## **OIMMERGAS**

# MAGIS COMBO 4/6/9 V2

ΙE

## Instructions and recommendations

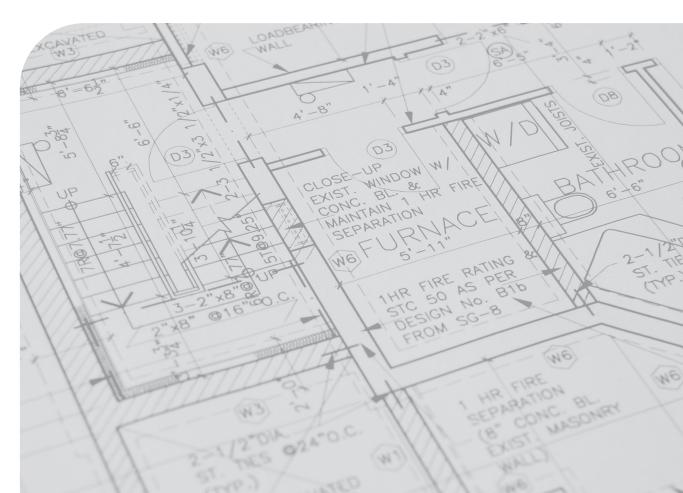
Installer

User

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);

User (section 2);

Maintenance Technician (section 3).

For instructions on the AUDAX PRO V2 Outdoor Unit, please refer to the relevant instruction manual;

- The user must carefully read the instructions in the specific section (section 2).
- The user must limit operations on the appliance only to those explicitly allowed in the specific section.
- Every operation carried out on the heat pump (e.g. set up, inspection, installation and commissioning), must mandatorily be performed by authorised personnel alone and in possession of a technical engineering or professional degree qualifying them to perform these tasks. They must also have attended a refresher course acknowledged by competent authorities. This particularly applies to personal specialised in C.H. and air-conditioning systems and qualified electricians who, due to their specialised training, skills and experience are experts in the correct installation and maintenance of C.H., cooling and air-conditioning systems.
- 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**



#### **GENERICHAZARD**

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.



#### **EARTHTERMINAL 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** 



**EYEPROTECTION** 



**SAFETY FOOTWEAR** 



#### **INSTALLING THE INDOOR UNIT**

#### 1.1 DESCRIPTION OF THE PRODUCT

Magis Combo 4-6-9 V2 is a hybrid heat pump consisting of:

- Magis Combo V2 Indoor Unit (hereinafter it will only be referred to as Indoor Unit);
- UE Audax Pro 4-6-9 V2 Outdoor Unit (hereinafter it will only be referred to as Outdoor Unit).

 $Mag is Combo\ V2 is\ perfectly\ operational\ only\ if\ the\ two\ units\ are\ correctly\ powered\ and\ interconnected.$ 

 $The Indoor \, Unit \, was \, designed \, solely \, for \, wall \, mounted \, installation \, for \, heating \, and \, air \, conditioning \, and \, to \, produce \, domestic \, hot \, water \, for \, domestic \, use \, and \, similar \, purposes.$ 

For normal operation is must be paired with the following outdoor units:

- Audax Pro 4 V2;
- Audax Pro 6 V2:
- Audax Pro 9 V2.

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 suitable 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 to allow (always in safety, efficiency and easy 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.



By varying the type of installation the classification of the Indoor Unit also varies, precisely:

- $Type B_{23} or B_{53}$  Indoor Unit if installed using the relevant terminal for air intake directly from the room in which the Indoor Unit has been installed.
- **Type CIndoor Unit** if installed using concentric pipes or other types of pipes envisioned for the sealed chamber Indoor Unit for intake of air and expulsion of flue gas.



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



The equipment classification is shown in the illustrations of the various installation solutions on the following pages.



 $In stall at ion \ must be \ carried \ out \ according \ to \ regulation \ standards, current \ legislation \ and \ in \ compliance \ with \ local \ technical \ regulations \ and \ the \ required \ technical \ procedures.$ 



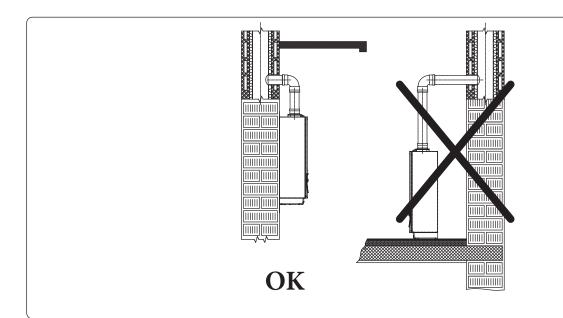
It is not permitted to install boilers that are removed and decommissioned from other systems.

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.



The wall surface must be smooth, without any protrusions or recesses enabling access to the rear part. They are not designed to be installed on plinths or floors (Fig. 1).







The appliance 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 line.



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 warning (GWP 675).



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



Installation of the appliance when powered by LPG must comply with the rules regarding gases with a greater density than air (remember, as an example, that it is prohibited to install plants powered with the above-mentioned gas in rooms where the floor is at a lower quota than the country level).



If installing a kit or servicing the appliance, first empty the system and domestic hot water circuits when necessary, so as not to compromise the appliance's electrical safety (Par. 2.9, 2.10).

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.



If the appliance is connected to a low temperature direct zone, it is necessary to check the necessary flow rate and possibly add a relaunch pump.





It is just as important that the intake grids and exhaust terminals are not obstructed.



Check that no flue gas recirculation is found in the air sample points. Allow the appliance to reach the maximum heat output; the  $CO_2$  value measured in the air must be less than 10% of that measured on the flue gas.



 $The \,minimum\,distance\,for\,exhaust\,pipes\,from\,flam mable\,materials\,must\,be\,at\,least\,25\,cm.$ 



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



Do not put household appliances under the Indoor Unit as they could be damaged if the safety valve trips or if the hydraulic fittings leak. Otherwise, the manufacturer cannot be held liable for any damage to the household appliances.



For the aforementioned reasons, we recommend not placing furnishings, furniture, etc. under the Indoor Unit.



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



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. 6.

#### Installation standards



This appliance can be installed outdoors in a partially protected area.

By partially protected area, we mean one in which the unit is not directly exposed to the elements (rain, snow, hail, etc.).



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



Installation of gas appliances, flue exhaust pipes and combustion air intake pipes is forbidden in places with a fire risk (for example: garages, closed parking stalls), and in potentially dangerous places.



Do not install on the vertical projection of hobs.



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.).



Installation is forbidden in places/rooms that constitute common parts of apartment buildings such as cellars, entrance halls, attics, lofts, internal stairs or other elements making up escape routes, unless otherwise provided by local regulations.



In any configuration do no install the Indoor Unit and Outdoor Unit at altitudes above 2000 m.



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.



Pay attention not to generate sparks as follows:

- Do not remove the fuses while the unit is on. It is recommended to install the outlet high up. Lay the cables in such a way that they do not get tangled.



These indoor units, if not adequately isolated, are not suitable for installation on walls of combustible material.



Wall mounting of the Indoor Unit must guarantee stable and efficient support for the generator.

The plugs (standard supply) are only to be used to fix the Indoor Unit to the wall; they only ensure adequate support if inserted correctly (according to technical standards) in walls made of solid or semi-hollow brick or block. In the case of walls made from hollow brick or block, partitions with limited static properties, or in any case walls other than those indicated, a static test must be carried out to ensure adequate mount.



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.



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.



#### $Risk of damage \, due \, to \, corrosion \, caused \, by \, unsuitable \, combustion \, air \, and \, environment.$



Spray, solvents, chlorine-based detergents, paints, glue, ammonium compounds, powders and similar cause product and flue duct corrosion.



Check that combustion air power supply is free from chlorine, sulphur, powders, etc.



Make sure that no chemical substances are stored in the place of installation.



If you want to install the product in beauty salons, paint workshops, carpenter's shop, cleaning companies or similar, choose a separate installation area that ensures combustion air supply that is free from chemical substances.



Make sure the combustion air is not fed through chimneys that were previously used with boilers or other central heating appliances powered by liquid or solid fuels. In fact, these may cause an accumulation of soot in the chimney

#### Filling the condensate drain trap



When the Indoor Unit is switched on for the first time, combustion products come out of the condensate drain. After a few minutes of operation, check that combustion flue gases are no longer coming out of the condensate drain; this means that the drain trap has filled to a correct condensate height that the flue gases cannot pass through.

 $Special \, provisions \, for \, appliances \, in stalled \, in \, B_{23} \, or \, B_{53} \, configuration.$ 



Type B open chamber indoor units must not be installed in places where commercial, artisan or industrial activities take place, which use products that may develop volatile vapours or substances (e.g. acid vapours, glues, paints, solvents, combustibles, etc.), as well as dusts (e.g. dust deriving from the working of wood, coal fines, cement, etc.), which may be harmful for the components of the appliance and jeopardise operation.



In configuration  $B_{23}$  and  $B_{53}$ , unless local regulations are in force, the Indoor Unit must not be installed in bedrooms, bathrooms, toilets or studios; neither must it be installed in rooms containing solid fuel heat generators nor in rooms communicating with said rooms.



The installation rooms must be permanently ventilated, in compliance with the local regulations in force (at least 6 cm<sup>2</sup> for every kW of installed heat input, except in the event of any increases needed for electro-mechanical vacuum cleaners or other devices that could put the installation room under vacuum).



Install the appliances in  $B_{23}$  and  $B_{53}$  configuration in non-residential premises and which are permanently ventilated.



The minimum water content required within the system is 30 litres; otherwise, it will be necessary to install an inertial storage tank (optional). For proper system operation, make sure that the minimum flow rate in operating conditions never drops below 500 l/h.



When the circulation within each room central heating loop is controlled by remotely operated valves, it is important to guarantee the minimum water content (30 litres), even if all the valves are closed.

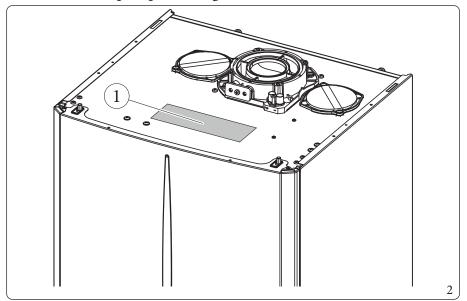
When the circulation within each or certain room central heating loops is controlled by remotely operated valves, it is important to guarantee the minimum flow rate, even if all the valves are closed. It is necessary to have a loop that is always open on the system (by-pass or non-intercepted zone), to allow some functions such as, for example, the antifreeze function.



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

#### DATA NAMEPLATE AND INSTALLATION INFORMATION STICKER

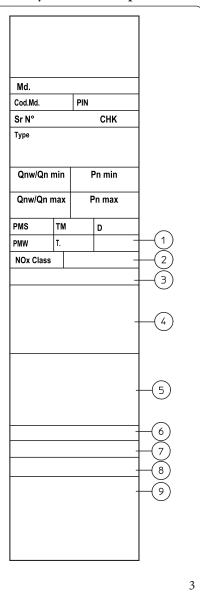
#### 1.3.1 Data nameplate positioning



Key (Fig. 2): Data plate



#### 1.3.2 Key for data nameplate



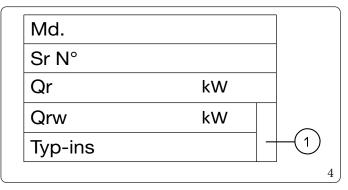
	ENG
Md.	Model
Cod.Md.	Model code
PIN	PIN code
Sr N°	Serial Number
СНК	Check
Туре	Type of installation (ref. UNI EN 1749)
Qnwmin	Minimum DHW heat input
Qnmin	Central heating minimum heatinput
Pnmin	Minimum heat output
Qnw max	DHW maximum heat input
Qnmax	Central heating maximum heat input
Pn max	Maximum heat output
PMS	Maximum system pressure
TM	Maximum operating temperature
D	Specific flow rate
PMW	Maximum domestic hot water pressure
T.	Minimum and maximum installation temperature
1	IP protection rating
NOx Class	NOx Class
2	Rated voltage - Power supply symbol - Rated frequency - Rated output (Absorption)
3(*)	Maximum additional absorption of kits that can be installed (to be added to the Rated output)
4	Logos and markings
5	Gas categories and countries of destination
6(*)	Specific information for Belgium
7	Factory calibration
8(*)	Hydrogen ready
9	Type of appliance
t	·

(\*) = if present.



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

#### 1.3.3 Installation information sticker

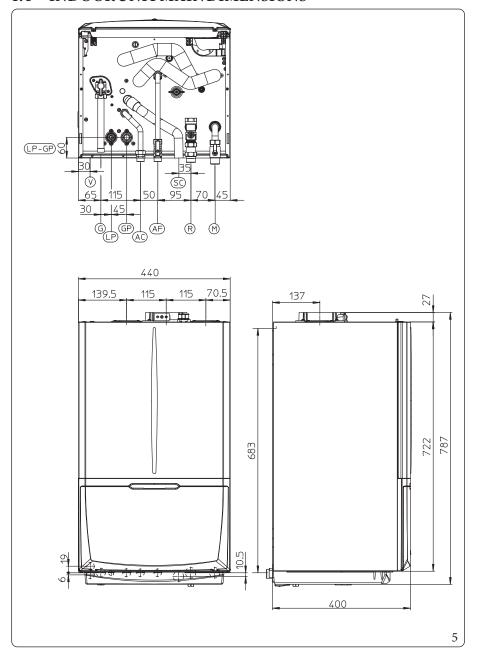


	ENG
Md.	Model
Sr N°	Serial Number
Qr	Central heating output set
Qrw	DHW output set
Typ-ins	Type of flue installed
1	Adhesive item code



At the time of installation, the authorised technician must fill in the facsimile of the installation information sticker (Fig. 4) with the information indicated. This sticker is inside the warranty group, it must also be filled out and applied on the outside of the appliance (in visible position) (see paragraph 3.2 Initial check).

#### 1.4 INDOORUNIT MAIN DIMENSIONS



Key (Fig. 5):

V - Electrical connection

G - Gassupply

AC - Domestic hot water outlet AF - Domestic hot water inlet

SC - Condensate drain (minimum in-

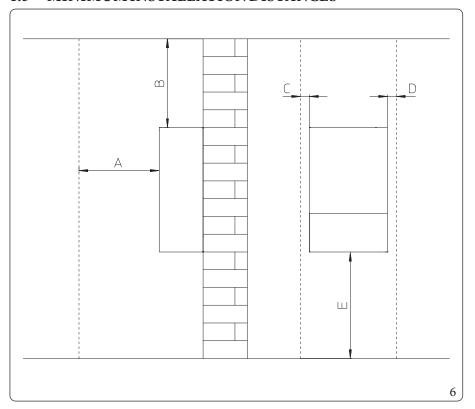
ternal diameter Ø13 mm)

R - System return M - System flow

LP - Chiller line - liquid phase GP - Chiller line - gaseous phase

Height (mm)			Width (mm)	Depth (mm)
	787			400
CONNECTIONS				
LINE CHILLER LINE		GAS	DOMESTIC HOT WATER	SYSTEM
LP	GP	G	AC-AF	R-M
SAE 1/4"	SAE 5/8"	3/4"	1/2"	3/4"

### 1.5 MINIMUM INSTALLATION DISTANCES



Key (Fig. 6): A -

A - 450 mm B - 350 mm C - 30 mm D - 30 mm E - 350 mm

#### 1.6 ANTIFREEZEPROTECTION

#### Minimum room temperature -5°C

 $The Indoor \, Unit \, comes \, standard \, with \, an \, anti-freeze \, function \, that \, activates \, the \, Outdoor \, Unit \, when \, the \, temperature \, of \, the \, water \, inside \, of \, it \, falls \, below \, 4^{\circ}C.$ 



In these conditions, the Indoor Unit is protected against freezing up to an ambient temperature of 5°C.



If the Indoor Unit is installed in a place where the temperature drops below 5°C, the appliance can freeze.

#### To prevent the risk of freezing follow the instructions below:

- protect the central heating circuit from freezing by inserting a good-quality antifreeze liquid into this circuit, 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 Indoor Unit. The antifreeze liquid must not be harmful to one's health. The instructions of the manufacturer of this liquid must be strictly followed regarding the necessary percentage with respect to the minimum temperature at which the system must be kept.
- The materials used for the central heating circuit of Immergas Indoor Unit resist ethylene and propylene glycol based antifreeze liquids (if the mixtures are prepared perfectly).
  - An aqueous solution must be made with potential pollution class of water  $2 \times 1717:2002$  or local standards in force).



The excessive use of glycol could jeopardise the proper functioning of the appliance.



Follow the supplier's instructions for the life cycle duration and possible disposal of the antifreeze liquid.

#### Minimum room temperature -15°C

Protect the domestic hot water circuit against freezing by using an accessory that is supplied on request (antifreeze kit) comprising two electric heating elements, the relevant wiring and a control thermostat (carefully read the installation instructions contained in the accessory kit pack).



In the previously mentioned conditions and with the addition of the antifreeze kit, the Indoor Unit is protected against freezing up to a temperature of -15  $^{\circ}$ C.

Indoor Unit anti-freeze protection (both 5°C and -15°C) is only ensured if:

- Indoor Unit and Outdoor Unit are properly connected to each other and to the electrical power supply circuits;
- the units are continuously powered;
- The Indoor Unit is not in "off" mode;
- the units are not in anomaly (Parag. 2.5);
- the antifreeze unit and/or kit essential components are not faulty.

The warranty does not cover damage due to interruption of the electrical power supply and failure to comply with that stated on the previous pages.



If the Indoor Unit is installed in places where the temperature drops below  $0^{\circ}$ C, the domestic hot water connection pipes must be insulated.

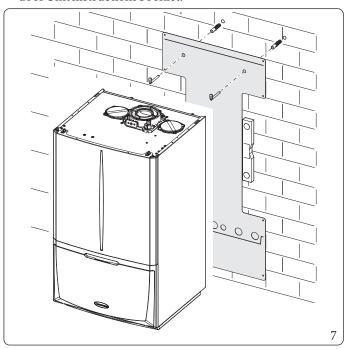


 $The antifreeze systems \, described \, in \, this \, chapter \, are \, only \, to \, protect \, the \, Indoor \, Unit. \, The \, presence \, of \, these \, functions \, and \, devices \, does \, not \, exclude \, the \, possibility \, of \, parts \, of \, the \, circuits \, outside \, the \, Indoor \, Unit \, from \, freezing.$ 



#### 1.7 INDOORUNIT CONNECTION UNIT

- The hydraulic connection unit is standard supplied with Magis Combo V2. Make the hydraulic connection as shown below, making sure to protect the system flow and return pipes with their supplied insulating sheaths.
- The R32 circuit wall connection unit is supplied as an extra kit. Connect the circuit, following the instructions provided in the Outdoor Unit instructions booklet.



*The hydraulic connection kit includes (Fig. 7):* 

N°2 - Adjustable expansion bolts N°2 - Indoor Unit support hooks N°1 - Gas supply pipe Ø 18 (G) N°1 - 1/2" cold water inlet pipe (AF) N°1 - 1/2" Hot water outlet pipe (AC)

 $N^{\circ}1$  - 1/2"ball valve (AF)  $N^{\circ}1$  - 3/4" system return pipe (R)  $N^{\circ}1$  - 3/4" system flow pipe (M)  $N^{\circ}1$  - 3/4" ball valve (M)

 $N^{\circ}3$  - Insulating sheath for system pipes (R-M)

N°1 - 1/2" telescopic fitting (AC) N°1 - 3/4" telescopic fitting (R) Gaskets, screws and seal O-Ring

The R32 circuit wall connection kit (optional) includes:

N°1 - SAE 1/4" liquid phase chiller line pipe (LP) N°1 - SAE 5/8" gaseous phase chiller line pipe (GP)

 $Already \, in stalled \, on \, the \, module: \,$ 

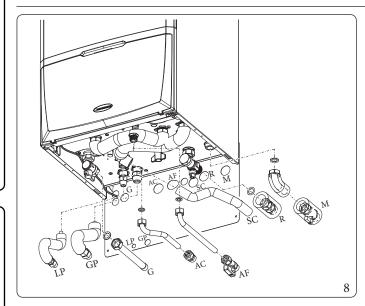
 $N^{\circ}1$  - Gas isolation valve

 $N^{\circ}1$  - System shut-off valve with 3/4" filter (R)

#### 1.8 HYDRAULIC CONNECTION



Before connecting the Indoor Unit, in order not to invalidate the warranty, carefully wash the heating system (pipes, heating bodies, etc.) with special pickling or descaling agents capable of removing any residues that could compromise the proper functioning of the Indoor Unit.



Key (Fig. 8):

V - Electrical connection

G - Gassupply

AC - Domestic hot water outlet AF - Domestic hot water inlet

SC - Condensate drain (minimum internal diameter Ø 13 mm)

R - System return M - System flow

LP - Chillerline-liquid phase GP - Chillerline-gaseous phase

#### 3 bar safety valve

The drain of the safety valve must always be properly conveyed to a tundish; consequently, in case of valve operation, the leaked fluid will end up in the sewer system.

Otherwise, the appliance manufacturer declines any responsibility in case of flooding if the drain valve cuts in.

#### Condensate drain

To drain the condensate produced by the appliance, it is necessary to connect to the drainage system by means of acid condensate resistant pipes, with an internal  $\emptyset$  of at least 13 mm.

The system connecting the appliance to the drainage system must be carried out in such a way as to prevent occlusion and freezing of the liquid contained in it.

Before appliance ignition, ensure that the condensate can be correctly removed. After first ignition, check that the drain trap is filled with condensate (Parag. 1.32).

Also, comply with national and local regulations on discharging waste waters.

In the event condensate is not discharged into the wastewater drainage system, a condensate neutraliser must be installed to ensure compliance with the parameters established by the legislation in force.

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.

In order not to void the heat exchanger warranty, you are required to comply with what has been prescribed in (Par. 1.30).

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.



To preserve the duration of appliance efficiency features, in the presence of water whose features can lead to the deposit of lime scale, installation of the "polyphosphate dispenser" kit is recommended.

#### 1.9 CONNECTING THE CHILLER LINE

As far as connecting the cooling line is concerned, all the instructions contained in the Outdoor Unit instructions booklet must be followed.

Make the connections directly on the Indoor Unit couplings, or use the rear outlet kit (optional).



#### 1.10 ELECTRICAL CONNECTION



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

The appliance has an IPX4D 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 local reference standards.



Connection cables must respect the prearranged routes.

Use 3 clips (c) (not supplied) to group the individual cables (max. 1.5 mm<sup>2</sup> into the lower terminal board.

Use the specific fairleads (d) on the left side, making sure to put at most 2 multi-polar cables (max 3 x 1 mm²) in each fairlead.

The figure 9 shows cables in a hypothetical connection. To make the connections based on your own requirements, see the instructions below.

#### Open the control panel connections compartment (Fig. 9).

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

- 1. Remove the front panel.
- 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.

Also ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the Indoor Unit data-plate.

The Indoor Units are supplied complete with a "Y" type H 05 V VF 3 x 0.75 mm<sup>2</sup> power supply cable, without plug.





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 multipole circuit breaker with class III overvoltage category in compliance with installation regulations.



To protect from possible leakage of DC voltage, it is necessary to provide a type A or type F residual current safety device with 30 mA sensitivity.



If the power cable is damaged, contact a qualified company (e.g. the Authorised Technical Assistance Centre) for its replacement to avoid a hazard.

The power supply cable must be laid as shown (Par. 1.8); avoiding any contact with the side of the frame.

 $If the fuses on the circuit boards need to be replaced, this must also be done by qualified personnel: use a F3.15A H250V fuse on the P.C.B.\\ For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.$ 

Make the various electrical connections according to your needs (Fig. 10, 11):



#### Outdoor Unit electrical connection

The Indoor Unit must be coupled to an Outdoor Unit by connecting terminals F1 and F2 as shown in the wiring diagram (Fig. 11). The Indoor Unit is powered at 230 V, regardless of the Outdoor Unit.

Configure the Indoor Unit parameters as indicated in paragraph (Parag. 3.8).

#### Photovoltaic system installation

Connecting the product to a photovoltaic system enhances use of the outdoor unit when the photovoltaic panels are operating. Carry out the connection as indicated (Fig. 10).

#### **Dehumidifiers**

 $Carry \, out \, the \, connection \, as \, indicated \, (Fig. \,\, 11). To \, complete \, the \, connection \, operations, insert \, the \, 2-relay \, Board \, optional \, kit.$ 

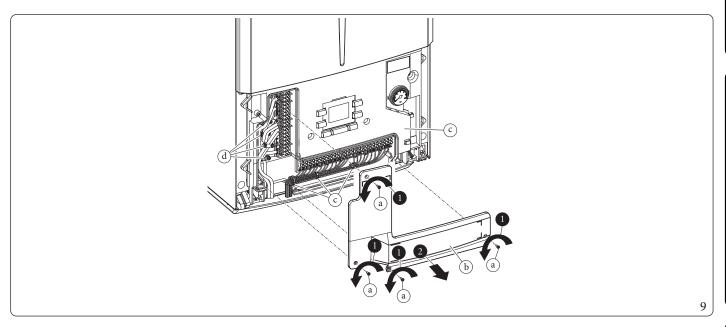


It is compulsory to set up separate lines with different power supply voltages, particularly it is essential to separate the very low voltage connections from the 230 V ones.

No product 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.

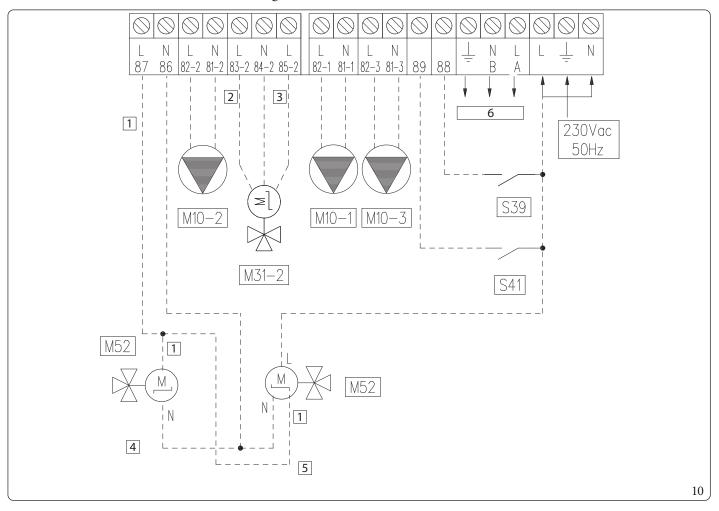


The Indoor Unit can be electrically connected to outdoor units with very low voltage safety circuits (SELV)





#### Vertical terminal block electrical connection diagram.



Key (Fig. 10):

1 - Open/Close 2 - Close

2 - Close3 - Open

4 - Valve with spring return

5 - 2-point valve 6 - Auxiliaries M10-2 - Zone 2 circulator pump (optional)

M10-3 - Zone 3 circulator pump (optional) M31-2 - Zone 2 mixing valve (optional) M52 - Hot cold three-way (optional)

S39 - Solar inlet

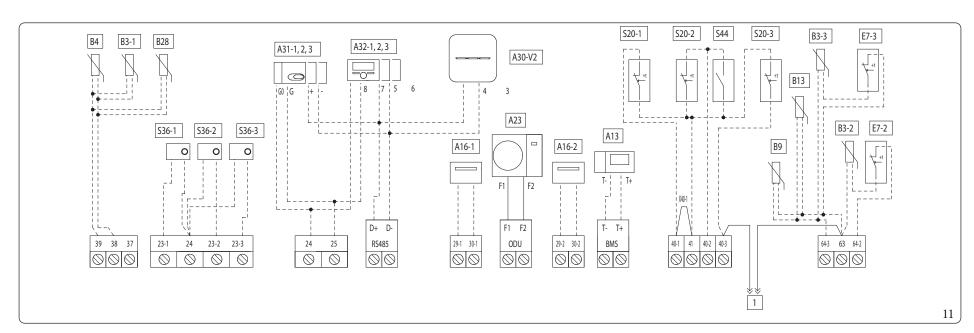
S41 - Outdoor Unit deactivation

A 3rd zone (mixed) can also be managed on the system by means of the configurable relay interface kit (optional). In this case, the zone 3 pump must be connected according to diagram (M10-3).

 $The zone 3\,dehumidifier, if any, will be managed by means of the configurable relay interface kit, which the zone 3\,mixer will also be connected to.$ 



For the connection diagram, see paragraph 3.5 (LV terminal blocks connection wiring diagram).



Key (Fig. 11): A13 System manager (optional) Zone 1 dehumidifier (optional with dehum. management board) Zone 2 dehumidifier (optional with dehum. management board) A23 -Outdoor unit Dominus V2 (optional) MODBUS temperature sensor zone 1 (optional) A31-2 -MODBUS temperature sensor zone 2 (optional) MODBUS temperature sensor zone 3 (optional) A31-3 -Zone 1 remote panel (optional) A32-1 -A32-2 -Zone 2 remote panel (optional) A32-3 -Zone 3 remote panel (optional) B3-1 -Zone 1 flow probe (optional) Zone 2 flow probe (optional) B3-2 Zone 3 flow probe (optional)

External probe (optional) *B*4 В9 DHW inlet probe (optional) Central heating probe (optional) B13 *Inertial storage tank probe thermostat (optional)* Zone 2 safety thermostat (low temperature) (optional) E7-2 Zone 3 safety thermostat (low temperature) (optional) Zone 1 room thermostat (optional) S20-1 -S20-2 Zone 2 room thermostat (optional) Zone 3 room thermostat (optional) Zone 1 humidistat (optional) S36-1 -Zone 2 humidistat (optional) Zone 3 humidistat (optional) Central Heating/Cooling Selector Zone 1 room thermostat link Service connector

 $A 16-1 \, and \, A 16-2 \, dehumidifiers \, can \, be \, connected \, only \, after \, installing \, 2-relay \, bo \, ard \, (optional).$ 

 $Remove link \, X40\text{--}1 \, before the electrical connection of the room thermostat zone \, 1.$ 

 $The TA inputs, 40-1 \ etc..., must be electrically decoupled; e.g. a single command cannot pilot multiple inputs.$ 

With A13 available, the zone devices must not be connected.

The room thermostats of zone 2, zone 3 and contact S44 cannot be installed simultaneously.

It is not possible to install at the same time:

- Heating probe B13 and Zone 3 probe B3-3;
- External probe B4 with zone 1 B3-1;
- Remote panel A 32 with humidity sensor A 17 in the same zone.



#### 1.11 ROOM CHRONO-THERMOSTATS (OPTIONAL)

The Indoor Unit is prepared for the application of room chrono-thermostats or remote controls, 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.

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

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);
  - $\bullet \ \ forced \ automatic \ operation \ (momentarily \ changing \ the \ temperature \ of \ the \ automatic \ program).$

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

On/Offchrono-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 terminals, eliminating the X40-1 link for zone 1 and 40-2/41 for zone 2 and 40-3/42 for zone 3.

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.

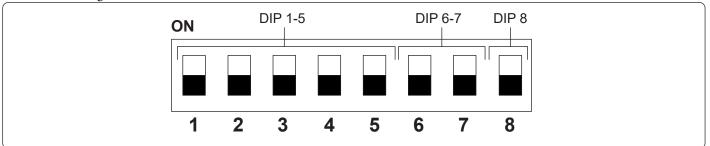
The connections must be made on the terminal board inside the appliance's control panel (Fig. 11).

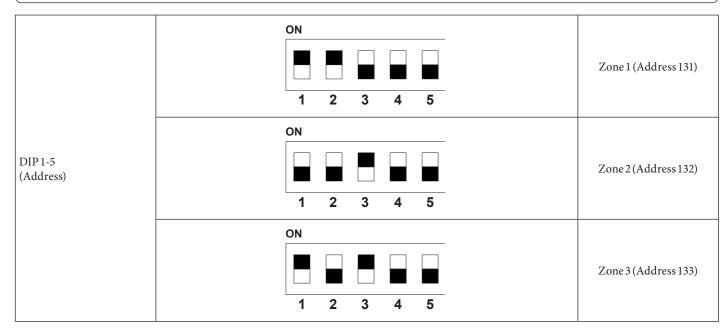
#### 1.12 MODBUS TEMPERATURE AND HUMIDITY ROOM PROBES (OPTIONAL)

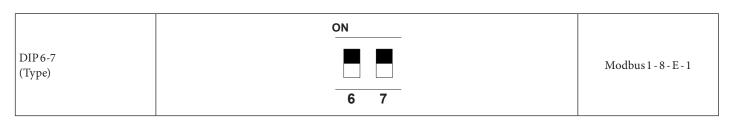
The temperature and humidity probe is used to detect room humidity and to calculate the relative dew point by regulating the flow temperature during the cooling phase.

Connect the appliance as shown (Fig. 11);

DIP-Switch configuration table







	ON	
DIP 8 (Speed)		9600 bit/s
	8	

#### 1.13 REMOTEZONE CONTROL (OPTIONAL)

This remote device is used to adjust the setpoints and to view the main information of the zone where it was configured. Connect the appliance as shown (Fig. 11);

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

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

Using a Zone Remote Panel with firmware version 2.00 or higher:

- the item "Head pump control" is no longer present;
- it is possible to enable room probe modulation;
- the dew point control can be enabled.



For correct operation it is necessary to install the link on the thermostat of the zone associated to the panel. If necessary, this link can be replaced with a safety thermostat.



USER

A restart of the machine is recommended after connecting the remote panel.

#### 1.14 DOMINUS V2 (OPTIONAL)

 $The \, system \, can \, be \, remote \, controlled \, using \, the \, optional \, Dominus \, V2 \, kit.$ 

Connect the appliance as shown (Fig. 11);

The following is necessary to enable Dominus:

- position the Dip Switches: OFF-OFF-ON;
- set the A30 parameter on the control panel = ON;
- configure the Dominus APP profile on Magis Pro-Combo V2.



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

For further information, consult the relative instruction sheet.

#### 1.15 HUMIDISTAT ON/OFF (OPTIONAL)

You can make a dehumidification demand by using a humidistat. Connect the appliance as shown (Fig. 11);

#### 1.16 EXTERNAL TEMPERATURE PROBE (OPTIONAL)

The Outdoor Unit has a standard external probe that can be used as an external probe of the heat pump.

This can be used as an external probe of the heat pump.

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. 12) 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 connected where envisaged (Fig. 11) and then enabled (Par. 3.8).



## Once the probe is enabled, switch the appliance off and back on.



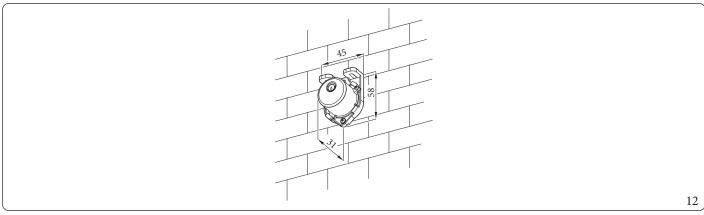
The presence of the external probe allows the system flow temperature to be set automatically based on the outdoor temperature in order to adapt the heating or cooling provided to the system.

The system flow temperature is determined by the setting on the "Heat regulation" menu and by the "User" menu for the offset values based on the curves shown in the diagram (Parag. 1.17).



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.

The electric connection of the external probe must be made on terminals 38 and 39 on the terminal board on the indoor unit control panel (Fig. 11).



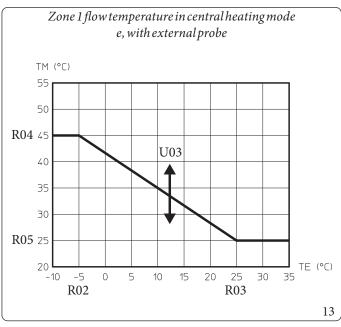
In case of failure, after having powered off and back on, the outdoor temperature is automatically detected by the external probe on the Outdoor Unit.

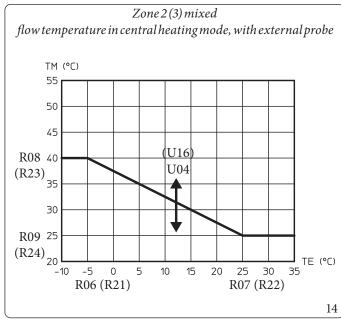


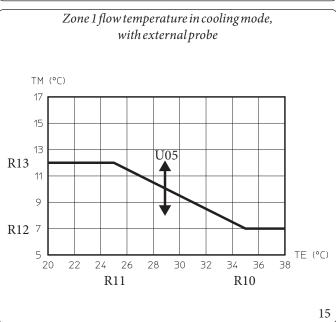
#### 1.17 TEMPERATURE CONTROL SETTING

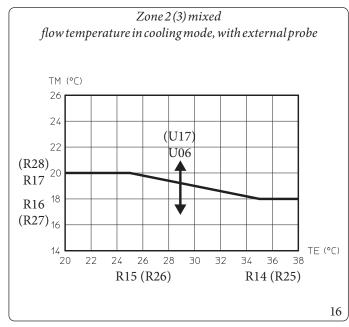
By setting the parameters in the ``Heat regulation'' menu, you can adjust how the system operates.

The curves (Fig. 13, 14, 15, 16, 17, 18) show the default settings in the various operating modes available both with external probe and without.









Key (Fig. 13, 14, 15, 16)

Rxx - Temperature control menu parameter

ET - External temperature
TM - Flow temperature

U03 - Offset value compared to the curve set by the external probe on central heating zone 1

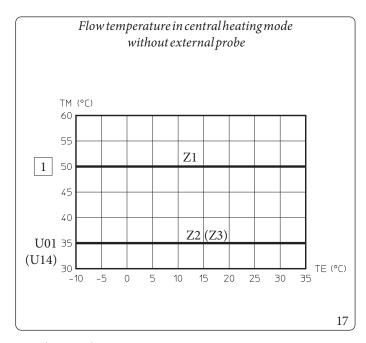
U04 - Offset value compared to the curve set by the external probe on central heating zone 2

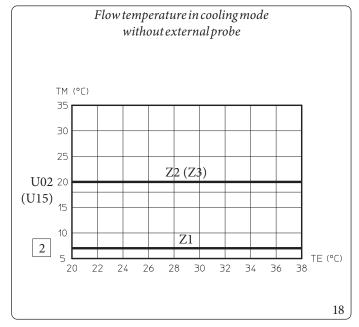
U05 - Offset value compared to the curve set by the external probe on cooling zone 1

U06 - Offset value compared to the curve set by the external probe on cooling zone 2

 $U16 \quad - \quad Offset \ value \ compared \ to \ the \ curve \ set \ by \ the \ external \ probe \\ on \ central \ heating \ zone \ 3.$ 

U17 - Offset value compared to the curve set by the external probe on cooling zone 3





Key (Fig. 17, 18)

1 - Central heating set

2 - Coolingset

TE - External temperature

TM - Flowtemperature

U01 - Zone 2 flow temperature in "User" menu central heating

U02 - Zone 2 flow temperature in "User" menu cooling mode

U14 - Zone 3 flow temperature in "User" menu central heating

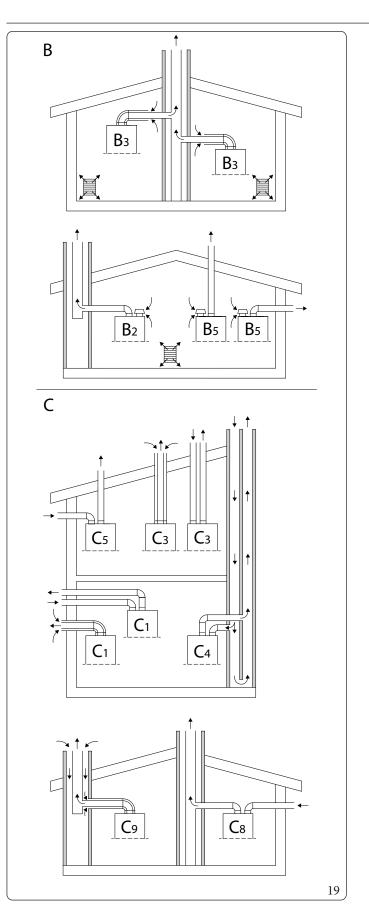
mode

U15 - Zone 3 flow temperature in "User" menu cooling mode

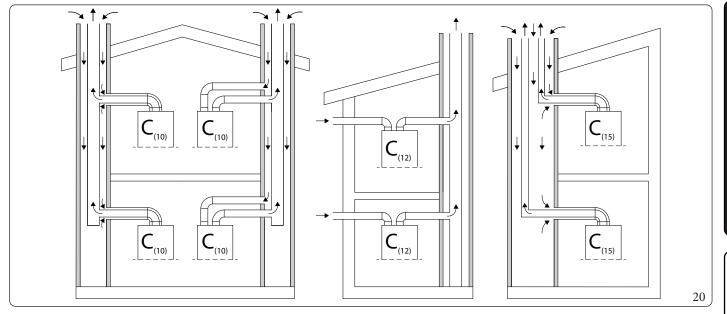
Zx - Heating system zone

#### 1.18 GENERALEXAMPLES OF TYPES OF INSTALLATION OF FLUE SYSTEMS

For the installation types of the "Green Series" flue systems approved for this product, carefully follow the instructions in the table in Parag. 4.3, in the "Type of flue installation" line.



Installation types summarised table (Fig. 19):				
В	Appliance that withdraws air from the environment where it is installed and releases combustion products outside (either directly or through the flue).			
$B_2$	Appliance that withdraws air from the environment where it is installed and releases combustion products in the flue.			
B <sub>3</sub>	Appliance connected to a conventional flue. A concentric pipe connects the flue to the appliance, in which the pressurised exhaust pipe is completely enveloped by combustion air withdrawn from inside the room. The combustion air is withdrawn by calibrated orifices present in the intake pipe.			
B <sub>5</sub>	Appliance that withdraws air from the environment where it is installed and directly releases combustion products outside (through wall or roof).			
<u> </u>				
С	Appliance whose combustion circuit (air feed, combustion chamber, heat exchanger and exhaust of combustion products) is sealed with respect to the room where the appliance is installed.			
$C_1$	Appliance with pipes connecting to a horizontal terminal, which simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in similar wind conditions.			
C <sub>3</sub>	Appliance with pipes connecting to a vertical terminal, which simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in similar wind conditions.			
C <sub>4</sub>	Appliance with two separate pipes connecting to a collective conventional flue. The flue consists of two pipes, concentric or separate, with air intake in one and flue gas release in the other and are in similar wind conditions.			
C <sub>5</sub>	Appliance that withdraws air from outside and directly releases combustion products outside (through wall or roof). These pipes can end up in different pressure zones.			
C <sub>6</sub>	Type Cappliance intended to be connected to an approved system and sold separately.			
C <sub>8</sub>	Appliance connected, through the exhaust pipe, to an individual or collective conventional flue. A second pipe is provided for the intake of combustion air from outside.			
C <sub>9</sub>	Appliance connected, through a ducted exhaust pipe, to a vertical terminal. The exhaust pipe, by means of the cavity, also acts as a combustion air intake pipe.			



Installation types summarised table (Fig. 20):				
	Appliance intended for connection, via its ducts, to a collective flue designed for more than one appliance. This flue consists of two ducts			
$C_{(10)}$	connected to a terminal, which simultaneously allows combustion air to enter and flue gas to be exhausted through orifices that are			
	concentric or close enough to be in similar wind conditions.			
	Appliance intended for connection, via its exhaust duct, to a collective flue designed for more than one appliance. A second duct, an integral			
$C_{(12)}$	part of the appliance, is provided for the intake of combustion air from outside.			
	Appliance connected to a vertical flue exhaust terminal and a common vertical duct, designed for more than one appliance, for air intake.			
$C_{(15)}$	This duct simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in			
similar wind conditions.				



The technical combustion parameters (except configurations  $C_6$ ) are displayed in Paragraph Chapter 4.2 "Combustion parami eters"

#### 1.19 IMMERGAS FLUE SYSTEMS

Immergas supplies various solutions separately from the appliances regarding the installation of air intake and flue exhaust terminals, which are fundamental for appliance operation.

These solutions form an integral part of the product.



The appliance must be installed with an original Immergas "Green Range" inspectionable air intake system and flue gas extraction system made of plastic, with the exception of configuration C<sub>6</sub> in the configurations envisaged in Parag. 1.18, as required by the regulations in force and by the product's approval. This flue can be identified by an identification mark and special distinctive marking bearing the note "only for condensation boilers".

For non-original flue system, refer to the technical data of the appliance.



The plastic pipes cannot be installed outdoors, for tracts longer than 40 cm, without suitable protection from UV rays and other atmospheric agents.

MAGIS COMBO 4/6/9 V2

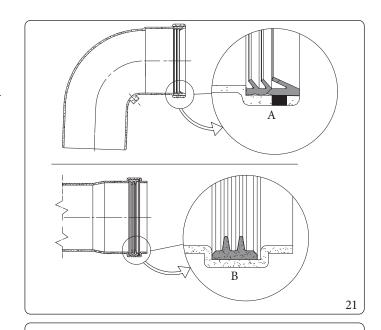


#### Positioning the gaskets for "green range" flue systems.

Position the gasket correctly (for bends and extensions) (Fig. 21):

- gasket (A) with notches, to use for bends;
- gasket (B) without notches, to use for extensions.

If necessary, to ease the push-fitting, spread the supplied lubricants on the parts.

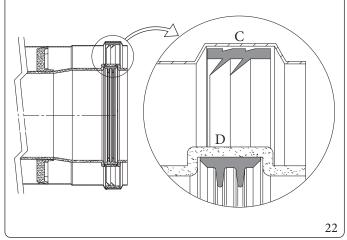


#### Positioning of 80/125 "green series" flue gaskets

 $Position \, the \, gasket \, correctly \, (for \, bends \, and \, extensions) \, (Fig. 22):$ 

- external gasket (C);
- internal gasket (D).

If necessary, to ease the push-fitting, spread the supplied lubricants on the parts.



#### Extension pipes and concentric elbows push-fittings.

To install push-fitting extensions with other elements of the flue, proceed as follows:

- Install the concentric pipe or elbow with the male side (smooth) on the female side (with lip seal) to the end stop on the previously installed element in order to ensure sealing efficiency of the coupling.



If the exhaust terminal and/or extension concentric pipe needs shortening, consider that the internal duct must always protrude by  $5\,\mathrm{mm}$  with respect to the external duct.



For safety purposes, do not even temporarily obstruct the appliance intake/exhaust terminal.

The various parts of the flue system must be checked to ensure that they have been laid in such a way as to prevent the coupled parts from detaching, in particular, the flue exhaust duct in the Ø80 separator kit configuration. If the condition described above is not adequately guaranteed, it will be necessary to use the appropriate retaining clamp kit.



When installing horizontal pipes, a minimum inclination of 5% towards the appliance must be maintained, and a section clamp with plug must be installed every 3 metres.

#### 1.20 MAXIMUMFLUELENGTH



 $The \, maximum \, flue \, length \, (L\, max)) \, is \, understood \, to \, include \, the \, terminal.$ 



To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.21, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.20. ( $L \le L$  max).



For further information on functional check calculations of any flue configuration, consult the Immergas website of your country or contact the indicated Customer Service.



 $Should\,L\,be\,higher\,than\,L\,max, consider\,using\,another\,type\,offlue.$ 

Туре		Installation	Unità Interna MAGIS COMBO V2	
			Lmax=Maximum length (m)	
Ø 60/100 ··· ···	C <sub>13</sub> (hor	rizontal+elbow+terminal)	13	
Ø60/100mm	C <sub>33</sub> (ver	tical+terminal)	14,5	
Ø 00 /00	C <sub>43</sub> - C <sub>53</sub>	- C <sub>83</sub> (split)	35	
Ø80/80mm	B <sub>23</sub> - B <sub>33</sub>	- B <sub>53p</sub>	30	
Ø80mmflex		Split 80/80 with intake by own terminal and exhaust in exposed or ducted Immergas pipe.	30	
Ø80mmrigid	C <sub>53</sub>		35	
Ø60mmrigid		ducted minicigas pipe.	25	
Ø80mmflex		Concentric 80/125 with exhaust in ducted pipe and intake from technical slot.	30	
Ø80mmrigid	C <sub>93</sub>		35	
Ø60mmrigid		technical slot.	25	
Note:Installation C(10) - C(	12) type-approve	ed with G20 gas only.		



The values indicated in the table are the maximum available lengths.

Adjustment of the maximum boiler speed depending on the length of the actual pipes installed must refer to the Table in Par. 3.11.

The flue parameter (heat output) must be calibrated by the maintenance technician at initial testing.



 $The \, unit \, of \, measurement \, is \, in \, "mm" \, if \, not \, specified \, otherwise.$ 



## 1.21 EQUIVALENT LENGTHS OF "GREEN RANGE" FLUE SYSTEM COMPONENTS.

Equivalent concentric lengths Ø 60/100					
Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of concentric pipe Ø 60/100 mm		
	Pipe Ø 60/100 mm L = 1 m			1,0	
	90° bendØ 60/100 mm			1,3	
	45° bend Ø 60/100 mm			1,0	
60/100	Horizontal terminal Ø 60/100 mm $L = 1 m$				
	Horizontal terminal Ø 60/100 mm		0°spout		
	L = 1 m adjustable		45° spout		
	Vertical terminal Ø 60/100 mm $L=1,25~\text{m}$				



The values of the equivalent lengths in metres of concentric pipe of the  $\emptyset$ 60/100 terminals are not the actual ones, but are weighted values to be used for the calculation of the flue.

Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of pip Ø 80 mm	
	PipeØ 80 mm	1771	Exhaust	1,0
	L = 1 m		Intake	0,7
	90° bend∅ 80 mm		Exhaust	2,1
			Intake	1,6
	45° bend∅ 80 mm		Exhaust	1,3
80/80 and rigid 80			Intake	1,0
	Horizontal terminal Ø 80 mm L = 1 m		Exhaust	3,5
			Intake	2,5
	Horizontal terminal Ø 80 mm grid part		Exhaust	2,5
			Intake	1,8
	Vertical terminal Ø 80 mm L = 1 m	Cáf	Exhaust	3,0
	Stainless steel vertical terminal Ø 80 mm L = 1 m		Exhaust	3,0
	Suction kit Ø 80 mm for configuration B		Intake	4,3
	Vertical terminal Ø 80 mm L = 1,25 m		Exhaust	4,6
	PipeØ 80/125 mm L = 1 m			1,8
	90° bend Ø 80/125 mm			2,5
	45° bend Ø 80/125 mm			1,8
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,9
	Thermoformed kit for type B installation		Intake	4,0

Equivalent ducting lengths Ø 60 rigid							
Ø duct [mm]	Type of duct  Pipe Ø 60 mm  L = 1 m	Picture	Equivalent length in [m] of rigid pipe Ø 60 mm				
			Exhaust	1,0			
60 rigid	90° bend Ø 60 mm		Exhaust	1,1			
	45° bend Ø 60 mm		Exhaust	0,6			
	Vertical terminal Ø 60 mm L = 1 m		Exhaust	3,7			
	Reduction Ø 80 to Ø 60 mm		Exhaust	0,8			
	PipeØ80 mm L = 1 m		Exhaust Intake	0,4			
	90° bend Ø 80 mm		Exhaust	0,8			
			Intake	0,6			
	45° bend∅ 80 mm	>	Exhaust Intake	0,5 0,4			
	Horizontal terminal Ø 80 mm L = 1 m		Intake	0,9			
	Horizontal terminal Ø 80 mm grid part	FREE	Intake	0,7			
	Pipe Ø 60/100 mm L = 1 m		Exhaust	2,0			
	90°bendØ 60/100 mm		Exhaust	2,5			
	45° bend Ø 60/100 mm		Exhaust	2,0			
	Suction kit Ø 80 mm for configuration B	9	Intake	1,6			

Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of flexible hose Ø 80 mm	
	Corrugated hose Ø 80 mm			
	L = 1 m		Exhaust	1,0
	70° bendØ 80 mm		Exhaust	1,0
	T-kit∅ 80 mm		Exhaust	1,1
	T-shaped exhaust terminal Ø 80 mm		Exhaust	1,6
	Vertical terminal Ø 80 mm		Exhaust	0,7
	AdapterØ 80 mm flexible/male		Exhaust	0,2
	AdapterØ 80 mm flexible/flexible		Exhaust	0,2
	Adapter Ø 80 mm flexible/flexible		Exhaust	0,3
	Vertical terminal Ø 80mm L = 1,25 m		Exhaust	1,7
80 Hose	PipeØ 80 mm		Exhaust	0,4
	L = 1 m		Intake	0,3
	90° bend Ø 80 mm		Exhaust	0,8
	70 bende 60 mm		Intake	0,6
	45° bend Ø 80 mm		Exhaust	0,5
	15 bend 5 to min		Intake	0,4
	Horizontal terminal Ø 80 mm L = 1 m		Intake	0,9
	Horizontal terminal Ø 80 mm grid part		Intake	0,7
	Pipe Ø 80/125 mm L = 1 m			0,7
	90° bend Ø 80/125 mm			0,9
	45° bend Ø 80/125 mm			0,7
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,3
	Suction kit Ø80 mm for configuration B	9	Intake	1,6

Ø duct [mm]	Type of duct	Picture	Equivalent lengt $C_{(10)3}$ - $C_{(12)3}$ c Ø 80/12	
	Clapet∅ 80 mm		Exhaust	
	Pipe Ø 80/125 mm L = 1 m			1,0
	90° bend Ø 80/125 mm			1,4
	45° bend Ø 80/125 mm			1,0
C <sub>(10)3</sub> - C <sub>(12)3</sub> - 80/125	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,5
	PipeØ80 mm L = 1 m		Exhaust	0,6
	90° bend∅ 80 mm		Exhaust	1,2
-	45° bend Ø 80 mm		Exhaust	0,7

Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of pipe $C_{(10)3}$ - $C_{(12)3}$ split Ø 80/80 mm	
	Clapet∅ 80 mm		Exhaust	
	Pipe Ø80 mm	1110	Exhaust	1,0
	L = 1 m		Intake	0,7
	90° bend Ø 80 mm		Exhaust	2,1
$C_{(10)3}$ - $C_{(12)3}$	90 bend (2) 80 mm		Intake	1,6
80/80	4501 100 00		Exhaust	1,3
	45° bend∅ 80 mm		Intake	1,0
	Horizontal terminal Ø 80 mm			
	L = 1 m		Intake	2,5
	Horizontal terminal Ø 80 mm grid			
	part		Intake	1,8

### 1.22 OUTDOOR INSTALLATION OR IN A PARTIALLY PROTECTED AREA



This appliance can be installed outdoors in a partially protected area.

By partially protected area, we mean one in which the unit is not directly exposed to the elements (rain, snow, hail, etc.).



If the appliance is installed in a location where the ambient temperature falls below -5°C, use the optional antifreeze kit, checking the ambient temperature range for operation in the technical data table in this instruction manual (Section 'Technical Data').



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

### Configuration type B, open chamber and fan assisted ( $B_{23}$ or $B_{53}$ ).

Using the relevant cover kit, direct air intake is possible and flue gas is exhausted into a single flue or directly to the outside. In this config $uration\ it is\ possible\ to\ install\ the\ appliance\ in\ a\ partially\ protected\ place.\ In\ this\ configuration\ the\ appliance\ is\ classified\ as\ type\ B.$ With this configuration:

- air intake takes place directly from the environment in which the appliance is installed (external);
- the flue gas exhaust must be connected to its own single chimney (B23) or ducted directly outside via a vertical terminal for direct exhaust  $(B_{53})$  or via an Immergas ducting system  $(B_{53})$ .

The technical regulations in force must be respected.

### Coupling of extension pipes.

To install push-fitting extensions with other elements of the flue, proceed as follows: Couple the pipe or elbow with the male side (smooth) in the female side (with lip seal) to the end stop on the previously installed element. This will ensure sealing efficiency of the coupling.

### Configuration without cover kit in a partially protected location (type Cappliance).

By leaving the side plugs fitted it is possible to install the appliance externally without the cover kit.

 $In stall at ion takes place using the \emptyset 60/100 \ and \ \emptyset 80/125 \ concentric in take/exhaust kits. \ Refer to the paragraph on indoor installation.$ 



The top cover kit, which provides additional protection for the boiler, CANNOT be used with Ø80/80 separator configuration.

### 1.23 CONCENTRICHORIZONTALKITINSTALLATION

### Type C configuration, sealed chamber and fan assisted

The position of the terminal (in terms of distances from openings, overlooking buildings, floor, etc.) must be in compliance with the regulations in force.

This terminal is connected directly to the outside of the building for air intake and flue gas exhaust.

The horizontal kit can be installed with the rear, right side, left side or front outlet.

For installation with frontal outlet, one must use the fixing plate and a concentric bend coupling in order to ensure sufficient space to carry out the tests required by law upon commissioning.

### External grid

Make sure that the external silicone wall sealing plate is properly inserted in the wall.



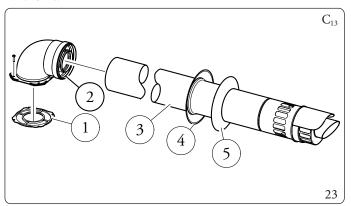
For correct functioning of the system the terminal with grid must be installed correctly ensuring that, the "high" indication present on the terminal is respected on installation.

MAGIS COMBO 4/6/9 V2



### Horizontal intake/exhaust assembly kits Ø 60/100 (Fig. 23)

- 1. Install the curve with flange (2) on the central hole of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange, and tighten using the screws contained in the kit.
- 2. Fit the Ø 60/100 (3) concentric terminal pipe with the male side (smooth) to the female side of the bend (2) up to the end stop, making sure that the internal and external wall sealing plates have been fitted; this will ensure sealing and joining of the elements making up the kit.



*The kit includes (Fig. 23):* 

Gasket (1)

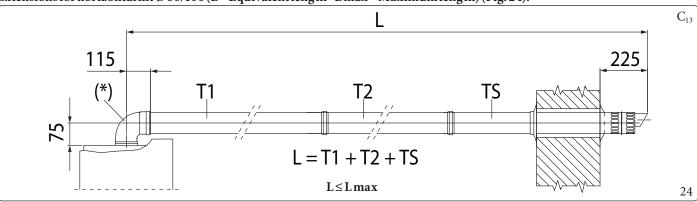
Concentric bend Ø 60/100 (2)

Int./exhaust concentric terminal Ø 60/100 (3)

 $N^{\circ}1$ Internal wall sealing plate (4)

External wall sealing plate (5)

 $Extensions for horizontal kit \emptyset 60/100 (L = Equivalent length - L max = Maximum length) (Fig. 24).$ 



Key Fig. 24:

Concentric pipe Ø60/100 T1

Flanged 90° concentric elbow Ø60/100 (do not consider

when calculating the equivalent length)

T2Concentric pipe Ø60/100

TSConcentric intake/exhaust terminal Ø 60/100

L Equivalent length

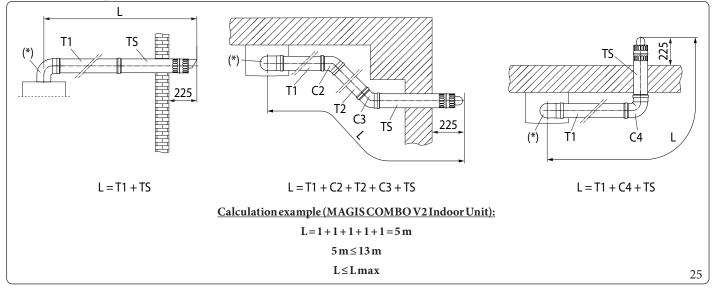
Lmax -Maximum length



The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.20.

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### **Installation examples**



Kev	Fig.	2.5:	

T1 Concentric pipe Ø60/100

Flanged 90° concentric elbow Ø60/100 (do not consider when calculating the equivalent length)

T2Concentric pipe Ø60/100 *C2* Ø60/10045° concentric elbow C3Ø60/10045° concentricelbow  $\emptyset 60/100\,90° concentric\,elbow$ C4

TSConcentric intake/exhaust terminal Ø 60/100

L Equivalent length Maximum length Lmax -



To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.21, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.20. ( $L \le L$  max).

### 1.24 CONCENTRIC VERTICAL KIT INSTALLATION

### Type C configuration, sealed chamber and fan assisted

Concentric vertical intake and exhaust kit.

This vertical terminal is connected directly to the outside of the building for air intake and flue gas exhaust.



The vertical kit with aluminium slate enables installation on terraces and roofs with a maximum slope of 45% (approx 25°) and the height between the terminal cap and half-shell (374 mm for  $\emptyset$  60/100 and 260 mm for  $\emptyset$  80/125) must always be observed.

### Vertical kit assembly with a luminium slate Ø60/100 (Fig. 26)

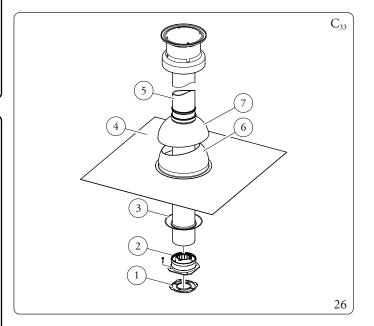
- $1. \ \ In stall the concentric flange (2) on the flue exhaust of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange.$
- 2. Tighten the concentric flange with the screws in the kit.

Imitation aluminium slate installation:

- 3. Replace the slates with the aluminium sheet (4), shaping it to ensure that rainwater runs off.
- 4. Position the fixed half-shell (6) on the aluminium slate.
- 5. Insert the intake-exhaust pipe (5).
- 6. Fit the Ø 60/100 concentric terminal pipe with the male side (5) (smooth) into the flange (2) up to the end stop, making sure that the wall sealing plate has been fitted (3); this will ensure sealing and joining of the elements making up the kit.



When the appliance is installed in areas where very rigid temperatures can be reached, a special anti-freeze kit is available that can be installed as an alternative to the standard kit.



The kit includes (Fig. 26):

N°1 Gasket (1)

N°1 Female concentric flange (2)

N°1 Wall sealing plate (3)

N°1 Aluminium slate (4)

N°1 Concentric intake/exhaust pipe Ø 60/100 (5)

N°1 Fixed half-shell (6)

N°1 Mobile half-shell (7)

# Extensions for vertical kit Ø 60/100 (L = Equivalent length - L max = Maximum length) (Fig. 27).



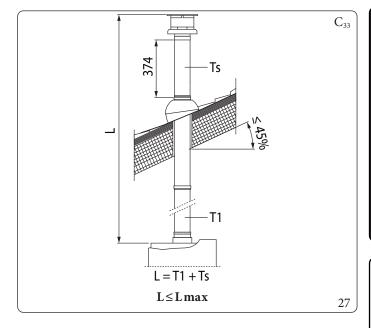
The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.20.

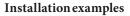
### Key Fig. 27:

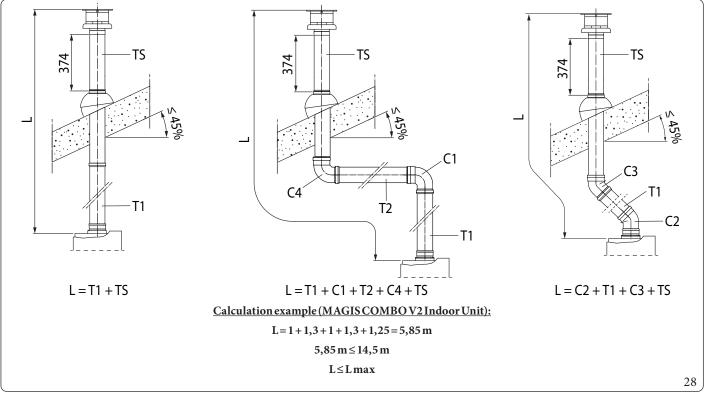
T1 - Concentric pipe Ø60/100

TS - Concentric intake/exhaust terminal Ø 60/100

L - Equivalent length Lmax - Maximum length







Kov	Fiσ	28.	

Ø60/10045° concentric elbow C3T1 C4 Ø60/10090° concentric elbow  $Concentric\,pipe\,\emptyset 60/100$ 

 $\emptyset 60/100\,90^{\circ} concentric\,elbow$ TSConcentric intake/exhaust terminal Ø 60/100 C1

T2Concentric pipe Ø60/100 Equivalent length  $\emptyset60/10045^{\circ}$  concentric elbow Lmax -Maximum length



To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value  $indicated in the column "Length \ equivalent \ to \ mofpipe" \ in the table \ in par. \ 1.21, and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ check \ that \ the \ resulting \ sum \ is \ equal \ to \ or \ and \ sum \ is \ equal \ sum \$  $less than the \, maximum \, length \, (L\, max) \, indicated \, in \, par. \, 1.20. \, (L \leq L\, max).$ 

### 1.25 SEPARATORKITINSTALLATION

### $Type\ C\ configuration, sealed\ chamber\ and\ fan\ assisted\ separator\ kit\ \emptyset\ 80/80$

This kit allows air to come in from outside the building and the exhaust to exit from the chimney, flue or intubated duct through divided flue exhaust and air intake pipes.

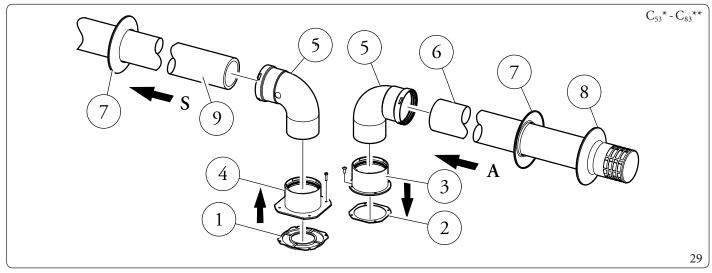
Combustion products are expelled from pipe (S) (in plastic, so as to resist acid condensate).

Air is taken in through duct (A) for combustion (this is also in plastic).

Both ducts can be routed in any direction.

### Assembly of separator kit Ø 80/80 (Fig. 29):

- 1. Install the flange (4) on the central hole of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange.
- 2. Tighten with the hexagonal head and flat point screws provided in the kit.
- 3. Replace the flat flange present in the lateral hole with respect to the central one (according to needs) with the flange (3), positioning the gasket (2) in between.
- 4. Tighten with the supplied self-tapping screws with drill bit.
- 5. Fit the bends with male side (smooth) (5) in the female side of the flanges (3 and 4).
- 6. Fit the intake terminal (6) with the male side (smooth) in the female side of the bend (5) up to the end stop, ensuring that the internal and external wall sealing plates are fitted
- 7. Fit the exhaust pipe (9) with the male end (smooth) to the female end of the bend (5) up to the end stop; making sure that the internal wall sealing plate has been fitted, this will ensure sealing and joining of the elements making up the kit.



The kit includes (Fig. 29):

- N°1 Exhaust gasket (1)
- N°1 Flange gasket (2)
- N°1 Female intake flange (3)
- N°1 Female exhaust flange (4)
- N°2 Ø8090° bend (5)
- N°1 Intake terminal Ø80 (6)
- N°2 Internal wall sealing plates (7)
- N°1 External wall sealing plate (8)
- N°1 Exhaust pipe Ø80 (9)

- \* to complete C<sub>53</sub> configuration, also provide for a "green range" roof discharge terminal. The configuration on walls opposite the building is not allowed.
- \*\* configuration  $C_8$  envisages connection to flues working with natural draught.



For technical data concerning the C<sub>8</sub> configuration, please refer to the table in par. 4.2.



### Installation clearances (Fig. 30)

The minimum installation clearance measurements of the  $\emptyset$  80/80 separator terminal kit have been stated in some limit conditions.

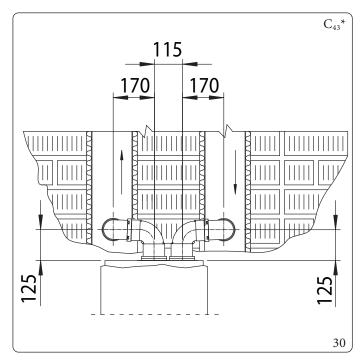
\*Configuration  $C_4$  envisages connection to flues working with natural draught.



To preserve proper operation of the appliance and in particular of its condensate drain system in the configurations  $C_4$  -  $C_8$ , it is not allowed to drain the condensate coming from the existing exhaust duct in the building through the boiler.



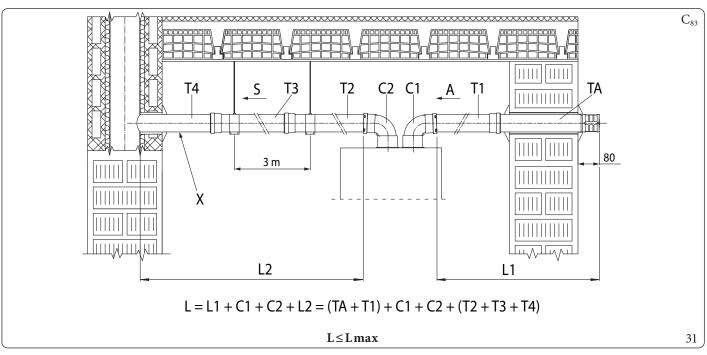
For technical data concerning the  $C_4$  configuration, please refer to the table in par. 4.2.



### Extensions for separator kit $\emptyset$ 80/80 (L = Equivalent length - L max = Maximum length).

<u>/\</u>

To aid in the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the appliance with a minimum slope of 5% (Fig. 31).



### *Key* (*Fig. 31*):

A - Intake

X - Minimum slope 5%

S - Exhaust

TA - Intake terminal Ø80

T1 - PipeØ80

T2 - Pipe Ø80

T3 - PipeØ80

T4 - PipeØ80

C1 - Ø8090°elbow

C2 - Ø8090° elbow

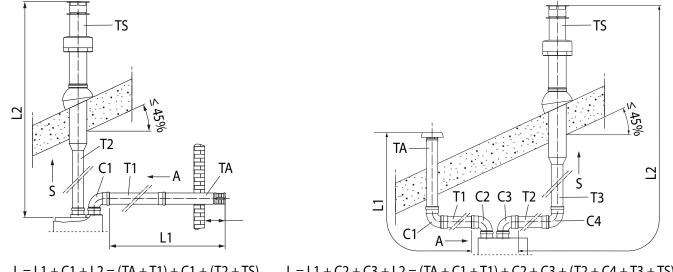
L - Equivalent length Lmax - Maximum length

•

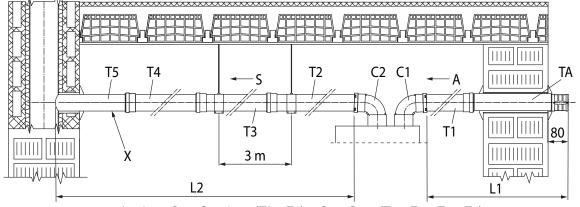
The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.20.

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L = L1 + C1 + L2 = (TA + T1) + C1 + (T2 + TS)L = L1 + C2 + C3 + L2 = (TA + C1 + T1) + C2 + C3 + (T2 + C4 + T3 + TS)



L = L1 + C1 + C2 + L2 = (TA + T1) + C1 + C2 + (T2 + T3 + T4 + T5)

### <u>Calculation example (MAGIS COMBO V2 Indoor Unit):</u>

L = (2,5+0,7)+1,6+2,1+(1+1+1+1)=10,9 m

 $10.9 \,\mathrm{m} \le 35 \,\mathrm{m}$ 

L≤Lmax

Key Fig.	32:	
TA	-	Intake terminal Ø80
TS	-	Exhaust terminal Ø80
T1	-	PipeØ80
<i>T2</i>	-	PipeØ80
<i>T3</i>	-	PipeØ80
T4	-	PipeØ80
<i>T5</i>	-	PipeØ80

Ø8090°elbow

C1

C2Ø8090°elbow Ø8090°elbow *C3 C*4 Ø8090°elbow Minimum slope 5% X Intake Α S Exhaust Equivalent length L

Maximum length

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.21, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.20. ( $L \le L$  max).

Lmax -

### 1.26 ADAPTORKITINSTALLATION C<sub>9</sub>

This kit allows an Immergas appliance to be installed in  $C_{93}$  configuration, with combustion air intake directly from the shaft where the flue gas exhaust is, obtained by means of a ducting system.

### System composition

The system must be combined with the following components (sold separately) to be functional and complete:

- kit C<sub>93</sub>"Ø 100 or Ø125 version;
- ducting kit rigid Ø 60 and Ø 80 and flexible Ø 50 and Ø 80;
- flue exhaust kit Ø 60/100 or Ø 80/125 configured according to the installation and type of appliance.

### Mounting adapter kit C<sub>9</sub> (Fig. 33)



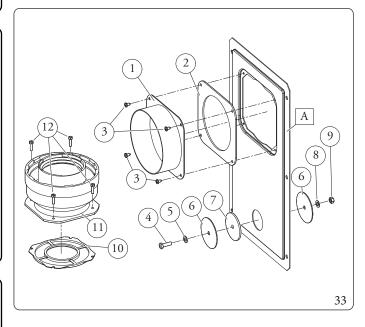
(Version Ø 125 only) before assembly check the gaskets are in the right position. To ease the push-fitting, spread the supplied lubricants on the parts.



To aid in the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the appliance with a minimum slope of 5% (Fig. 31).

- 1. Mount the components of kit  $C_9$  on the door (A) of the ducting system (Fig. 33).
- 2. (Version Ø 125 only) mount the flanged adaptor (11) interposing the concentric gasket (10) on the appliance, fitting it with the screws
- 3. Mount the ducting system as described in the relative instructions sheet.
- 4. Calculate the distances between the appliance drain and the bend of the ducting system.
- 5. Prepare the appliance flue system, making sure that the internal pipe of the concentric kit is fitted up to the end stop in the ducting system curve (Quota "X" Fig. 35), whereas the external pipe must reach the end stop of the adapter (1).
- 6. Mount the cover (A) complete with adaptor (1) and caps (6) on the wall.
- Assemble the flue system to the ducting system.

Once all components have been assembled properly, the exhaust fumes will be expelled via the ducting system; the combustion air for normal boiler operation will be aspirated directly by the shaft (Fig. 35).

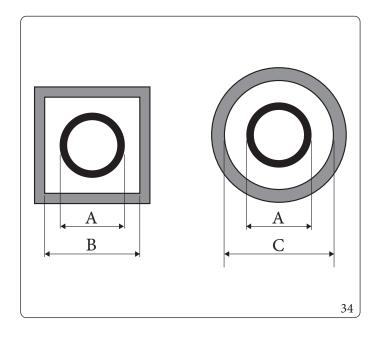


The adapter kit includes (Fig. 33):

- N°1 DooradaptorØ100orØ125(1)
- $N^{\circ}1$ Doorgasket made of neoprene (2)
- N°4 Screws  $4.2 \times 9 AF(3)$
- Hexheaded screw M6x20(4)
- Flat nylon washer M6 (5)
- Door hole closure metal-sheet plate plug (6)
- N°1 Pluggasket made of neoprene (7)
- Toothed washer M6 (8) N°1
- Nut M6 (9)
- (Ø 80/125 kit) Concentric gasket Ø 60/100 (10)
- (Ø 80/125 kit) Flanged adapter Ø 80/125 (11)
- (Ø80/125 kit) M4 hex headed screws x 16 slotted screwdriver (12)  $N^{\circ}4$
- (Ø 80/125 kit) Lubricant bag

Supplied separately (Fig. 33):

N°1 Ducting kit door (A)

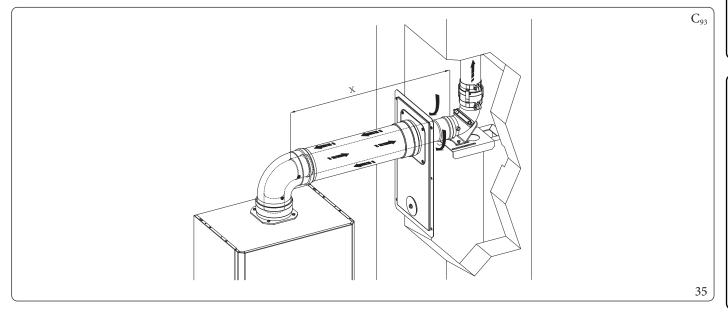


Ducting	ADAPTOR (A) mm	SHAFT (B) mm	SHAFT (C) mm
Ø60 Rigid	66	106	126
Ø 50 Flexible	66	106	126
Ø80 Rigid	86	126	146
Ø 80 Flexible	103	143	163

### Technical data

 $The dimensions of the shafts \, must ensure \, a \, minimum \, gap \, between \, the \, outer \, wall \, of the \, smoke \, duct \, and \, the \, inner \, wall \, of the \, shaft: \, 30 \, mm \, for \, circular \, section \, shafts \, and \, 20 \, mm \, in \, the \, event \, of \, a \, square \, section \, shaft \, (Fig. \, 34).$ 

 $Maximum\ 2\ changes\ of\ direction\ are\ allowed\ on\ the\ vertical\ section\ of\ the\ flue\ system\ with\ a\ maximum\ clearance\ angle\ of\ 30^\circ\ with\ respect\ to\ the\ vertical.$ 



i

 $The \, maximum \, lengths \, ((L\, max) \, of \, the \, various \, flues \, that \, can \, be \, in stalled \, are \, given \, in \, the \, summary \, table \, in \, parag. \, 1.20.$ 

### 1.27 DUCTING OF FLUES OR TECHNICAL SLOTS

Ducting is an operation through which, via the introduction of one or more relevant pipes, one achieves a system for the evacuation of the combustion products of a gas appliance, made up from the coupling of an existing or new ducting pipe with a chimney, flue or technical slot (also in new buildings) (Fig. 36).

Ducting requires ducts declared to be suitable for the purpose by the manufacturer, following the installation and user instructions, provided by the manufacturer and the requirements of the regulations in force.

### Immergas ducting systems



The  $\emptyset$  60 rigid,  $\emptyset$  50 and  $\emptyset$  80 flexible and  $\emptyset$  80 rigid "Green Range" ducting systems must only be used for domestic use and with Immergas condensing boilers.

In any case, ducting operations must respect the provisions contained in the standard and in current technical regulations; in particular, the declaration of conformity must be compiled at the end of work and on commissioning of the ducted system.

The instructions in the project or technical report must likewise be followed, in cases provided for by the standard and current technical regulations.

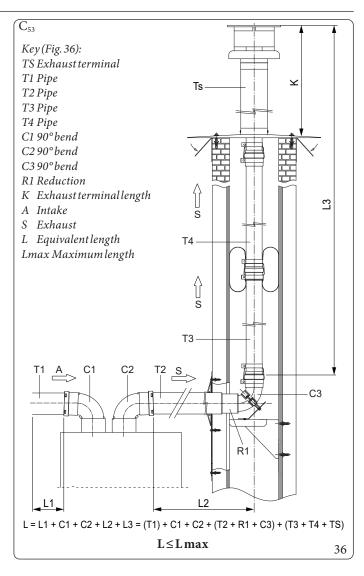
To guarantee reliability and operation over time of the ducting system, make sure:

- it is used in average atmospheric and environmental conditions, according to current regulations (absence of combustion products, dusts or gases that can alter the normal thermophysical or chemical conditions; existence of temperatures coming within the standard range of daily variation, etc.).
- Installation and maintenance must be performed according to the indications supplied by the manufacturer included with the "green range" ducting system chosen and in compliance with the regulations in force.
- To guarantee long-time reliability and functionality of the ducting system, the maximum length specified by the manufacturer (Par. 1.20) must be complied with.

In flexible and rigid ducting configurations  $C_{53}$ , the maximum length (Lmax) does not include the 3 elbows and the exhaust terminal. They must therefore be considered when calculating the equivalent length (L).



The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.20.



### **Exhaust terminal lengths table**

Ductingtype	Terminal	K(m)
	Terminal with 90° bend kit	0,27
Ø50Flexible	Tterminalkit	0,16
	Ø80/125 vertical terminal kit	0,48
Ø60 Rigid	Concentric vertical terminal kit Ø60	0,49
Ø80 flexible	Ø80/125 vertical terminal kit	0,48
Ø80 rigid	Concentric vertical terminal kit Ø80	0,65

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### 1.28 CONFIGURATION TYPEB, OPEN CHAMBER AND FAN ASSISTED FOR INDOORS

The appliance can be installed inside buildings in  $B_{23}$  or  $B_{53}$  mode; in this case, all technical rules and national and local regulations in force, must be complied with.

For installation the cover kit must be used, referred to in Parag. 1.22.

### 1.29 FLUE EXHAUST TO FLUE/CHIMNEY.

Flue exhaust does not necessarily have to be connected to a branched type traditional flue for type B appliances with natural draught (CCR).

The flue exhaust, for boiler clots installed in C configuration, can be connected to a single flue or to a multiple flue.

For  $B_{23}$  configurations, exhaust is only allowed into individual chimney or directly into the external atmosphere via a relevant terminal, unless otherwise provided by local regulations.

The multiple flues must also only be connected to type Cappliances of the same type (condensation), having nominal heat inputs that do not differ by more than 30% less with respect to the maximum that can be attached and powered by the same fuel.

The thermo-fluid dynamic features (flue flow rate, % of carbon dioxide, % humidity etc.) of the appliances attached to the same multiple flues, must not differ by more than 10% with respect to the average appliance attached.

 $Multiple flues \, must \, be \, specially \, designed \, according \, to \, the \, calculation \, method \, and \, requirements \, of \, the \, standards \, (such \, as \, UNI \, 13384), \, by \, professionally \, qualified \, technical \, staff.$ 

Chimney or flue sections for connection of the flue exhaust pipe must comply with requisites of technical standards in force.

 $It is possible to replace a type \ C conventional \ device with one provided with condensation, connected to multiple flues, only if the derogation conditions established by the regulations in force have been met.$ 

The flues, chimneys and chimney caps for the evacuation of combustion products must be in compliance with applicable standards.



### 1.30 WATERTREATMENTPLANTFILLING

The technical standard in force requires washing and treatment of the system water of the water and DHW thermal system, following the indicated methods and provisions of local standards in force.

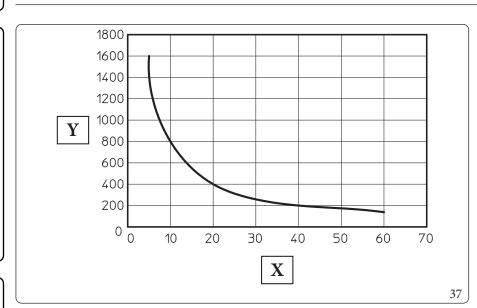
The parameters that influence the duration and proper operation of the heat exchanger are the water's PH, total hardness, conductivity, and oxygen, together with the system's processing residues (any welding residues), any oil present and corrosion products that can, in turn, cause damage to the heat exchanger.

In order to prevent this from happening, you are recommended to:

- Before installation on new systems as well as old ones, clean the system with clean water to eliminate solid residues.
- clean the system with a chemical treatment:
  - clean the new system with a suitable cleaning device (for example Sentinel X300, Fernox Cleaner F3 or Jenaqua 300) combined with thorough washing;
- clean the old system with a suitable cleaning device (for example Sentinel X400 or X800, Fernox Cleaner F3 or Jenaqua 400) combined with thorough washing;
- Check the maximum total hardness and amount of filling water with reference to the graph (Fig. 37), if the contents and hardness of the water are below the indicated curve, no specific treatment is required; otherwise, to limit the content of calcium carbonate, you must provide for water-filling treatment.
- If it is necessary to provide for water treatment, it should be done through complete desalination of the filling water. As opposed to the complete softening process, desalinating the water completely not only removes hardening agents (Ca, Mg), but also eliminates all other minerals to reduce water-filling conductivity up to 10 microsiemens/cm. Given its low conductivity, desalinated water does not only prevent the formation of lime scale, but also serves as protection against corrosion.
- Insert a suitable inhibitor / passivator (for example Sentinel X100, Fernox Protector F1, or Jenaqua 100); if required, also insert appropriate antifreeze (such as for example Sentinel X500, Fernox Alphi 11 or Jenaqua 500).
- Check electrical conduction of the water, which should be higher than 2000 μs/cm in the case of treated water and lower than 600 μs/cm in the case of non-treated water.
- To prevent corrosion, the water system's PH should be between 7.5 and 9.5.
- Check the maximum content of chlorides, which should be less than 250 mg/l.

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For quantities and methods of use of water-treatment products, refer to the instructions provided by their manufacturer.



Key (Fig. 37):

X - Total water hardness °FY - Litres of system water

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The graph refers to the entire life cycle of the system. Therefore, also consider scheduled and unscheduled maintenance, which involves emptying and filling the said system.



### 1.31 SYSTEM FILLING

Once the Indoor Unit is connected, fill the system using the filling cock (Fig. 44).

Filling must be done slowly to allow the air bubbles in the water to escape through the vents in the Indoor Unit and the heating and air conditioning system.

The Indoor Unit has one incorporated automatic vent valve located on the circulator and another on the central heating manifold.



Make sure that the hoods are loosened.

The filling valve must be closed when the Indoor Unit pressure gauge indicates approximately 1.2 bar.



During these operations, enable the "Venting" functions by setting the "U 50" parameter to ON, which lasts about 18 hours.

### System minimum water content.

Minimum water content favours the **proper execution of defrosting cycles** and operation in cooling mode.

To this end, the minimum amount of water to guarantee is 30 litres for any type of system and in any operating mode.

### 1.32 FILLING THE CONDENSATE DRAIN TRAP



When the Indoor Unit is switched on for the first time, combustion products come out of the condensate drain. After a few minutes of operation, check that combustion flue gases are no longer coming out of the condensate drain; this means that the drain trap has filled to a correct condensate height that the flue gases cannot pass through.

### 1.33 GASSYSTEMSTART-UP

To start up the system, refer to the technical standards in force.

This divides the systems and, therefore, the commissioning operations, into three categories: new systems, modified systems, reactivated systems.

In particular, for new gas systems:

- open windows and doors;
- avoid presence of sparks or naked flames;
- bleed all air from pipelines;
- ensure the internal system is properly sealed according to the specifications set forth by technical regulations in force.

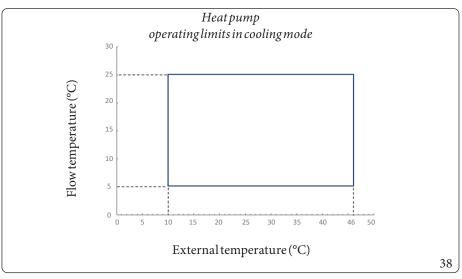


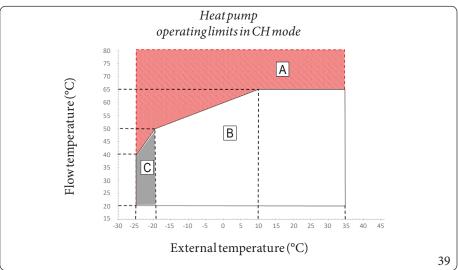
### 1.34 OPERATINGLIMITS

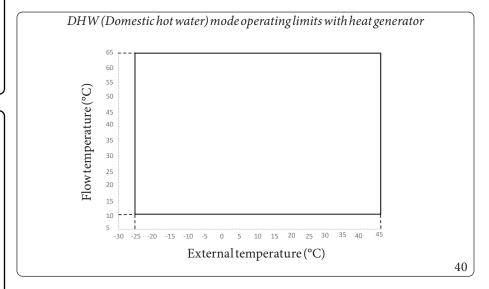
The appliance was designed to work in a specific range of outdoor temperatures and at a specific maximum flow temperature. The following charts show these limits.

These limit values apply to heating or cooling operation.

 $Domestic hot water supply is always \, met \, by \, the \, thermal \, generator \, in \, any \, outdoor \, temperature \, condition.$ 







### Key (Fig. 39):

A = Only with heat generator

B = Heat pump operating range

C = For outdoor temperatures below -20°C, the capacity of the heat pump is not guaranteed.



# 1.35 COMMISSIONING THE INDOOR UNIT (IGNITION, ONLY WHEN PAIRED WITH AN OUTDOOR UNIT)

To commission the Indoor Unit (the operations listed below must only be performed by qualified personnel and in the presence of staff only):

- 1. check that the internal system is properly sealed according to the specifications set forth by regulations in force;
- 2. Make sure that the type of gas used corresponds to Indoor Unit settings;
- 3. check that there are no external factors that may cause the formation of fuel pockets;
- 4. Check that the gas flow rate and the relative pressure values comply with those indicated in the booklet;
- 5. Switch the Indoor Unit on and check correct ignition;
- 6. ensure that the safety device intervenes in the event of gas supply failure and check the relative intervention time;
- 7. Check connection to a 230V~50Hz power mains, correct L-N polarity and the earthing connection;
- 8. Check the intervention of the main switch located upstream from the Indoor Unit and in the Indoor Unit.
- 9. check that the intake/exhaust terminals are not obstructed and that they are installed properly;



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



After installation, check for leaks. Toxic gas could be generated if the unit comes into contact with a source of ignition, such as thermal fan, stove and cylinders. Make sure that only refrigerant recovery cylinders are used.



USER

**MAINTENANCE TECHNICIAN** 

### 1.36 UPM3 CIRCULATION PUMP

The Indoor Unit is supplied with two circulator pumps, one for the heat generator and another for the heat pump mode. Circulator pumps run at variable speeds and operate as follows:

- **Fixed** ("A 05" = 0): The heat circulator pump speed is fixed and corresponds to parameter "A 04". The heat generator circulator pump speed is fixed and corresponds to parameter "A 19".
- $\Delta T$  constant ("A 05" = 5 K): the heat circulator pump speed varies to maintain  $\Delta T$  = 5 K constant between the system flow and return. Also, you can adjust the pump operating range, by setting the maximum speed "A 04" and the minimum speed "A 03". The heat generator circulator pump speed varies to maintain  $\Delta T$  = "A 05" constant between the system flow and return. Also, you can adjust the pump operating range, by setting the maximum speed "A 19" and the minimum speed "A 18".



For proper operation of the system, make sure that the minimum flow rate in operating conditions never drops below the minimum circulation flow rate indicated in the technical data table.

### **Pump LED**

 $The LED \ flashes \ green \ when \ the \ pump \ is \ powered \ and \ the \ pwm \ control \ signal \ is \ connected.$ 



The LED lights up steady green when the pump is powered and the signal cable disconnected. In these conditions the pump works at maximum and without control.

### Alarm warnings.

If the pump detects an alarm, the LED switches from green to red; this can mean one of the following failures:

- low supply voltage;
- rotor seized;
- electrical error.

For a detailed description of the meaning of the red LED, refer to Paragraph 3.7.



The LED, in addition to being green or red, can also remain off.

It is normal for the LED to be off when the pump is not powered, whereas with the pump powered, the LED must be lit: if switched off, it means there is a fault.

### 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.

### 1.37 UPM4CIRCULATIONPUMP

The Indoor Unit is supplied with two circulator pumps, one for the heat generator and another for the heat pump mode. Circulator pumps run at variable speeds and operate as follows:

- **Fixed ("A 05" = 0):** The heat circulator pump speed is fixed and corresponds to parameter "A 04". The heat generator circulator pump speed is fixed and corresponds to parameter "A 19".
- $\Delta$ T constant ("A 05" = 5 K): the heat circulator pump speed varies to maintain  $\Delta$ T = 5 K constant between the system flow and return. Also, you can adjust the pump operating range, by setting the maximum speed "A 04" and the minimum speed "A 03". The heat generator circulator pump speed varies to maintain  $\Delta$ T = "A 05" constant between the system flow and return. Also, you can adjust the pump operating range, by setting the maximum speed "A 19" and the minimum speed "A 18".



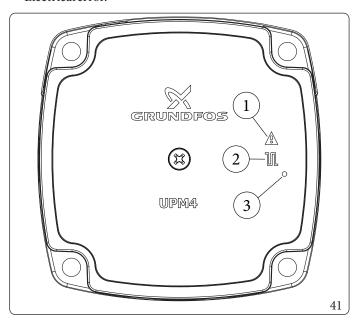
For proper system operation, make sure that the minimum flow rate in operating conditions never drops below 500 l/h.

### Pump symbols (Fig. 41):

With the pump powered and the pwm control signal connected and operating (pump ON or in stand-by), the symbol 2 flashes green ( - ).

If the symbol 2 turns steady green ( $\mathbb{I}$ ), the pump detects no command on the pwm signal and always runs at maximum speed. If the pump detects an alarm, symbol 1 lights up red ( $\mathbb{A}$ ). This can mean that there is one of the following faults:

- Low power supply voltage.
- Rotor seized (Cautiously turn the screw in the centre of the head to manually release the motor shaft).
- Electrical error.



### Key (Fig. 41):

- 1 Alarm signal (Red)
- 2 Functioning status signal (Steady green/Flashing green)
- 3 Led (Not used on this model)

### Pump release.

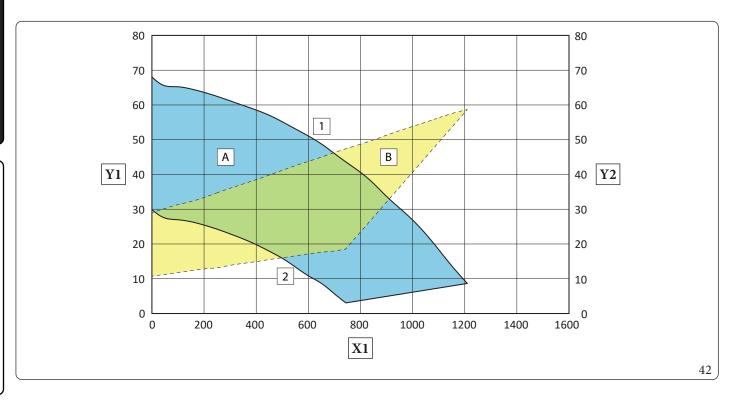
If after a long period of inactivity, the circulator is blocked, adjust the screw in the centre of the head in order to manually release the motor shaft

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



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### Head available to system (Heat generator circuit)



### Key (Fig. 42):

X1 = Flow rate(l/h)

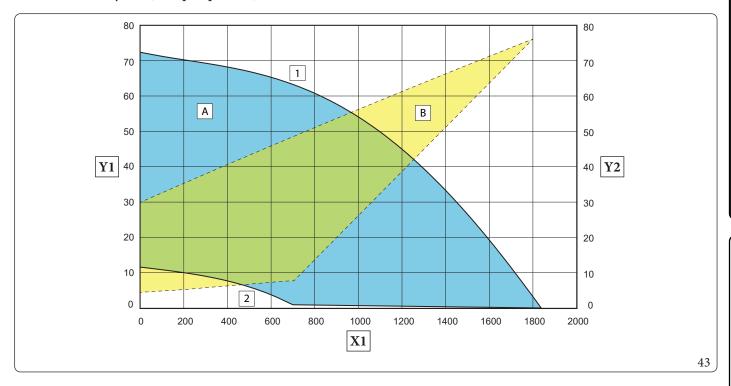
Y1 = Head(kPa)

Y2 = Circulator pump absorbed power(W)

1 = Maximum speed (100%) 2 = Minimum speed (70%) A = Head available to the system

B = Absorbed power by the circulator (dotted area)

### Head available to system (Heat pump circuit)



### Key (Fig. 43):

X1 = Flow rate (l/h)Y1 = Head (kPa)

Y2 = Circulator pump absorbed power(W)

1 = Maximum speed (100%) 2 = Minimum speed (45%) A = Head available to the system

 $B \hspace{1cm} = \hspace{1cm} Absorbed \hspace{.1cm} power \hspace{.1cm} by \hspace{.1cm} the \hspace{.1cm} circulator \hspace{.1cm} (dotted \hspace{.1cm} area)$ 

### 1.38 CONFIGURABLE RELAY INTERFACE KIT (OPTIONAL)

The Indoor Unit is set-up for functioning with the relay P.C.B. (optional), which can be configured.

### Relay 1 (optional) - Parameter P03

- -0 = Off
- 1 = DHW recirculation (not used on this model)
- 2=Generalalarm
- 3 = Central heating / cooling mode active
- -4 = Puffer mode active
- 5 = Dehumidifier zone 3

### Relay 2 (optional) - Parameter P04

- -0 = Off
- 1 = DHW recirculation (not used on this model)
- 2=Generalalarm
- 3 = Central heating / cooling mode active
- 4 =Puffer mode active
- 5 = Zone 3 mixing valve closing

### Relay 3 (optional) - Parameter P05

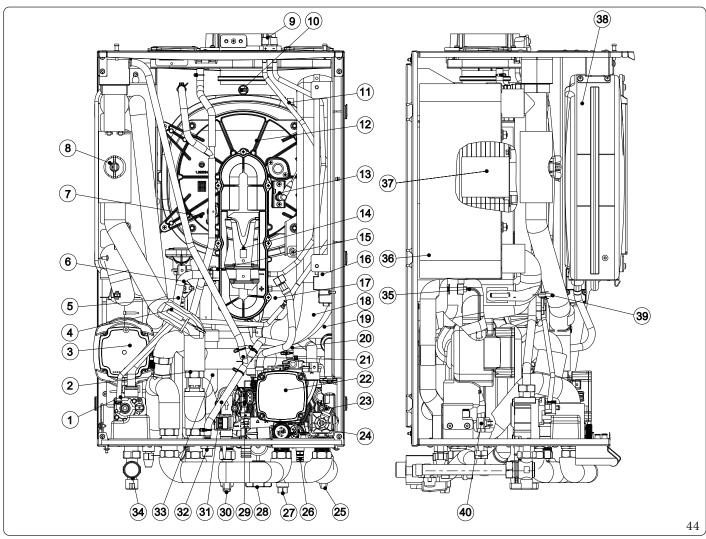
- -0 = Off
- 1 = DHW recirculation (not used on this model)
- 2=Generalalarm
- 3 = Central heating / cooling mode active
- 4 = Puffer mode active
- 5 = Zone 3 mixing valve opening

### 1.39 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).

### 1.40 MAIN COMPONENTS



### Key (Fig. 44):

- 1 Gasvalve
- 2 One-way valve
- 3 Heat pump circuit circulator
- 4 Heat pump flow probe
- 5 Heat generator flow probe
- 6 Safety thermostat
- 7 Detection electrode
- 8 Systemflow-meter
- 9 Flange with sample points
- 10 Flue gas thermofuse
- 11 Heat exchanger safety thermofuse
- 12 Condensation module
- 13 Ignition glow plug
- 14 Venturi
- 15 Gasnozzle
- 16 Igniter
- 17 Fan
- 18 Airintakepipe
- 19 One-way valve

20 - Airventvalve

21

- System pressure switch
- 22 Heat generator circuit circulator
- 23 Heat generator three-way valve
- 24 3 bar safety valve
- 25 System shut-off valve
- 26 System draining fitting
- 27 System shut-off valve with filter
- 28 System filling valve
- 29 Plate heat exchanger
- 30 Domestic hot water inlet valve
- 31 D.H.W. flow switch
- 32 Airventvalve
- 33 Condensate drain trap
- 34 Gasinterception valve
- 35 Liquid phase detection probe
- 36 Water-gas plate exchanger
- 37 Burner
- 38 System expansion vessel
- 39 Heat generator return probe
- 40 D.H.W. probe



### INSTRUCTIONS FOR USE AND MAINTENANCE

#### 2.1 GENERAL RECOMMENDATIONS



### Never expose the Indoor Unit to direct vapours from a hob.



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.

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



# For safety purposes, check that the air intake/flue exhaust terminals (if fitted) are not blocked.



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

- a) drain the heating system if antifreeze is not used;
- b) shut-offall electrical, water and gas supplies.



In the case of work or maintenance to structures located in the vicinity of ducting or devices for flue extraction and relative accessories, switch off the appliance and on completion of operations ensure that a qualified technician checks efficiency of the ducting or other devices.



# 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.



Do not take apart or tamper with the intake and exhaust pipes.



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  $\pm -3$  °C due to environmental conditions that cannot be blamed on the Indoor Unit.



After brief periods of inactivity, visually check that the siphon is properly filled with condensate and top it up if necessary.



## If you smell gas in the building:

- close the gas meter interception device or the main interception device;
- if possible, close the gas interception valve on the product;
- if possible, open doors and windows wide and create an air current;
- do not use open flames (e.g. lighters, matches);
- do not smoke;
- do not use electrical switches, plugs, door bells, telephones or intercom devices in the building;
- call an authorised company (e.g. Authorised Technical Assistance Centre).



if you smell burning or see smoke coming out of the appliance, switch it off, disconnect power, close the main gas isolation valve, open the windows and call an authorised company (e.g. Authorised Technical Assistance Centre).



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

Contact the manufacturer for disposal instructions.

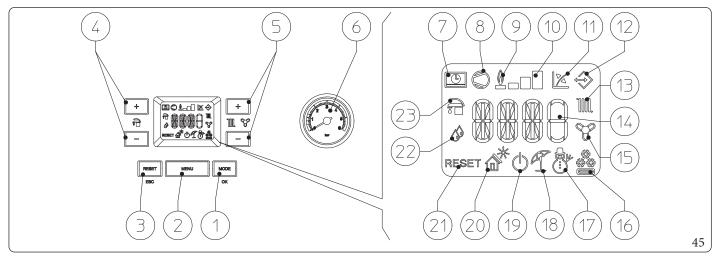


### 2.2 CLEANING AND MAINTENANCE



To preserve the appliance's integrity and keep the safety features, performance and reliability, which distinguish it, 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 CONTROLPANEL



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- Operating mode (winter air conditioning summer stand-by-off) and parameter confirm button
- ? Menu selection button
- 3 Reset and exit menu button
- 4 Domestic hot water temperature selection buttons
- 5 Heating system temperature selection buttons
- 6 Indoor Unit pressure gauge
- Remote control connection (optional)
- 8 Outdoor Unit in operation
- 9 Not used on this model
- 10 Dispensed output level
- 11 Operation with external temperature probe active (optional)

- 12 Connection to other Immergas units
  - Central heating room mode function active
- 14 Temperature indicator, indoor unit info and error codes
  - Room cooling mode operation active
- 16 Operation in cooling mode
  - Operation in winter mode
- 18 Operation in summer mode
- 19 Stand-by Mode
- 20 Notused on this model
- 21 Locked Indoor Unit, it needs to be unlocked by pressing the "RESET" button
- 22 Operation in dehumidification mode
  - DHW production phase operating mode active

### 2.4 SYSTEMUSE



Before ignition, make sure the system is full of water, checking that the pressure gauge needle (6) points to a value between 1 and 1.2 bar and make sure that the chiller circuit has been filled as described in the Outdoor Unit instructions booklet.

- Open the gas cock upstream from the Indoor Unit;
- Press the button (1) until the display turns on, now the system will go back to the status it was in prior to shutdown (upon ignition the following are displayed in sequence: display segments all on, parameter A11, parameter A13).
- If the Indoor Unit is in stand-by, press the button (1) again to activate it. If this is not the case, go to the next point;
- Then press the button (1) in sequence and set the system to summer  $\mathcal{L}$ , winter or air-conditioning and, if necessary, the deaeration timer.



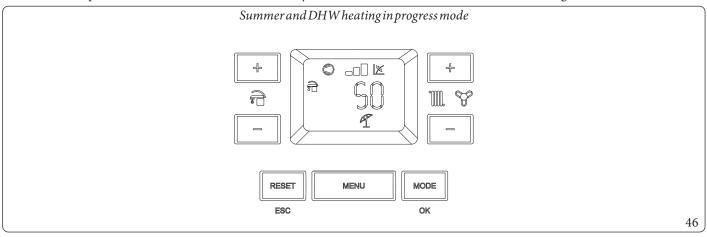
The system, based on the settings you made, automatically handles which energy source to use, choosing the most efficient among those available to meet system requirements (see table at foot of page).

For example the same request (i.e. system central heating request) can be satisfied by the use of Outdoor Unit, shown by its symbol ( $\bigcirc$ ), or by the heat generator ( $\bigcirc$ ).

### Summer 🐬

In this mode, the system only works to produce domestic hot water, the temperature is set using the buttons (4) and the corresponding temperature is shown on the display by the indicator (14).

In this mode the protection functions available in stand-by mode such as the antifreeze function etc are also guaranteed.

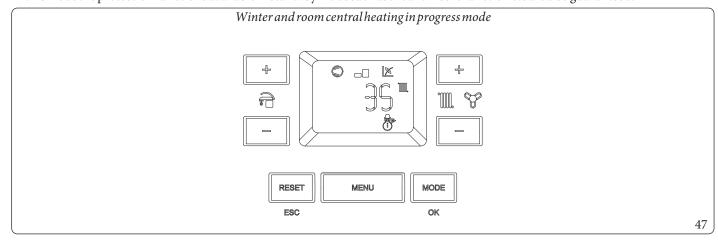


### Winter 🔭

In this mode, the system works both to product domestic how water and room central heating.

The temperature of the DHW is always regulated via buttons (4), the central heating temperature is regulated via buttons (5) and the relative temperature is shown on the display by the indicator (14).

In this mode the protection functions available in stand-by mode such as the antifreeze function etc are also guaranteed.





### System's operating mode

As an example of operation, below is represented for practicality the Outdoor Unit operation mode.

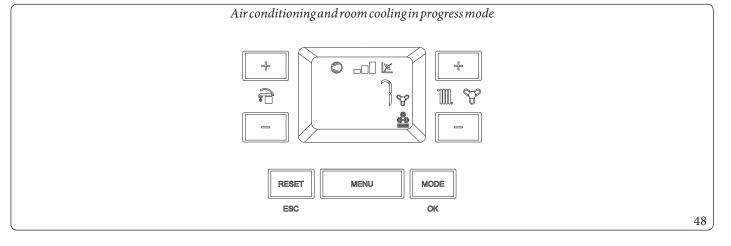
		<b>Heat pump</b>	<b>Heat generator</b>
Summer	Production of Domestic Hot Water	OFF	ON
	Production of Domestic Hot Water	OFF	ON
		OFF	ON
	Central heating	or	
Winter		ON	OFF
	Production of DHW and central heating	OFF	ON(DHW)
		or	
		ON (Central heating)	ON(DHW)
	Production of Domestic Hot Water	OFF	ON
Airconditioning	Room cooling	ON	OFF
		ON (Cooling)	ON(DHW)

### Air conditioning

In this mode, the system works both to produce DHW and to cool the room.

The temperature of the DHW is always regulated via buttons (4), the central heating temperature is regulated via buttons (5) and the relative temperature is shown on the display by the indicator (14).

In this mode the protection functions available in stand-by mode such as the antifreeze function etc are also guaranteed.



### Operation with external probe 🔀

 $The \, system \, is \, set \, up \, to \, use \, the \, Outdoor \, Unit \, external \, probe \, or \, an \, optional \, external \, probe.$ 

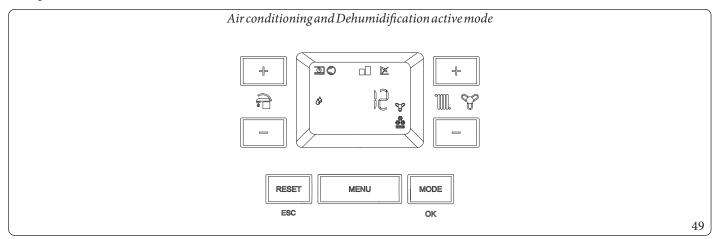
With the external probe connected, the system flow temperature for room heating and air conditioning is managed by the external probe based on the outdoor temperature measured (Parag. 1.16).

 $You \, can \, change \, the \, flow \, temperature \, by \, choosing \, the \, offset \, value \, in \, the \, specific \, user \, menu.$ 

### Dehumidify 🔗

If the system is coupled to a humidistat (optional) or a humidity temperature sensor or a remote zone panel (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).





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.

### "Stand-by" Mode

Press button (1) repeatedly until the symbol 0 appears. The system remains off from this moment, though the antifreeze, pump anti-block and 3-way function and signalling of any anomalies are guaranteed.



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

### **OFF** mode

By holding the button (1) down for 8 seconds, the display switches-off and the Indoor Unit is off completely. In this mode, the safety functions are not guaranteed and the remote devices are disconnected.



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

### "Automatic vent" mode

Every time the Indoor Unit is electrically powered, the system automatic vent function is activated (lasting 8 minutes). This function is displayed via a countdown signalled by the indicator (14).

During this period the DHW and CH functions are not active.

The "Automatic vent" function can be annulled by pressing the "Reset" button (3).

### **Display operation**

The display lights up while the control panel is being used; after a set inactivity period, the brightness drops until only the active symbols are displayed. The lighting mode can be varied via parameter T08 in the P.C.B. programming menu.

### $System\, operating\, with\, Outdoor\, Unit\, disabled$

You can disable the Outdoor Unit through a prearranged connection.

Disabling occurs when contact "S41" closes (Fig.10).

This status is signalled by the flashing of the symbol "Outdoor Unit operation in progress" (8) and the flashing of the anomaly code "E194".



**MAINTENANCE TECHNICIAN** 

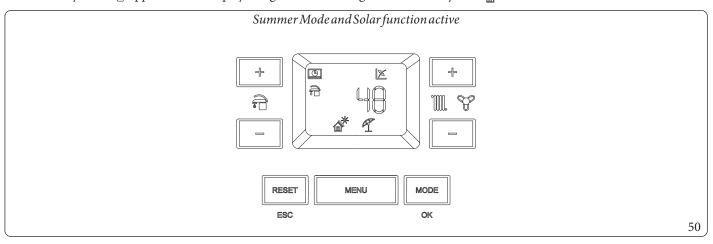


# In this condition the requests are satisfied by the heat generator.

### Solar function 💣

This function is automatically activated if the "Solar ignition delay" parameter is more than 0 seconds.

During a withdrawal, if the outlet water is hot enough or if there is "Solar ignition delay" time, the system does not switch on, the D.H.W. withdrawal symbol  $\widehat{\mathbb{A}}$  appears on the display along with the flashing solar function symbol  $\widehat{\mathbb{A}}$ .



When the water supplied by the solar system is at a temperature lower than what is set, or if the "Solar ignition delay" time has elapsed, the system switches on to bring the DHW to the set temperature. At this point, the solar function symbol will go off.

### 2.5 FAULT AND ANOMALY SIGNALS

The Indoor Unit signals any anomalies by flashing a code on the display (14) according to the following table.

Anomalysignalled	Cause	Indoor Unit status / Solution
No ignition block	In the event of request of room central heating or domestic hot water production, the heat generator does not switch on within the preset time. Upon appliance commissioning or after extended downtime, it may be necessary to eliminate the block.	Press the Reset button (1) (4).
Safety thermostat block (overheating), flame control or flue gas thermofuse anomaly	During normal operation, if a fault causes excessive overheating internally, the Indoor Unit goes into overheating block.	Press the Reset button (1) (2).
Contacts resistance block	The P.C.B. detects a fault on the gas valve supply. Check its connection. (the anomaly is detected and displayed only in the event of a request).	(1) (4).
Heat generator flow probe anomaly	The board detects an anomaly on the NTC heat generator flow probe.	The system does not start (1).
DHW probe fault	The board detects an anomaly on the domestic hot water NTC probe. In this case the antifreeze function is also inhibited.	The heat generator continues to produce domestic hot water but not with optimal performance (1) (4).
Maximum N° of resets	Number of allowed resets already performed.	Attention: the fault may be reset up to 5 times consecutively, after which the function in inhibited for at least one hour. One attempt is gained every hour for a maximum of 5 attempts. By switching the appliance on and off again, the 5 attempts are re-acquired.
	No ignition block  Safety thermostat block (overheating), flame control or flue gas thermofuse anomaly  Contacts resistance block  Heat generator flow probe anomaly  DHW probe fault	Noignition block  Noignition block  In the event of request of room central heating or domestic hot water production, the heat generator does not switch on within the preset time. Upon appliance commissioning or after extended downtime, it may be necessary to eliminate the block.  Safety thermostat block (overheating), flame control or flue gas thermofuse anomaly  Contacts resistance block  The P.C.B. detects a fault on the gas valve supply. Check its connection. (the anomaly is detected and displayed only in the event of a request).  Heat generator flow probe anomaly  The board detects an anomaly on the NTC heat generator flow probe anomaly  The board detects an anomaly on the domestic hot water NTC probe. In this case the antifreeze function is also in-

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



<sup>(2)</sup> The anomaly can only be verified in the list of errors in the "Information" menu.

<sup>(3)</sup> The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.

<sup>(4)</sup> The heat generator does not start, the heat pump mode stays active to satisfy the ongoing requests.

Error Code	Anomalysignalled	Cause	Indoor Unit status / Solution
E 10	Insufficient system pressure	Water pressure inside the central heating circuit that is sufficient to guarantee the correct operation of the heat generator is not detected.	Check on the heat generator pressure gauge that the system pressure is between 1-1.2 bar and restore the correct pressure if necessary.
E12	Domestic hot water inlet probe anomaly	When the DHW (Domestic hot water) inlet probe, used for coupling with solar panels (Par. 3.28), is in error, the function operation is inhibited.	(1).
E15	Configuration error	If the board detects an anomaly or incongruity on the electric wiring, the appliance will not start.	If normal conditions are restored, the heat generator restarts without having to be reset (1).
E 16	Fananomaly	This occurs if the fan has a mechanical or electrical fault.	Press the Reset button (1) (4).
E20	Parasite flame block	This occurs in the event of a leak on the detection circuit or anomaly in the flame control unit.	Press the Reset button (1) (4).
E 23	Heat generator return probe anomaly	The board detects an anomaly on the heat generator return NTC probe.	The system does not start (1) (4).
E24	Push button control panel anomaly	The board detects an anomaly on the pushbutton panel.	If normal conditions are restored, the system restarts without having to be reset (1).
E26	System flowmeter anomaly	The board detects an anomaly on the system flowmeter. Booster pump, if any, always working.	The system does not start (1) (3).  Make sure the booster pump (optional) only activates when requested.

- (1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre)
- (2) The anomaly can only be verified in the list of errors in the "Information" menu.
- (3) The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.
- (4) The heat generator does not start, the heat pump mode stays active to satisfy the ongoing requests.

Error Code	Anomalysignalled	Cause	Indoor Unit status / Solution
E27	Circulation insufficient	This happens when the hydronic module overheats due to poor water circulation in the primary circuit. The causes can be: -low system circulation; check that no shut-off devices are closed on the central heating circuit and that the system is free of air (deaerated); -pump blocked; free the pump; -damaged flowmeter.	Check system circulation and flowmeter. Press the Reset button (1).
E 32	Mixed zone 2 probe anomaly	If the board detects an anomaly on the mixed zone 2 probe, the system cannot work in the affected area.	(1).
E33	Mixed zone 3 probe anomaly	If the board detects an anomaly on the mixed zone 3 probe, the system cannot work in the affected area.	(1).
E34	Safety thermostat intervention Mixed zone 2	During normal operation, if an anomaly causes excessive overheating of the flow temperature in the mixed zone 2, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement (1).
E 35	Safety thermostat intervention Mixed zone 3	During normal operation, if an anomaly causes excessive overheating of the flow temperature in the mixed zone 3, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement (1).
E 37	Low power supply voltage	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).
E38	Loss of flame signal	This occurs when the heat generator is ignited correctly and the burner flame switches off unexpectedly; a new attempt at ignition is performed and if normal conditions are restored, the generator does not have to be reset.	If normal conditions are restored, the generator restarts without having to be reset (1) (2) (4).
E43	Block due to loss of flame signal	This occurs if the "Flame signal loss" error occurs many times in a row within a preset period (E38).	Press the Reset button, before restarting, the heat generator will run a post-ventilation cycle (1) (4).

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

<sup>(2)</sup> The anomaly can only be verified in the list of errors in the ``Information'' menu.

<sup>(3)</sup> The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.

 $<sup>(4)</sup> The heat generator does \, not \, start, the heat \, pump \, mode \, stays \, active \, to \, satisfy \, the \, ongoing \, requests.$ 

Error Code	Anomalysignalled	Cause	Indoor Unit status / Solution
E45	ΔThigh	The board detects a sudden and unexpected rise in $\Delta T$ between the system flow probe and return probe, the heat generator limits the burner output to prevent damaging the condensing module; when the correct $\Delta T$ has been restored, the heat generator returns to normal operation.	
E46	Safety thermostat intervention zone 1	During normal operation, if an anomaly causes excessive overheating of the flow temperature in zone 1, the unit indicates the malfunction.	The unit does not meet the zone central heating requirement (1).
E49	High temperature block on heat generator return probe	This occurs when the heat exchanger return circuit reaches a temperature that is too high.	Make sure that water circulates properly in the heat generator and that the three-way valve works properly. Press the Reset button (1) (4).
E50	External probe missing or faulty	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 Outdoor Unit (1). In case of replacement of the external probe, repeat the installation operations.
E 54	Puffer probe anomaly (optional)	The board detects an anomaly on the puffer probe.	Puffer mode is disabled (1).
E 55	Zone 1 probe anomaly	If the board detects an anomaly on the zone 1 probe, the system cannot work in the affected area.	(1).
E80	P.C.B. malfunction block	This occurs in the event of malfunctions of the P.C.B. that controls the gas valve.	Press the Reset button (1) (4).
E98	Block-maximum no. of software errors	The maximum number of software errors possible has been reached.	Press the Reset button (1) (4).
E99	General block	A heat generator anomaly has been detected.	Press the Reset button (1) (4).
E 121	Zone 1 device offline alarm	The device connected to zone 1 is offline.	(1).
E 122	Zone 2 device offline alarm	The device connected to zone 2 is offline.	(1).

- (1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre)
- (2) The anomaly can only be verified in the list of errors in the "Information" menu.
- (3) The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.
- (4) The heat generator does not start, the heat pump mode stays active to satisfy the ongoing requests.

Error Code	Anomalysignalled	Cause	Indoor Unit status / Solution
E123	Zone 3 device offline alarm	The device connected to zone 3 is offline.	(1).
E125	Zone 1 room temperature probe anomaly	The zone 1 room probe has an out of range resistive value.	(1).
E126	Zone 2 room temperature probe anomaly	The zone 2 room probe has an out of range resistive value.	(1).
E 127	Zone 3 room temperature probe anomaly	The zone 3 room probe has an out of range resistive value.	(1).
E129	Zone 1 humidity probe anomaly	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.
E130	Zone 2 humidity probe anomaly	Anomaly on the zone 2 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1).  Zone humidity cannot be checked.
E 131	Zone 3 humidity probe anomaly	Anomaly on the zone 3 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1).  Zone humidity cannot be checked.
E 138	Screedheater in progress	Screed heater function in progress.	(1).
E139	De-aeration in progress	Vent function in progress.	No demand can be made until the end of the function in progress (1).
E 140	Inertial storage tank probe alarm	The inertial storage tank has an out of range resistive value	(1)
E 142	Dominus offline alarm	Communication with Dominus is offline.	(1).
E 179	Liquid phase probe anomaly	The board detects an anomaly on the liquid phase NTC probe.  ts, contact an authorised company (e.g. Authorised After-	The system does not start (1) (3).

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

<sup>(2)</sup> The anomaly can only be verified in the list of errors in the "Information" menu.

<sup>(3)</sup> The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.

<sup>(4)</sup> The heat generator does not start, the heat pump mode stays active to satisfy the ongoing requests.

Error Code	Anomalysignalled	Cause	Indoor Unit status / Solution		
E 182	Outdoor Unit alarm	An anomaly appears on the Outdoor Unit.	The system does not start, see the anomaly on the Outdoor Unit and its instructions booklet (1) (3).		
E 183	Outdoor Unit in test mode	A signal notifies that the Outdoor Unit is in test mode.	During this time, room heating/air conditioning and domestic hot water production requirements cannot be met.		
E 184	Communication down with Outdoor Unit	A signal notifies an anomaly due to a communication prob- lem between the Indoor Unit and the Outdoor Unit.	Have the electrical connection between the units checked (1) (3).		
E 185	Communication alarm	Communication anomaly between P.C.B. and ignition board.	Have the electrical connection between the components checked (1) (4).		
E 186	Igniter voltage anomaly	An anomaly appears on the ignition board.	(1) (4).		
E 187	Heat pump return probe anomaly	The board detects an anomaly on the heat pump return NTC probe.	(1) (3).		
E 188	Request with temperature out of range	A heating or cooling request is made with an outdoor temperature exceeding the operating limits (Parag. 1.34).	(1) (3).		
E 189	Time out alarm with interface board	If communication between the printed circuit boards is lost, an anomaly is signalled.	(1) (3).		
E 190	Interface board alarm	An anomaly is reported on the interface board.	The system does not start (1). See communication board errors.		
E 192	Heat pump flow probe anomaly	The board detects an anomaly on the NTC heat pump flow probe.	(1) (3).		
E 193	Appliance in test mode	A signal notifies that the appliance is in test mode.	The system continues operating properly.		
E 194	Outdoor Unit disabled	A signal notifies that the Outdoor Unit has been disabled through the appropriate input in the terminal board.	The system continues operating properly.		
E 195	Liquid phase probe low temperature anomaly	Too low temperature is detected in the liquid phase.	Check proper operation of the cooling circuit (1) (3).		
E 196	High temperature block on heat pump flow	Excessively high temperature is detected in the flow circuit of the heat pump.	Check the hydraulic circuit (1) (3).		
E 197	Interface board configuration error	An incorrect interface board configuration has been detected.	The system does not start (1)		
E 198	Cooling demand with heat pump not present	In case of use of cooling mode without heat pump.	The system does not start (1)		
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre)					

- (1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre)
- (2) The anomaly can only be verified in the list of errors in the "Information" menu.
- (3) The heat pump mode does not start, the heat generator stays active to satisfy the room heating and domestic hot water production requests.
- (4) The heat generator does not start, the heat pump mode stays active to satisfy the ongoing requests.

## List of Outdoor Unit Anomalies

 $If the Outdoor \ Unit is faulty, the error \ code is signalled on the control \ panel \ (Fig. 45) \ and \ on the interface \ board \ (Parag. "Interface board -7-segment \ display").$ 

On the control panel, the error is displayed with an "A" + error code.

On the interface board, the error is displayed with an "E" + error code, showing a sequence of two digits.

For example:

Error 101 is displayed as follows: E1 alternated with 01.

The following is the list of alarms as displayed on the control panel.

Error Code	<b>Anomaly signalled</b>	Indoor Unit status / Solution
		Check the communication cable to the Outdoor Unit. Check that
A101	Outdoor Unit communication error	the interface board works properly.
		(1)
A109	Communication error due to incorrect address of	Check the address on the interface board.
A109	interface board	(1)
		Check communication between the management board and inter-
A122	MODBUS communication error	face boards.
		(1)
A162	EEPROM error	Replace the main board of the Outdoor Unit
A102	EEFROMETOI	(1)
A177	Emergencyerror	(1)
A198	Error of thermal fuse terminal board (open)	(1)
		Check the communication cable to the Outdoor Unit.
A 201	Communication error (failed coupling) between	Check that the interface board and main board of the Outdoor
A201	interface board and Outdoor Unit	Unitworkproperly
		(1)
		Check the communication cable to the Outdoor Unit.
A202	Communication error (failed coupling) between	Check that the interface board and main board of the Outdoor
A202	Indoor Unit and interface board	Unitworkproperly
		(1)
		Check wiring of communication between the two boards.
4.202	Communication error between Inverter and main	Replace the main board.
A203	board of the Outdoor Unit	Replace the inverter board
		(1)
(1) If the shu	tdown or fault persists, contact an authorised compa	any (e.g. Authorised After-Sales Technical Assistance Centre)

Error Code	Anomaly signalled	Indoor Unit status / Solution
		Check the position of the sensor.
A 221	O41	Check the relative wiring
A221	Outdoor Unit air temperature sensor error	Replace the sensor
		(1)
		Check the position of the sensor.
4 221		Check the relative wiring
A231	Condenser temperature sensor error	Replace the sensor
		(1)
		Check the position of the sensor.
A251	Discharge temperature sensor error	Check the relative wiring
		Replace the sensor
		Check the position of the sensor.
4 220	Compressor sensor error (overload protection sensor)	Check the relative wiring
A320		Replace the sensor
		(1)
		Check the chiller cycle.
A403	Freezing detection (during cooling operation)	Check the temperatures of the plate heat exchanger
		(1)
		Check the chiller cycle.
	Protection of Outdoor Unit when in overload	Check the compressor connections.
A404	(during safety start-up, normal operating status)	Check the resistances between the different phases of the compres
	(uniting out of the property o	sor
		(1)
A407	Compressor not working due to high pressure	Check the chiller cycle
		(1)
A416	The compressor discharge is overheated	(1)
A430	Outdoor Unit EEV operation error	(1)
A425	Power line failure error (three-phase model only)	Check the power connection of the Outdoor Unit
		(1)
A440	Central heating blocked (outdoor temperature beyond 35°C)	(1)
(1) If the shu	tdown or fault persists, contact an authorised comp	any (e.g. Authorised After-Sales Technical Assistance Centre)

Error Code	Anomaly signalled	Indoor Unit status / Solution
A441	Cooling blocked (outdoor temperature below 9°C)	(1)
A458	Error of Outdoor Unit fan no.1	1
		Check the chiller cycle.
		Check the compressor connections.
A461	Compressor start-up error (Inverter)	Check the resistances between the different phases of the compres-
		sor
		(1)
		Check the inlet current.
A 4 62	I	Check the refrigerant charge.
A462	Inverter total current overload error	Check normal operation of the fan.
		(1)
A 462		Check the compressor sensor.
A463	Compressor overheated sensor	(1)
	Inverter IPM current overload error	Check the compressor connections and its normal operation.
		Check the refrigerant charge.
A 464		Check whether there are obstacles around the Outdoor Unit.
A464		Check whether the service valve is open.
		Check whether the installation pipes are mounted properly.
		(1)
		Check the compressor connections and its normal operation.
A465	Compressor overload error	Check the resistances between the different phases of the compres-
A403	Compressor overload error	sor.
		(1)
		Check the input voltage.
A466	LowvoltageerrorofDCcircuit	Check the power connections.
		(1)
		Check the compressor connections.
A467	Compressor rotation error	Check the resistances between the different phases of the compres-
		sor.
		(1)
(1) If the shu	tdown or fault persists, contact an authorised compa	any (e.g. Authorised After-Sales Technical Assistance Centre)

Error Code	Anomalysignalled	Indoor Unit status / Solution
A 4 6 0	Comment compone (inventor)	Check the main board.
A468	Current sensor error (inverter)	(1)
		Check the power connector of the inverter board.
A469	Voltage sensor error of DC circuit (inverter)	Check the connectors RY21 and R200 of the inverter board.
		(1)
A470	EEPROM reading/writing error of Outdoor Unit	Check the main board.
A4/0	EEPROW reading/writing error of Outdoor Unit	(1)
A471	EEPROM reading/writing error of Outdoor Unit	Check the main board.
A4/1	EEF ROWIEading/writingerror of Outdoor Chit	(1)
A474	Inverter temperature sensor error	Replace inverter board (1)
		Check the wiring.
A475	Error of Outdoor Unit fan no.2 (where present)	Check that the fan is powered.
A4/3		Check the board fuses.
		(1)
	PFC overload	Check inductances.
A484		Replace inverter board.
		(1)
A485	Incoming current sensor error	Replace inverter board.
71403	Theoming current sensor error	(1)
		Check temperature of inverter board. Switch the machine off. Wait
A500	IPM overheated	for the inverter to cool down. Switch the machine back on.
		Check that the coolant is charged
		Check the liquid sensor of the Indoor Unit
A554	Gasleakerror	Check whether the service valve is open
		Check whether the installation pipes are mounted properly.
		Check normal operation of the main board.
A590	Inverter board error	Replace the main board
		(1)
A601	Notpresent	(1) any (e.g. Authorised After-Sales Technical Assistance Centre)

Error Code	Anomalysignalled	Indoor Unit status / Solution			
A604	Not present	(1)			
A653	Not present	(1)			
A654	Not present	(1)			
A899	Not present	(1)			
A900	Not present	(1)			
		Indoor Unit error.			
A901	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A902	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A903	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A904	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A906	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A911	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A912	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A916	Notused	Check Indoor Unit.			
		(1)			
		Indoor Unit error.			
A919	Notused	Check Indoor Unit.			
		(1)			
(1) If the shu	(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised After-Sales Technical Assistance Centre)				

#### 2.6 PARAMETERS AND INFORMATION MENU

#### Information menu

Pressing the "MENU" button (2), the display cyclically shows the "Data" menu, "User" menu and a menu protected by a "0000" access code with the first flashing digit reserved for a qualified technician.

To access an individual menu, once it appears, press the "OK" button (1).

To scroll through the menu items and to edit the values, use the heating temperature control buttons (5). Pressing the "OK" button (1) confirms the parameter, while pressing the "ESC" button (3) goes back to the previous menu or exits.

A minute after the last operation, the system automatically exits any of the menus.



 $The \,menus\,of\,the\,control\,panel, found in\,the\,booklet, refer to\,rev. 9.0\,of\,the\,P.C.B.\,firmware.$ 

#### Data Menu.

Parameter ID	Description	Range
D01	Combustion signal (x0.1 $\mu$ A)	$0 \div 99 \mu A$
D 02	Temperature of the instant heating thermal generator flow outgoing from the heat generator primary exchanger	0÷99°C
D03	Instant output temperature from the DHW heat exchanger	0÷99°C
D04	Value calculated for system setting	5÷80°C
D 05	Value set for DHW setting	10÷65°C
D06	Outdoor temperature (if the Outdoor Unit external probe is connected or if the optional external probe is available)	-20÷50°C
D07	DHW inlet probe temperature	0÷99°C
D08	Heat pump return water temperature	0÷99°C
D09	List of the last five anomalies (to scroll the list press "OK" (1))	
D10	Anomaly list reset. Once "D 10" is displayed, press "OK".	
D12	Heat generator pump operating speed	0 ÷ 100 %
D13	Presence of DHW request	OFF-ON
D14	Circulator pump flow rate	0÷99991/h
D15	Fan operating speed	0 ÷ 9999 rpm
D17	Zone 1 flow temperature (if configured)	0÷99°C
D20	System flow temperature	0÷99°C
D22	Heat generator 3-way (DHW = domestic hot water, CH = central heating)	DHW-CH
D23	Indoor Unit return temperature	0÷99°C
D24	Chiller circuit liquid temperature	0÷99°C
D 25	Zone 2 flow temperature (if configured)	0÷99°C

Parameter ID	Description	Range
D26	Probe for primary solar storage (puffer)	0÷99°C
D27	Primary circuit pressure switch	OFF-ON
D28	Heat pump circulator DHW speed	0÷100%
D29	Flue probe	0÷100°C
D34	Heat pump disabling	OFF-ON
D35	Solar system inlet	OFF-ON
D41	Relative humidity zone 1 (if zone 1 humidity sensor active)	0÷99%
D42	Relative humidity zone 2 (if zone 2 humidity sensor active)	0÷99%
D43	Zone 1 humidistat (if zone 1 humidistat active)	OFF-ON
D44	Zone 2 humidistat (if zone 2 humidistat active)	OFF-ON
D45	Dehumidifier zone 1	OFF-ON
D46	Dehumidifier zone 2	OFF-ON
D47	Zone 1 circulator pump	OFF-ON
D48	Zone 2 circulator pump	OFF-ON
D49	Central heating / cooling system separation 3-way (CL = cooling, HT = heating)	CL-HT
D 51	Zone 1 remote panel	OFF-ON
D 52	Zone 2 remote panel	OFF-ON
D 53	System setting with remote connection in zone 1	5÷80°C
D 54	System setting with remote connection in zone 2	5÷80°C
D 55	Zone 1 thermostat	OFF-ON
D 56	Zone 2 thermostat	OFF-ON
D61	System model definition (MP = Magis Pro; MCI = Magis Combo; MCP = Magis Combo Plus; MPH = High Power Magis Pro; MCH = High Power Magis Combo; MCPH = High Power Magis Combo Plus)	MP - MCI - MCP - MPH - MCH - MCPH
D 62	Communication with Outdoor Unit interface board	OFF-ON
D63	Communication with other Immergas devices	OFF-ON
D71	Outdoor Unit operating frequency	0 ÷ 150 Hz
D72	Compressor temperature	-20÷200°C
D73	Compressor discharge temperature	-20÷100°C
D74	Evaporator coil temperature	-20 ÷ 100 °C
D75	Outdoor Unit compressor absorption (make sure the value reading refers to the inverter and therefore not a value read with an amperometric clamp).	0 ÷ 10 A
D76	Outdoor Unit fan speed	0 ÷ 800 rpm
D77	Electronic expansion valve position	0÷2000

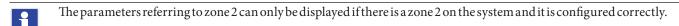


<b>Parameter ID</b>	Description	Range
D78	4-way side (CL = cooling, HT = heating)	HT/CL
D79	Temperature detected by the external probe of the Outdoor Unit	-55°÷+45°C
D80	Heat pump status (reserved for Technical Assistance Service)	-
D81	Outdoor unit operating status	0÷6
D91	P.C.B. software version	1÷99
D92	Ignition board software version	1÷99
D97	Heat pump demand status (reserved for Technical Assistance Service)	0÷999
D98	Thermal generator demand status (reserved for Authorised After-Sales Technical Assistance Centre)	0÷999
D99	System state (reserved to Authorised After-Sales Technical Assistance Centre)	0÷999
D101	Zone 3 flow temperature (if applicable)	1÷99
D102	Zone 3 relative humidity (if available)	1÷99
D103	Zone 3 humidistat (if present)	OFF-ON
D104	Zone 3 dehumidifier (if present)	OFF-ON
D105	Zone 3 circulator pump	OFF-ON
D106	Zone 3 remote panel	OFF-ON
D107	Zone 3 setpoint	1÷99
D108	Zone 3 thermostat	OFF-ON
D120	Outdoor Unit main board firmware version (1/4)	1÷99
D121	Outdoor Unit main board firmware version (2/4)	1÷99
D122	Outdoor Unit main board firmware version (3/4).	1÷99
D123	Outdoor Unit main board firmware version (4/4)	1÷99
D124	Interface board firmware version (1/4)	1÷99
D125	Interface board firmware version (2/4)	1÷99
D126	Interface board firmware version (3/4)	1÷99
D127	Interface board firmware version (4/4)	1÷99
D128	Outdoor Unit inverter board memory version (1/4)	1÷99
D129	Outdoor Unit inverter board memory version (2/4)	1÷99
D130	Outdoor Unit inverter board memory version (3/4)	1÷99
D131	Outdoor Unit inverter board memory version (4/4)	1÷99
D132	Outdoor Unit inverter board firmware version (1/4)	1÷99
D133	Outdoor Unit inverter board firmware version (2/4)	1÷99
D134	Outdoor Unit inverter board firmware version (3/4)	1÷99
D135	Outdoor Unit inverter board firmware version (4/4)	1÷99
D140	Internal clock	0÷23
D141	Internal clock	0÷59
D142	Day of the week	Mo-Tu-We-Th- Fr-Sa-Si
D143	Current day	1÷31
D144	Current month	1÷12
D111	Currentyear	0÷99

#### User Menu

Parameter ID		Range	Default	Customised value	
U 01	Zone 2 heating flow set point in	case of no thermal regulation ("R01" = OFF).	20÷80°C	25	
U 02	Zone 2 cooling flow set point in	case of no thermal regulation ("R01" = OFF)	5 ÷ 25 °C	20	
U 03	Zone 1 central heating offset	You can edit the flow temperature with respect to	-15÷+15°C	0	
U 04	Zone 2 central heating offset	the external probe regulation curve in central heating mode (Parag. 1.17, Offset value)	-15÷+15°C	0	
U05	Zone 1 cooling offset	You can edit the flow temperature with respect to	-15÷+15°C	0	
U06	Zone 2 cooling offset	the external probe regulation curve in cooling stage (Parag. 1.17, Offset value)	-15÷+15°C	0	
U 07	Zone 1 humidity setting	The humidity temperature sensor (optional) de-	30÷70%	50	
U08	Zone 2 humidity setting	fines room humidity in the corresponding area	30÷70%	50	
U11	Nightfunction	Activating the function allows you to reduce the compressor frequency during the Outdoor Unit operation in the time slot set in the U 12 and U 13 parameters.  Make sure the additional power sources needed to meet potential requirements that may present themselves during active operation are available.	OFF-ON	OFF	
U12	Night function enabling time		0 ÷ 23	0	
U 13	Night function disabling time		0 ÷ 23	0	
U 14	Zone 3 heating flow set point in	case of no thermal regulation ("R01" = OFF).	20÷80°C	25	
U 15	Zone 3 cooling flow set point in case of no thermal regulation ("R01" = OFF)		5÷25°C	20	
U 16	Zone 3 central heating offset		-15÷+15°C	0	
U 17	Zone 3 cooling offset		-15÷+15°C	0	
U 18	Zone 3 humidity setpoint		30÷70	50	

Parameter ID		Description			Customised value
U21	Hour setting (internal clock)		0-23 hours		
U22	Minutes setting (internal clock)		0-59 minutes		
U 23	Day of the week		Mo-Tu-We- Th-Fr-Sa-Su		
U 24	Current day		1÷31		
U25	Current month	Current month			
U26	Currentyear	Currentyear			
U32	Start time of the DHW recirculation function (do not use)		0-23 hours		
U33	Start time of the DHW recirculation function (do not use)		0-23 hours		
U 50	Venting	In the case of new central heating systems and in particular mode for floor systems, it is very important that de-aeration is performed correctly. The function consists of the cyclic activation of the pump (100 s ON, 20 s OFF) and the 3-way valve (120 s D.H.W., 120 s heating system).  The function lasts for 18 hours and it is possible to stop it by pressing "ESC" and setting the function	OFF-ON	OFF	
		stop it by pressing "ESC" and setting the function on "OFF". Activation of the function is signalled by the countdown shown on the indicator (14).			



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

#### 2.7 INDOORUNITSHUTDOWN

 $Switch the Indoor \, Unit \, off \, by \, putting \, it \, in \, "off" \, mode, \, disconnect \, the \, omnipolar \, switch \, outside \, of \, the \, Indoor \, Unit \, and \, close \, the \, gas \, cock \, upstream \, from \, the \, appliance.$ 

Never leave the Indoor Unit switched on if left unused for prolonged periods.

#### 2.8 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 is less than 1 bar (with the system cold), you must restore it using the cock located at the bottom of the unit (Parag. 1.40).
- 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.

#### 2.9 DRAININGTHESYSTEM

- 1. Ensure that the filling valve is closed.
- 2. Open the draining valve (Par.1.40).
- 3. Open all vent valves.
- 4. At the end, close the draning 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.

#### 2.10 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.

#### 2.11 ANTIFREEZE PROTECTION

All information on antifreeze protection can be found in the Installer section at Parag. 1.6.



#### 2.12 PROLONGED INACTIVITY

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

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

#### 2.13 CLEANING THE CASE

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



Never use abrasive or powder detergents.

#### 2.14 PERMANENT SHUTDOWN

In the event of permanent shutdown of the Indoor Unit, contact professional staff for the procedures and ensure that the electrical, water and gas supply lines are shut off and disconnected.

# 2.15 USE OF THE REMOTE ZONE PANEL (OPTIONAL)

For general operation of the zone remote panel, see the relative instruction booklet.

The settings on the remote panel, such as operating mode, flow setting, humidity setting etc. are synchronised with those on the machine control panel.

 $Moreover, the \, control \, panel \, is \, not \, disabled \, if \, there \, is \, any \, zone \, remote \, panel.$ 

Using a Zone Remote Panel with firmware version 2.00 or higher, it is possible to:

- edit the DHW setpoint;
- read the domestic hot water temperature;
- remotely reset the errors that appear;
- set the flow setpoint and offset from the Zone Setpoint Menu;
- set Eco, Comfort and manual DHW (Domestic hot water) setpoint from the DHW (Domestic hot water) Setpoint Menu;
- enable and configure the DHW time slots;
- read information on flow and return of the enabled generators;
- set the minimum central heating setpoint.

The parameters that are not managed by the appliance will be displayed on the Zone Remote Panel with the symbol "--".



Set the current date and time from the control panel by changing parameters U21 to U26 in the User menu (Parag. 2.6).

# 3

# INSTRUCTIONS FOR MAINTENANCE AND INITIAL CHECK

## 3.1 GENERAL RECOMMENDATIONS



Operators who install and service the appliance must wear the suitable personal protective equipment (PPE) required by applicable law.



The list of possible PPE is not all-comprehensive as it is indicated and chosen by the Employer of the authorised company (installer or maintenance).



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.



# 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.



The appliance 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 warning (GWP 675).



## 3.2 INITIAL CHECK

#### To commission the package, you must:

- make sure that the type of gas used corresponds to Indoor Unit settings;
- 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 that the air vent valve cap is open and that the system is well-vented;
- Switch the Indoor Unit on and check correct ignition;
- check the  $\Delta p$  gas values in domestic hot water and central heating modes;
- check the CO<sub>2</sub> flow rate in the flue:
- maximum
- minimum
- fill in and affix the installation information sticker on the appliance next to the data nameplate, with the same data as in this instruction manual, in paragraph 1.3 on the facsimile of the sticker;
- check activation of the safety device in the event of no gas, as well as the relative activation time;
- make sure the chiller circuit has been filled according to what is described in the Outdoor Unit instructions booklet;
- check the activation of the main switch located upstream of the Indoor Unit;
- check that the intake and/or exhaust terminals are not blocked;
- ensure activation of all adjustment devices;
- seal the gas flow regulation devices (if the settings are changed);
- ensure production of domestic hot water;
- check the tightness of the hydraulic circuits;
- check ventilation and/or aeration of the installation room where provided.



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

## 3.3 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.

- Clean the flue side of the heat exchanger.
- Clean the main burner.
- Check the correct positioning, integrity and cleanliness of the detection and ignition electrode; remove any oxide present.
- If deposits are detected in the combustion chamber they must be removed and the heat exchanger coils must be cleaned using nylon or broomcorn brushes; it is forbidden to use brushes made of metal or other materials that may damage the combustion chamber. It is also forbidden to use alkaline or acid detergents.
- Check the integrity of the insulating panels inside the combustion chamber and if damaged replace them.
- Visually check for water leaks or oxidation from/on connections and traces of condensate residues inside the sealed chamber.
- Check the contents of the condensate drain trap.
- Visually check that the siphon is properly filled with condensate and top it up if necessary.
- Check that there are no material residues in the condensate drain siphon clogging the condensate passage; also check that the entire condensate drainage circuit is clear and efficient.
- In the event of obstructions (dirt, sediment, etc.) with consequent leakage of condensate in the combustion chamber, one must replace the insulating panels.
- Check that the burner and gas manifold seal gaskets are intact and perfectly efficient, otherwise replace them. In any case the gaskets must be replaced at least every two years, regardless of their state of wear.
- Check that the burner is intact, that it has no deformations or cuts and that it is properly fixed to the combustion chamber lid; otherwise it must be replaced.
- Visually check that the water safety drain valve is not blocked.
- 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
- Check visually that the safety and control devices have not been tampered with and/or shorted, in particular:
- temperature safety thermostat;
- system pressure switch.
- Check the condition and integrity of the electrical system and in particular:
  - the power supply wires must be housed in the cable glands;
  - there must be no traces of blackening or burning.
- Check correct lighting and operation.
- Ensure correct calibration of the burner in domestic water and central heating phases.
- Check correct operation of control and adjustment devices and in particular:
  - system control thermostat intervention;
  - domestic hot water control thermostat intervention.
- $Check sealing \ efficiency \ of gas \ circuit \ and \ the \ internal \ system.$
- Check the intervention of the device against no gas ionisation flame control. Intervention time must be less than 10 seconds.
- Check chiller line connections.
- Check mesh filter on system return
- Check the correct flow rate on plate heat exchanger.
- Check the integrity of the internal insulation.



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.).



Clean the air coil using suitable products.

 $Do \, not \, use \, pressurised \, water \, without \, a \, large \, diffuser. \, Do \, not \, use \, high-pressure \, cleaners \, for \, Cu/Cu \, and \, Cu/Al \, air \, coils.$ 

Concentrated and/or rotating water jets are strictly prohibited.

Never use fluid with a temperature above 45°C to clean the air heat exchangers.

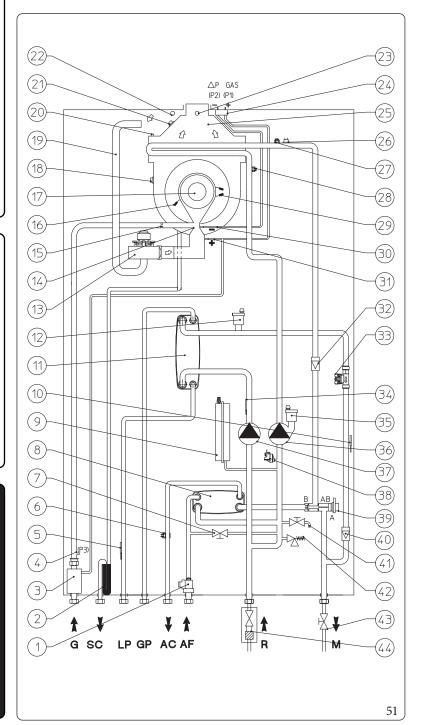
Proper and frequent cleaning (approx. every three months) prevents 2/3 of corrosion problems.



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.



#### 3.4 HYDRAULIC DIAGRAM



## Key (Fig. 51):

4

6

8

21

1 - D.H.W. flow switch2 - Condensate drain trap

3 - Gasvalve

- Gas valve outlet pressure point (P3)

5 - Liquid phase detection probe

- D.H.W. probe

7 - System filling valve

- D.H.W. heat exchanger

9 - System expansion vessel

10 - Heat pump flow probe

11 - Water-gas plate exchanger

12 - Airventvalve

13 - Fan

14 - Air/gas Venturi manifold

15 - Gasnozzle

16 - Detection electrode

17 - Burner

18 - Flue gas thermofuse

19 - Airintake pipe

20 - Manual air vent valve

- Heat exchanger safety thermofuse

22 - Air sample point

23 - Flue sample point

24 - ΔP gas pressure point

25 - Fluehood

26 - Safety thermostat

27 - Heat generator flow probe

28 - Heatgenerator return probe

29 - Ignition electrodes

30 - Venturi negative signal (P2)

31 - Venturi positive signal (P1)

32 - One-way valve

33 - System flow-meter

34 - Heatpumpreturn probe

35 - Airventvalve

36 - Heat generator circuit circulator

37 - Heat pump circuit circulator

38 - System pressure switch

39 - Heat generator three-way valve

40 - One-way valve

41 - System draining valve

42 - 3 bar safety valve

43 - System shut-off valve

44 - System shut-off valve with filter

# Key (Fig. 51):

G - Gassupply

SC - Condensate drain

LP - Chiller line - liquid phase GP - Chiller line - gaseous phase

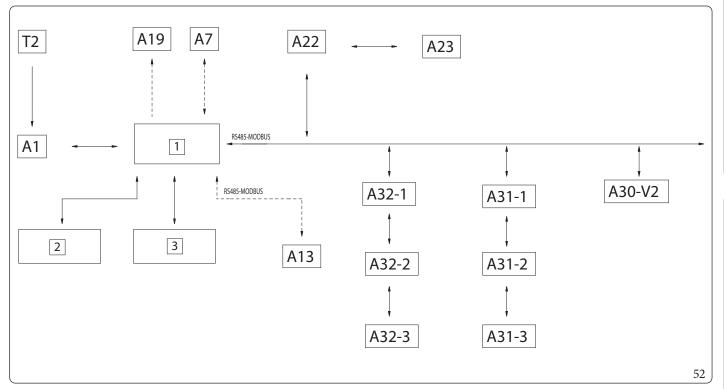
AC - Domestic hot water outlet

AF - Domestic hot water inlet

R - System return M - System flow

#### 3.5 WIRING DIAGRAMS

## General connection wiring diagram



## Key (Fig. 52):

1 - P.C.B. adjustment

2 - Low voltage electrical connection terminals

3 - Very low safety voltage electrical connection clamps

A1 - Ignition board

A2 - P.C.B.

A7 - Three-relay board (optional) A13 - System manager (optional)

A31-1 - Modbus zone 1 humidity probe (optional) A31-2 - Modbus zone 2 humidity probe (optional)

 $A31\text{-}3 \ - \ Modbus zone \, 3 \, humidity \, probe \, (optional)$ 

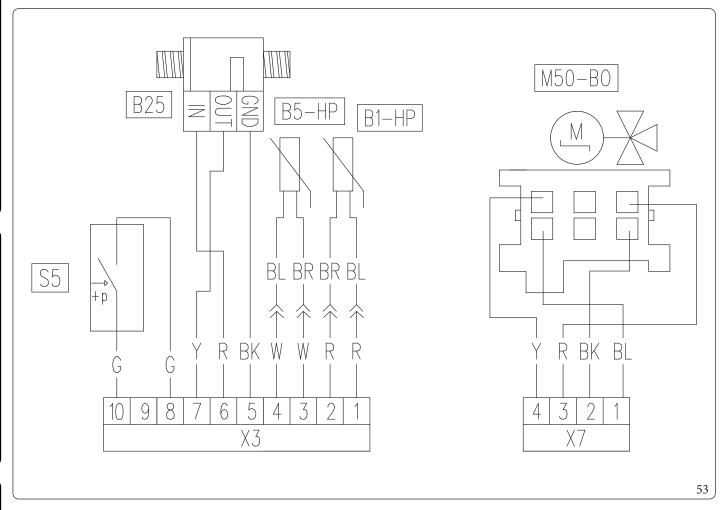
A19 - Two-relay board (optional)

A22 - Interface board A23 - Outdoor Unit

A30-V2 - Dominus V2 (optional)
A32-1 - Zone 1 remote control (optional)
A32-2 - Zone 2 remote control (optional)
A32-3 - Zone 3 remote control (optional)

T2 - Ignition transformer

# Probe connection wiring diagram



Key (Fig. 53):

A2 - P.C.B.

B1-HP - HP flow probe B5-HP - HP return probe B25 - System flow-meter

M50-B0 - Heat unit three-way valve.

S5 - System pressure switch

Colour code key (Fig. 53):

BK - Black BL - Blue

BR - Brown

G - Green

GY - Grey

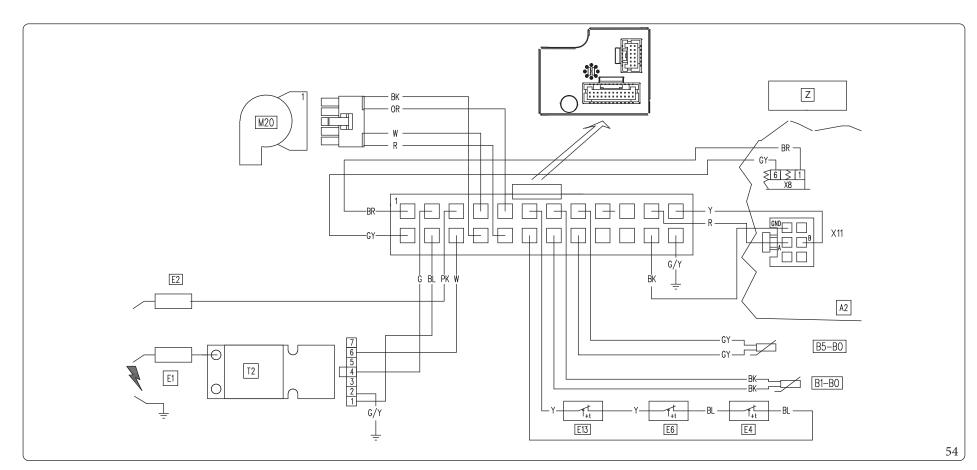
G/Y - Yellow/Green

P - Purple

PK - Pink

R - Red





## Key (Fig. 54):

A2 - P.C.B.

Temperature control unit flow probe B5-B0 -Temperature control unit return probe

Ignition glow plug E1Detection electrode Safety thermostat Flue safety thermostat *E6* 

Heat exchanger safety thermostat E13

M20 -Fan

*T2* Ignition transformer

Control panel electrical connections compartment terminal board

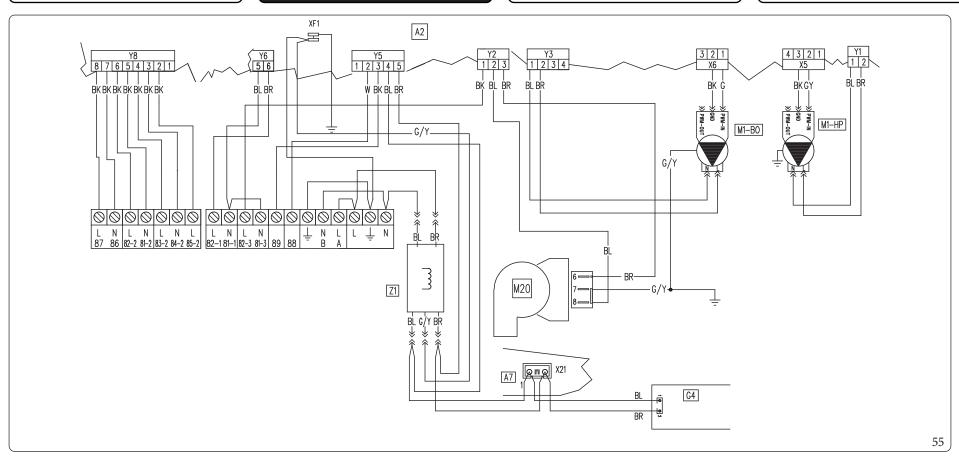
# Colour code key (Fig. 54):

BK- Black Blue BRBrown Green Grey GYYellow/Green Orange Purple Pink Red White Y Yellow W/BK -White/Black



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## Key (Fig. 55):

P.C.B.A2 -

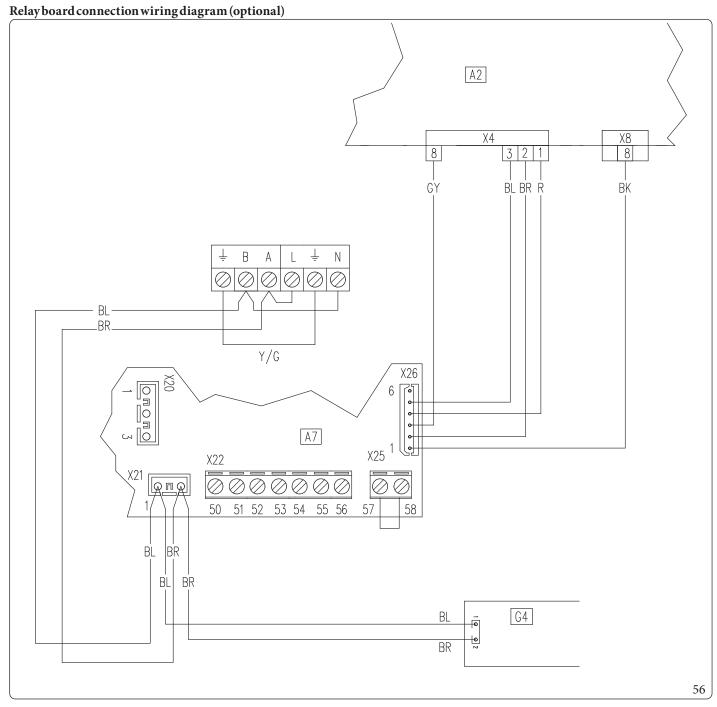
Three-relay board (optional) 24 Vdc power supply unit Thermalgeneralcirculator M1-B0 -Heat pump circulator M1-HP

M20 -Fan

Antijammingfilter

#### Colour code key (Fig. 55): - Black BK

BL- Blue BRBrown Green Grey GYYellow/Green Orange Purple PinkRed W White Yellow White/Black W/BK -



Key (Fig. 56):

A2 - P.C.B.

A7 - Three-relay board (optional) G4 - 24Vdc power supply Colour code key (Fig. 56):

BK - Black BL - Blue

BR - Brown

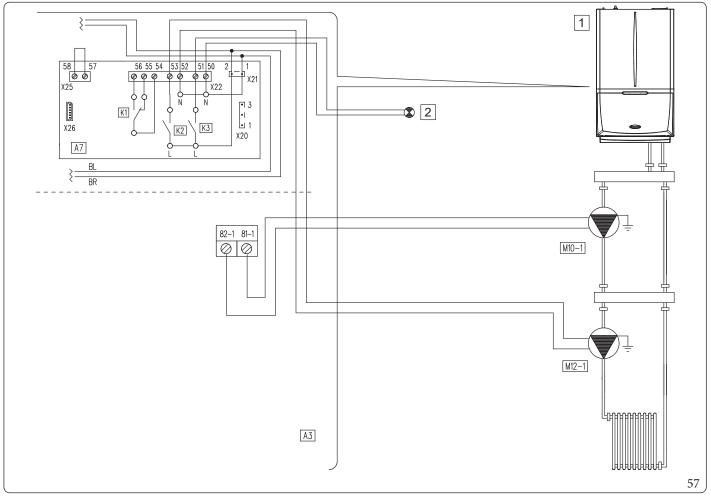
G - Green GY - Grey

G/Y - Yellow/Green

P - Purple PK - Pink R - Red

# Wiring diagram with active system phase and generic alarm

 $All K1, K2 and K3 \, relays \, can \, be \, configured \, as \, an \, active \, system \, phase \, and \, generic \, alarm; the \, diagram \, represents the \, connection \, on \, relay \, 2.$  In the event this relay is used, it is necessary to jumper pins 57 and 58 of connector X25 positioned on the relay board.



# Key (Fig. 57):

1 - Generic alarm signaller

2 - Appliance
A3 - Integrated P.C.B.
A7 - Three-relay board
M10-1 - Zone 1 circulator pump
M12-1 - Zone 1 booster pump
K1 - Configurable relay
K2 - Configurable relay

Configurable relay

 $The \ diagram \ (Fig. 57) \ shows \ the \ connection \ on \ relay \ K2 \ and \ generic \ alarm \ signalling \ on \ relay \ K3.$ 

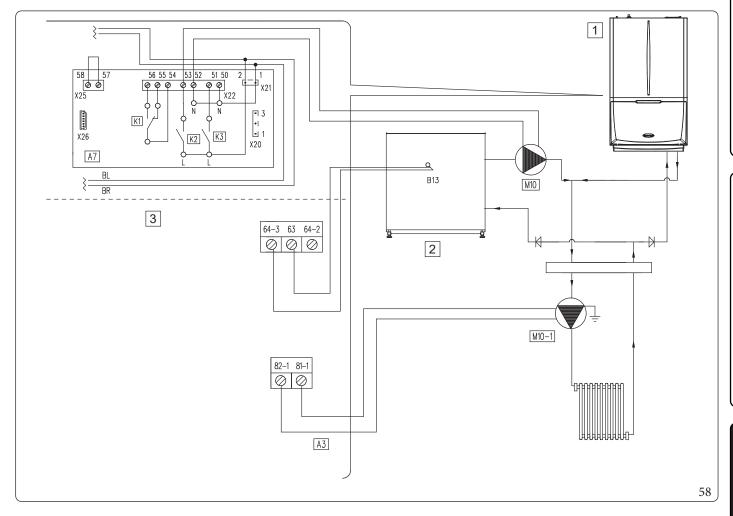


For more details, see Parag. 3.13.

## Wiring diagram with puffer mode active

All relays can be configured as active puffer mode, the diagram shows the connection on relay 2. In the event this relay is used, it is necessary to jumper pins 57 and 58 of connector X25 positioned on the relay board.

Active puffer mode excludes activation of the third zone mode.



# Key (Fig. 58):

1 - Appliance

2 - Puffer

3 230 Vacvauxiliaries A3Integrated P.C.B. Three-relay board A7B13 Centralheatingprobe M10Puffer circulator M10-1 -Zone 1 circulator pump *K*1 Configurable relay Configurable relay *K*2 *K*3 Configurable relay

 $The \, diagram \, (Fig. \, 58) \, represents \, the \, connection \, on \, relay \, K2.$ 



For more details, see Parag. 3.14.



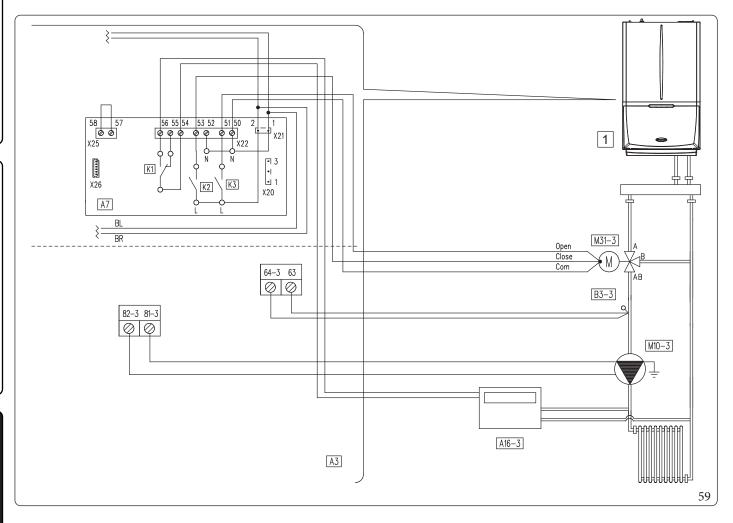
# Wiring diagram with 3 zones

It is possible to configure the device to manage a third mixed zone.

 $Relays\,can\,be\,used\,to\,control\,the\,Zone\,3\,mixing\,valve.$ 

In particular, relay 3 can be used for opening the valve and relay 2 for closing it.

In addition, relay 1 can be used for the possible activation of a zone 3 dehumidification request.



Key (Fig. 59):

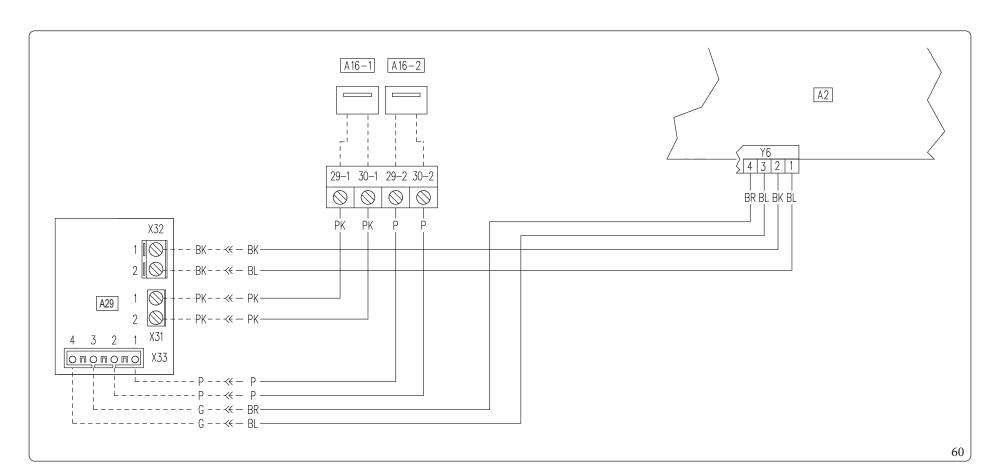
*K*3

1 **Appliance** A3Integrated P.C.B. A7Integrated P.C.B. A16-3 -Dehumidifier zone 3 B3-3 -Zone 3 flow probeZone 3 circulator pump M10-3 -M31-3 - $Zone\,3\,mixing\,valve$ *K*1 Configurable relay Configurable relay *K*2

Configurable relay

 $It is \, necessary \, to \, insert \, a jumper \, on \, connector \, X25 \, (Fig. \, 59).$ 

Relay K1: Dehumidification request Relay K2: Mixing valve closure Relay K3: Mixing valve opening



Key (Fig. 60):

A2 - P.C.B.

Zone 1 dehumidifier (optional) Zone 2 dehumidifier (optional) Two-relay board (optional)

Colour code key (Fig. 60):

BK- Black Blue

Brown

Green

Grey

G/Y - Yellow/Green

Orange

Purple

- Pink Red

White

Yellow

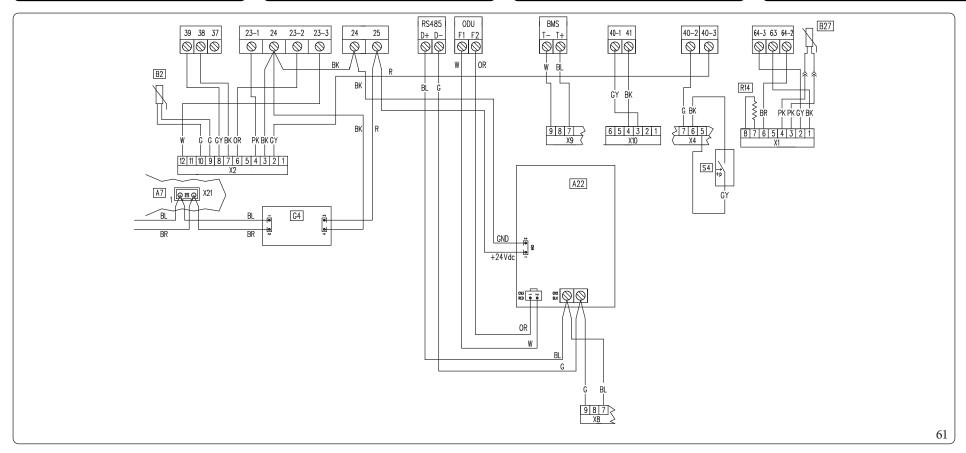
W/BK - White/Black





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## Key (Fig. 61):

Relay board A7 -

Outdoor Unit interface probe

В2 D.H.W. probe Liquid phase probe B27 24Vdcpowersupply Configuration resistance R14 D.H.W. flow switch

# Colour code key (Fig. 61):

BK- Black Blue BL

BRBrown Green G

Grey GY

Yellow/Green G/Y -

Orange

Purple

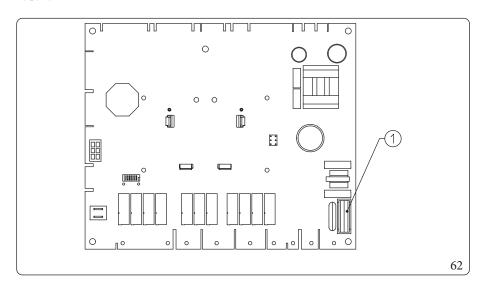
PKPink

Red

WhiteW

Yellow Y W/BK -White/Black

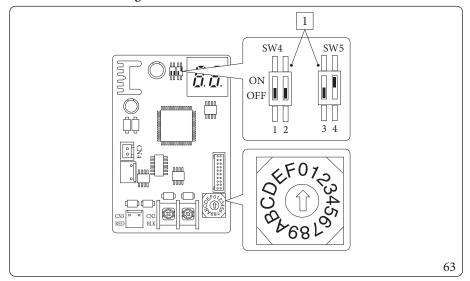
P.C.B.



Key (Fig. 62):

1 - F3.15A H250V fuse

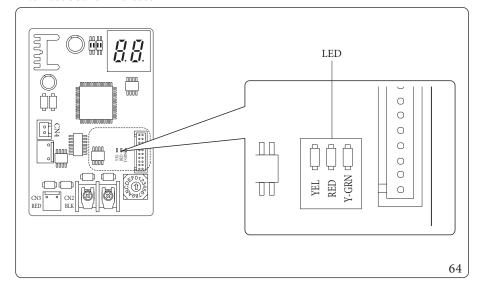
# $Interface \, board \, \hbox{-} \, setting \, switch \,$



Key (Fig. 63):

1 - Factory setting: do not change

## Interface board - indicator LED



Key (Fig. 64):

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

 $\label{eq:Green_lemma_lemma_lemma} Green\ LED\ flashing = Communication\ between\ interface\ board\ and\ Outdoor\ Unit\ valid$ 

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			

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

ERROR CODES	SEGMENTS		
E101			

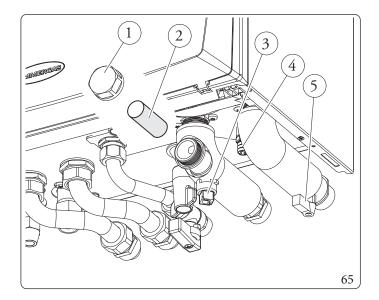
# 3.6 SYSTEM FILTER

The Indoor Unit has a filter on the system return cock to keep the system in good operating conditions.

Periodically and when necessary, the filter can be cleaned as described below (Fig. 65).

Close the tap (3) with a size 12 spanner and tap (5) by hand, drain out the water contained in the Indoor Unit using the draining valve (4).

Open the cap (1) and clean the filter (2).



# 3.7 TROUBLESHOOTING



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

Trouble	Possible causes	Solutions
Smell of gas	Caused by leakage from gas circuit pipelines.	Check sealing efficiency of gas intake circuit.
Repeated ignition blocks	No gas. Condensate drain clogged.	Check the presence of pressure in the network and that the gas adduction valve is open. Restore the function of the condensate drain, checking that the condensate has not affected: combustion components, fan and gas valve.
Irregular combustion or noisiness	Dirty burner, clogged primary heat exchanger, incorrect combustion parameters, intake-exhaust terminal not correctly installed.	Check the indicated components.
Non-optimal ignition of first ignitions of the burner.	The first ignitions of the burner (after calibration) may not be optimal.	The system automatically adjusts the burner ignition until the best ignition conditions are found.
Frequent trips of the overheating safety device thermostat function.	Lack of water in the appliance, little water circulation in the system or blocked pump (Par. 1.36 - 1.37).	Check on the pressure gauge that the system pressure is within established limits. Check that the radiator valves are not closed and also the functionality of the pump.
Siphon blocked	Dirt or combustion products deposited inside.	Check that there are no residues of material blocking the flow of condensate.
Heat exchanger blocked.	This may be caused by the drain trap being blocked.	Check that there are no residues of material blocking the flow of condensate.
Abnormal noises in the system	Air in the system.	Check opening of the special air vent valve cap (Par.1.40). 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.
Abnormal noises in the condensation module	Air in the module.	Use the manual air vent valve (Parag. 1.40) to remove any air inside the condensation module. When the operation has been performed, close the manual air vent valve.
Poor production of D.H.W.	DHW heat exchanger clogged.	Contact the Authorised After-Sales Assistance Service that has procedures to clean the D.H.W. heat exchanger.
Poor production of D.H.W.	Clogged condensing module or D.H.W. exchanger.	$Contact After-Sales \ Assistance \ Service \ that \ has \ procedures \ to \ clean \ the module \ or \ D.H.W. \ heat \ exchanger.$

# Red pump LED

There can be three possible causes for this anomaly:

Trouble	Possible causes	Solutions		
Lowpower supply voltage	After about 2 seconds, the LED switches from green to red and the pump stops.	Wait for the power supply voltage to rise; when the pump restarts, the LED will turn green again with a delay of about one second. Note: The flow rate decreases as the supply voltage decreases.		
		Carefully act on the screw in the middle of the head to manually releases the crankshaft; circulation starts up immediately after the rotor is released and the LED switches from red to green after about 10 seconds.		
Electrical error		Check that there is no fault on the pump (on its wiring or electronics).		

#### 3.8 PARAMETERS AND INFORMATION MENU

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

To access the programming phase, press the "MENU" button (2) until the "Password" menu appears. Enter the password, modify the numerical values using the "central heating regulation" buttons (5) and confirm with the "OK" button (1).

Once you have accessed programming, you can scroll through the parameters in the "System" menu.

Using the "central heating regulation" button, select the parameter and edit the value.

To save the parameter change, press the "OK" button.

Wait for 1 minute or press the "ESC" button (3) to exit programming mode.

Parameter ID		Range	Default	Customised value	
A 03	Minimum speed	Defines the minimum operating speed of the heat pump circulator	0 ÷ 100 %	55	
A 04	Maximum fixed speed	Defines the maximum operating speed of the heat pump circulator	45 ÷ 100 %	100	
A 05	Circulator mode	0 = Fixed (See Parag. "Circulation pump")  5 - 25 K = ∆T constant (See Parag. "Circulation pump")	0-25°C	0	
A 11*	Outdoor Unit model	Establishes the Outdoor Unit model paired with the hydronic module. If set to OFF, only the integrated generators are activated.	OFF-4-6-9	9	
A 12	System vent	Enables the automatic vent function.  This function activates as soon as the unit is powered.	OFF-ON	ON	
A 13	Number of zones	Defines the number of zones in the heating system	1-2-3	1	
A 14	Zone 2 max temperature	Defines the maximum temperature acceptable by zone 2	20÷80°C	45	
A 15	Zone 3 max temperature	$\label{eq:define} Defines the maximum temperature acceptable by \\ zone 3$	20÷80°C	45	



\* Parameter A11=OFF, may only be used temporarily and only by an authorised technician; failure to do so will invalidate the warranty.

Parameter ID		Description	Range	Default	Customised value
A 16	Zone 1 humidity sensor	Defines the type of control on zone 1 humidity	SE = Tempera- ture - humidity sensor ST = Humidis- tat RP - Remote panel	ST	
A 17	Zone 2 humidity sensor	Defines the type of control on zone 2 humidity	SE=Tempera- ture-humidity sensor ST=Humidis- tat RP-Remote panel	ST	
A 18	Heat generator minimum circulator speed	Defines the minimum operating speed of the heat generator circulator	55 ÷ 100 %	75	
A 19	Heat generator maximum fixed circulator speed	Defines the maximum operating speed of the heat generator circulator	55 ÷ 100 %	100	
A 21	BMS communication address	Defines the communication protocol between the Indoor Unit and the Outdoor Unit	1 ÷ 247	11	
A 22	BMS communication setting	OFF = BMS communication protocol on 485; use if connected to optional Immergas devices.  485 = Do not use  UC = Do not use	OFF-485-UC	OFF	
A 23	Zone 3 humidity sensor	Defines the type of control on zone 3 humidity	SE=Tempera- ture-humidity sensor ST=Humidis- tat RP-Remote panel	ST	
A 24	Zone 1 max temperature	Defines the maximum temperature acceptable by zone 1	20÷80°C	55	
A 25	Dewpointenabling	In the presence of a remote device, enables calculation of the dew point	OFF-ON	ON	
A 27	Zone 1 flow probe	It allows enabling the zone 1 flow probe	OAT = Use of external probe on the Indoor Unit ZN1 = Use of zone 1 flow probe	OAT	
A 30	Dominusenabling	Allows you to enable the Dominus remote device	OFF-ON	OFF	

ID		Description	Range	Default	Customised value
			RT = Room		
			thermostat		
			RP - Remote	RT	
A 31	Zone 1 room thermostat	Defines the temperature control in zone 1	panel		
			RPT=Remote		
			panel with		
			Thermostat		
			RT = Room		
			thermostat		
			RP - Remote		
A 32	Zone 2 room thermostat	Defines the temperature control in zone 2	panel	RT	
			RPT=Remote		
			panel with		
			Thermostat		
	Zone 3 room thermostat	Defines the temperature control in zone 3	RT = Room	RT	
			thermostat		
			RP - Remote		
A 33			panel		
			RPT=Remote		
			panel with		
			Thermostat		
A 35	Room probe modulation	In the presence of Zone Remote panel, configured in RP, enables modulation with room probe	OFF-ON	ON	
A 20	Heating/Cooling contact	Enables the Heating/Cooling function by means of	OFF-ON	ON	
A 39	Heating/Cooling contact	adrycontact	OFF-ON	ON	
A 41	Zone 1 heating/cooling enable	Allows to determine heating, cooling mode or both of zone 1	HT/CL/H-C	H-C	
A 42	Zone 2 heating / cooling enable	Allows to determine heating, cooling mode or	HT/CL/H-C	H-C	
1142	Zone zneating/ cooming chable	both of zone 2	III/CE/II-C		
A 43	Zone 3 heating/cooling enable	Allows to determine heating, cooling mode or both of zone 3	HT/CL/H-C	H-C	
A 51	Dehumidifier flow setpoint zone 1	Setpoint used by the machine for dehumidification demand on zone 1 without cooling demands present	15÷25°C	20	
A 52	Dehumidifier flow setpoint zone 2	Setpoint used by the machine for dehumidification demand on zone 2 without cooling demands present	15÷25°C	20	
A 53	Dehumidifier flow setpoint zone 3	Setpoint used by the machine for dehumidification demand on zone 3 without cooling demands present	15÷25°C	20	
		Resets to default settings	OFF-ON	OFF	

Parameter ID	Description		Range	Default	Customised value
P00	DHW max	Defines the maximum heat output percentage of the heat generator during the D.H.W. phase compared to the maximum heat output available	0 - 100 %	100%	
P01	Min C.H.	Defines the minimum heat output percentage of the heat generator during the C.H. phase com- pared to the maximum heat output available	0 - P 02 %	0	
P 02	Central heating max	Defines the minimum heat output percentage of the heat generator during the C.H. phase com- pared to the maximum heat output available	0 - 100 %	85 %	
P03	Relay 1 (optional)	See paragraph 1.38.	0 ÷ 5	0	
P04	Relay 2 (optional)	See paragraph 1.38.	0 ÷ 5	0	
P05	Relay 3 (optional)	See paragraph 1.38.	0 ÷ 5	0	
P 07	External probe correction	If the reading of the external probe is not accurate, it is possible to correct it in order to compensate any environmental factors	-9÷9K	0	
P21	Activation time	Temperature setpoint - Activation time correction	0 - 120 minutes	20	
P 22	Increase time	Temperature setpoint - Increment time correction	0-20 minutes	5	
P23	Heat setpoint correction	Allows to correct the heating mode demand setpoint in presence of dispersions or system decoupling circuits	0÷10°C	0	
P 24	Cool setpoint correction	Allows to correct the cooling mode demand setpoint in presence of dispersions or system decoupling circuits	0 ÷ 10°C	0	

Parameter ID		Description	Range	Default	Customised value
T 02	D.H.W. thermostat	The boiler switches off on the basis of the temperature set.  Correlated: the Indoor Unit switches off according to the temperature set.  0 Fixed: the switch-off temperature is fixed at the maximum value regardless of the value set on the control panel.	0÷1	0	
Т03	Solar delay timing	The generator is set to switch-on immediately after a request for DHW. In the case of coupling with a solar storage tank positioned upstream from the product, it is possible to compensate the distance between the storage tank and the generator in order to allow the hot water to reach the heat generator. Set the time necessary to verify that the water is hot enough (see Par. Solar panels coupling)	0 - 30 seconds	0	
Т04	D.H.W. priority timing	In winter mode the heat generator, at the end of a domestic hot water request, is ready to switch to central heating mode if there is an active request. Timing sets a time period in which the heat generator waits before changing the operating mode, in order to quickly and comfortably satisfy an additional request for domestic hot water	0 - 100 seconds (step 10 sec)	20	
Т 05	Central heating ignitions timer	The hydronic module has an electronic timer, which prevents the generator from igniting too often in central heating mode	0 - 10 minutes	3	
Т06	Heating ramp timing	In the heating stage, the heat generator performs an ignition ramp in order to reach the maximum output set	0 - 14 minutes	14	

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Parameter ID		Range	Default	Customised value	
Т07	Delay request from TA	The system is set to switch on immediately after a request for room air conditioning. For special systems (e.g. zone systems with motorised valves, etc.), it may be necessary to delay ignition.	0-240 seconds (10 sec step)	0	
T 08 Display lighting  T 09 Display		Establishes the display lighting mode. AU: the display lights up during use and dims after 15 seconds of inactivity, in case of anomaly the display works in flashing mode. OFF: display lighting is always off. ON: display lighting is always on.	AU-OFF-ON	AU	
		Establishes what the indicator displays 14 (Fig. 12).  "Summer" mode: ON: active circulator, this displays the flow temperature, with circulator off the indicator is off OFF: the indicator is always off  "Winter" and "cooling" mode: ON: active circulator, this displays the flow temperature, with circulator off the set value is displayed on the central heating selector OFF: this always displays the value set on the central heating selector	ON-OFF	ON	
T11	Donotuse		0÷36	0	
T21	Screed heating - days at minimum temperature	Defines the time spent at minimum operating temperature during the active function	0÷7 days	3	
T 22	Screed heating - ascent gradient	Defines the ascent gradient of the temperature	0-30°C/day	30	
T 23	Screed heating - days at maximum temperature	Defines the time spent at maximum operating temperature during the active function	0 ÷ 14 days	4	
T 24	Screed heating - descent gradient	Defines the descent gradient of the temperature	0-30°C/day	30	

Parameter ID		Range	Default	Customised value	
R 01	External probe	Defines if and which external probe is used to manage the system.  OFF = no external probe used  OU = external probe on Outdoor Unit  IU = optional external probe connected to the Indoor Unit	OFF-OU-IU	OU	
R 02	Outdoor temperature for max CH flow zone 1	Establishes the outdoor temperature at which to have the maximum flow temperature of zone 1.	-15÷25°C	-5	
R03	Outdoor temperature for min CH flow zone 1	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 1.	-15÷25°C	25	
R04	Zone 1 maximum central heating	Defines the maximum flow temperature in zone 1 room central heating mode	20÷80	55	
R05	Zone 1 minimum central heating	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		25	
R06	Outdoor temperature for Zone 2 low temperature zone max. CH flow	Establishes the outdoor temperature at which to have the maximum flow temperature of zone 2	-15 ÷ 25 °C	-5	
R07	Outdoor temperature for Zone 2 low temperature zone min. CH flow	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 2	-15 ÷ 25 °C	25	
R08	Zone 2 low temperature zone maximum central heating	Defines the maximum flow temperature in zone 2 room central heating mode	20÷80	45	
R09	Zone 2 low temperature zone minimum central heating	Defines the minimum flow temperature in zone 2 room central heating mode	20÷80	25	
R 10	Zone 1 outdoor temperature for minimum cooling flow	Establishes the maximum outdoor temperature at which to have the minimum flow temperature in zone 1 cooling mode	20÷40	35	
R11	Outdoor temperature for Zone 1 maximum cooling flow	Establishes the minimum outdoor temperature at which to have the maximum flow temperature in zone 1 cooling mode	20÷40	25	
R 12	Zone 1 minimum cooling	Defines the minimum flow temperature in zone 1 room cooling mode	05 ÷ 20	7	
R13	Zone 1 maximum cooling	Defines the maximum flow temperature in zone 1 room cooling mode	05 ÷ 25	12	

Parameter ID		Description			
R 14	Outdoor temperature for Zone 2 low temperature zone min cooling flow	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 2	20÷40	35	
R15	Outdoor temperature for Zone 2 low temperature zone max cooling flow	Establishes the outdoor temperature at which to have the maximum flow temperature of zone 2	20÷40	25	
R 16	Zone 2 low temperature zone minimum cooling	Defines the minimum flow temperature in zone 2 room cooling mode	05 ÷ 20	18	
R 17	Zone 2 low temperature zone maximum cooling			20	
R21	Outdoor temperature for max CH flow zone 3			-5	
R22	Outdoor temperature for min CH flow zone 3	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 3	-15 ÷ 25	25	
R23	Zone 3 maximum central heating	Defines the maximum flow temperature in zone 3 room central heating mode	20÷80	45	
R24	Zone 3 minimum central heating	Defines the minimum flow temperature in zone 3 room central heating mode	20÷80	25	
R25	Outdoor temperature for Zone 3 low temperature zone min cooling flow	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 3	20÷40	35	
R26	Outdoor temperature for Zone 3 low temperature zone max cooling flow	Establishes the outdoor temperature at which to have the maximum flow temperature of zone 3	20÷40	25	
R27	Zone 3 low temperature zone minimum cooling	Defines the minimum flow temperature in zone 3 room cooling mode	05 ÷ 20	18	
R28	Zone 3 low temperature zone maximum cooling	Defines the maximum flow temperature in zone 3 room cooling mode	05 ÷ 25	20	

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Parameter ID		Range	Default	Customised value	
I 02	System integration enabling  Using this function, you can enable an alternativ (AL) power source to integrate heating system central heating		OFF - AL	AL	
I04	Central heating max wait time	Establishes the maximum amount of time before activating central heating integration	1 - 255 minutes	30	
I05	Integration activation mode	Establishes how to integrate the heat generator to the Outdoor Unit, you can choose between "AU" automatic and "MA" manual	AU - MA	AU	
I 07	Activation band	Establishes a temperature range around the calculated temperature to determine which generator to switch on	0÷10°C	4	
I08	DHW concomitance	See paragraph 3.21	OFF/H-C/ HEAT/COOL	OFF	
I 09	DHW activation temperature	Establishes the outdoor temperature under which DHW integration is enabled	-25÷35°C	2°C	
I 10	System activation temperature	Establishes the outdoor temperature under which system integration is enabled	-25 ÷ 35°C	2°C	
I11	Outdoor Unit operating hours	Displays the hours of operation performed by the Outdoor Unit			
I 12	Indoor central heating unit hours of operation	Displays the hours of operation by the indoor central heating unit			
I13	Indoor D.H.W. unit hours of operation	Displays the hours of operation by the Indoor Unit in DHW			
I15	Preheat function enabling temperature	If system integration is enabled, this is the temperature below which the preheat function is activated	14÷25°C	15	

## Maintenance menu.

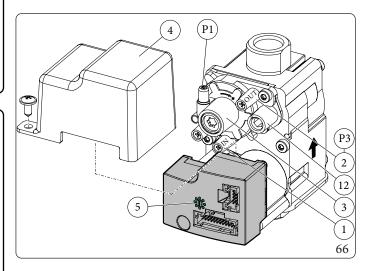
Accessing this menu, the unit goes into stand-by. By selecting every single parameter, you can activate a specific function for each load.

Parameter ID		Range	Default	Customised value	
M 02	Heat pump circuit circulator speed linked to the heat pump circuit  Establishes the circulator speed linked to the heat pump circuit		0 - 100%		0
M 03	Heat generator 3-way circuit	Moves the 3-way motor from system to DHW	DHW-CH- MD	DHW	
M04	Cooling 3-way	Moves the cooling circuit 3-way motor	OFF-ON	OFF	
M 06	Heat generator circuit circulator speed	Establishes the circulator speed linked to the heat generator	0 - 100%	0	
M 07	Notused	Notused			
M08	Zone 1 outdoor circulator pump	Enables the zone 1 outdoor circulator pump	OFF-ON	OFF	
M 09	Zone 2 outdoor circulator pump	Enables the zone 2 outdoor circulator pump	OFF-ON	OFF	
M 10	Mixer zone 2	Establishes zone 2 mixing valve positioning	OFF - OPEN - CLOSE	OFF	
M 13	Dehumidifier zone 1	Enables the dehumidifier in zone 1	OFF-ON	OFF	
M 14	Dehumidifier zone 2	Enables the dehumidifier in zone 2	OFF-ON	OFF	
M 15	Relay 1	Enables relay 1 on the 3-relay board	OFF-ON	OFF	
M 16	Relay 2	Enables relay 2 on the 3-relay board	OFF-ON	OFF	
M 17	Relay 3	Enables relay 3 on the 3-relay board	OFF-ON	OFF	
M 18	Zone 3 outdoor circulator pump	Enables the zone 3 outdoor circulator	OFF-ON	OFF	
M 19	Dehumidifier zone 3	Enables the dehumidifier in zone 3	OFF-ON	OFF	
M 20	Zone 3 mixing valve	Establishes zone 3 mixing valve positioning	OFF - OPEN -CLOSE	OFF	
M40	Circulator pump flow rate	Determines the flow rate of the system circulator	0-9999	-	

## 3.9 GASVALVE

The gas valve (Fig. 66) is equipped with functioning status signal LED (5), the LEDs are under the transparent protection cover (4).

Colour	Status		
Off	Gas valve not powered		
Green	Gas valve powered and working		
Red	Gas valve powered and not working		



## Key (Fig. 66):

1 - Gas valve inlet pressure point
2 - Gas valve outlet pressure point
3 - Off/Set adjustment screw
4 - Transparent protection cover
5 - Gas valve status signal display
12 - Outlet gas flow rate adjuster

#### 3.10 CONVERTING THE HEAT GENERATOR TO OTHER TYPES OF GAS



 $The gas conversion operation \ must be carried out by an authorised \ company \ (e.g.\ Authorised\ Technical\ Assistance\ Service).$ 

If the appliance needs to be converted to a different gas type to that specified on the data plate, request the relative conversion kit for quick and easy conversion.

 $To \, convert \, to \, another \, type \, of \, gas \, the \, following \, operations \, are \, required: \,$ 

- disconnect power to the appliance;
- replace the nozzle positioned between the gas pipe and the air/gas mixing sleeve, taking care to remove the voltage from the appliance during this operation;
- re-power the appliance;
- Calibrate fan speed (Par.3.11);
- adjust the correct CO<sub>2</sub> (Parag. 3.12);
- seal the gas flow rate regulation devices (if settings are modified);
- after completing the conversion, apply the sticker, contained in the conversion kit, near the data nameplate. Using an indelible marker pen, delete the data relative to the old type of gas.

 $These adjustments \, must \, be \, made \, with \, reference \, to \, the \, type \, of \, gas \, used, following \, that \, given \, in \, the \, table \, in \, the \, Indoor \, Unit \, manual.$ 

## Checks following conversion to another type of gas.

After having made sure that the conversion is complete and that the calibration has been successful, you must make sure that:

- there is no flame in the combustion chamber;
- the burner flame is not too high or low and that it is stable (does not detach from burner);



The pressure testers used for calibration should be perfectly closed and there should be no leaks from the gas circuit.



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



#### 3.11 FAN SPEED CALIBRATION



Verification and calibration are necessary, in the case of transformation to other types of gas, in the extraordinary maintenance phase with replacement of the PCB, air/gas circuit components or in the case of installations with flue extraction systems, with horizontal concentric pipe measuring more than 1 metre.

 $The Indoor \, Unitheat \, output \, is \, correlated \, to \, the \, length \, of \, the \, air \, intake \, and \, flue \, exhaust \, pipes.$ 

This decreases with the increase of pipe length.

The Indoor Unit leaves the factory adjusted for minimum pipe length (1m). It is therefore necessary, especially in the case of maximum pipe extension, to check the  $\Delta p$  gas values after at least 5 minutes of the burner operating at nominal heat output, when the temperatures of the intake air and exhaust flue gas have stabilised.

Adjust the nominal and minimum output in the domestic hot water and central heating modes according to the values in the table in the Indoor Unit manual using the differential manometers connected to the  $\Delta p$  gas pressure points (Det. 9-Fig. 44 and table in Parag. 4.1). Enter the configurations menu and regulate the following parameters (Parag. 3.8);

- DHW minimum no. of fan revs "S 00";
- DHW maximum no. of fan revs "S 01";

Listed below are the default settings featured:

Parameter ID	Г	Description	Range	Default	Customised value
		Operating speed of the fan at minimum DHW output		G20: 1300	
S 0 0	DHW minimum no. of fan revs		900 ÷ 1500 (RPM)	G30:1300	
	Oriantevs	minimum D11 w output		G31: 1300	
		Operating speed of the fan at maximum DHW output		G20: 5100	
S 01	DHW maximum no.		3000÷6100 (RPM)	G30:4800	
	Oriantevs			G31:5400	
				G20:0	
S 02		Operating speed of the fan during the ignition phase	0 - 100%	G30:0	
	speed during the ignition phase			G31:0	

## 3.12 CO<sub>2</sub>ADJUSTMENT

#### Calibration of minimum CO<sub>2</sub> (minimum central heating output).

Enter the chimney sweep phase without withdrawing domestic hot water and take the selector switches to minimum until "0" is seen on the display.

To have an exact value of  $CO_2$  the technician must insert the sampling probe in the sample point, then check that the  $CO_2$  value is that specified in the table, otherwise adjust the screw (Det. 3, Fig. 66) (Offset regulator).

To increase the CO<sub>2</sub> value, turn the adjustment screw (3) in a clockwise direction and vice versa to decrease it.

#### Calibration of maximum CO<sub>2</sub> (nominal central heating output).

On completion of the adjustment of the minimum  $CO_2$  keeping the chimney sweep function active, take the heating selector switch to maximum (increase the value until "99" is seen on the display).

To have an exact value of  $CO_2$  the technician must insert the sampling probe in the sample point, then check that the  $CO_2$  value is that specified in the table below, otherwise adjust the screw (Det. 12, Fig. 66) (gas flow rate regulator).

To increase the CO<sub>2</sub> value, turn the adjustment screw (12) in a clockwise direction and vice versa to decrease it.

At every adjustment variation on the screw 12 it is necessary to wait for the heat generator to stabilise itself at the value set (about 30 sec.).

Gastype	CO₂to Nominal Q.	CO₂to Minimum Q.
G20	9,7 (9,5 ÷ 9,9) %	$8,6 (8,4 \div 8,8) \%$
G30	12 (12,1 ÷ 12,5) %	11,2 (11,0 ÷ 11,4) %
G31	10,7 (10,5 ÷ 10,9) %	10,0 (9,8 ÷ 10,2) %



In the case of an annual inspection of the device, the max CO must be less than 700 ppm (0%  $O_2$ ). If the CO value is higher, the device requires maintenance/repair.

Following maintenance/repair work, the maximum CO must be less than 500 ppm.

#### 3.13 ACTIVE PLANT PHASE AND GENERIC ALARM

The unit is set up for the management of any external pump; the pump is powered in concomitance with the request phase on the system. The device is set up for the management of any generic alarms.

All the relays can also be configured as generic alarm. The 'generic alarm' signalling is enabled if any of the foreseen anomalies occur, see paragraph "2.5".

For details and examples, see chapter 3.5 (Wiring diagram with active system phase and generic alarm).

#### 3.14 PUFFER IN PREHEATING

The device is set up for the management of any pre-heated puffer.

During a request for heating, in case the heating probe detects a temperature higher than the one requested, the system circulating pump is activated while the generator is kept off.

In the presence of an inertial storage tank heated by other sources of heat, following a central heating demand, it is possible to prevent the generators from being activated by using hot water coming from the puffer.

The function is activated by setting one of the relays of the relay board at 4 (see P03, P04, P05).

The puffer function requires the puffer probe (Ref. B13 Fig. 11).

For details and examples, see chapter 3.5 (Wiring diagram with puffer mode active).



#### 3.15 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

A14 for zone 2

A15 for zone 3

#### 3.16 PUMPANTI-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.

#### 3.17 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.

#### 3.18 SYSTEM SETPOINT CORRECTION

In the presence of hydraulic disconnections on the system which separate the appliance from the zones, a function can be activated which allows to meet the demands, by correcting the appliance's setpoint.

The corrections can be made either in heating or cooling mode only.

They are activated by setting the parameters P 23 or P 24 at a value > 0°C.

After a request is made, the correction starts after a time equal to P 21 and continues  $1^{\circ}$ C every P 22 minutes, until the maximum correction set with parameters P23 or P24 has been reached.

To connect the B3-1, B3-2 and B3-3 probes, please refer to the wiring diagram (Fig. 11):

To enable the setpoint correction on zone 1, it is necessary to set the parameter A27=ZN1.

#### 3.19 OUTDOOR UNIT DISABLING

With the input active (contact "S41" Fig. 11), Outdoor Unit operation is inhibited.

The demands can only be satisfied by the heat generator.

#### 3.20 DIVERTER VALVEMANAGEMENT (SUMMER/WINTER)

The unit electronics has a 230V outlet to manage the summer / winter diverter valves.

 $The voltage \, output \, is \, active \, when \, the \, appliance \, is \, in \, Air-conditioning \, mode.$ 

#### 3.21 OUTDOOR UNIT TEST MODE

When test mode is used (see Outdoor Unit instruction booklet), the Indoor Unit must be set in a mode other than "Stand-by" Before activating the Test mode function, wait at least 3 minutes after setting the operating mode.

The alarm E183 is triggered during the test, meaning "Test mode" in progress.



#### 3.22 OUTDOOR UNIT PUMP DOWN

If the pump down function is used (see Outdoor Unit instruction booklet) the Indoor Unit must be set in "Stand-by". The function can only be activated if the appliance is not under alarm.

#### 3.23 PHOTOVOLTAIC

If the photovoltaic contact (contact "S 39" Fig. 11) is closed, the minimum outside temperature is set temporarily at -25°C.

## 3.24 AUTOMATICVENT

In the case of new central heating systems and in particular mode for floor systems, it is very important that deaeration is performed correctly.

The function consists of the cyclic activation of the pump and the 3-way valve.

The function is activated in two different ways:

- Each time the heat generator is re-powered;
- Using parameter "U 50".

In the first case, the function has a duration of 8 minutes and it can be interrupted by pressing the "Reset" button (3). In the second case, it has a duration of 18 hours and it can be interrupted simply by switching the heat generator on.

Activation of the function is signalled by the countdown shown on the indicator (14).

#### 3.25 PRE-HEAT

In the case of a heating demand, if the water temperature is lower than the value set in parameter I15, the operation of the thermal generator is forced until the flow temperature value of I15+5 $^{\circ}$ C is reached.

#### 3.26 CHIMNEY SWEEP

 $If activated, this function \, makes \, the \, Indoor \, Unit \, work \, at \, an \, adjust able \, power. \, In \, this \, state \, all \, adjust ments \, are \, excluded \, and \, only \, the \, safety \, thermostat \, and \, the \, limit \, thermostat \, remain \, active.$ 

This function can only be activated without any requests.

To activate the chimney sweep function, select the "Winter" mode, in the absence of DHW and central heating requests, and press the "Reset" button for 8 seconds. Its activation is signalled by the relative symbol (17-18 flashing, Fig. 45).

Once activated, the chimney sweep function in central heating mode must be enabled from a zone room thermostat.

For the chimney sweep function in DHW mode, after activation, open a tap and draw some domestic water.

 $During\, operation\, it\, is\, possible\, to\, edit\, system\, and\, DHW\, setpoints.$ 

This function allows the technician to check the combustion parameters.

On completion of the checks, deactivate the function by pressing the "Reset" button for 1 second.



#### 3.27 SCREED HEATER

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 function is activated from Indoor Unit in stand-by by pressing and holding the buttons "Reset" and "Mode" for more than 5 seconds (Fig. 67).

The standard function lasts in total 7 days - 3 days at the lowest temperature set and 4 days at the highest temperature set (Fig. 11). Duration can be changed by changing the value of parameters "T 22" and "T24".

After activating the function, the lower set (range  $20 \div 45$  °C default = 25 °C) and the higher set (range  $25 \div 55$  °C default = 45 °C) appear in sequence.

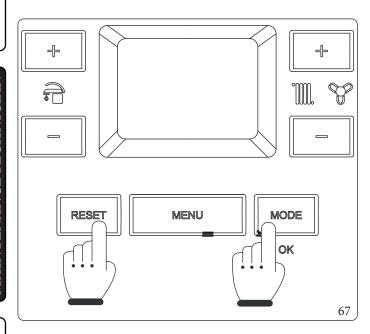
The temperature is selected by means of the buttons "+" and "-" of the system side (") and confirmed by pressing the button "Mode".

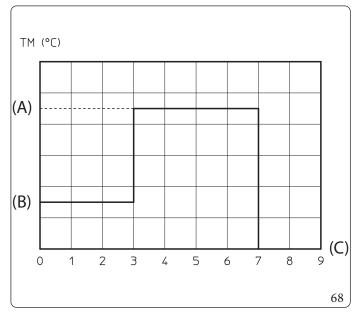
The display now shows the countdown of days alternated with the current flow temperature, as well as the normal operating symbols of the Indoor Unit.

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

In case of power failure, the function is suspended.

When the time expires, the Indoor Unit automatically goes back to "Stand-by" mode, the function can also be stopped by pressing the button "Mode".





Key (Fig. 68):

(A) - Top set

(B) - Lowerset

(C) - Days

TM - Flow temperature

#### 3.28 SOLAR PANELS COUPLING

The Indoor Unit is prepared to receive pre-heated water from a system of solar panels up to a maximum temperature of  $65^{\circ}$ C. In any case, it is always necessary to install a mixing valve on the hydraulic circuit upstream of the Indoor Unit, on the cold water inlet.

To optimise the operation, the solar inlet probe kit is available on request (see wiring diagram Fig. 11).

 $To \, enable \, the \, use \, of the \, probe \, it \, is \, necessary \, to \, set \, parameter \, T03 > 0.$ 

This kit allows you to connect a probe on the domestic cold water inlet pipe of the Indoor Unit, to prevent unnecessary start-ups in systems with water heating through solar systems or alternative sources.

 $The Indoor \, Unit \, will \, not \, turn \, on \, if \, the \, inlet \, water \, is \, sufficiently \, hot.$ 

We recommend setting parameter T03 (solar delay timer) at a time sufficient to let the water inside the D.H.W. circuit upstream of the Indoor Unit drain.

The greater the distance from the storage tank, the longer wait time will have to be set.

With these adjustments made, when a domestic withdrawal is requested, once the time set on parameter "T03" has passed, if the water entering the Indoor Unit is at a temperature that is equal to or greater than that set, the Indoor Unit will not turn on.



 $In order for the Indoor \, Unit to \, work \, properly, the \, temperature \, selected \, on \, the \, mixing \, valve \, must \, be \, 5^{\circ}Chigher \, than \, the \, temperature \, selected \, on \, the \, Indoor \, Unit \, control \, panel.$ 

#### 3.29 DEHUMIDIFY

Dehumidification can be performed according to three different types of devices:

- 1) Humidistat;
- 2) Humidity sensor;
- 3) Remote zone panel.

In the first case, the cooling mode temperature corresponds to:

- In the event of dehumidification request: maximum setpoint set for the request zone;
- In the event of dehumidification and cooling request: setpoint set for the request zone.

In the second and third cases, the cooling mode temperature corresponds to:

- In the event of dehumidification request: maximum setpoint set for the request zone;
- In the event of dehumidification request and cooling request: setpoint set for the request zone, but limited by the calculated dew temperature.



The dew temperature is only calculated for adjustments above or equal to 15°C.



#### 3.30 NIGHTMODE

 $This function can be activated by setting the internal clock of the appliance (parameters U\,21 and U\,22).$ 

 $Activating the function allows you to reduce the compressor frequency during the Outdoor Unit operation in the time slot set in the U\,12 and U\,13 \, parameters.$ 

## 3.31 CENTRALHEATING/COOLING SELECTOR

The cooling/central heating selector function uses the S44 contact in combination with the zone 1 Room thermostat to make central heating/cooling requests to the machine using free contacts.

The type of demand, central heating or cooling, can be selected from the external selector S44, see Horizontal terminal block electrical connection diagram (Par.1.10);

To use this command, the function in question must be enabled by means of the parameter A 39=ON.

To make the request, it is necessary to position the S44 selector as indicated in the following table:

S44 Selector	Mode			
Closed	Central heating			
Open	Cooling			

At the end, close the zone 1 Room thermostat contact.

The remote devices cannot be used when the function is enabled, except for the room thermostat of zone 1; even the demands of other zones, 2 or 3, are disabled automatically.

#### 3.32 GENERATOR MANAGEMENT

#### Central heating mode

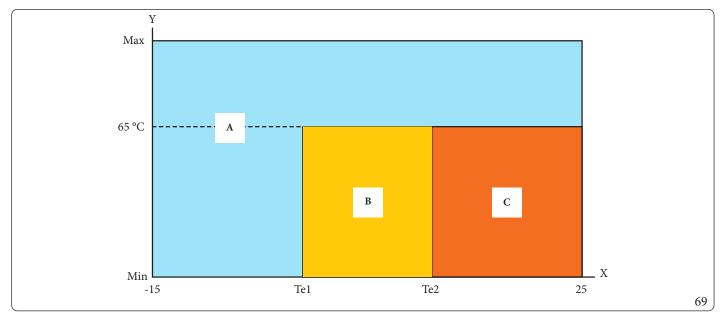
Following a request in room heating mode, the electronic system decides, depending on the external temperature and set point configured, whether to activate heat pump mode, or (with "freezing" external temperatures) the heat generator (Fig. 69).

The management electronics select which heat source to be used according to the combination of "I" family parameters. The heat generator could also switch on also when external conditions are favourable; this can take place after a time proportional to the parameter. Alternatively, you can also set a fixed switching outdoor temperature (manual mode in the parameter "I 05" setting the temperature with "I 10"). The D.H.W. demand is met by the heat generator, even simultaneously with a system demand which is met by the heat pump mode.



To protect the appliance the heat pump might start up even if the appliance is in the heat generator exclusive operating zone.

#### Operation in central heating mode



#### Key (Fig. 69):

X - External temperature

Y - Centralheating/C.H. set

A - Exclusive heat generator operation

B - Heat pump operation (if after activation time the set temperature is not reached the heat generator starts)\*

C - Heat pump operation (if after activation time multiplied by 2 the set temperature is not reached the heat generator starts)\*

The Te1 and Te2 values are determined by the logic of the product board (Setting manual mode "I 05" = "MA" the value of "Te1" is the same as "I 10" and the value of "Te2" is the same as "I 10" + 5°C).

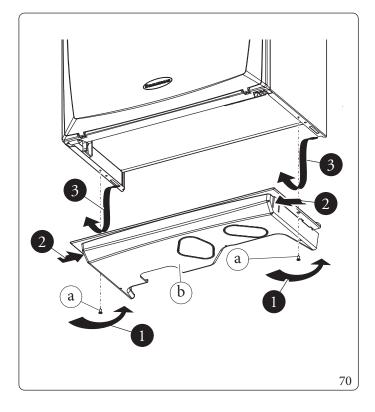
\* = The heat pump will then restart, thereby creating an alternating mechanism between the two generators.

## 3.33 CASINGREMOVAL

 $To facilitate Indoor \, Unit\, maintenance \, the \, casing \, can \, be \, completely \, removed \, as \, follows:$ 

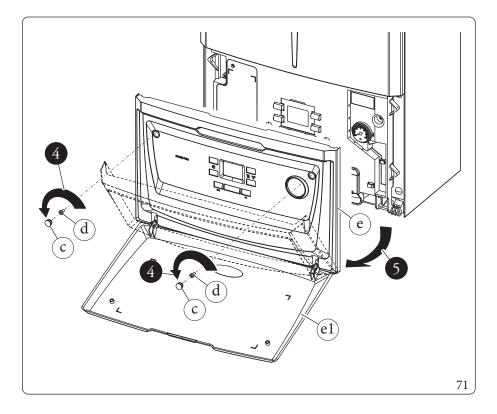
## Lower grid (Fig. 70)

- Loosen the two screws (a).
- Press the hooks inwards, which block the lower grid (b).
- Remove the grid (b).



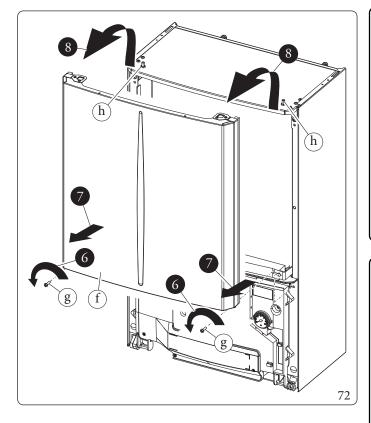
## Front panel (Fig. 71)

- Open the protection door (e1) pulling it towards you.
- Remove the cover caps (c) and loosen screws (d).
- Pull the front panel (e) towards you and release it from its lower seat.



## Front (Fig.72)

- Loosen the two screws (g).
- Pull the front (f) slightly towards you.
- Release front (f) from pins (h) pulling it towards you while pushing it upwards at the same time.



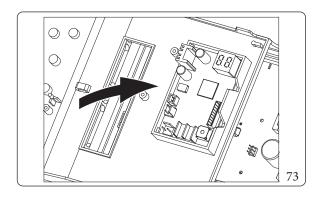
## Control panel (Fig. 74)

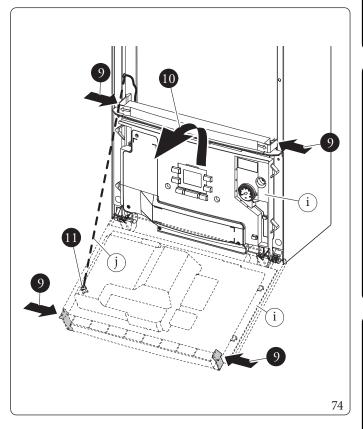
- Press the hooks on the side of the control panel (i).
- Tilt the control panel (i) towards you.

The control panel (i) can rotate until the support cord (j) is completely extended.

- If the left side needs to be removed, unhook the support cord (j) from the control panel and proceed as follows.

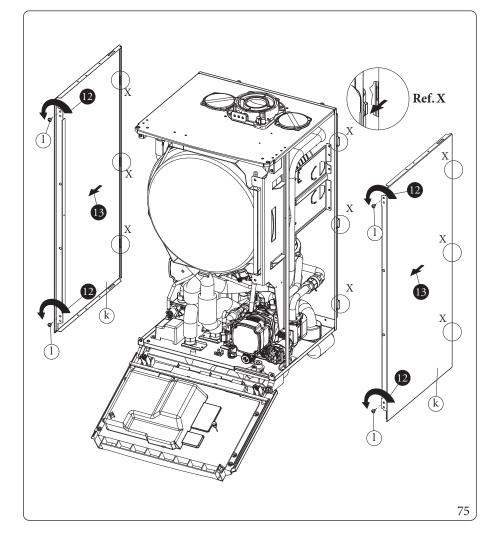
#### **INTERFACE BOARD**





## Sides (Fig. 75)

- Unscrewtheside(k) fastening screws(l).
- Remove the sides by extracting them from their rear seat (Ref. X).



# 4

## TECHNICAL DATA

## 4.1 VARIABLEHEAT OUTPUT

## Indoor Unit data

i

The power data in the table has been obtained with intake-exhaust pipe measuring  $0.5 \, \text{m}$  in length. Gas flow rates refer to net calorific value below a temperature of  $15^{\circ}$ C and at a pressure of  $1013 \, \text{mbar}$ .

MAX DHW HEAT INPUT kW 28,1								
GAS	FAN SPEED VARIAT	FAN SPEED VARIATION INTERVAL						
	Minimum flue extension	Maximum flue extension	ΔPVENTURI*					
	(rpm)	(rpm)	(kPa)					
G20	5100	5400	0.66					
G30	4800	5100	0.63					
G31	5400	5600	0,80					

\* $\Delta$ P VENTURI Detectable through pressure point 11 and 12 (Fig. 44).

			METHANE (G20)			G30			PROPANE (G31)		
FLOW RATE OUTPUT	HEAT OUTPUT		FAN	REVS	GAS FLOW RATE BURNER	FAN	REVS	GASFLOW RATE BURNER	FAN	REVS	GASFLOW RATE BURNER
(kW)	(kW)		(rpm)	(%)	(m3/h)	(rpm)	(%)	(kg/h)	(rpm)	(%)	(kg/h)
28,1	27,3	D.H.W.	5100	100	2,97	4800	100	2	5400	100	2,18
24,9	24,0		4550	85	2,64	4300	85	2	4800	85	1,93
23,5	22,6		4325	79	2,49	4100	79	2	4550	79	1,83
22,5	21,7		4150	75	2,38	3925	74	2	4375	75	1,75
21,0	20,2		3900	68	2,22	3700	68	2	4100	68	1,63
20,0	19,3		3750	64	2,12	3550	64	2	3925	64	1,55
18,5	17,8		3500	58	1,96	3325	57	2	3675	58	1,44
17,5	16,9		3325	53	1,85	3175	53	1	3500	53	1,36
16,0	15,4	HEAT.+	3100	47	1,69	2950	47	1	3225	47	1,24
15,0	14,4	D.H.W.	2925	43	1,59	2800	43	1	3050	43	1,17
14,0	13,5	D.11.VV.	2750	38	1,48	2650	38	1	2875	38	1,09
12,5	12,0		2525	32	1,32	2425	32	1	2600	32	0,97
11,5	11,0		2350	28	1,22	2275	28	1	2425	27	0,89
10,0	9,5		2100	21	1,06	2050	21	1	2175	21	0,78
9,0	8,6		1950	17	0,95	1900	17	1	2000	17	0,70
7,5	7,1		1700	11	0,79	1675	11	1	1725	10	0,58
6,5	6,1		1525	6	0,69	1500	6	1	1550	6	0,50
5,1	4,8		1300	0	0,54	1300	0	0	1300	0	0,40

USER

## 4.2 COMBUSTION PARAMETERS

## Indoor Unit data

Gastype		G20	G30	G31
Supply pressure	mbar	20,0	29,0	37,0
Gas nozzle diameter	mm	5,60	3,90	4,10
Ignition fan speed	rpm	1900	1900	1900
Post ventilation fan speed	rpm	2500	-	2500
Flue flow rate at D.H.W. nominal heat output	kg/h	44	40	45
Flue flow rate at heating nominal heat output	kg/h	38	35	40
Flue flow rate at min heat output	kg/h	9	8	9
CO <sub>2</sub> at Nominal Q.	%	9,6 (9,4 ÷ 9,8)	12,3 (12,1 ÷ 12,5)	10,6 (10,4 ÷ 10,8)
*O <sub>2</sub> at Nominal Q.	70	$3,7(4,1 \div 3,3)$	- (- ÷ -)	- (- ÷ -)
CO <sub>2</sub> at Ignition Q.	%	9,7 (9,5 ÷ 9,9)	12,3 (12,1 ÷ 12,5)	10,7 (10,5 ÷ 10,9)
*O <sub>2</sub> at Ignition Q.	70	$3,5(3,9 \div 3,2)$	$2,1(2,4 \div 1,8)$	$4,6(4,9 \div 4,3)$
CO <sub>2</sub> at Minimum Q.	%	$8,6 (8,4 \div 8,8)$	$11,2(11,0 \div 11,4)$	$10,0 (9,8 \div 10,2)$
$^*O_2$ at Minimum Q.	70	$5,5(5,9 \div 5,1)$	- (- ÷ -)	- (- ÷ -)
CO with 0% O <sub>2</sub> at Nom./Min. Q.	ppm	250/7	697/10	222/6
NO <sub>x</sub> with 0% O <sub>2</sub> at Nom./Min. Q.	mg/kWh	52 / 17	137/38	40/21
Flue temperature at nominal output	°C	83	78	84
Flue temperature at minimum output	°C	66	66	67
Maxair combustion temperature	°C	50	50	50
Maximum flue gas circuit temperature	°C	120	120	120

 $<sup>^{\</sup>star}$   $O_2$  values refer to gas 20% H2NG

## 4.3 INDOORUNITTECHNICALDATATABLE

		Unità Interna MAGIS COMBO V2
Domestic hot water nominal heat input	kW	28,1
Central heating nominal heat input	kW	24,9
Minimum heat input	kW	5,1
Domestic hot water nominal heat output (useful)	kW	27,3
Central heating nominal heat output (useful)	kW	24,0
Minimum heat output (useful)	kW	4,8
*Effective thermal efficiency 80/60 Nom./Min.	%	96,2/94,2
*Effective thermal efficiency 50/30 Nom./Min.	%	104,6 / 104,5
*Effective thermal efficiency 40/30 Nom./Min.	%	106,8/106,3
Efficiency at 100% heat output (η100) ref. UNI EN 15502-1	%	96,3
Efficiency at partial heat load (η30) ref. UNI EN 15502-1	%	106,1
Casing losses with burner On/Off	%	0,50/1,28
Chimney losses with burner Off/On	%	0,02/2,51
Maximum heating temperature	°C	83
Adjustable central heating temperature (min. operating field)	°C	20
Adjustable central heating temperature (max operating field)	°C	80
System expansion vessel nominal volume	1	10,0
System expansion vessel useful volume	1	4,7
System expansion vessel total volume	1	8,3
Expansion vessel pre-charged pressure	bar	1,0
Appliance water content	1	2,8
Domestic hot water adjustable temperature	°C	10/65
Central heating circuit max. operating pressure	bar	3,0
Domestic hot water circuit min. pressure (dynamic)	bar	0,3
Domestic hot water circuit max. operating pressure	bar	10,0
Flow rate capacity in continuous duty (ΔT 30°C)	l/min	13,1
Weight of full boiler	kg	63,3
Electrical connection	V/Hz	230/50
Electrical connection	V/Hz	220/50
Nominal absorbed current	A	1,2
Installed electric power	W	160
Equipment electrical system protection	IP	X4D
Ambient operating temperature range	°C	-5 ÷ 35
Ambient operating temperature range with antifreeze kit (optional)	°C	-15÷35
NO <sub>x</sub> class	-	6
Weighted NO <sub>x</sub> G31	mg/kWh	-
Weighted COG31	mg/kWh	-
Type of appliance	-	$\begin{array}{c} B_{23}B_{33}B_{53p}C_{13}C_{33}C_{43}C_{53}C_{63}C_{83}C_{93}C_{13X}C_{33X}C_{43X} \\ C_{53X}C_{63X}C_{83X}C_{93X} \end{array}$
Market		IE
Category		II2H3P

The data relevant to domestic hot water performance refer to a dynamic inlet pressure of 2 bar and an inlet temperature of 15°C; the values are measured directly at the Indoor Unit outlet considering that to obtain the data declared mixing with cold water is necessary.

For type  $C_{63}$  it is forbidden to install the appliance as it came out of the factory, in configurations that require shared flues in positive pressure.

 $<sup>{}^{\</sup>star} Efficiencies \, and \, weighted \, NOx \, refer \, to \, the \, net \, calorific \, value.$ 

## 4.4 TECHNICAL DATA TABLE

 $Nominal \, heating \, performance$ 

		MAGIS COMBO 4 V2	MAGIS COMBO 6 V2	MAGIS COMBO 9 V2
Outside Air Temperature 7°C/6°C - Water Temperature 30°C	C/35°C			
Output power	kW	4,40	6,00	9,00
Absorbed power	kW	0,85	1,22	1,87
COP		5,2	4,92	4,81
Outside Air Temperature 7°C/6°C - Water Temperature 40°C	C/45°C			
Output power	kW	4,20	5,40	8,60
Absorbed power	kW	1,09	1,51	2,33
COP		3,85	3,58	3,69
Outside Air Temperature 7°C/6°C - Water Temperature 47°C	C/55°C			
Output power	kW	3,90	4,80	8,00
Absorbed power	kW	1,32	1,81	2,73
COP		2,95	2,65	2,93
Outside Air Temperature 2°C/1°C - Water Temperature 30°C	C/35°C			
Output power	kW	4,40	5,20	7,70
Absorbed power	kW	1,10	1,48	2,26
COP		3,81	3,51	3,41
Outside Air Temperature 7°C/8°C - Water Temperature 30°C	C/35°C			
Output power	kW	4,60	5,50	5,50
Absorbed power	kW	1,55	2,00	2,01
COP		2,97	2,75	2,74

Nominal cooling performance

Nominar cooring per for mance				
		MAGIS COMBO 4 V2	MAGIS COMBO 6 V2	MAGISCOMBO9 V2
Outside Air Temperature 35°C - Water Temperature 2	3°C/18°C			
Output power	kW	5,00	6,50	8,70
Absorbed power	kW	1,09	1,47	2,11
EER		4,59	4,42	4,12
Outside Air Temperature 35°C - Water Temperature 1	2°C/7°C			
Output power	kW	3,60	4,70	6,50
Absorbed power	kW	1,11	1,44	1,95
EER		3,24	3,26	3,33

#### Indoor Unit data

		Unità Interna MAGIS COMBO V2 (Audax Pro 4 V2)	Unità Interna MAGIS COMBO V2 (Audax Pro 6 V2)	Unità Interna MAGIS COMBO V2 (Audax Pro 9 V2)
Weight and dimensions				
Full Indoor Unit weight	kg		63,3	
Empty Indoor Unit weight	kg		55,8	
Dimensions (LxHxD)	mm		440 x 787 x 400	
Connections				
System side water connections - inlet	inches		3/4	
System side water connections - outlet	inches		3/4	
Water connections with outdoor unit - inlet	inches		-	,
Water connections with outdoor unit - outlet	inches		_	
Water connections (DHW) - inlet	inches		1/2	
Water connections (DHW) - outlet	inches		1/2	
Storage tank unit water connections - inlet	inches		-	
Storage tank unit water connections - outlet	inches		-	
Primary circuit				
Nominal water volume	1		2,8	
Expansion vessel: Total volume	1		8,3	
Expansion vessel: Pre-charge	kPa (bar)		100(1)	
Expansion vessel: Nominal volume	1		10	
Expansion vessel: Useful volume	1		4,7	
Maximum operating pressure	kPa (bar)		300(3)	
Maximum operating temperature	°C		83	
System minimum circulation flow rate				
Minimum circulation flow rate	l/h		500	
Refrigerant gas connections				
Refrigerant gas connections - liquid phase line	inches		1/4	
Refrigerant gas connections - gas line	inches		5/8	
Power supply electrical features				
Electrical connection		S	ingle-phase, 230Vac, 50H	łz
Rated absorbed power	W		160	
Rated absorbed current	A		1,2	
Other electrical data				
Protection class			IPX4D	
Outdoorunitoperatingrange	°C		-5+35	
Pump rated power	W		75	
Pump rated current	A		0,5	
EEIPump			≤0,20 - Part. 3	
Sound power and pressure				
Soundpower	dB		53	

## Product data

		MAGIS COMBO 4 V2	MAGIS COMBO 6 V2	MAGIS COMBO 9 V2
Centralheating				
Adjustable central heating temperature with heat pump (working range)	°C		+20 ÷ +65	
External central heating temperature with heat pump (working range)	°C		-25 ÷ +35	
Adjustable central heating temperature with Thermal Generator (working range)	°C		+20 ÷ +80	
External central heating temperature with Thermal Generator (working range)	°C		-25 ÷ +35	
Cooling				
Cooling adjustable temperature (operating field)	°C		+5 ÷ +25	
Cooling outdoor temperature (operating field)	°C		+10 ÷ +46	
DHW				
Adjustable DHW temperature with heat pump (working range)	°C		+10 ÷ +65	
External DHW temperature with heat pump (working range)	°C		-25÷+46	
Adjustable DHW temperature with Thermal Generator (working range)	°C		-	
External DHW temperature with Thermal Generator (working range)	°C		-	

## 4.5 PRODUCT FICHE MAGIS COMBO 4 V2 (IN COMPLIANCE WITH REGULATION 811/2013)

A	Supplier's name or trademark	-	Immergas			
В	Supplier's model identifier	-	MAGISCOMBO 4 V2			
	For space heating	Application temperature	-	Average temperature		
С	Forwaterheating	Statedloadprofile	-	XL		
		Average temperature	-	A++		
D	Seasonal energy efficiency class of room heating	Lowtemperature	-	A+++		
	Energy efficiency class of water heating		-	A		
Е	N	Average temperature	kW	5		
E	Nominal heat output (average climate condition)	Lowtemperature	kW	5		
	Annual energy consumption for room heating (average	Average temperature	kWh	3163		
Б	climate condition)	Lowtemperature	kWh	2243		
F	Fuel annual energy consumption for water heating (avera	age climate condition)	GJ	-		
	Annual energy consumption for water heating (average of	climate condition)	kWh	67		
	Seasonal energy efficiency of room heating (average	Average temperature	%	128		
G	climate condition)	Lowtemperature	%	181		
	Energy efficiency of water heating (average climate condi	ition)	%	86		
Н	Lwa sound power level indoors	dB	53			
I	Operation only during dead hours	Yes\No	No			
J	Specific precautions					
		Average temperature	kW	4		
	Nominal heat output (colder climate condition)	Lowtemperature	kW	4		
K		Average temperature	kW	5		
	Nominal heat output (warmer climate condition)	Lowtemperature	kW	5		
	Annual energy consumption for room heating (colder	Average temperature	kWh	3982		
	climate condition)	Lowtemperature	kWh	2768		
	Annual energy consumption for room heating (warmer	Average temperature	kWh	1753		
L	climate condition)	Lowtemperature	kWh	1125		
	Annual energy consumption for water heating (colder cli	imate condition)	kWh	-		
	Annual energy consumption for water heating (warmer	climate condition)	kWh	-		
	Seasonal energy efficiency of room heating (colder	Average temperature	%	96		
M	climate condition)	Lowtemperature	%	140		
M	Seasonal energy efficiency of room heating (warmer	Average temperature	%	150		
	climate condition)	Lowtemperature	%	235		
N	Lwa sound power level outdoors	dB	51			



## 4.6 TABLE 2 REGULATION 813/2013 (MAGIS COMBO 4 V2)

Model	MAGISCOMBO4V2	MAGIS COMBO 4 V2				
Air/water heat pump	YE	ES Low temperature heat pump	NO			
Water/water heat pump	NO	O With Supplementary heater	YES			
Brine/water heat pump	NO	O 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	
t (*)	Prated	5	kW	Room central heating seasonal energy efficiency	$\eta_{s}$	128	%	
	l with a partial load ar nd outdoor temperat			$\begin{array}{c} Performance coefficient declared or primary \\ load it, with indoor temperature equivalent \\ temperature T_j \end{array}$	equivalent to 20°C and outdoor			
	Pdh	4,4	kW	T <sub>j</sub> =-7 °C	COPd	2,10	-	
	Pdh	2,7	kW	T <sub>j</sub> =+ 2 °C	COPd	3,10	-	
	Pdh	1,7	kW	$T_j = +7 ^{\circ}C$	COPd	4,46	-	
	Pdh	1,9	kW	T <sub>j</sub> =+ 12 °C	COPd	5,72	-	
perature	Pdh	4,4	kW	$T_j$ = bivalent temperature	COPd	2,10	-	
nit temperature	Pdh	4,2	kW	$T_j$ = operating limit temperature	COPd	1,51	-	
t pumps: OL < - 20 °C)	Pdh	-	kW	for air/water heat pumps: $T_j = -15 ^{\circ}\text{C}  (\text{se TOL} < -20 ^{\circ}\text{C})$	COPd	-	-	
ature	$T_{ m biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C	
capacity cycle int	ervals Pcych	-	kW	Cycle intervals efficiency	COP- cych	-	-	
fficient (**)	Cdh	0,9	-	Water heating temperature operating limit	WTOL	65	°C	
of energy consum	ption from the active	mode		Additional heater				
	P <sub>OFF</sub>	0,022	kW	Rated heat output (*)	Psup	0,8	kW	
e off	P <sub>TO</sub>	0,022	kW				•	
	$P_{SB}$	0,022	kW	Type of energy supply voltage		gas		
ode	P <sub>CK</sub>	0,000	kW					
		variable		For air/water heat pumps: air flow rate to outside	-	2400	m³\h	
soundlevel	$L_{WA}$	53/51	dB	For water\water or brine\water heat pumps:				
ogen oxide	NO <sub>x</sub>	26	mg∖ kWh	nominal flow of brine or water, outdoor heat exchanger		-	m³\h	
lheatingapplian	ces with a heat pump							
e		XL		Water central heating energy efficiency	$\eta_{\mathrm{wh}}$	86	%	
ower consumpti	on Q <sub>elec</sub>	0,31	kWh	Daily fuel consumption	$Q_{\text{fuel}}$	22,14	kWh	
	on Q <sub>elec</sub>		kWh	Daily fuel consumption	$Q_{\mathrm{fuel}}$	22,	14	

Contact information: Immergas S.p.A. via Cisa Ligure n.95

<sup>(\*)</sup> For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output Pnominal is equal to the design load for central heating Pdesignh and the nominal heat output of an additional heater Psup is equal to the additional central heating capacity  $\sup(T_j)$ .

<sup>(\*\*)</sup> If Cdh is not determined by a measurement, the degradation coefficient is Cdh = 0,9.

## 4.7 PRODUCT FICHE MAGIS COMBO 6 V2 (IN COMPLIANCE WITH REGULATION 811/2013)

A	Supplier's name or trademark		-	Immergas
В	Supplier's model identifier		-	MAGIS COMBO 6 V2
C	Forspaceheating	Application temperature	-	Average temperatur
C	For water heating	Stated load profile	-	XL
	C	Average temperature	-	A++
D	Seasonal energy efficiency class of room heating	Lowtemperature	-	A+++
	Energy efficiency class of water heating		-	A
Е	N	Average temperature	kW	6
E	Nominal heat output (average climate condition)	Lowtemperature	kW	6
	Annual energy consumption for room heating (average	Average temperature	kWh	3727
F	climate condition)	Lowtemperature	kWh	2692
F	Fuel annual energy consumption for water heating (average)	age climate condition)	GJ	-
	Annual energy consumption for water heating (average of	climate condition)	kWh	67
	Seasonal energy efficiency of room heating (average	Average temperature	%	130
G	climate condition)	Lowtemperature	%	181
	Energy efficiency of water heating (average climate condi	%	86	
Н	Lwa sound power level indoors	dB	53	
I	Operation only during dead hours	Yes\No	No	
J	Specific precautions	-	-	
		Average temperature	kW	5
	Nominal heat output (colder climate condition)	Lowtemperature	kW	5
K		Average temperature	kW	6
	Nominal heat output (warmer climate condition)	Lowtemperature	kW	6
	Annual energy consumption for room heating (colder	Average temperature	kWh	4941
	climate condition)	Lowtemperature	kWh	3305
_	Annual energy consumption for room heating (warmer	Average temperature	kWh	1945
L	climate condition)	Lowtemperature	kWh	1254
	Annual energy consumption for water heating (colder cl	imate condition)	kWh	-
	Annual energy consumption for water heating (warmer climate condition)		kWh	-
	Seasonal energy efficiency of room heating (colder	Average temperature	%	93
3.5	climate condition)	Lowtemperature	%	140
M	Seasonal energy efficiency of room heating (warmer	Average temperature	%	151
climate condition)		Lowtemperature	%	236
N	Lwa sound power level outdoors		dB	54

## TABLE 2 REGULATION 813/2013 (MAGIS COMBO 6 V2)

Model	MAGIS COMBO 6	MAGIS COMBO 6 V2				
Air/water heat pump		YES	Low temperature heat pump	NO		
Water/water heat pump		NO	WithSupplementaryheater	YES		
Brine/water heat pump		NO	Mixed central heating device with heat pump:	YES		
1 1			Mixed central heating device with heat pump:			

The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application and the parameters for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declare $pumps\,are\,declared\,for\,low\,temperature\,application$ 

The parameters are declared for average climatic conditions

Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	Prated	6	kW	Room central heating seasonal energy efficiency	$\eta_s$	130	%
Central heating capacity declared with a p- temperature equivalent to 20°C and outdo				$\begin{array}{c} Performance coefficient declared or primary \\ load it, with indoor temperature equivalent t \\ temperature T_j \end{array}$	perature equivalent to 20°C and outdoor		
T <sub>j</sub> =-7 °C	Pdh	5,3	kW	T <sub>j</sub> =-7 °C	COPd	2,00	-
T <sub>j</sub> =+ 2 °C	Pdh	3,2	kW	T <sub>j</sub> =+ 2 °C	COPd	3,23	-
$T_j = +7 ^{\circ}\text{C}$	Pdh	2,1	kW	$T_j = +7 ^{\circ}C$	COPd	4,47	-
T <sub>j</sub> =+ 12 °C	Pdh	1,9	kW	T <sub>j</sub> =+ 12 °C	COPd	5,72	-
$T_j$ =bivalent temperature	Pdh	5,3	kW	$T_j$ = bivalent temperature	COPd	2,00	-
$T_j$ =operatinglimit temperature	Pdh	5,0	kW	$T_j$ = operating limit temperature	COPd	1,80	-
for air/water heat pumps: $T_j = -15 \text{ °C} (\text{se TOL} < -20 \text{ °C})$	Pdh	-	kW	for air/water heat pumps: $T_j = -15 ^{\circ}\text{C}  (\text{se TOL} < -20 ^{\circ}\text{C})$	COPd	-	-
Bivalent temperature	$T_{\rm biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	Pcych	-	kW	Cycle intervals efficiency	COP- cych	-	-
Degradation coefficient (**)	Cdh	0,9	-	Water heating temperature operating limit	WTOL	65	°C
Different mode of energy consumption fro	m the active	mode		Additional heater			
OFF mode	P <sub>OFF</sub>	0,022	kW	Rated heat output (*)	Psup	1,0	kW
Thermostat mode off	P <sub>TO</sub>	0,022	kW				•
Standby mode	$P_{SB}$	0,022	kW	Type of energy supply voltage		gas	
Guard heating mode	P <sub>CK</sub>	0,000	kW				
Otheritems							
Capacity control		variable		For air/water heat pumps: air flow rate to outside	-	2580	m³\h
Indoor/outdoor sound level	$L_{WA}$	53/54	dB	For water\water or brine\water heat pumps:			
Emissions of nitrogen oxide	NO <sub>x</sub>	26	mg∖ kWh	nominal flow of brine or water, outdoor heat -		-	m³\h
For mixed central heating appliances with	a heat pump						
Statedload profile		XL		Water central heating energy efficiency	$\eta_{\mathrm{wh}}$	86	%
Daily electrical power consumption	Q <sub>elec</sub>	0,31	kWh	Daily fuel consumption	$Q_{\text{fuel}}$	22,14	kWh
Contactinformation, Immorgas S n A via	Cica Liguras	2 95					

Contact information: Immergas S.p.A. via Cisa Ligure n.95

<sup>(\*)</sup> For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output Pnominal is equal to the design appliances for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliance for space heating and heat pump mixed heating appliance for space heating application for space heatload for central heating Pdesignh and the nominal heat output of an additional heater Psup is equal to the additional central heating capacity

<sup>(\*\*)</sup> If Cdh is not determined by a measurement, the degradation coefficient is Cdh = 0,9.

## 4.9 PRODUCT FICHE MAGIS COMBO 9 V2 (IN COMPLIANCE WITH REGULATION 811/2013)

A	Supplier's name or trademark			Immergas	
В	Supplier's model identifier			MAGISCOMBO9 V2	
С	For space heating	Application temperature	-	Average temperature	
C	Forwaterheating	Statedloadprofile	-	XL	
	Seasonal energy efficiency class of room heating	Average temperature	-	A++	
D		Lowtemperature	-	A+++	
	Energy efficiency class of water heating		-	A	
E	Nominal heat output (average climate condition)	Average temperature	kW	8	
L	Nonmarinear output (average crimate condition)	Lowtemperature	kW	9	
	Annual energy consumption for room heating (average	Average temperature	kWh	5054	
	climate condition)	Lowtemperature	kWh	3949	
F	Fuel annual energy consumption for water heating (average)	Fuel annual energy consumption for water heating (average climate condition)			
	Annual energy consumption for water heating (average of	Annual energy consumption for water heating (average climate condition)			
	Seasonal energy efficiency of room heating (average climate condition)	Average temperature	%	128	
G		Lowtemperature	%	176	
	Energy efficiency of water heating (average climate condition)			86	
H	Lwa sound power level indoors	dB	53		
I	Operation only during dead hours		Yes\No	No	
J	Specific precautions	Specific precautions			
	Nominal heat output (colder climate condition)	Average temperature	kW	7	
**		Lowtemperature	kW	8	
K	N to the control of t	Average temperature	kW	8	
	Nominal heat output (warmer climate condition)	Lowtemperature	kW	9	
H I J	Annual energy consumption for room heating (colder	Average temperature	kWh	7223	
	climate condition)	Lowtemperature	kWh	5243	
т.	Annual energy consumption for room heating (warmer climate condition)	Average temperature	kWh	2709	
L		Lowtemperature	kWh	1855	
	Annual energy consumption for water heating (colder climate condition)		kWh	-	
	Annual energy consumption for water heating (warmer	kWh	-		
	Seasonal energy efficiency of room heating (colder climate condition)	Average temperature	%	93	
м		Lowtemperature	%	138	
M	Seasonal energy efficiency of room heating (warmer	Averagetemperature	%	155	
	climate condition)	Lowtemperature	%	242	
N	Lwasound power level outdoors			61	



## 4.10 TABLE 2 REGULATION 813/2013 (MAGIS COMBO 9 V2)

MAGISCOMBO9V2		
YES	Low temperature heat pump	NO
NO	With Supplementary heater	YES
NO	Mixed central heating device with heat pump:	YES
	YES NO	YES Low temperature heat pump

The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for average temperature application and the parameters for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps are declared for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature heat pumps are declare $pumps\,are\,declared\,for\,low\,temperature\,application$ 

The parameters are declared for average climatic conditions

Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	Prated	8	kW	Room central heating seasonal energy efficiency	$\eta_{s}$	128	%
Central heating capacity declared with a patern temperature equivalent to 20°C and outdo				$\begin{array}{c} Performance coefficient declared or primary \\ load it, with indoor temperature equivalent t \\ temperature T_j \end{array}$			rtial
T <sub>j</sub> =-7 °C	Pdh	7,1	kW	T <sub>j</sub> =-7 °C	COPd	1,76	-
T <sub>j</sub> =+ 2 °C	Pdh	4,3	kW	T <sub>j</sub> =+ 2 °C	COPd	3,23	-
T <sub>j</sub> =+ 7 °C	Pdh	2,8	kW	$T_j = +7 ^{\circ}C$	COPd	4,62	-
T <sub>j</sub> =+ 12 °C	Pdh	2,6	kW	T <sub>j</sub> =+ 12 °C	COPd	5,88	-
$T_j$ =bivalent temperature	Pdh	7,1	kW	$T_j$ = bivalent temperature	COPd	1,76	-
$T_j$ =operatinglimit temperature	Pdh	4,9	kW	$T_j$ = operating limit temperature	COPd	1,35	-
for air/water heat pumps: $T_j = -15  ^{\circ}\text{C} (\text{se TOL} < -20  ^{\circ}\text{C})$	Pdh	-	kW	for air/water heat pumps: $T_j = -15 ^{\circ}\text{C}  (\text{se TOL} < -20 ^{\circ}\text{C})$	COPd	-	-
Bivalent temperature	$T_{\rm biv}$	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	Pcych	-	kW	Cycle intervals efficiency	COP- cych	-	-
Degradation coefficient (**)	Cdh	0,9	-	Water heating temperature operating limit	WTOL	65	°C
Different mode of energy consumption fro	m the active	mode		Additional heater			
OFF mode	P <sub>OFF</sub>	0,022	kW	Rated heat output (*)	Psup	3,1	kW
Thermostat mode off	P <sub>TO</sub>	0,022	kW				
Standby mode	$P_{SB}$	0,022	kW	Type of energy supply voltage	gas		
Guard heating mode	$P_{CK}$	0,000	kW				
Otheritems							
Capacity control	variable			For air/water heat pumps: air flow rate to outside	-	3960	m³\h
Indoor/outdoor sound level	$L_{WA}$	53/61	dB	For water\water or brine\water heat pumps:			
Emissions of nitrogen oxide	NO <sub>x</sub>	26	mg∖ kWh	nominal flow of brine or water, outdoor heat exchanger	-	-	m³∖h
For mixed  central  heating  appliances  with	a heat pump						
Statedloadprofile		XL		Water central heating energy efficiency	$\eta_{\mathrm{wh}}$	86	%
Daily electrical power consumption	Q <sub>elec</sub>	0,31	kWh	Daily fuel consumption	$Q_{\text{fuel}}$	22,14	kWh
Contact information: Immargas S. p. A. via				1 , 1			

Contact information: Immergas S.p.A. via Cisa Ligure n.95

<sup>(\*)</sup> For heat pump appliances for space heating and heat pump mixed heating appliances, the nominal heat output Pnominal is equal to the design appliances for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliances. The nominal heat output Pnominal is equal to the design appliance for space heating and heat pump mixed heating appliance for space heating and heat pump mixed heating appliance for space heating application for space heatload for central heating Pdesignh and the nominal heat output of an additional heater Psup is equal to the additional central heating capacity

<sup>(\*\*)</sup> If Cdh is not determined by a measurement, the degradation coefficient is Cdh = 0,9.

#### 4.11 PARAMETERS FOR FILLING IN THE PACKAGE FICHE

Should you wish to install an assembly starting from the Magis Combo V2 package, use the package fiche shown in (Fig. 77).

For correct compilation, enter in the appropriate spaces (as shown in the facsimile overview sheet Fig. 76) the values given in the tables in the paragraph "Parameters to fill in the average temperature package fiche (47/55)".

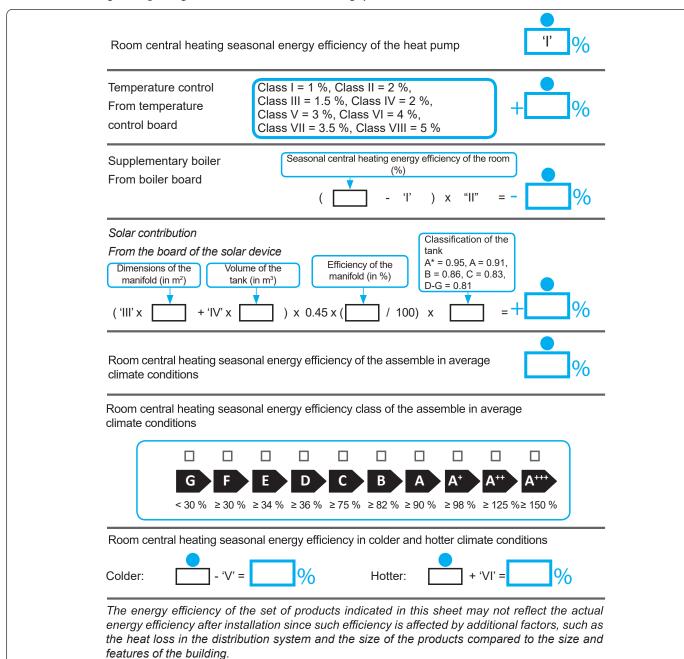
The remaining values must be obtained from the technical data sheets of the products used to make up the assembly (e.g. solar devices, integration heat pumps, temperature controllers).

Use board (Fig. 77) 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.



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USER

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

## Magis Combo 4 V 2

Parameter	Colderzones	Averagezones	Hotterzones
	•	-	
"I"	96	128	150
"II"	*	*	*
"III"	6,68	5,35	5,35
"IV"	2,61	2,09	2,09

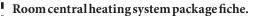
## Magis Combo 6 V2

Parameter	Colderzones	Averagezones	Hotterzones
	•	•	<b>=</b>
"I"	93	130	151
"II"	*	*	*
"III"	5,35	4,45	4,45
"IV"	2,09	1,74	1,74

## Magis Combo 9 V2

Parameter	Colderzones	Averagezones	Hotterzones		
		-	-		
"I"	93	128	155		
"II"	*	*	*		
"III"	3,82	3,34	3,34		
"IV"	1,49	1,31	1,31		

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



Room central heating seasonal energy efficiency of the heat pump



Temperature control

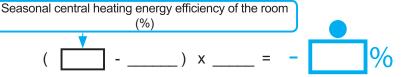
From temperature control board

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



Classification of the

Solar contribution

From the board of the solar device

Dimensions of the manifold (in m²)

Volume of the tank (in m³)

Efficiency of the manifold (in %)

tank

A\* = 0.95, A = 0.91,

B = 0.86, C = 0.83,

D-G = 0.81

/ 100) x

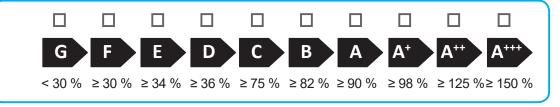


Room central heating seasonal energy efficiency of the assemble in average climate conditions



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

) x 0.45 x (



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

Colder:



Hotter:



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

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immergas.com



Design, manufacture and post-saleassistance of gas boilers, gas water heaters andrelatedaccessories















 $This \, instruction \, booklet \, is \, made \, of \,$ ecological paper.

