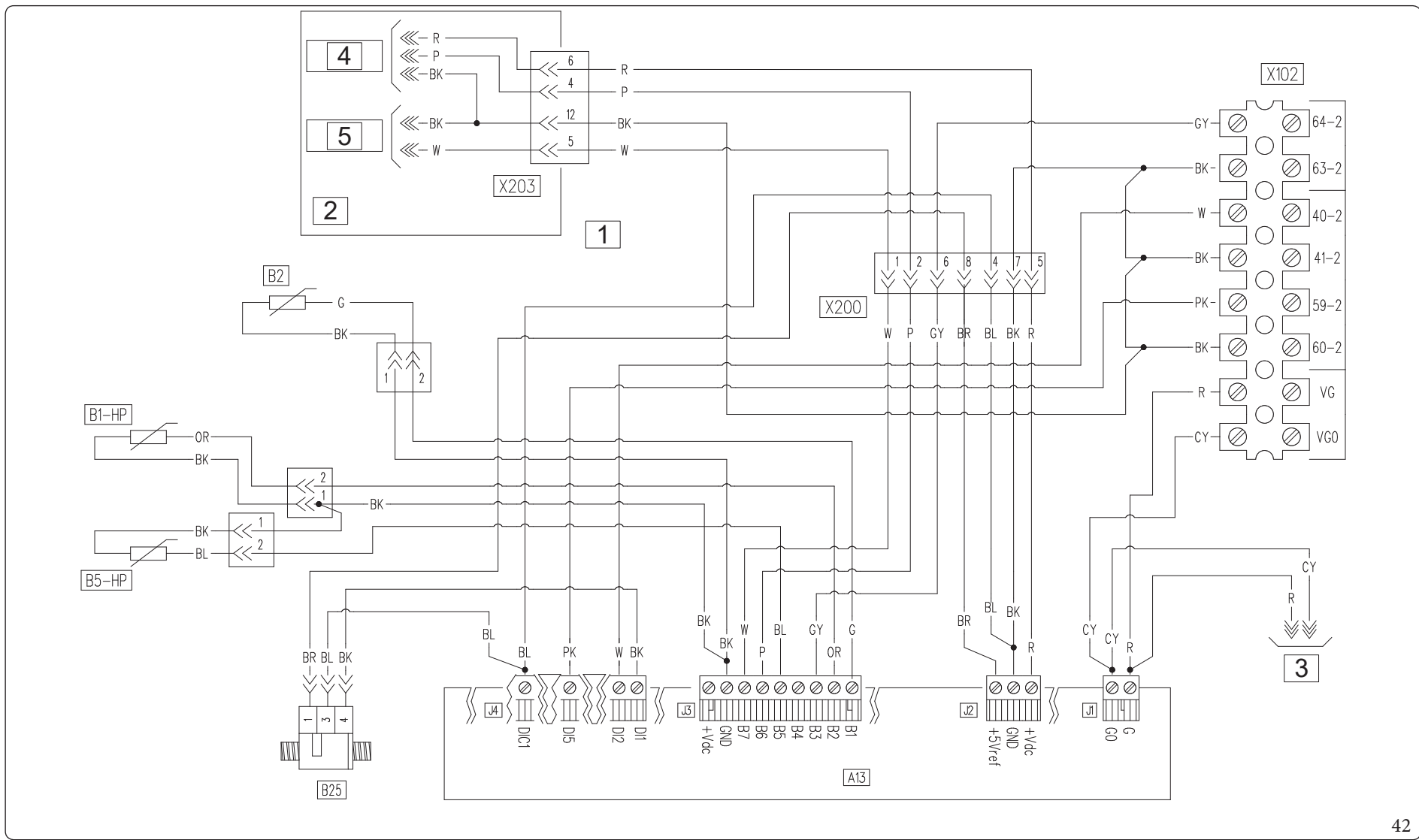
P - Purple

PK - Pink

R - Red

Y - Yellow





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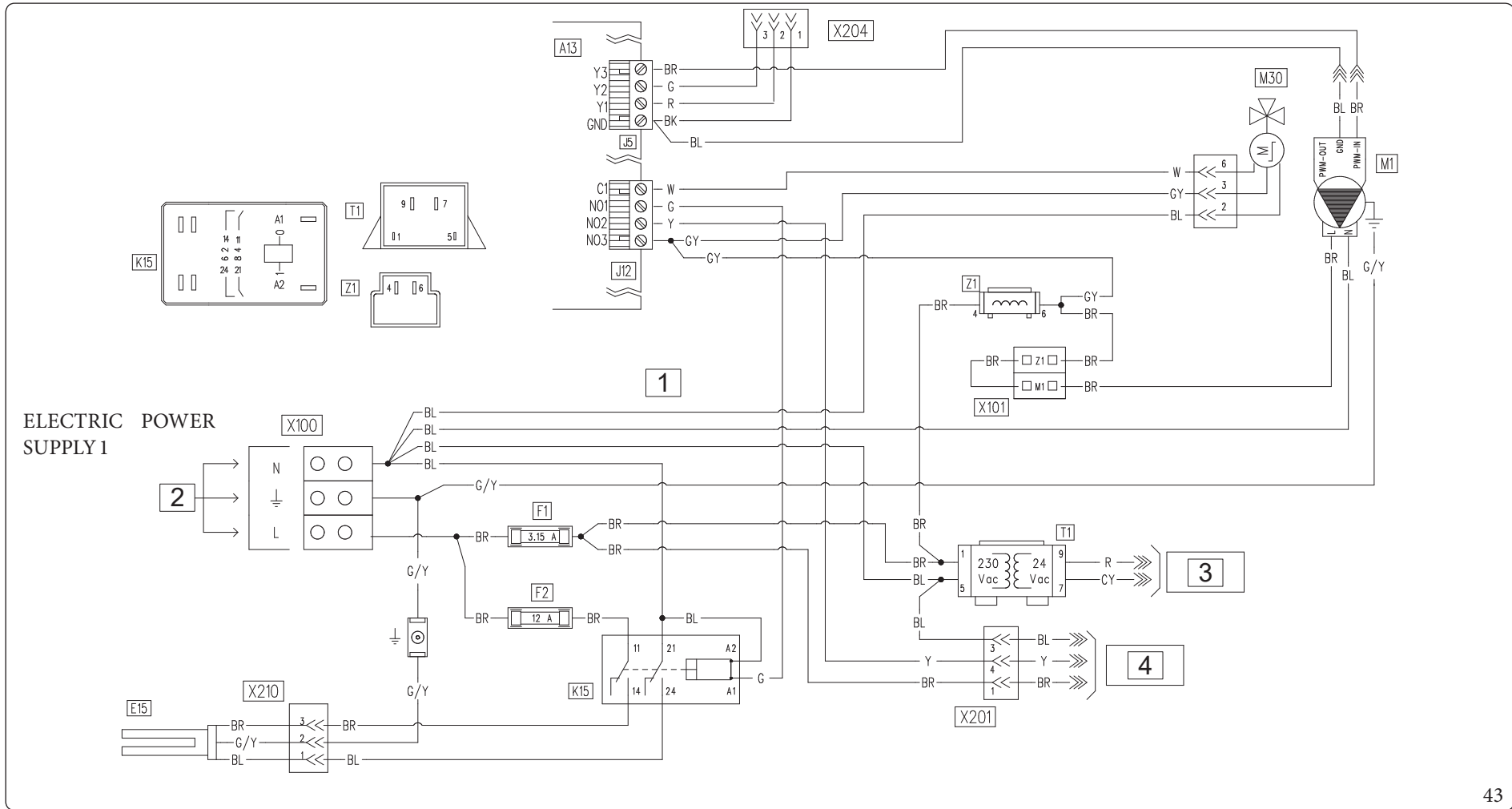
Key (Fig. 42):

- A13 - Supervision board
- B1-HP - Flowprobe
- B2 - D.H.W. probe
- B5-HP - Return probe
- B25 - System flow-meter
- 1 - Main panel
- 2 - Control panel

- 3 - Electric power supply 1 diagram
- 4 - Diagram X108
- 5 - Diagram X109
- BK - Black
- BL - Blue
- BR - Brown
- CY - Cyan
- G - Green

- GY - Grey
- OR - Orange
- P - Purple
- PK - Pink
- R - Red
- W - White





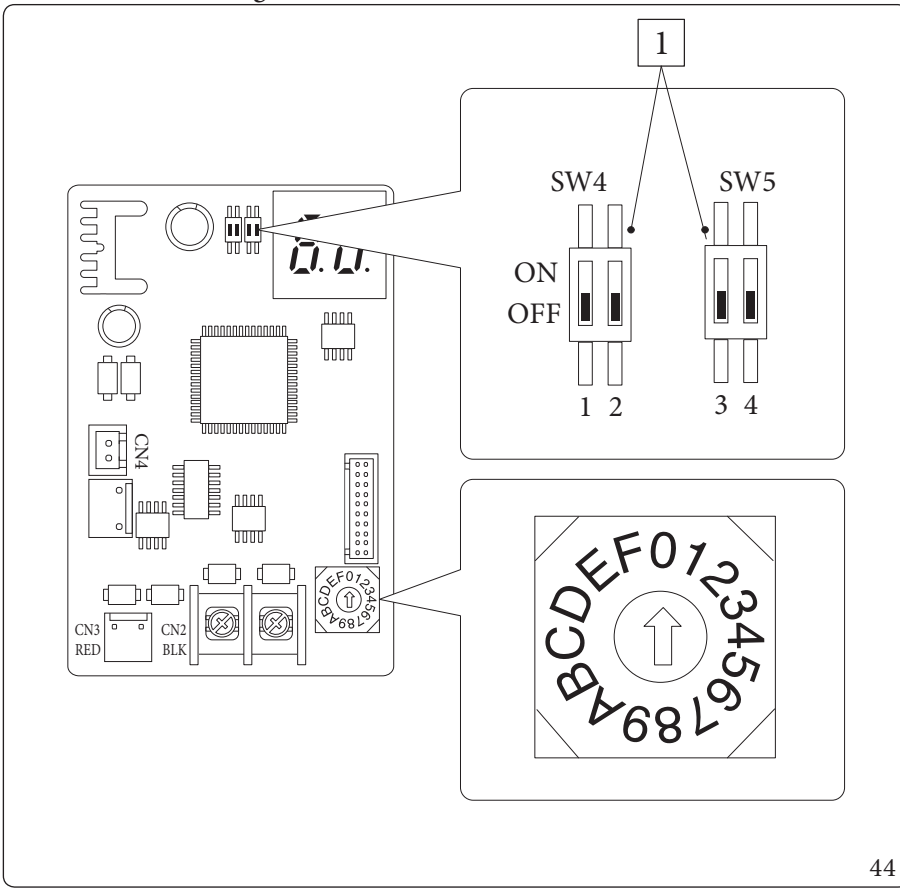
Key (Fig. 43):

- A13 - Supervision board
- E15 - Domestic hot water integration resistance
- F1 - Control Phase Fuse (3,15A F 250V 5x20)
- F2 - DHW Integrative Resistance Phase Fuse (12A aM 500V CH10)
- K15 - DHW integrative resistance relay
- M1 - Heat pump circulator
- M30 - DHW (Domestic hot water) diverter
- T1 - Transformer
- Z1 - Antijamming filter

- 1 - Main panel
- 2 - 230 Vac, 50 Hz
- 3 - Diagram X102
- 4 - Diagram X105

- BL - Blue
- BR - Brown
- CY - Cyan
- G - Green
- GY - Grey
- G/Y - Yellow/Green
- R - Red
- W - White
- Y - Yellow

**Interfaceboard - settings switch**



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Key (Fig. 44):

1 - Factory setting: do not change

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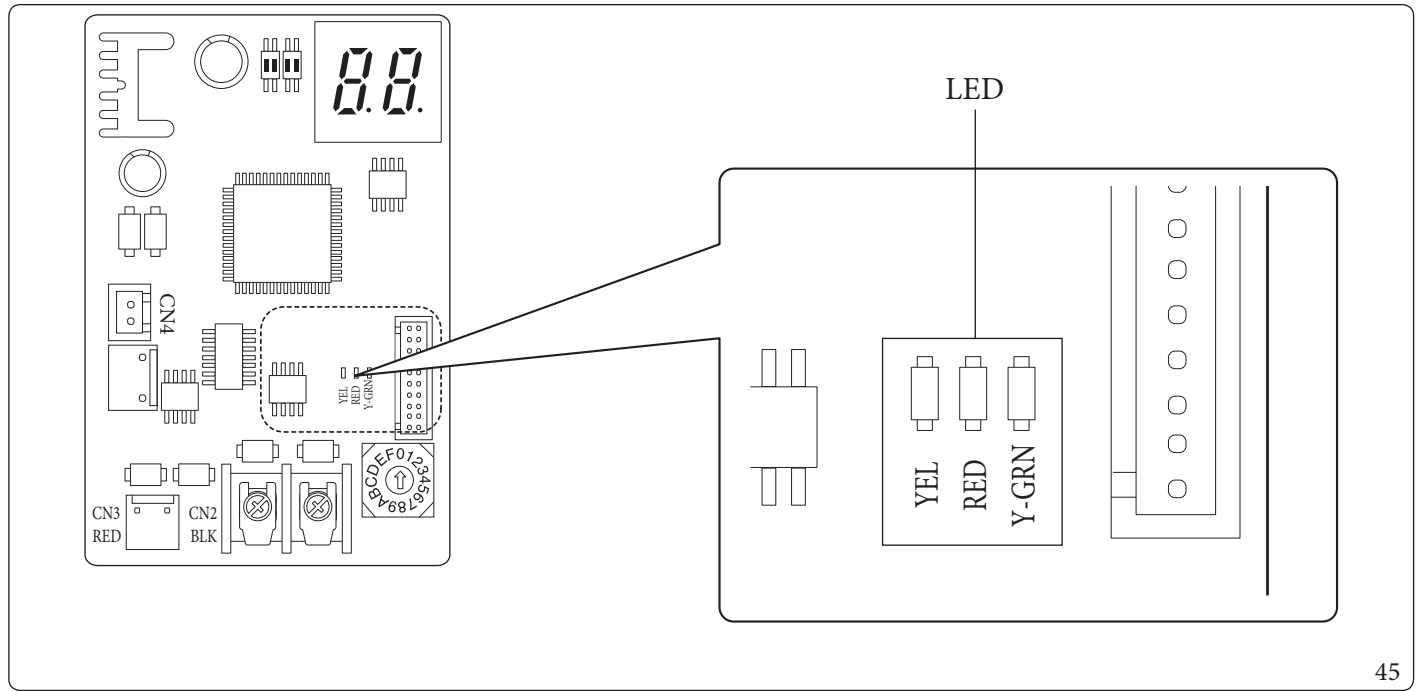
CONTROL PANEL

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**Interface board - indicator LED**



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Key (Fig. 45):

Red LED flashing = Communication between interface board and P.C.B. valid

Green LED flashing = Communication between interface board and Outdoor Unit valid

Yellow LED = Not Used

**Interface board - 7-segment display**

During normal operation, the display shows "A0" for 1 second, followed by "30" for 1 second:

	SEGMENTS
VALID COMMUNICATION	

In case of an error of the Outdoor Unit, a sequence of two digits at a time is displayed: "E" plus Outdoor Unit error code:

ERROR CODES	SEGMENTS
E101	



## 4.7 SYSTEM FILTER

The unit is sold with a filter that must be installed on the outdoor unit return pipe in order to preserve the proper functioning of the system.

The filter can be cleaned periodically and when necessary.



In order to preserve the proper functioning of the plate heat exchanger within the hydraulic circuit, it is necessary for the inspection Y-filter to work in a horizontal position.

## 4.8 TROUBLESHOOTING



Maintenance operations must be carried out by an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

### Noise due to air in the system.

Check the correct deaeration of the system.

Make sure the system pressure and expansion tank factory-set pressure values are within the set limits.

The factory-set pressure values of the expansion vessel must be 1.0 bar, the value of system pressure must be between 1 and 1.2 bar.

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## 4.9 FIRST IGNITION PARAMETER SETTING

During the first activation of the appliance, it is necessary to customise the following parameters, which concern the generator operation, the type of Outdoor Unit and the type of system connected to the appliance.

In the menu

### Support / Heat pump / HP Type

you must ensure that the model set is "MHM Hyd".

If the function "Factory setting" is activated in the "General settings" menu, the parameter "HP Type = MHM Hyd" must always be set.

In the menu

### Support / Heat pump / Powers

it is necessary to set "HP Model", which corresponds to the power of the outdoor unit.

In the menu

### Support / Heat pump / Timers

You can customise the device's restart delay by modifying the parameter "Anti-cycle time" and, in the presence of delayed opening systems, you can modify the parameter "Req.delay time TA".

In the menu

### Support / Heat pump / Pump

it is possible to modify the heat pump circulator speed by modifying the parameter "Max pump speed".

It is necessary to adjust the pump speed according to the appliance power, to improve the operating efficiency of the machine.

The heat pump is equipped with a sanitary electric resistance as standard.

The standard supplied electrical resistance is disabled as a precaution (it is necessary for the resistance to be activated only in the presence of Domestic hot water / D.H.W. in the storage tank).

Therefore, it is necessary to enable the electrical resistance by modifying the following parameters.

### Integration / Enable DHW integr.

you decide whether to activate only the heat pump or the heat pump and integrative electric resistance to perform the DHW function defining its mode alternative or simultaneous by modifying the parameter "**DHW integration mode.**".

The "Int" integration only option cannot be set on this model.

Modifying the parameter

### Integration / DHW integration mode.

after having enabled the DHW integrative resistance, you decide whether to activate the heat pump and the resistance in alternative or simultaneous mode.

Modifying the parameter

### Integration / DHW wait time

after having enabled the DHW integrative resistance, you decide whether to activate the heat pump and the resistance in alternative or simultaneous mode.

Modifying the parameter

### Integration / DHW wait time

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

### Special parameters / Parameter 5:

- 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:

### Configuration / Priority





Regardless of activation of Temperature control, the flow temperature upper and lower limit must be set, adapting them to the specific requirements of the system to which the "MHMH" system is connected.

Check the following parameters and adjust them if needed:

**Zone / Configuration / Thermoreg. CH / Max flow set**

**Zone / Configuration / Thermoreg. CH / Min flow set**

**Zone / Configuration / Thermoreg. Cool. / Max flow set**

**Zone / Configuration / Thermoreg. Cool. / Min flow set**

Any set temperature with or without corrections, cannot exceed these limits.

The first served operating mode, in case of contemporaneity, is decided with the parameter:

**Configuration / Priority**

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

**Configuration / Max time DHW**

beyond which the alarm is signalled.

The heat pump can manage up to 3 distribution pumps.

To activate the correct number of distribution pumps, modify the parameter:

**System definition / Number of zones**

It is possible to customise the operation of each individual zone.

Each zone can be enabled for a single operating mode, modifying the parameter

**Configuration / Enablings / Mode**

The system request for each zone can be made from a room thermostat, which must be enabled in the menu

**Configuration / Enablings / Enable room thermostat**

In case a remote device is used to control the requests, it is necessary to modify the parameter

**Configuration / Enablings / Enable remote contr.**

If a dehumidifier is present, it is necessary to modify the parameter

**Configuration / Enablings / Enable dehumidifiers**

and enable it by modifying the parameter

**System definition / Multifunction relay 1 o Multifunction relay 2 o Multifunction relay 3 = valore da 1 a 4**

depending on the type of function and zone where the dehumidifier is enabled.

It may happen that the dehumidifier has problems with receiving a very high supply temperature. For this reason, dehumidifier ignition can be prevented until the flow water drops below the desired level.

We suggest installing the dehumidifier only in mixed zones.

If more than one zone is enabled and the dehumidifier is installed on a direct zone, the NTC 10K B3435 flow probe must be installed in that zone.

**Configuration / Enablings / Max dehum. temp.**

Furthermore, if the setpoint calculated for the dehumidification is too high to carry out a request, the alarm is signalled and the dehumidifier is stopped. This value can be edited through the parameter:

**Configuration / Enablings / Dehum. alarm set**

In case a humidistat is used to control the dehumidification requests, it is necessary to modify the parameter

**Configuration / Enablings / Enable humidistat**

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:

**Configuration / Enablings / Enable dew point**

It is possible to enable the flow temperature control via the thermoregulation with external probe, by modifying the parameter

**Configuration / Enablings / Ext. probe modul.**

To improve system efficiency in certain types of installations, provided a zone remote panel or a temperature/humidity probe has been installed, it is possible to enable flow temperature control by modulation with a room probe, by modifying the parameter

**Configuration / Enablings / Room. probe modul.**

The system flow temperature drops (it rises in case of cooling) when the room temperature approaches the room setpoint. Modulation with room probe can only be enabled in the presence of a zone remote device.



#### 4.10 DHW (DOMESTIC HOT WATER) BOOST

In order to activate the DHW (Domestic hot water) BOOST function, it is necessary to enable the DHW (Domestic hot water) electrical resistance by changing the parameter:

**Integration / Enable DHW integr.**

#### 4.11 ANTI-LEGIONELLA

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

This function brings the appliance temperature to the maximum allowed with DHW integrative resistance enabled.

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 enabled via the menu

**DHW / Anti-legionella**

The function is activated at the time set via the menu

**Anti-legionella / Anti-legion.cycle time**

on the week day set on the menu

**Anti-legionella / Anti-legion.cycle day**

it is possible to activate the all day function through the "Anti-legionella" menu.

The maximum allowed duration of the function corresponds to the value set in the parameter:

**Anti-legionella / Max antilegion. time**

if the function is not completed within the maximum allowed time, an alarm will be triggered.



It is possible to activate the function only with DHW el. resistance and eventually a thermostatic valve must be installed at the DHW outlet to prevent burns.

## 4.12 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 1 hour, so as to extend thermal treatment to the recirculation circuit as well.

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

- install the recirculation probe, included in the optional kit, and enable it by adjusting the parameter:

### Special parameters / Enable recirculation

- 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:

### Special parameters / Parameter 6

- 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 enable the function, adjust the parameter:

### Special parameters / Parameter 7

- install the recirculation circulator, included in the optional kit, by connecting it to the terminals of the two relays kit, and enable it by adjusting the parameter:

### System definition / Multifunction relay 1 o Multifunction relay 2 o Multifunction relay 3 = 7

The operation of the circulator can be further reduced by setting the time slots as desired in the menu:

### Menu / Clock and programs / Recirculation Program

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#### 4.13 PUMP ANTI-BLOCK

The indoor unit has a function that starts the pump at least once every 24 hours for the duration of 30 seconds in order to reduce the risk of the pump becoming blocked due to prolonged inactivity.

#### 4.14 THREE-WAY ANTI-BLOCK

The indoor unit has a function that activates the motorised three-way unit 24 hours after the last time it operated by running a complete cycle in order to reduce the risk of the three-way blocking due to prolonged inactivity.

#### 4.15 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.

The zone flow probe is required to activate this function. The probe is normally already present for mixed zones while for direct zones, the NTC 10K B3435 flow probe needs to be installed after the hydraulic installation. The zones must be connected to the respective terminal blocks, zone 1 probe (B3-1) terminal block of control panel indicated in fig. 15 and zone 2 probe (B3-2) terminal block of the main panel indicated in fig. 14. For zone 3, refer to the connection diagram indicated in the specific manual of the optional kit.

Then set the parameters

**System definition / Max CH adjust**

**System definition / Max Cool. adjust**

with a value  $> 0^{\circ}\text{C}$ .

Following a demand, the correction begins after a time equal to

**System definition / Activation time**

and continue by  $1^{\circ}\text{C}$  each

**System definition / Increase time**

minutes.



## 4.16 INTEGRATION WITH SYSTEM INTERNAL 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

### Integration/ Enable heat.integr.

you decide whether to activate only the heat pump or the heat pump and integrative electric resistance to perform the central heating function defining its mode alternative or simultaneous by modifying the parameter "CH integration mode".

The "Int" integration only option cannot be set on this model.

Modifying the parameter

### Integration/ CH integration mode

after having enabled the central heating integrative resistance, you decide whether to activate the heat pump and the resistance in alternative or simultaneous mode.

Modifying the parameter

### Integration/ CH wait time

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

### Integration/ Integration band

with which to lower the setpoint temperature limit that must be reached by the heat pump within "CH 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

### Integration/ Min. CH integr.temp.:

- 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:

### Configuration/ Priority

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#### 4.17 INTEGRATION WITH SYSTEM EXTERNAL ELECTRICAL RESISTANCES

External electrical resistances can operate in addition to the internal resistance.

They are activated with the same logic as the internal resistance.

For the electrical connection see the reference wiring diagram (Fig. 14).

If one or more external electric resistances are installed in combination with one of the two-zone kits (supplied by Immergas), integration must be installed between the UI MHMH indoor unit and the distribution kit.

If one or more external electric resistances are installed, in addition to the parameters described in paragraph 4.16 the following parameters must also be adjusted:

**Special parameters / Enab.ext. CH resistance**

selecting option Yes

**Special parameters / Parameter 2**

by entering the total installed power value (multiplied by a factor of 10).

#### 4.18 ZONE 2/3 SAFETY THERMOSTAT

In case of zone 2 or zone 3 installation, a control on the zone flow temperature is enabled which prevents the distribution of water above a certain temperature.

It is possible to modify these limits through the parameters

**Special parameters / Safety therm. Zone 2**

**Special parameters / Safety therm. Zone 3**

#### 4.19 CONJUNCTION MODE

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.

Operation in this mode can be activated by editing the following parameters:

**System definition / Concomitant mode**

Moreover, also the DHW electrical resistance needs to be enabled:

**Integration / Enable DHW integr.**



## 4.20 DEHUMIDIFICATION FUNCTION

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

- 1) Zone remote panel;
- 2) Humidity sensor.
- 3) Humidistat.

### Neutral air mode.

The first and second case, only the dehumidification request is activated if the humidity value read by the panel/humidity probe exceeds the value set in the "Set" 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.

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

In the second case, 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.

In the third case 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) in a different mode that adds an additional room cooling capacity, in addition to dehumidification.

## 4.21 DEHUMIDIFICATION BOOST FUNCTION

If there is a Immergas remote control, zone remote panel or modbus temperature - humidity probe and a Immergas dehumidifier, it is possible to configure the device to increase the cooling capacity of the zone by activating the dehumidifier in cooled air mode if the ambient temperature read by the probe exceeds the set value by 2°C by modifying the parameter **Special parameters / Parameter 4**.

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#### 4.22 HEAT PUMP DISABLING FUNCTION

No request will be met, excluding the safety functions.  
To enable this function, please edit the following parameters:

**Heat pump / Powers / HP power off = Yes**

**User / Disable HP = Yes**

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

**User / Start hourly HP disab.**

**User / End hourly HP disab.**

or via an external contact that can be connected to the expansion kit.

#### 4.23 SILENT MODE FUNCTION

To enable this noise reduction function of the Outdoor Unit, you must configure the board of the Outdoor Unit as described in the EU Hydro HP manual and adjust the parameters:

**User / Enab.Silent func. = Yes**

**Heat pump / Powers / Enab.Silent func. = Yes**

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

**User / Start Silent func.**

**User / End Silent func.**

#### 4.24 DIVERTER VALVE MANAGEMENT (SUMMER / WINTER)



Valid only in combination with the Two Multifunction Relay Kit.

The two multi-function relay kit allows the potential-free contact of the outlet to be used to control a 3-way summer/winter valve. Contact closure occurs in SUMMER mode.

To enable this function, it is necessary to adjust the parameter:

**System definition / Multifunction relay 1 o Multifunction relay 2 o Multifunction relay 3 = 5**

#### 4.25 DIVERTER VALVE MANAGEMENT (DHW/SYSTEM) (OPTIONAL)

The two multi-function relay kit allows the potential-free contact of the outlet to be used to control a 3-way DHW/system valve. Contact closure occurs in SYSTEM mode.

To enable this function, it is necessary to adjust the parameter:

**System definition / Multifunction relay 1 o Multifunction relay 2 o Multifunction relay 3 = 6**

#### 4.26 HEAT PUMP CIRCULATOR FUNCTION

The operating mode of the heat pump circulator can be defined via the parameter:

**Menu / Support / Heat pump / Pump**

When set to **Max Sp.** the pump will always run at the speed defined by the parameter **Max pump speed**; when set to **Modul.** the pump will run at a variable speed between the values defined by the parameters **Max pump speed** and **Min pump speed** with control logics aimed at minimising consumption and guaranteeing the temperature delta between flow and return defined by the parameter **Pump T Delta** and corresponding to fixed 5°C.



## 4.27 EXTERNAL PROBE SETTING

To activate the optional external probe, it is necessary to modify the parameter:

**System definition / External probe = UI**

If the temperature probe is particular far from the indoor unit, it is possible to correct its value by modifying

**System definition / External probe corr.**



It is not possible to use the optional external probe kit in the case of DHW recirculation enabling. The temperature read by the optional external probe is only useful to calculate the system setpoint with temperature control active or when managing generators with bivalent temperature. The operating limit external temperature of the outdoor unit is only the one installed on the same unit.

## 4.28 MANUAL DRIVES

In the menu

**Support / Manual drives**

it is possible to manage all the main appliance loads in manual mode.

These parameters must be used in case of system troubleshooting.

To correctly activate the functions, it is necessary to set the system in “stand-by”.

## 4.29 OUTDOOR UNIT TEST MODE FUNCTION

When using the outdoor unit's test mode (see outdoor unit instruction manual), the indoor unit must be set to an operating mode other than 'Stand-by'.

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

## 4.30 SNOW ACCUMULATION PREVENTION FUNCTION

If the outdoor unit is installed in areas subject to heavy snow falls, in addition to setting up the appropriate external protections, the specific snow accumulation prevention function can also be enabled inside the outdoor unit.

To activate the function, you must configure the board of the Outdoor Unit as described in the EU Hydro HP manual.

## 4.31 SUPERVISION DEVICE CONFIGURATION

The appliance can be configured so that it can be controlled by the external supervision devices such as Dominus or other types of home automation systems (not supplied by Immergas).

For the configuration, it is necessary to modify the parameter

**System definition / System supervision**



It is not possible to configure both devices simultaneously.

## 4.32 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 55°C.

The activation of the Photovoltaic function is generated by the closing of contacts 61-62 (potential-free contact) from the photovoltaic inverter, it does not change the management of the generators and is signalled by a specific symbol on the control panel.

For the configuration, it is necessary to modify the parameter:

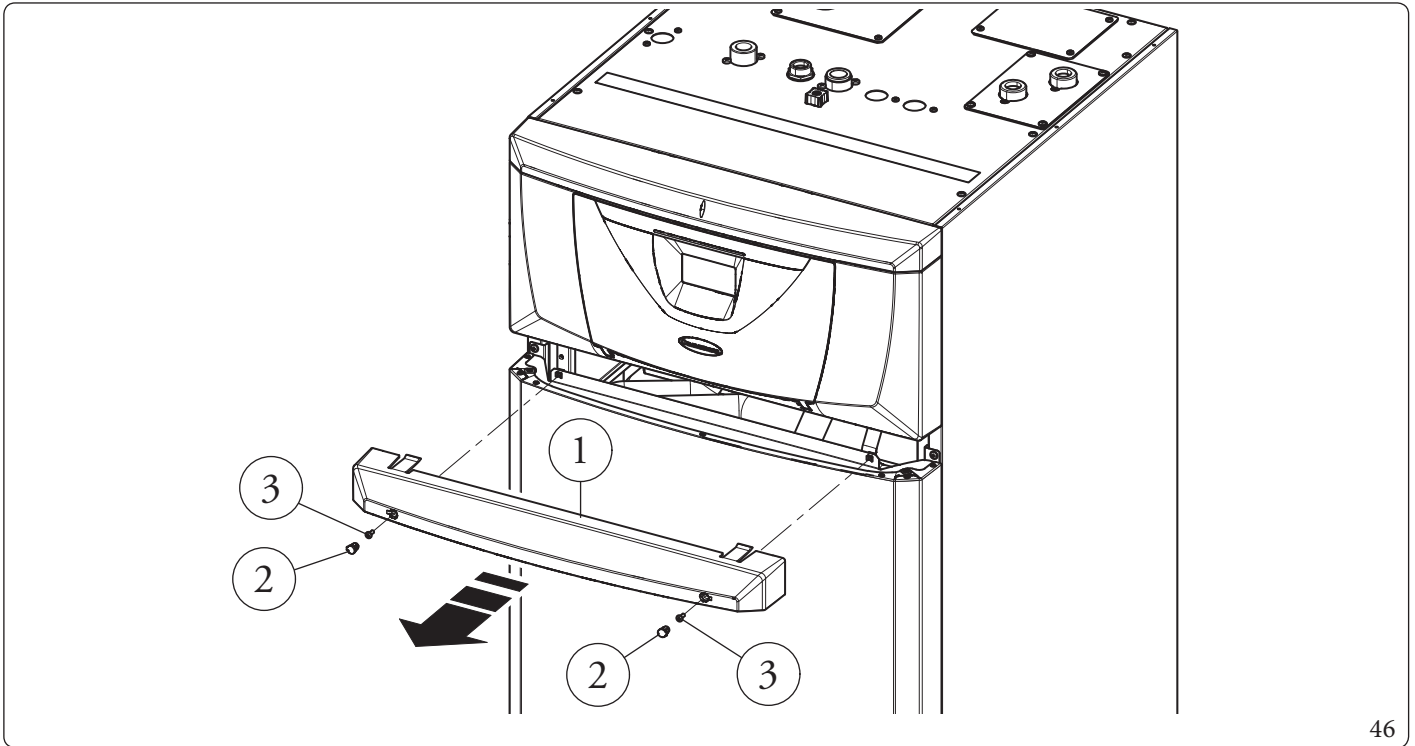
**System definition / Photovoltaic function**



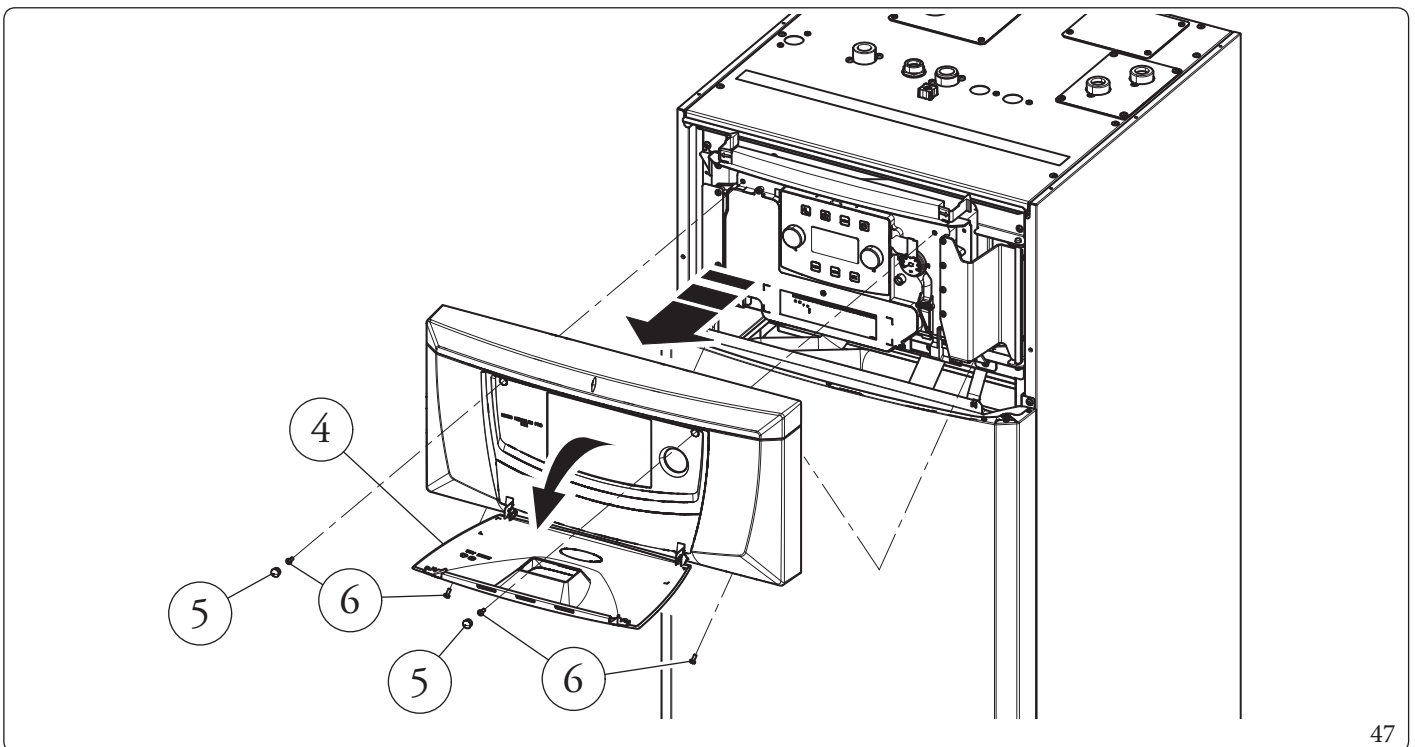
### 4.33 ACCESS TO CONTROL PANEL AND ELECTRICAL PANEL

Follow the instructions below to gain access to the control panel and main electrical panel:

- Remove the plastic protection caps (2) and loosen the screws (3) to remove the aesthetic profile (1).
- Open the cover door (4) to make it tilt.
- Remove the rubber protection caps (5), loosen the two upper front screws and the lower screws (6) to remove the cover (4)

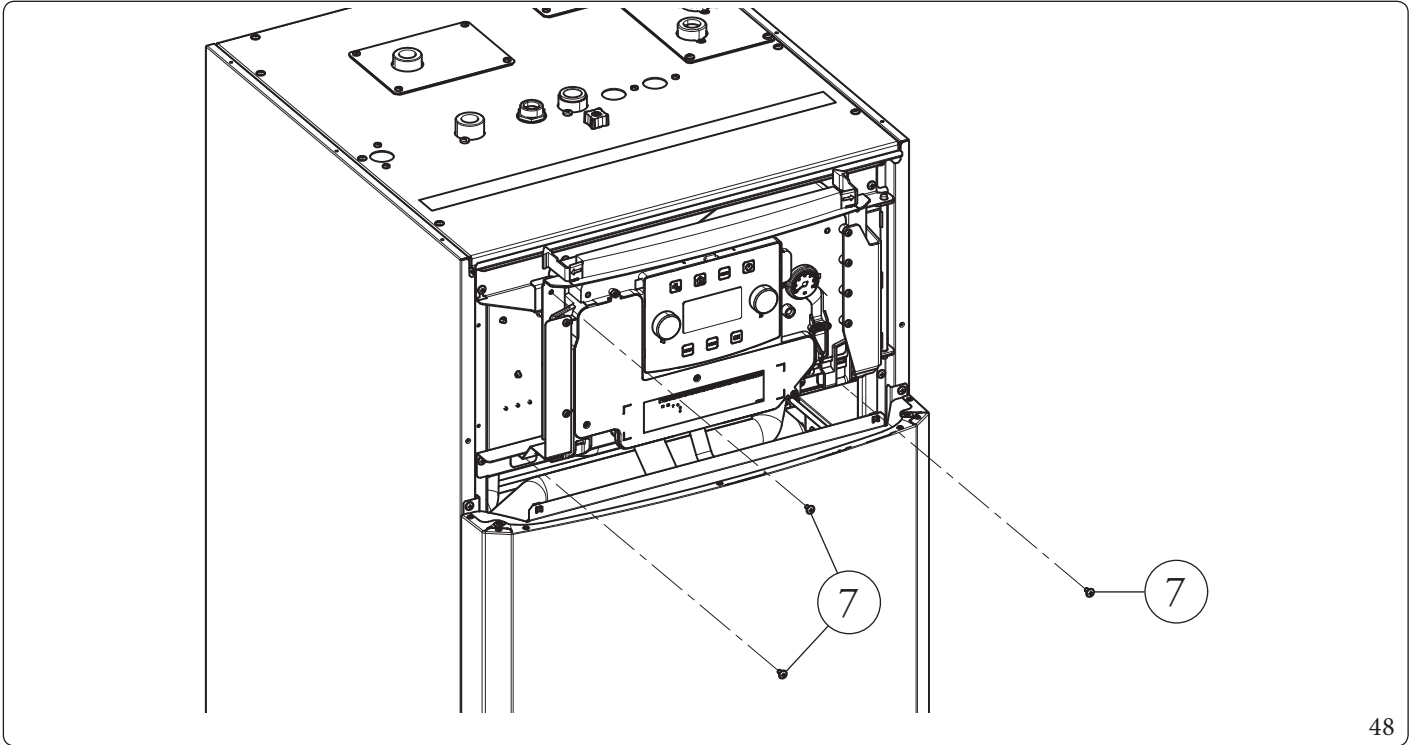


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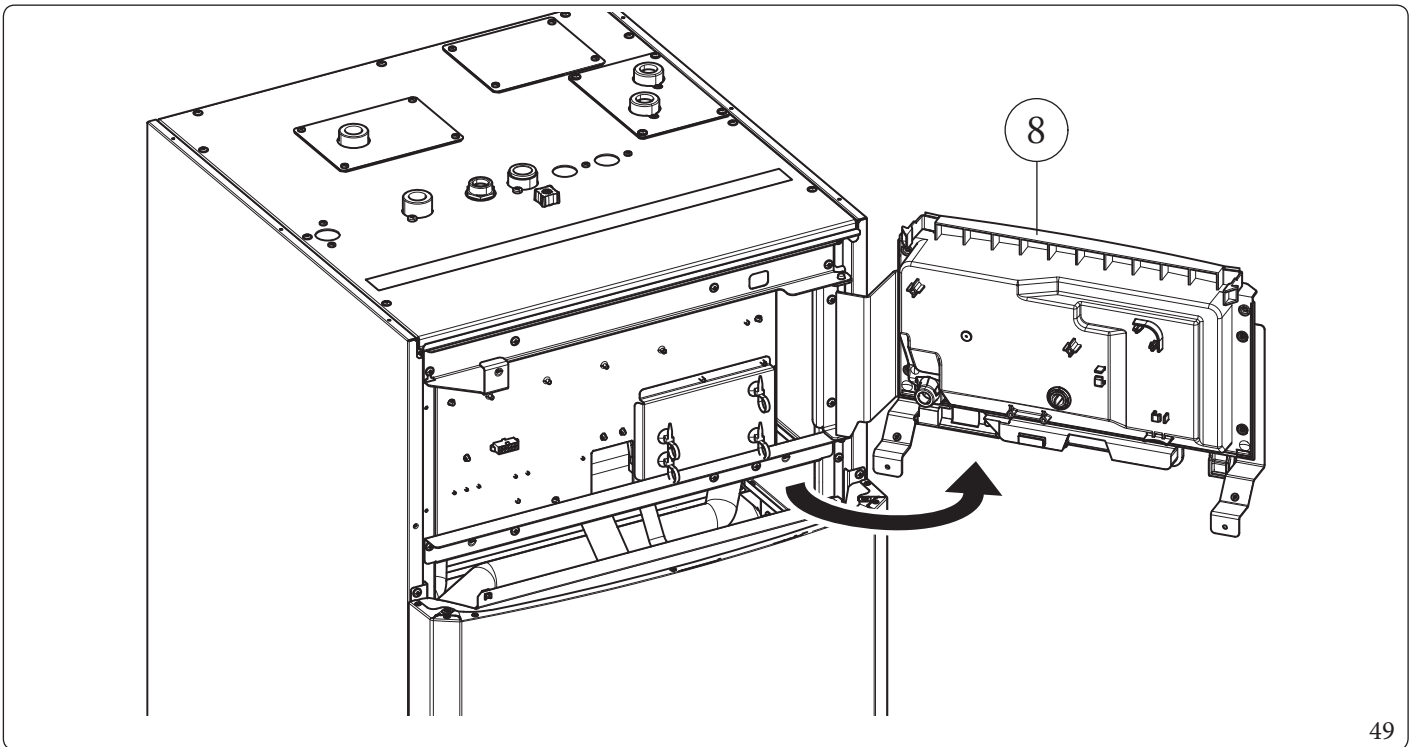


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- Unscrew the 3 fixing screws (7) on the control panel.
- After which, pull the control panel (8) towards you and turn it as shown in the figure 49.



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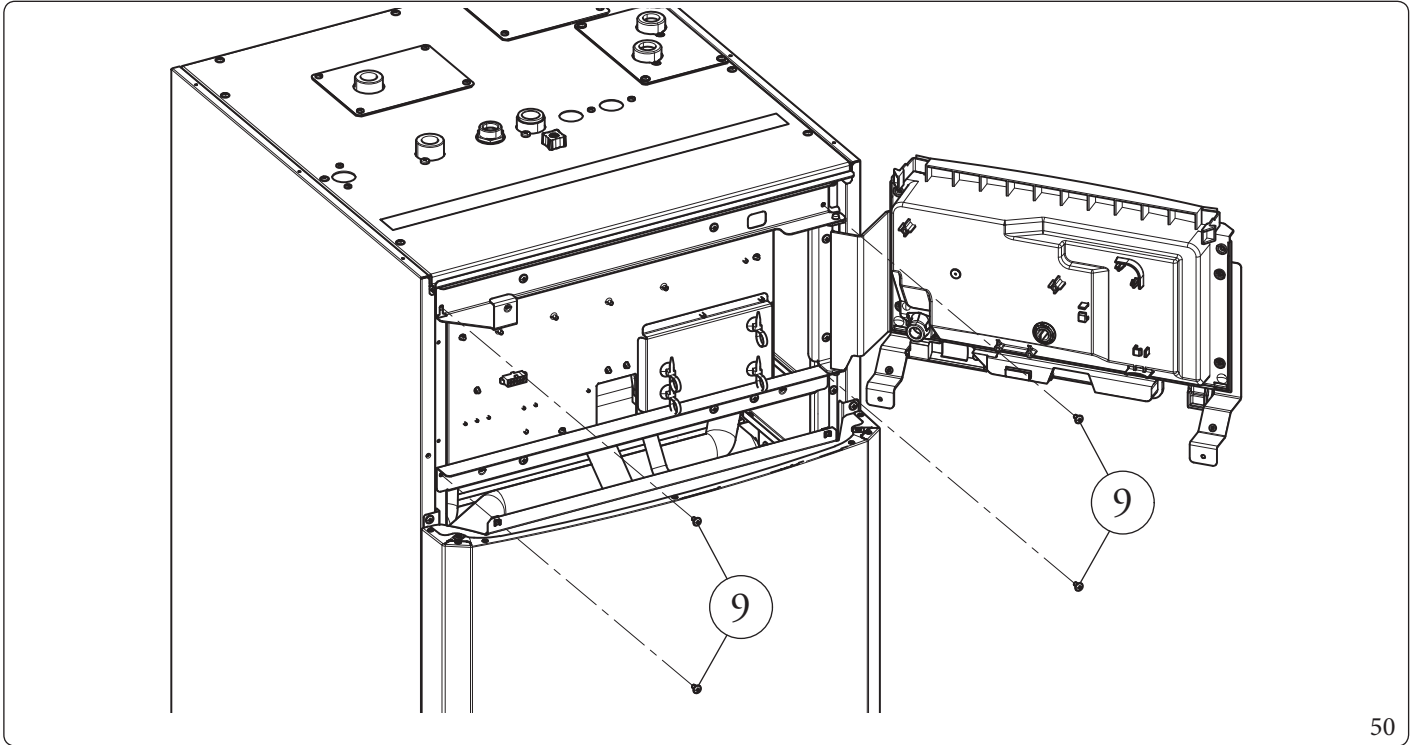
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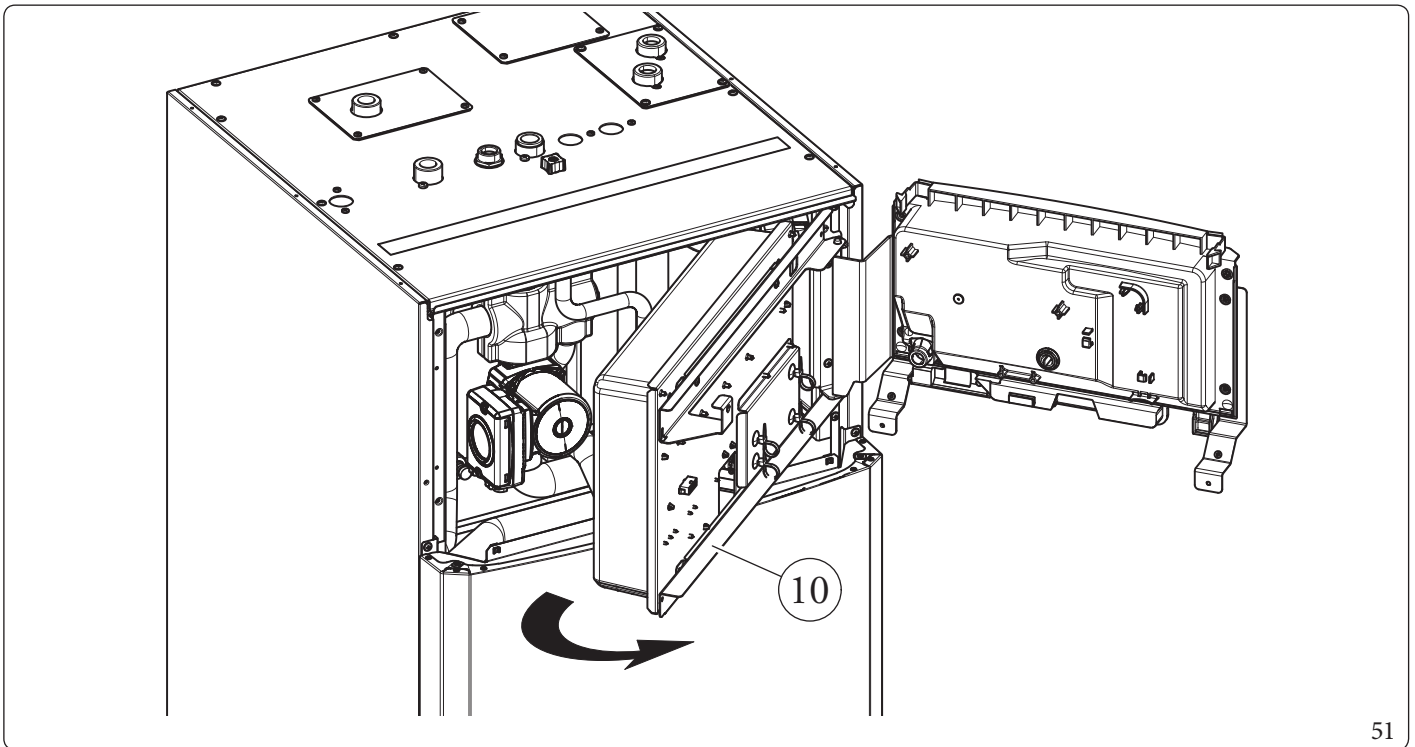
TECHNICAL DATA



- Unscrew the 4 screws (9).
- Open the main panel (10) as shown in figure 51.



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## 4.34 CASINGREMOVAL

To facilitate indoor unit maintenance the casing can be completely removed as follows:

### Aesthetic profile (1) (Fig. 46).

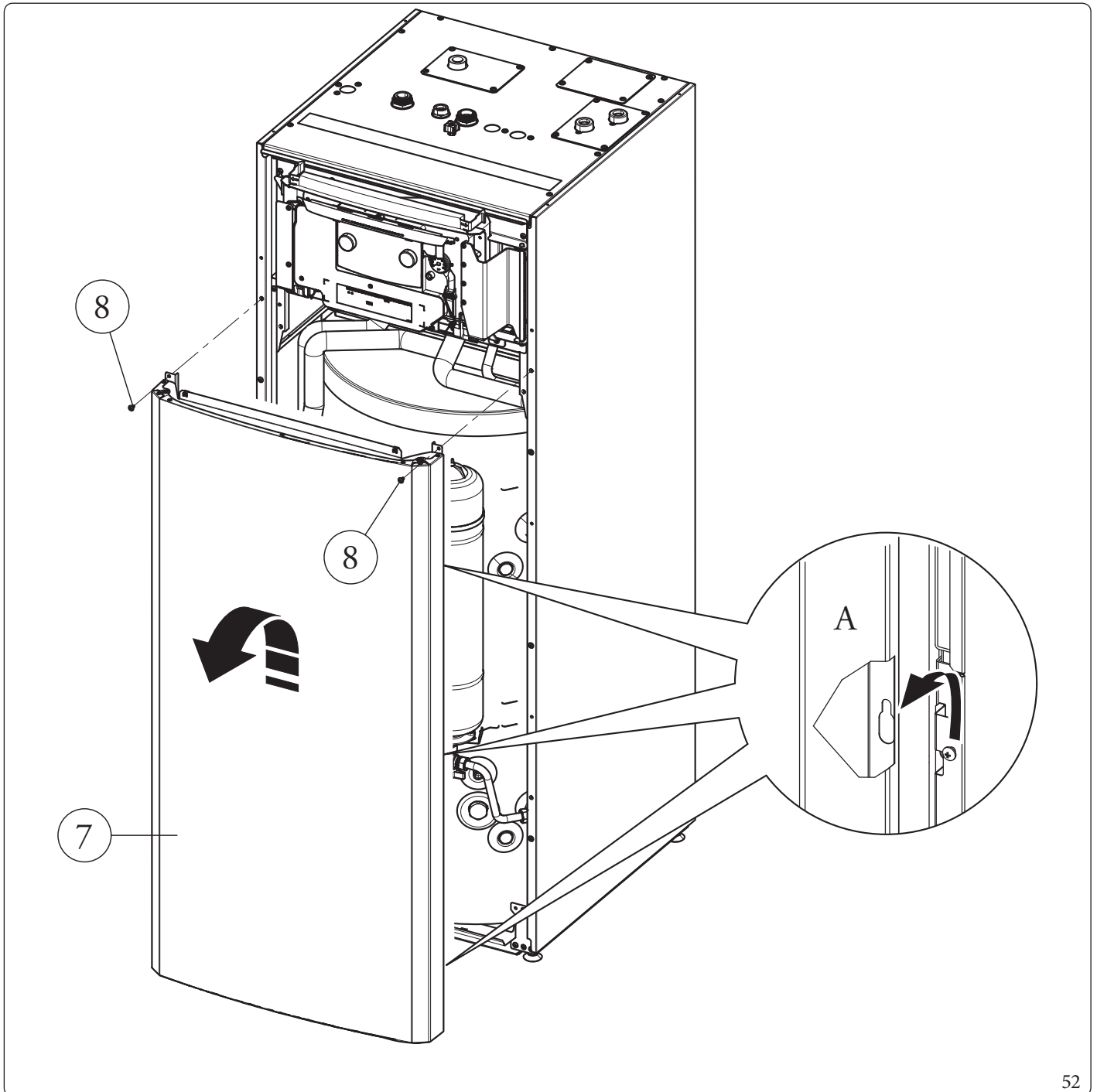
- Remove the plastic protection caps (2) and loosen the screws (3) to remove the aesthetic profile (1).

### Cover disassembly (4) (Fig. 47).

- Open the cover door (4) to make it tilt.
- Remove the rubber protection caps (5), loosen the two upper front screws and the lower screws (6) to remove the cover (4)

### Disassembling the front casing (7) (Fig. 52)

- Disassemble the front casing (7) by loosening the two screws (8) and pushing it upwards in order to free it from the fixing slots and pulling it towards you (Det. A).



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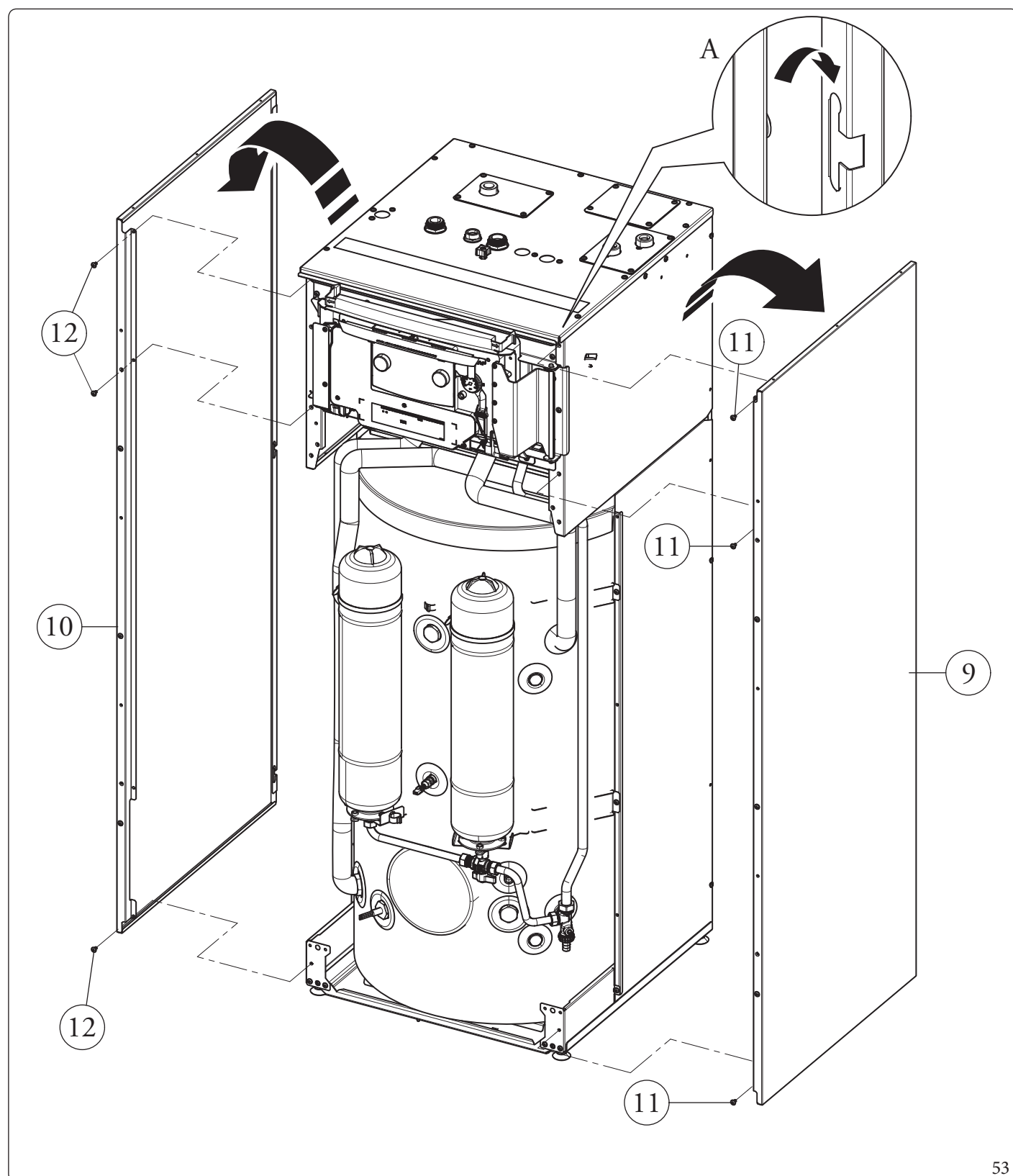
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**Disassembly of casing sides (9 and 10) (Fig. 53)**

- Remove the left and right sides (9 and 10) by unscrewing the screws (11 and 12) present; then push slightly upwards to release the sides from their seats and pull upwards (Det. A).



# 5 TECHNICAL DATA

## 5.1 TECHNICAL DATA TABLE

### Nominal heating performance

		MAGISHERCULES MINIHYDRO 5	MAGISHERCULES MINIHYDRO 8	MAGISHERCULES MINIHYDRO 12
<b>Outside Air Temperature 7°C/6°C - Water Temperature 30°C/35°C</b>				
Output power	kW	5,00	8,00	12,00
Absorbed power	kW	1,03	1,77	2,65
COP		4,85	4,52	4,53
<b>Outside Air Temperature 7°C/6°C - Water Temperature 40°C/45°C</b>				
Output power	kW	4,80	7,40	11,70
Absorbed power	kW	1,30	2,12	3,18
COP		3,69	3,49	3,68
<b>Outside Air Temperature 7°C/6°C - Water Temperature 47°C/55°C</b>				
Output power	kW	4,30	7,10	11,30
Absorbed power	kW	1,52	2,53	3,73
COP		2,83	2,81	3,03
<b>Outside Air Temperature 2°C/1°C - Water Temperature 30°C/35°C</b>				
Output power	kW	4,80	7,00	10,80
Absorbed power	kW	1,45	2,35	3,30
COP		3,31	2,98	3,27
<b>Outside Air Temperature 7°C/8°C - Water Temperature 30°C/35°C</b>				
Output power	kW	5,31	5,97	8,53
Absorbed power	kW	1,96	2,05	3,06
COP		2,71	2,91	2,79

### Nominal cooling performance

		MAGISHERCULES MINIHYDRO 5	MAGISHERCULES MINIHYDRO 8	MAGISHERCULES MINIHYDRO 12
<b>Outside Air Temperature 35°C - Water Temperature 23°C/18°C</b>				
Output power	kW	5,00	7,50	12,00
Absorbed power	kW	1,14	1,90	2,77
EER		4,39	3,95	4,33
<b>Outside Air Temperature 35°C - Water Temperature 12°C/7°C</b>				
Output power	kW	3,90	5,70	9,00
Absorbed power	kW	1,15	1,88	2,73
EER		3,39	3,03	3,3

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## Indoor Unit data

		UIMHMH5	UIMHMH8	UIMHMH12
<b>Weight and dimensions</b>				
Full Indoor Unit weight	kg	337		
Empty Indoor Unit weight	kg	140		
Dimensions (LxHxD)	mm	600x1600x675		
<b>Connections</b>				
System side water connections - inlet	inches	1		
System side water connections - outlet	inches	1		
Water connections with outdoor unit - inlet	inches	1		
Water connections with outdoor unit - outlet	inches	1		
Water connections (DHW) - inlet	inches	1		
Water connections (DHW) - outlet	inches	3/4		
<b>Primary circuit</b>				
Nominal water volume	l	26,5		
Expansion vessel: Total volume	l	9,0		
Expansion vessel: Pre-charge	kPa (bar)	100 (1)		
Maximum operating pressure	kPa (bar)	300 (3)		
Maximum operating temperature	°C	65		
<b>System minimum circulation flow rate</b>				
Minimum circulation flow rate	l/h	500		750
<b>Power supply 1 electrical features</b>				
Electrical connection 1		Single-phase 230Vac, 50Hz		
Rated absorbed power 1	W	2400		
Rated absorbed current 1	A	11,0		
Absorbed power 1 without additional loads	W	150		
Absorbed current 1 without additional loads	A	1,09		
Absorbed power 1 DHW integration resistance	W	2250		
Absorbed current 1 DHW integration resistance	A	9,8		
<b>Power supply 2 electrical features</b>				
Electrical connection 2		-		
Absorbed power 2 (internal system integration resistance)	W	-		
Absorbed current 2 (internal system integration resistance)	A	-		
<b>Other electrical data</b>				
Protection class		IPX5D		
Outdoor unit operating range	°C	+5...+40		
Pump rated power	W	140		
Pump rated current	A	1,1		
EEL Pump		≤0,23 - Part. 3		
<b>DHW Tank Data - 1</b>				
DHW storage tank - Useful volume	l	171,0		
DHW maximum operating temperature	°C	90		
DHW maximum operating pressure	kPa (bar)	800 (8)		
DHW minimum operating pressure	kPa (bar)	-		
Expansion vessel: Total volume	l	11,0		
Expansion vessel: Pre-charge	kPa (bar)	350 (3,5)		
<b>Sound power and pressure</b>				
Sound power	dB	35	40	43





**Product data**

		MAGISHERCULES MINIHYDRO 5	MAGISHERCULES MINIHYDRO 8	MAGISHERCULES MINIHYDRO 12
<b>Central heating</b>				
Adjustable central heating temperature (operating field)	°C	+20 ÷ +65		
Central heating / C.H. outdoor temperature (operating field)	°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 ÷ +55		
DHW external temperature without integration (working range)	°C	-25 ÷ +35		
DHW adjustable temperature with integration (working range)	°C	+10 ÷ +65		
DHW external temperature with integration (working range)	°C	-25 ÷ +46		

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## 5.2 PRODUCT FICHE MAGIS HERCULES MINI HYDRO 5 (IN COMPLIANCE WITH REGULATION 811/2013)

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TECHNICAL DATA

A	Supplier's name or trademark	-	Immergas S.p.A	
B	Supplier's model identifier	-	MAGISHERCULES MINIHYDRO 5	
C	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	L
D	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	A+	
E	Nominal heat output (average climate condition)	Average temperature	kW	5
		Low temperature	kW	6
F	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	3224
		Low temperature	kWh	2548
	Annual energy consumption for water heating (average climate condition)	kWh	876	
G	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	125
		Low temperature	%	175
	Energy efficiency of water heating (average climate condition)	%	117	
H	Lwa sound power level indoors	dB	35	
I	Operation only during dead hours	-	No	
J	Specific precautions	-	-	
K	Nominal heat output (colder climate condition)	Average temperature	kW	4
		Low temperature	kW	5
	Nominal heat output (warmer climate condition)	Average temperature	kW	5
		Low temperature	kW	5
L	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	3999
		Low temperature	kWh	3082
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	1800
		Low temperature	kWh	1103
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
M	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	96
		Low temperature	%	141
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	145
		Low temperature	%	239
N	Lwa sound power level outdoors	dB	61	



### 5.3 TABLE 2 REGULATION 813/2013

Model		MAGIS HERCULES MINI HYDRO 5					
Air/water heat pump	YES	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				YES	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				YES	
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 (*)	<i>Prated</i>	5	kW	Room central heating seasonal energy efficiency	$\eta_s$	125	%
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 $T_j$			
$T_j = -7\text{ °C}$	<i>Pdh</i>	4,4	kW	$T_j = -7\text{ °C}$	<i>COPd</i>	2,16	-
$T_j = +2\text{ °C}$	<i>Pdh</i>	2,7	kW	$T_j = +2\text{ °C}$	<i>COPd</i>	3,17	-
$T_j = +7\text{ °C}$	<i>Pdh</i>	1,7	kW	$T_j = +7\text{ °C}$	<i>COPd</i>	4,03	-
$T_j = +12\text{ °C}$	<i>Pdh</i>	1,7	kW	$T_j = +12\text{ °C}$	<i>COPd</i>	4,73	-
$T_j =$ bivalent temperature	<i>Pdh</i>	4,4	kW	$T_j =$ bivalent temperature	<i>COPd</i>	2,16	-
$T_j =$ operating limit temperature	<i>Pdh</i>	4,2	kW	$T_j =$ operating limit temperature	<i>COPd</i>	2,00	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	<i>Pdh</i>	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se TOL < -20 °C)	<i>COPd</i>	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	<i>Pcych</i>	-	kW	Cycle intervals efficiency	<i>COP-cych</i>	-	-
Degradation coefficient (**)	<i>Cdh</i>	0,9	-	Water heating temperature operating limit	WTOL	-	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,8	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	-	3060	m³/h
Indoor/outdoor sound level	$L_{WA}$	35/61	dB	For water\water or brine\water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m³/h
Emissions of nitrogen oxide	$NO_x$	-	mg\kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	L			Water central heating energy efficiency	$\eta_{wh}$	117	%
Daily electrical power consumption	$Q_{elec}$	4,15	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergeas 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 $Cdh$ is not determined by a measurement, the degradation coefficient is $Cdh = 0,9$ .							

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## 5.4 PRODUCT FICHE MAGIS HERCULES MINI HYDRO 8 (IN COMPLIANCE WITH REGULATION 811/2013)

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TECHNICAL DATA

A	Supplier's name or trademark	-	Immergas S.p.A	
B	Supplier's model identifier	-	MAGISHERCULES MINIHYDRO 8	
C	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	XL
D	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	A	
E	Nominal heat output (average climate condition)	Average temperature	kW	8
		Low temperature	kW	8
F	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	5114
		Low temperature	kWh	3718
	Annual energy consumption for water heating (average climate condition)	kWh	1530	
G	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	126
		Low temperature	%	175
	Energy efficiency of water heating (average climate condition)	%	109	
H	Lwa sound power level indoors	dB	40	
I	Operation only during dead hours	-	No	
J	Specific precautions	-	-	
K	Nominal heat output (colder climate condition)	Average temperature	kW	7
		Low temperature	kW	7
	Nominal heat output (warmer climate condition)	Average temperature	kW	8
		Low temperature	kW	8
L	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	6343
		Low temperature	kWh	4427
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	2660
		Low temperature	kWh	1664
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
Annual energy consumption for water heating (warmer climate condition)	kWh	-		
M	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	98
		Low temperature	%	142
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	148
		Low temperature	%	238
N	Lwa sound power level outdoors	dB	63	



## 5.5 TABLE 2 REGULATION 813/2013

Model		MAGIS HERCULES MINI HYDRO 8					
Air/water heat pump	YES	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				YES	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				YES	
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	$\eta_s$	126	%
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 $T_j$			
$T_j = -7\text{ °C}$	$P_{dh}$	7,1	kW	$T_j = -7\text{ °C}$	$COP_{dh}$	1,90	-
$T_j = +2\text{ °C}$	$P_{dh}$	4,3	kW	$T_j = +2\text{ °C}$	$COP_{dh}$	3,11	-
$T_j = +7\text{ °C}$	$P_{dh}$	2,8	kW	$T_j = +7\text{ °C}$	$COP_{dh}$	4,55	-
$T_j = +12\text{ °C}$	$P_{dh}$	1,7	kW	$T_j = +12\text{ °C}$	$COP_{dh}$	5,77	-
$T_j = \text{bivalent temperature}$	$P_{dh}$	7,1	kW	$T_j = \text{bivalent temperature}$	$COP_{dh}$	1,90	-
$T_j = \text{operating limit temperature}$	$P_{dh}$	6,8	kW	$T_j = \text{operating limit temperature}$	$COP_{dh}$	1,66	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se $TOL < -20\text{ °C}$ )	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se $TOL < -20\text{ °C}$ )	$COP_{dh}$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cych}$	-	kW	Cycle intervals efficiency	$COP_{cych}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	-	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	1,2	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	-	3960	$m^3/h$
Indoor/outdoor sound level	$L_{WA}$	40/63	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	XL			Water central heating energy efficiency	$\eta_{wh}$	109	%
Daily electrical power consumption	$Q_{elec}$	7,14	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergeas 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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## 5.6 PRODUCT FICHE MAGIS HERCULES MINIHYDRO 12 (IN COMPLIANCE WITH REGULATION 811/2013)

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A	Supplier's name or trademark	-	Immergas S.p.A	
B	Supplier's model identifier	-	MAGISHERCULES MINIHYDRO 12	
C	For space heating	Application temperature	-	Average temperature
	For water heating	Stated load profile	-	XL
D	Seasonal energy efficiency class of room heating	Average temperature	-	A++
		Low temperature	-	A+++
	Energy efficiency class of water heating	-	A	
E	Nominal heat output (average climate condition)	Average temperature	kW	12
		Low temperature	kW	13
F	Annual energy consumption for room heating (average climate condition)	Average temperature	kWh	7052
		Low temperature	kWh	5726
	Annual energy consumption for water heating (average climate condition)	kWh	1547	
G	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	138
		Low temperature	%	185
	Energy efficiency of water heating (average climate condition)	%	108	
H	Lwa sound power level indoors	dB	43	
I	Operation only during dead hours	-	No	
J	Specific precautions	-	-	
K	Nominal heat output (colder climate condition)	Average temperature	kW	11
		Low temperature	kW	12
	Nominal heat output (warmer climate condition)	Average temperature	kW	12
		Low temperature	kW	13
L	Annual energy consumption for room heating (colder climate condition)	Average temperature	kWh	10306
		Low temperature	kWh	8090
	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	4166
		Low temperature	kWh	2729
	Annual energy consumption for water heating (colder climate condition)	kWh	-	
	Annual energy consumption for water heating (warmer climate condition)	kWh	-	
M	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	102
		Low temperature	%	143
	Seasonal energy efficiency of room heating (warmer climate condition)	Average temperature	%	151
		Low temperature	%	252
N	Lwa sound power level outdoors	dB	64	



## 5.7 TABLE 2 REGULATION 813/2013

Model		MAGIS HERCULES MINI HYDRO 12					
Air/water heat pump	YES	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				YES	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				YES	
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	$\eta_s$	138	%
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	$T_j = -7\text{ °C}$	$COP_{dh}$	2,16	-
$T_j = +2\text{ °C}$	$P_{dh}$	6,5	kW	$T_j = +2\text{ °C}$	$COP_{dh}$	3,45	-
$T_j = +7\text{ °C}$	$P_{dh}$	4,2	kW	$T_j = +7\text{ °C}$	$COP_{dh}$	4,57	-
$T_j = +12\text{ °C}$	$P_{dh}$	1,7	kW	$T_j = +12\text{ °C}$	$COP_{dh}$	6,12	-
$T_j =$ bivalent temperature	$P_{dh}$	10,6	kW	$T_j =$ bivalent temperature	$COP_{dh}$	2,16	-
$T_j =$ operating limit temperature	$P_{dh}$	12,0	kW	$T_j =$ operating limit temperature	$COP_{dh}$	1,96	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (se $TOL < -20\text{ °C}$ )	$P_{dh}$	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (se $TOL < -20\text{ °C}$ )	$COP_{dh}$	-	-
Bivalent temperature	$T_{biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	$P_{cych}$	-	kW	Cycle intervals efficiency	$COP_{cych}$	-	-
Degradation coefficient (**)	$C_{dh}$	0,9	-	Water heating temperature operating limit	WTOL	-	°C
Different mode of energy consumption from the active mode				Additional heater			
OFF mode	$P_{OFF}$	0,022	kW	Rated heat output (*)	$P_{sup}$	0,0	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	-	3960	m³/h
Indoor/outdoor sound level	$L_{WA}$	43/64	dB	For water/water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m³/h
Emissions of nitrogen oxide	$NO_x$	-	mg/kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	XL			Water central heating energy efficiency	$\eta_{wh}$	108	%
Daily electrical power consumption	$Q_{elec}$	7,21	kWh	Daily fuel consumption	$Q_{fuel}$	-	kWh
Contact information: Immergeas 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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### 5.8 PARAMETERS FOR FILLING IN THE PACKAGE FICHE

Should you wish to install an assembly starting from the Magis Hercules Pro Mini package, use the package fiche shown in (Fig. 55). To fill it in correctly, enter the figures shown in tables in par. "Parameters to fill in the low temperature package fiche (30/35)", "Parameters to fill in the average temperature package fiche (47/55)" (as shown in the package fiche facsimile Fig. 54). 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. 55) 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 %)

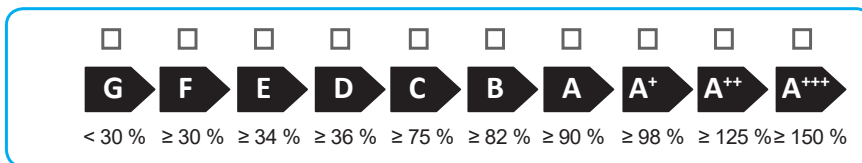
Classification of the tank  
A\* = 0.95, A = 0.91,  
B = 0.86, C = 0.83,  
D-G = 0.81

( '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



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 low temperature package fiche (30/35)

Magis Hercules Mini Hydro 5

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	141	175	239
"II"	*	*	*
"III"	5,94	4,86	5,35
"IV"	2,32	1,9	2,09

Magis Hercules Mini Hydro 8

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	142	175	238
"II"	*	*	*
"III"	4,11	3,34	3,56
"IV"	1,61	1,31	1,39

Magis Hercules Mini Hydro 12

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	143	185	252
"II"	*	*	*
"III"	2,23	2,06	2,06
"IV"	0,87	0,8	0,8

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

Magis Hercules Mini Hydro 5

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	96	125	145
"II"	*	*	*
"III"	6,68	5,35	5,35
"IV"	2,61	2,09	2,09

Magis Hercules Mini Hydro 8

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	98	126	148
"II"	*	*	*
"III"	4,11	3,34	3,56
"IV"	1,61	1,31	1,39

Magis Hercules Mini Hydro 12

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	102	138	151
"II"	*	*	*
"III"	2,43	2,23	2,23
"IV"	0,95	0,87	0,87

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

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Room central heating system package fiche.

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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 %

+  %

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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

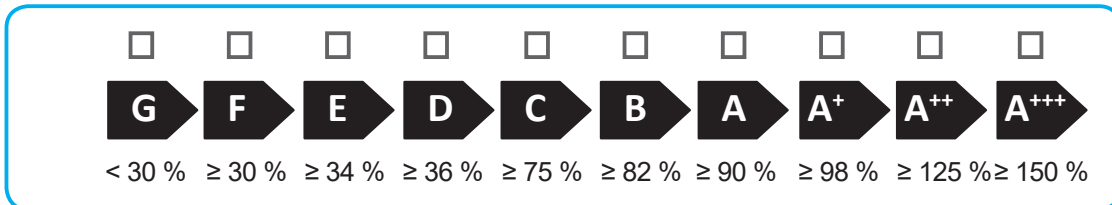
( \_\_\_\_\_ x  + \_\_\_\_\_ x  ) x 0.45 x (  / 100 ) x  = +  %

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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



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

Colder:  - \_\_\_\_\_ =  %

Hotter:  + \_\_\_\_\_ =  %

TECHNICAL DATA

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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This instruction booklet is made of ecological paper.

