

IMMERSERS

Instructions and warnings **IE**
Installer
User
Maintenance technician

 **IMMERGAS**

TRIO PACK ELECTRIC 4 - 6 - 9

Heat pump consisting of:
- indoor unit
UITPE
- outdoor condensing unit
AUDAX PRO 4 - 6 - 9 V2

1.046087ENG



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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 constant efficiency of your appliance. 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.

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 WARNINGS

- 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 condensing unit, please refer to the relevant instruction manual;
- The user must carefully read the instructions in the specific section (sec. 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 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 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, intended as staff with specific technical skills in the system sector, as envisioned by the Law.
- Improper installation or assembly of the Immergas appliance and/or components, accessories, 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.
- 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 damage and the appliance warranty is invalidated.
- Maintenance must be carried out by skilled technical staff. For example, the Authorised Service Centre that represents a guarantee of qualifications and professionalism.
- In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts). Do not attempt to modify or repair the appliance alone.

SAFETY SYMBOLS USED



GENERIC HAZARD

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



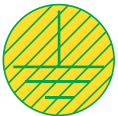
ATTENTION

Read and understand the appliance's instructions before performing any operation, carefully following the indications provided. Failure to follow the indications can generate appliance malfunctions.



INFORMATION

Indicates useful tips or additional information.



EARTH TERMINAL CONNECTION

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



DISPOSAL WARNING

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

PERSONAL PROTECTIVE EQUIPMENT



SAFETY GLOVES



SAFETY GOGGLES



SAFETY FOOTWEAR

1 INSTALLING THE INDOOR UNIT

1.1 DESCRIPTION OF THE PRODUCT.

Trio Pack Electric 4-6-9 is a heat pump consisting of:

- UI TPE indoor unit (hereinafter called, indoor unit or UI TPE).
- Audax Pro 4-6-9 V2 outdoor condensing unit (hereinafter referred to as outdoor condensing unit or Audax Pro 4-6-9 V2).

Trio Pack Electric 4-6-9 is perfectly operational only if the two units are correctly powered and interconnected.

The UI TPE indoor unit was designed solely for floor installation for heating and air conditioning and to produce domestic hot water for domestic use and similar purposes.

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

- Audax Pro 4 V2 outdoor condensing unit;
- Audax Pro 6 V2 outdoor condensing unit;
- Audax Pro 9 V2 outdoor condensing unit;

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

1.2 INSTALLATION RECOMMENDATIONS.

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



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



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

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



The appliance operates with R32 refrigerant gas.



This gas is ODOURLESS.



Pay the utmost attention

Strictly follow the instruction handbook of the outdoor condensing unit before installation and any type of operation on the cooling 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 warming (GWP 675).



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



Only professionally qualified companies are authorised to install Immergas appliances.



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



If installing a kit or servicing the appliance, always empty the system's domestic hot water circuit first so as not to compromise the appliance's electrical safety (*Par. 2.7*). Always disconnect the appliance from voltage and, depending on the type of operation, decrease the pressure and/or bring it to zero in the gas and DHW circuits.



Before installing the appliance, ensure it has been 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.

Keep all flammable objects away from the appliance (paper, rags, plastic, polystyrene, etc.).



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




INSTALLER


USER


MAINTENANCE TECHNICIAN


TECHNICAL DATA


Installation Standards.

This indoor unit, if installed in an external wall, requires the use of the special “Solar Container” to be fixed with the support brackets supplied together with the package itself. In combination with the “Solar Container” it was not designed to be installed on plinths or floors. It was not designed to be installed without the special recessed frame. 

The installation of the “Solar Container” in the wall must ensure a stable and efficient support of the UI TPE. The UI TPE ensures appropriate support only if installed correctly (according to the rules of good practice), following the instructions on its instructions leaflet. The “Solar Container” for UI TPE is not a supporting structure and cannot replace the piece of wall removed. It is therefore necessary to check its correct positioning inside the wall. For safety reasons against any leaks it is necessary to plaster the pack housing in the brick wall. This pack is used to heat water to below boiling temperature in atmospheric pressure. It must be connected to a central heating system and domestic hot water circuit suited to its performance and capacity. 

If it is planned to be installed with the use of the special “Domus Container”, the indoor unit must be installed in an environment in which the temperature cannot fall below 0°C. 
Do not expose the indoor unit to atmospheric agents.


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


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


Do not install near sources of heat. 


Pay attention not to generate sparks as follows: 

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


This indoor unit is used to heat water to below boiling temperature in atmospheric pressure. 

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

The appliance is built to also operate in cooling mode. 
If cold water production, during summer, could interfere and damage the central heating only systems, necessary precautions must be taken to prevent that an unintentional production of cold water enters the heating only system.

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

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

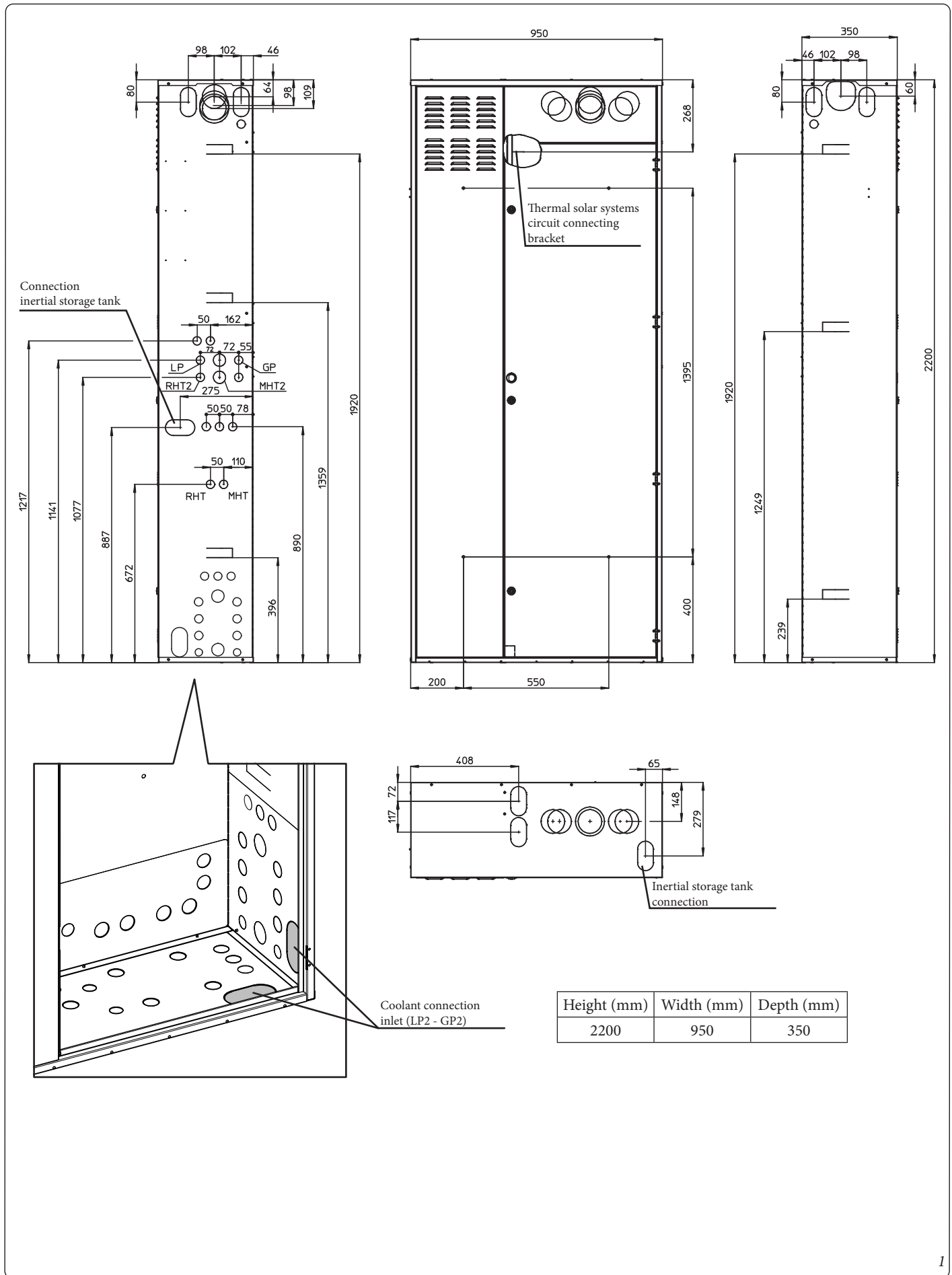
The anti-legionella function is programmed directly on the panel. 

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

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

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

1.3 SOLAR CONTAINER INDOOR UNIT MAIN DIMENSIONS.



Height (mm)	Width (mm)	Depth (mm)
2200	950	350

INSTALLER

USER

MAINTENANCE TECHNICIAN

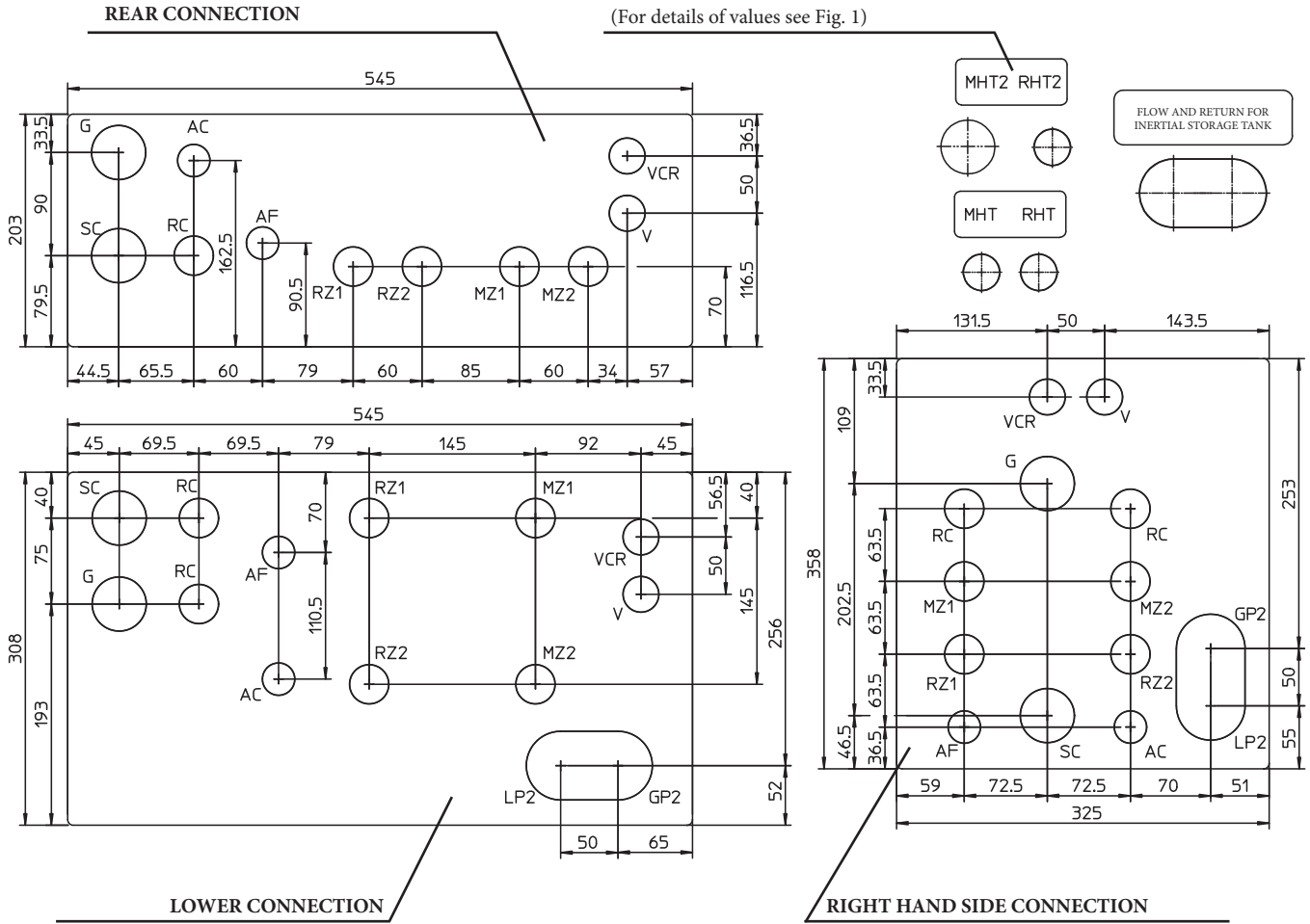
TECHNICAL DATA

1.4 CONNECTION TEMPLATE.

Attention: the indicated values refer to the stickers applied inside the recessed frame.

HEAT PUMP CONNECTION - INERTIAL STORAGE TANK - VICTRIX HYBRID OUTDOOR UNIT

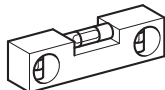
(For details of values see Fig. 1)



Key:

- | | |
|---|--|
| G - Gas supply | GP - Chiller line - gaseous phase |
| AC - Domestic hot water outlet | GP2 - Chiller line - gaseous phase (Trio Pack) |
| AF - DHW (Domestic hot water) water inlet | MZ1 - Zone 1 system flow |
| MHT - Flow from heat pump | MZ2 - Zone 2 system flow |
| RHT2 - Return to heat pump | RZ1 - Zone 1 system return |
| MHT2- Flow from heat pump (Victrix Hybrid Plus) | RZ2 - Zone 2 system return |
| RHT - Return to heat pump (Victrix Hybrid Plus) | RC - DHW (Domestic hot water) recirculation |
| LP - Chiller line - liquid phase | SC - Condensate drain |
| LP2 - Chiller line - liquid phase (Trio Pack) | V - Electrical connection |
| | VCR - Main remote panel electrical connection |
| | VS - 3 bar discharge valve |

Height (Solar/Domus) (mm)		Width (Solar/Domus) (mm)		Depth (Solar/Domus) (mm)		
2200/2110		950/975		350/365		
CONNECTIONS						
CHILLER LINE		DOMESTIC HOT WATER	RECIRCULATION	SYSTEM		
LP	GP	AC - AF	RC	RP - MP	RZ1 - MZ1	RZ2 - MZ2
SAE 1/4"	SAE 5/8"	G 1/2"	G 3/4"	G 3/4"	G 3/4"	G 3/4"



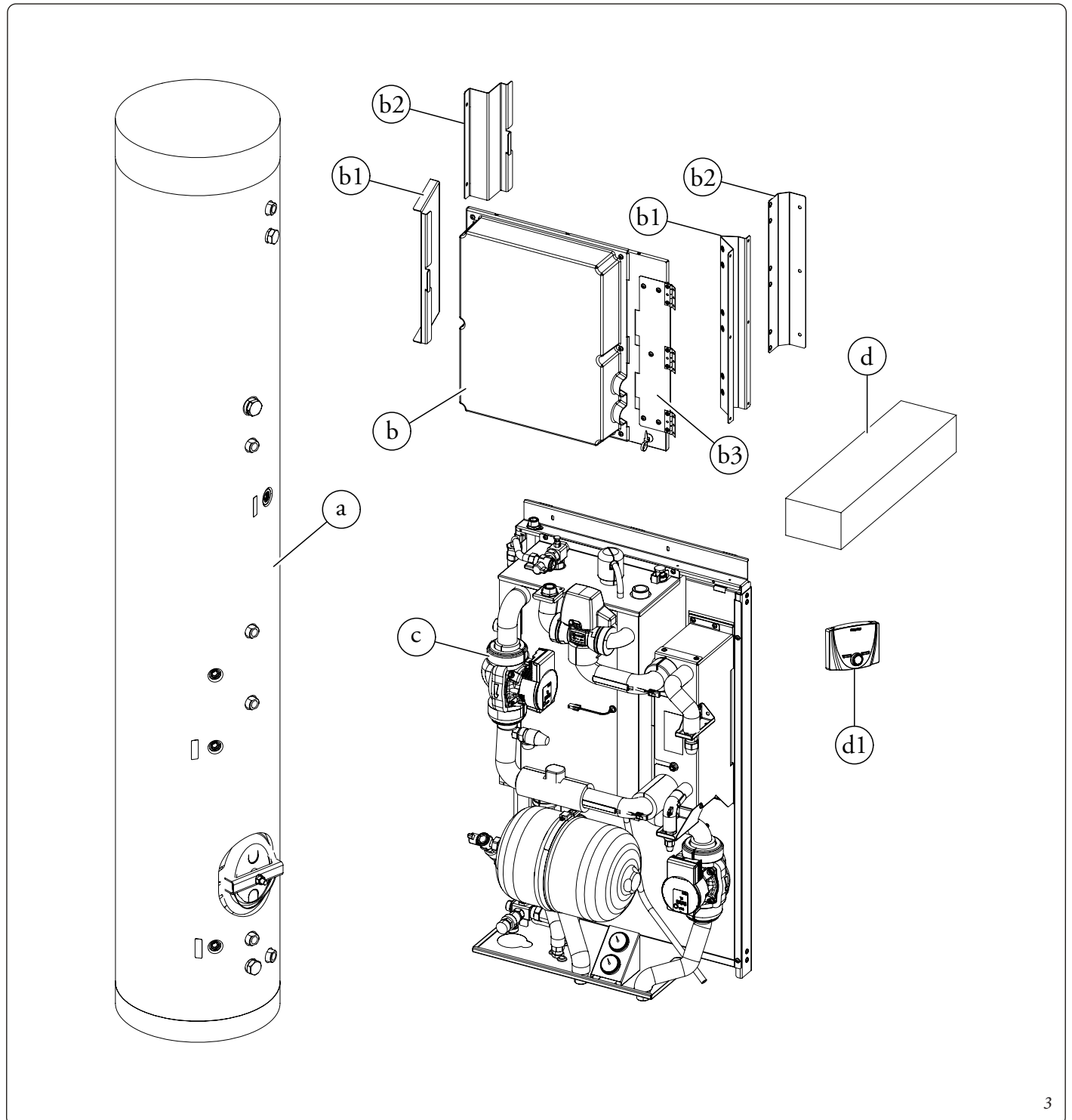
1.5 INSTALLATION.

Indoor unit composition.

Ref.	Description	Q.ty
a	Storage tank unit	1
b	Management electronics unit with integrative resistance	1
b1	Mount brackets for Solar Container	1
b2	Mount brackets for Domus Container	1
b3	Electronics unit mount bracket with hinges	1
c	1-zone hydronic group (or 2 zones optional)	1
d	Accessories and screws	1
d1	Remote panel	1

Installation drawings key:

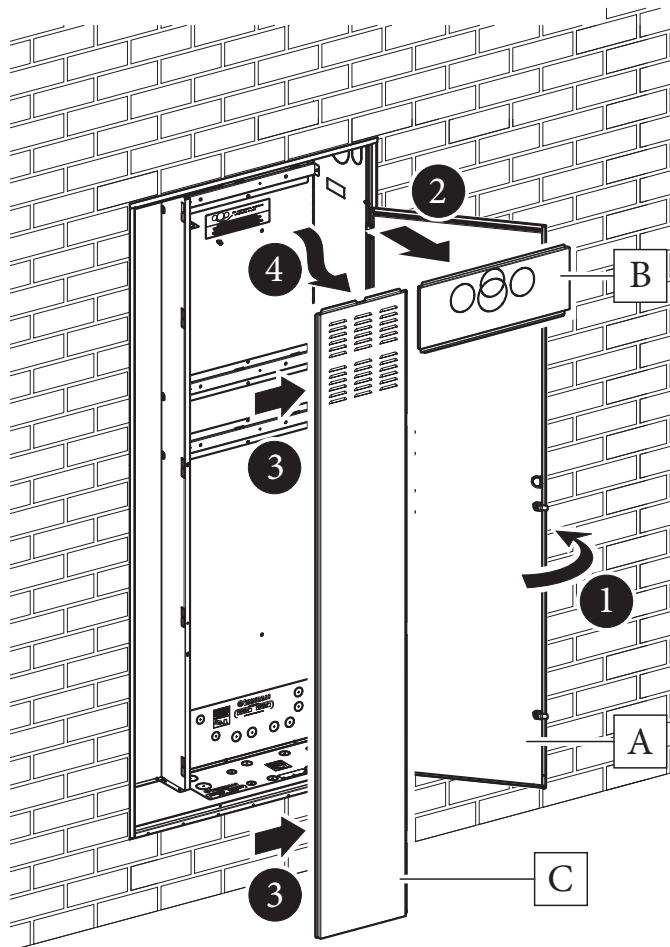
- a** Unmistakeable component identification
- 1** Sequential identification of the operation to perform
- A** Identification of generic or not supplied component



Installation operations.

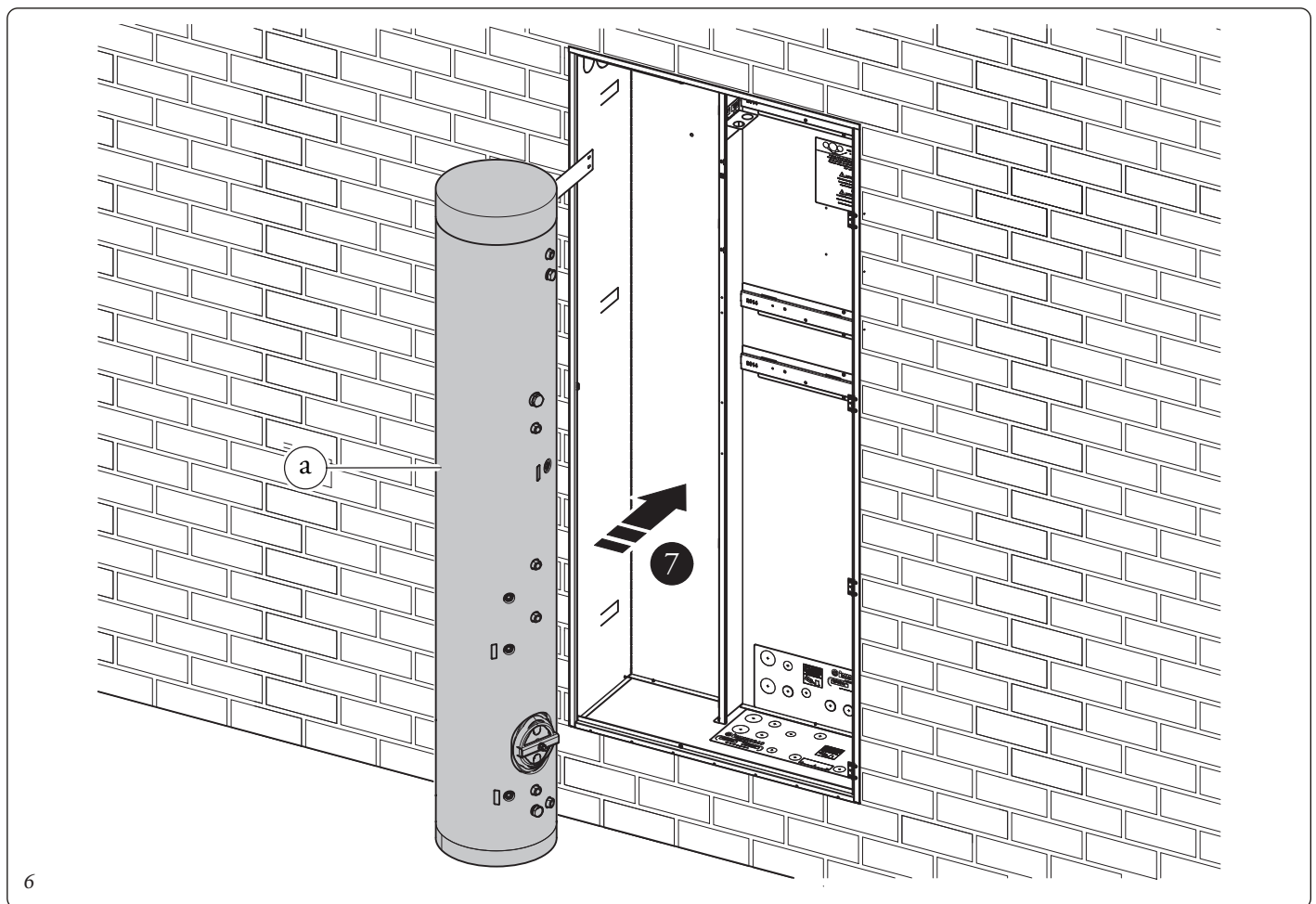
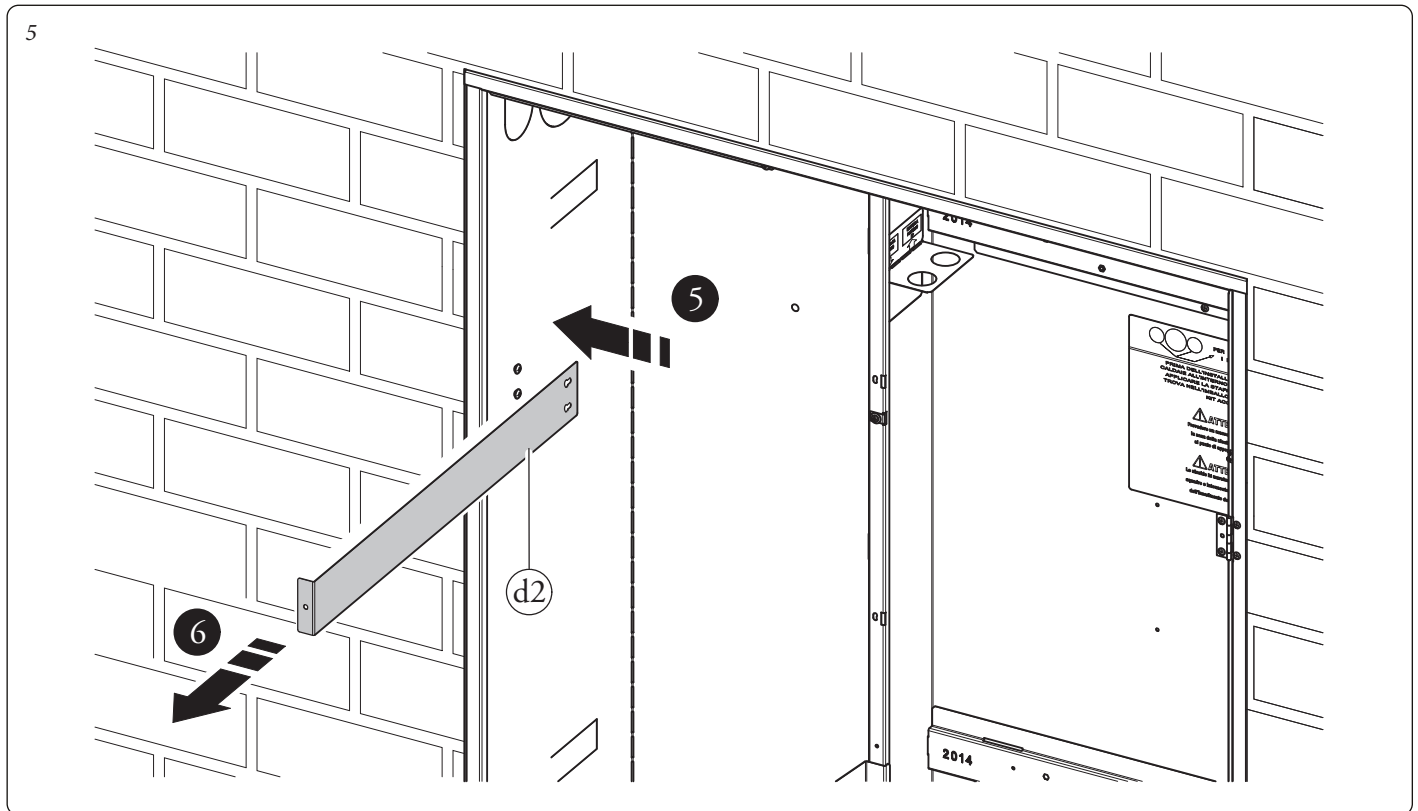
Before installing the pack, open the “Solar Container” completely by opening door (A) and blocking it to prevent it from getting in the way during the following installation procedures.

Also remove the cover (B) and the side cover (C).



- Insert and block the storage tank unit retaining strip (d2) on the screws fitted on the Solar Container.

- Insert the storage tank unit (a) into the Solar Container with the flange positioned on the right hand side and at the bottom, as shown in Fig. 6.



INSTALLER

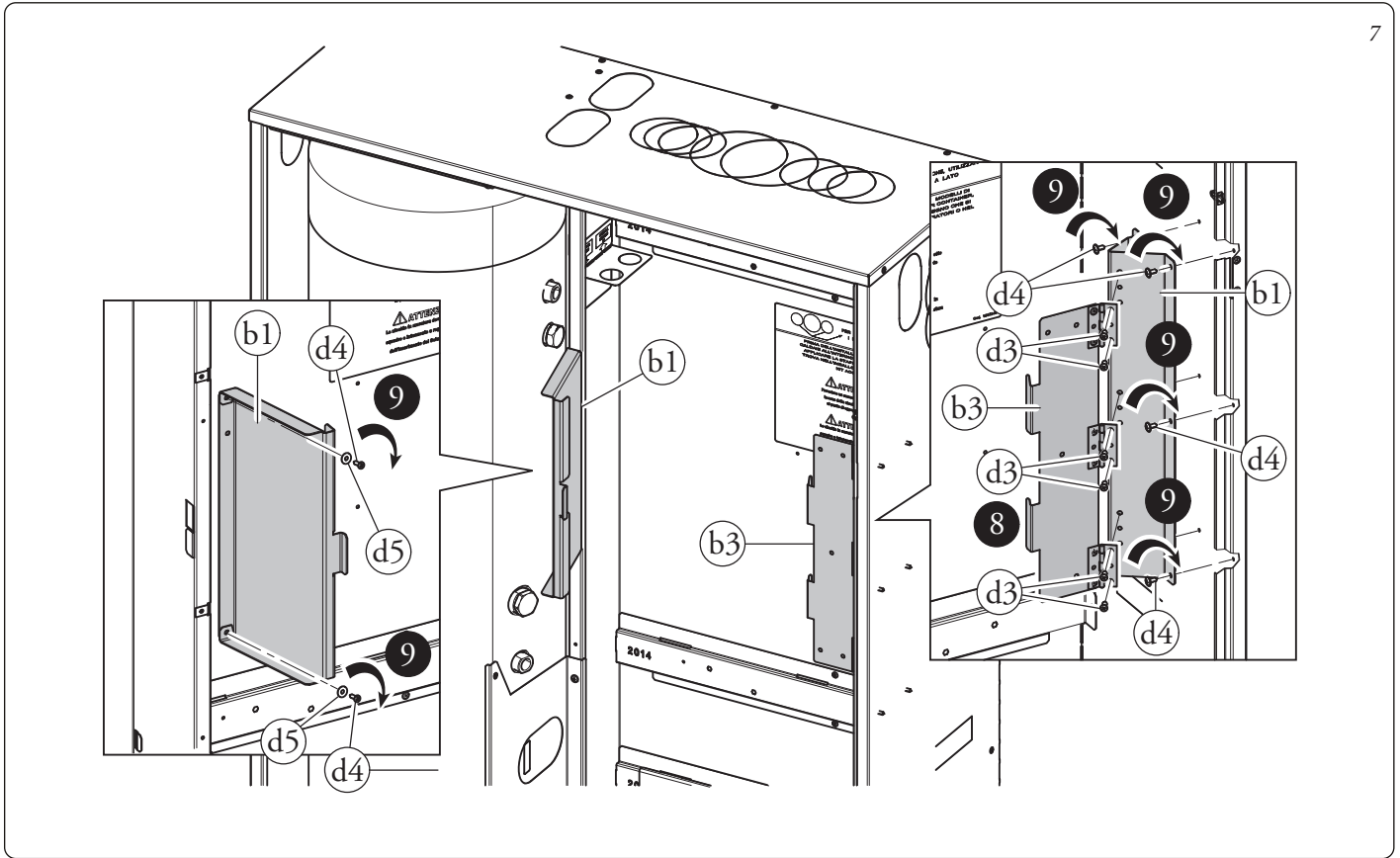
USER

MAINTENANCE TECHNICIAN

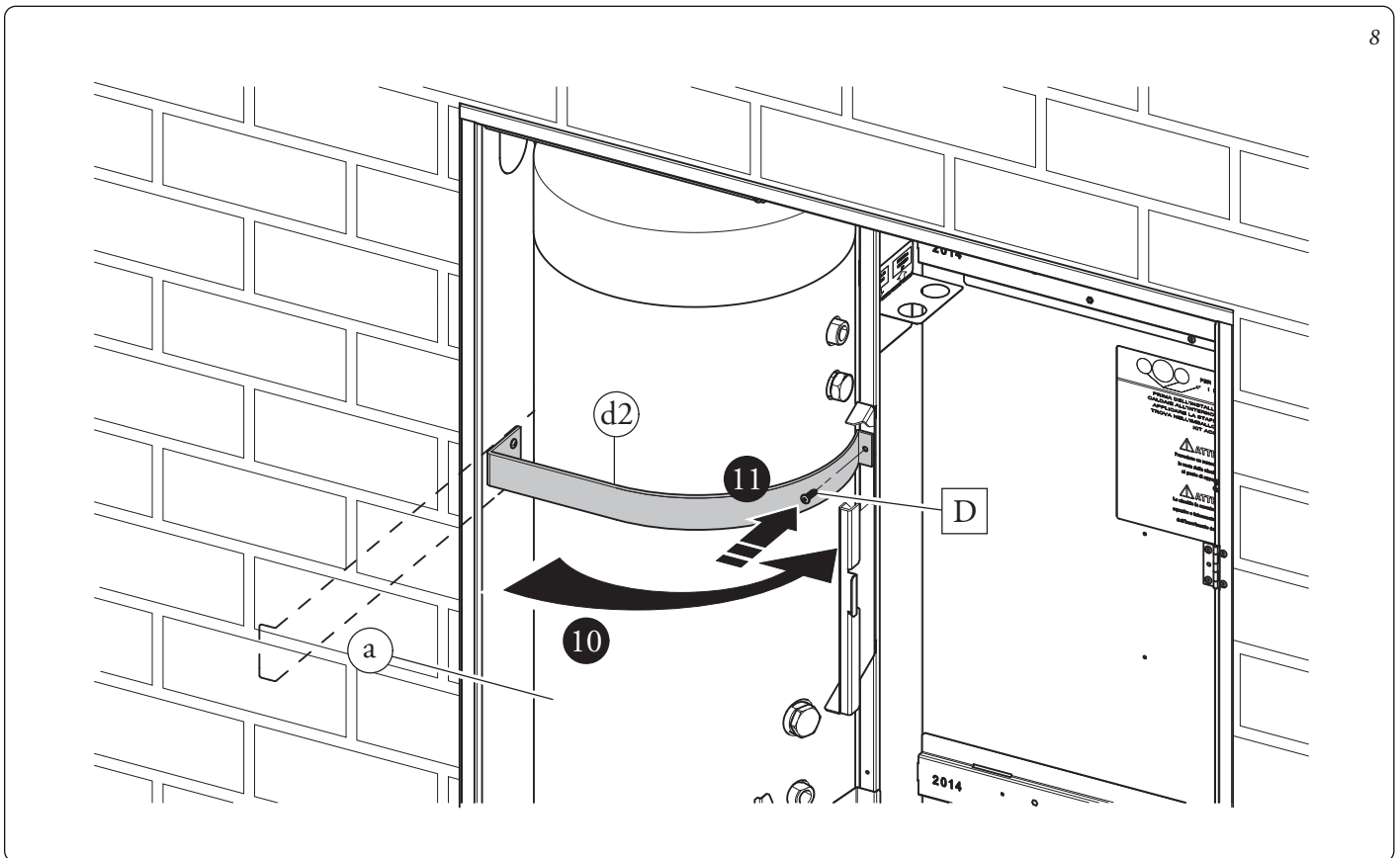
TECHNICAL DATA

- Fix bracket (b3) to bracket (b1) with screws (d3) (Fig. 7).
- Tighten the brackets (b1) to the Solar Container using screws (d4) and washers (d5) as shown in Fig. 7.

- Bend the strip (d2) around the storage tank unit (a) and fasten it with the screw (D) (Fig. 8).



7



8

- Hang the hydronic unit (c) on the central bracket of the Solar Container. Secure the position of the hydronic unit by fastening the screws (d6) on the central bracket (Fig. 9).

N.B.: in the event that the installer thinks it is necessary, it is possible to secure the position of the hydronic unit even further by using self-tapping screws (d7), inserting them into the holes on the lower part of the hydronic unit.



ATTENTION.

The fixing screws (d6 and d7) are present in the connection kit of the device to be combined with the Trio Pack Electric.

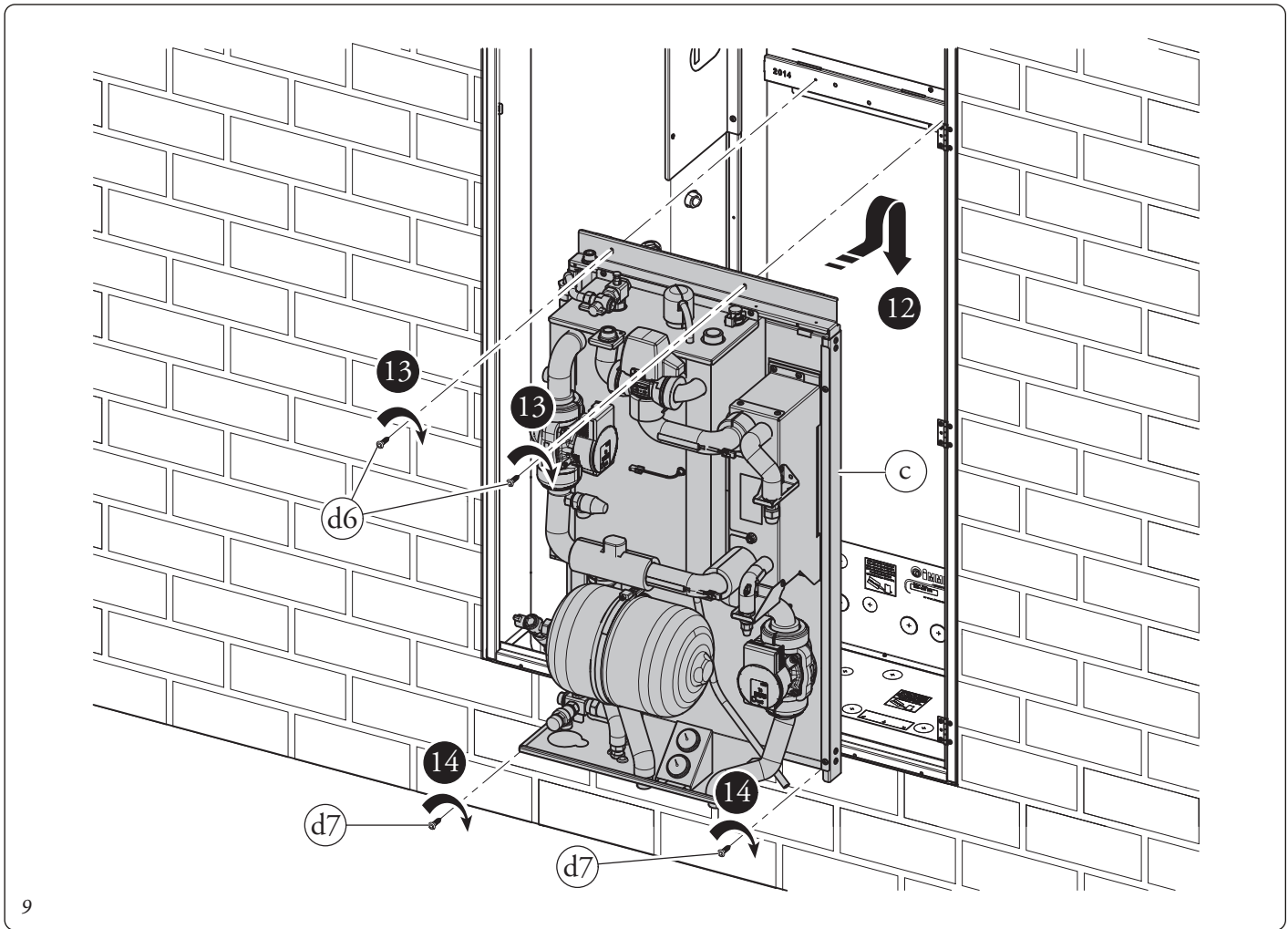


INSTALLER

USER

MAINTENANCE TECHNICIAN

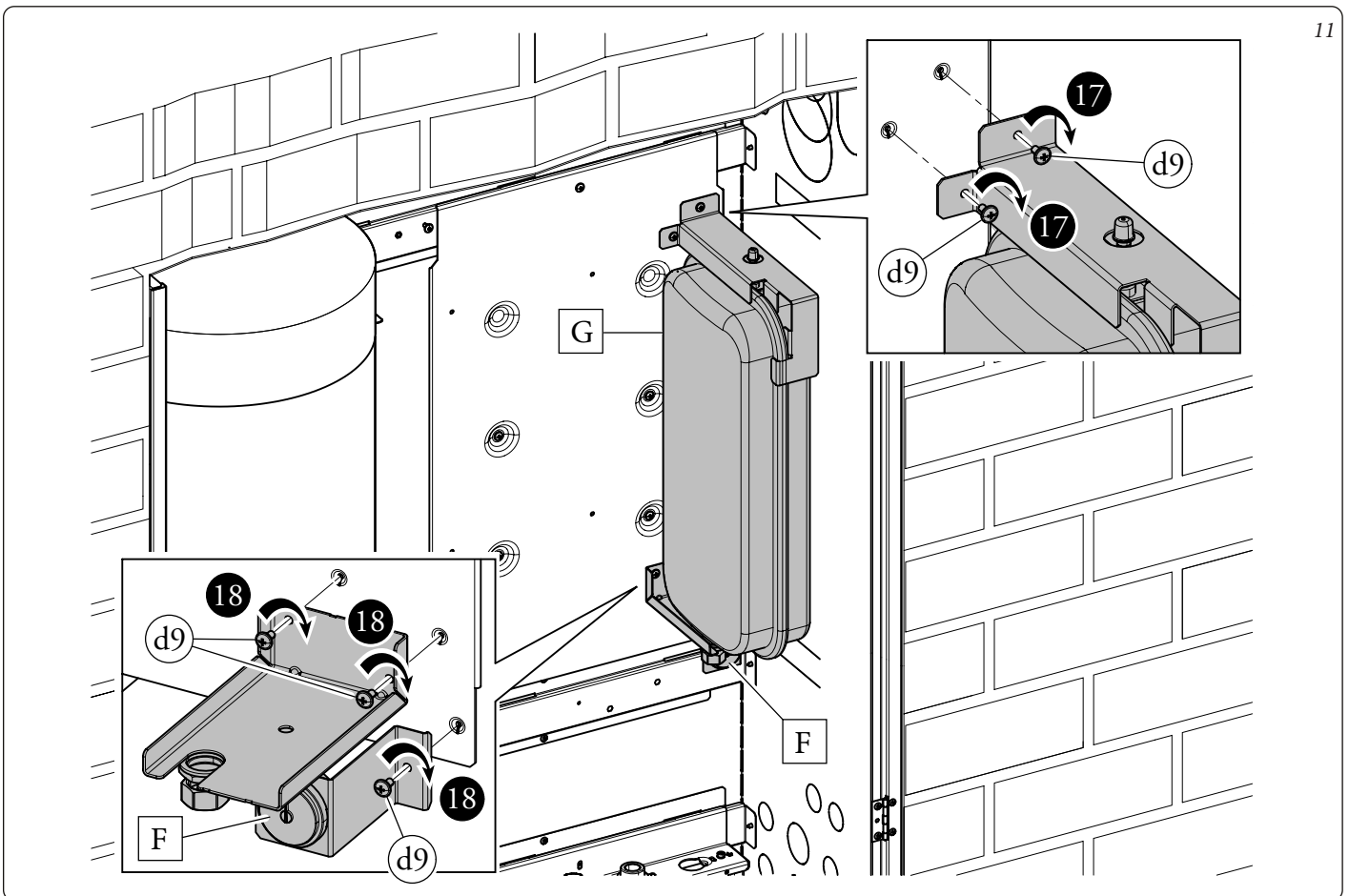
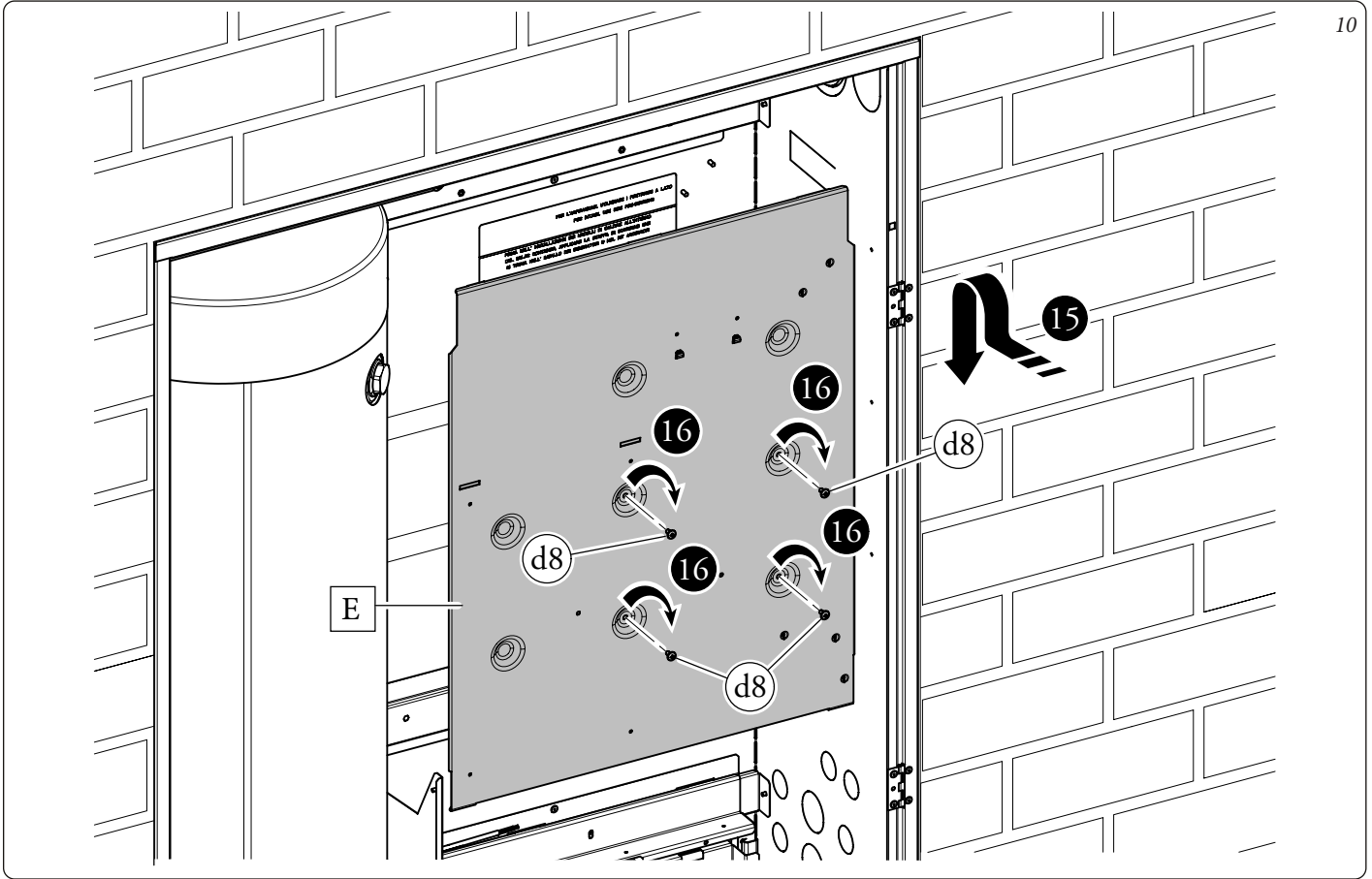
TECHNICAL DATA



Installation operations.

- Tighten the metal-sheet plate (E) with the special screws (d8).

- Position the expansion vessel (G) with pressure gauge (F) and fix with the screws (d9).

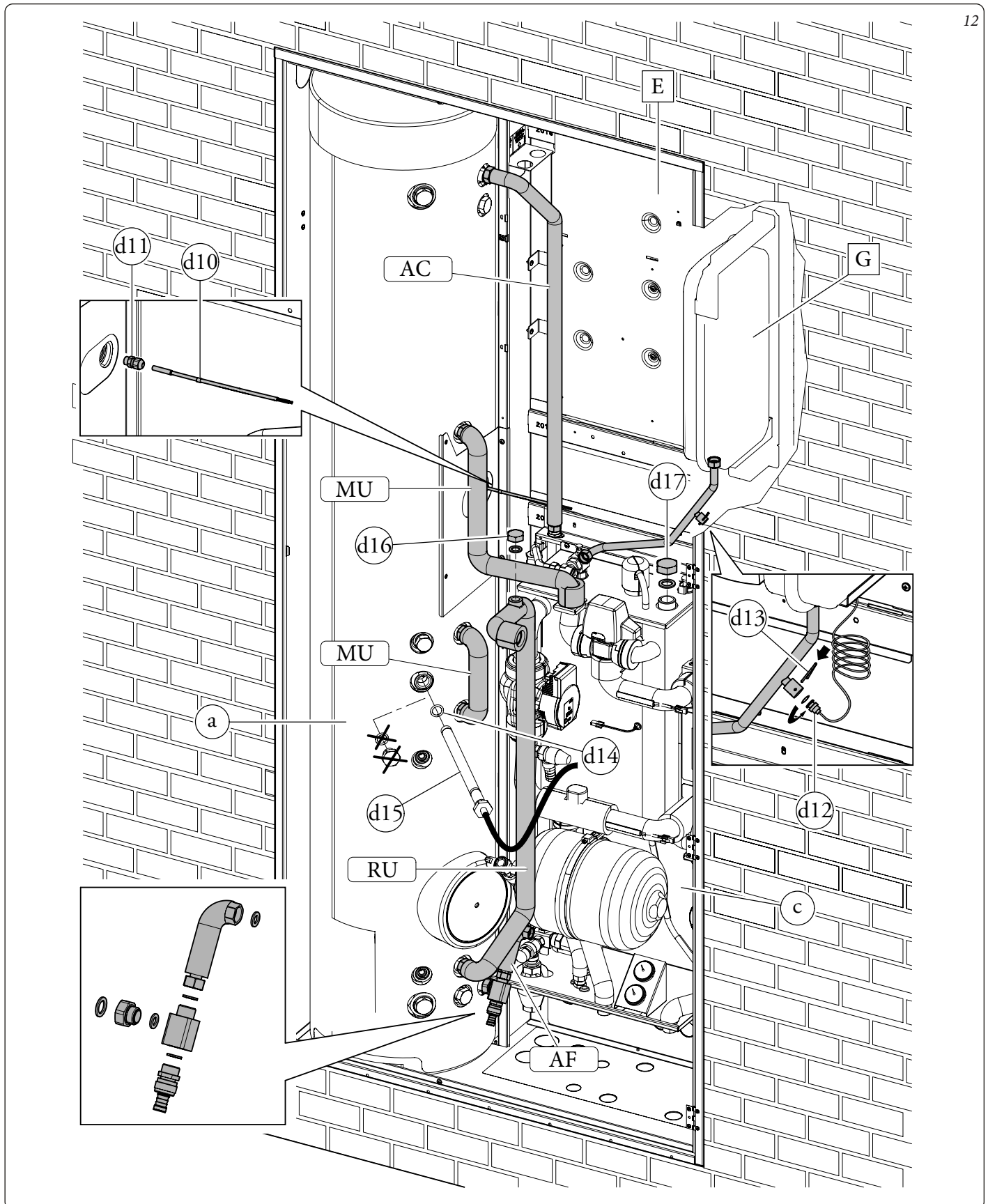


- Make the hydraulic connection between the storage tank unit (a), hydronic unit (c) and expansion vessel (G), as shown in Fig. 12.

Perform the connections in sequence, starting from the pipes near the rear wall up to those near the installer, remembering to insert the special gaskets supplied.

Install the probe (d10) using the special fairlead (d11).

Assemble the pressure point (d12) in the appropriate housing, remembering to mount the relative "OR" gasket and to secure everything with the relative clip (d13).



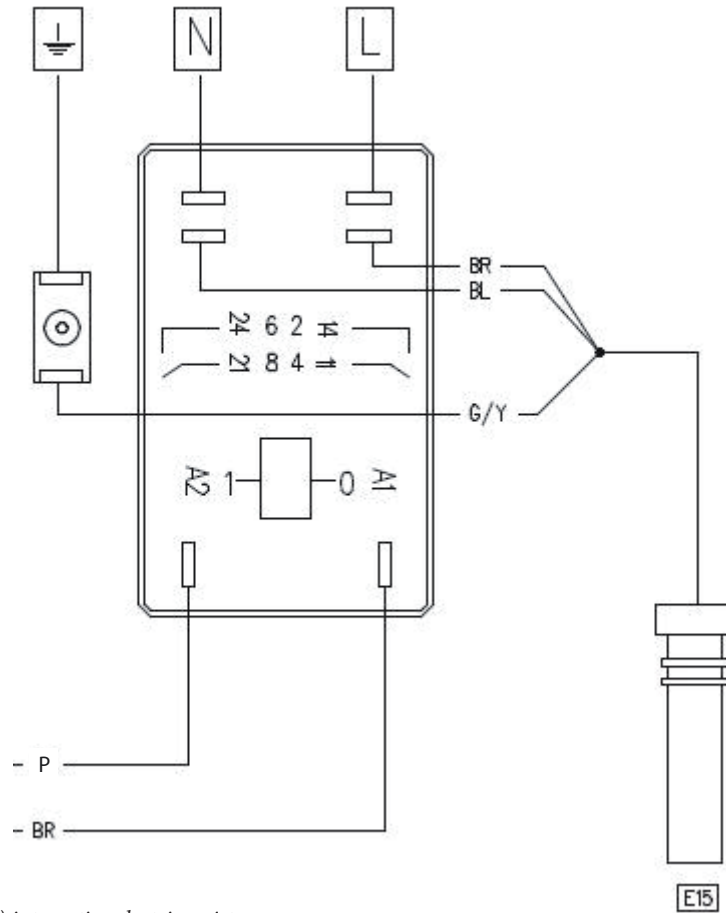
Mount the integrative resistance (d15):

- Eliminate the cap and the relative O-ring.
- Place the O-ring (d14) on the resistance (d15).
- Insert the resistance (d15) fixing it to the storage tank unit.
- Prepare the power supply cable of the resistance (d15), of the "faston" clamps and check that this cable has a capacity of at least 6.5A.

- Insert a 10A circuit breaker switch upstream of the resistance power supply circuit.
- Implement the electrical connections as described in the wiring diagram (Fig. 13).

At the end, mount the caps (d16 and d17), remember to interpose the relative gasket.

13



Key:

E15 - DHW (Domestic hot water) integrative electric resistance


Colour code key:


- BL - Blue
- BR - Brown
- P - Purple
- G/Y - Green-Yellow

1.6 HYDRAULIC CONNECTION.

Perform the hydraulic connection of the Trio Pack Electric, referring to the relative instruction sheet and to the connection template on the Solar Container.


ATTENTION.

Before making the connections, carefully clean the heating system (pipes, radiators, etc.) with special pickling or de-scaling products to remove any deposits that could compromise correct operation of the boiler, hydraulic unit and storage tank unit. 


N.B.: remove all the protection caps on the flow and return pipes of the hydronic unit, before making the hydraulic connections. 

The connections can be made directly using the female couplings on the hydronic unit or by inserting system cut-off cocks (optional). These cocks are particularly useful for maintenance as they allow you to drain the hydronic unit separately without having to empty the entire system.

ATTENTION.

To preserve the duration of appliance efficiency features, we recommend installation of a suitable device for water treatment in presence of water whose characteristics can lead to the deposit of lime scale. 

ATTENTION.

To preserve the correct operation of the manifold inside the hydraulic circuit, it is necessary to install an inspectable Y-filter, present in the accessory boxes, on the return of the zones. 


1.7 SAFETY VALVE DRAIN.

8 bar domestic hot water safety valve.

Screw the fitting (d18) onto the safety valve. Screw the funnel (d19) onto the fitting (d18) and convey the outlet to the drains.

Hydronic group 3 bar safety valve.

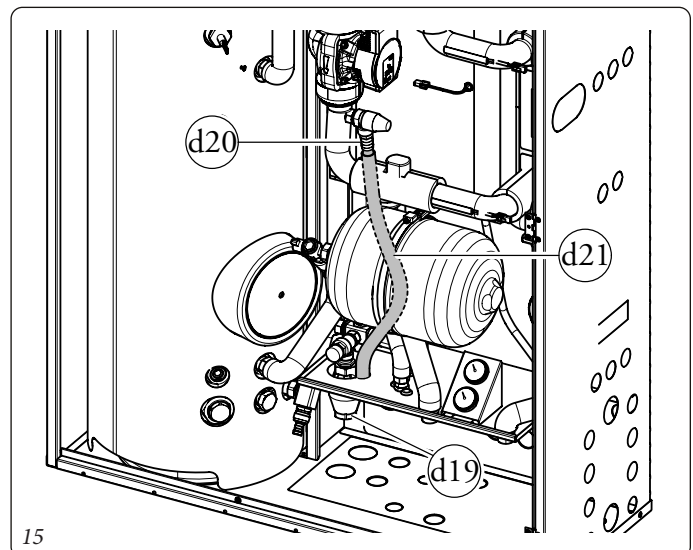
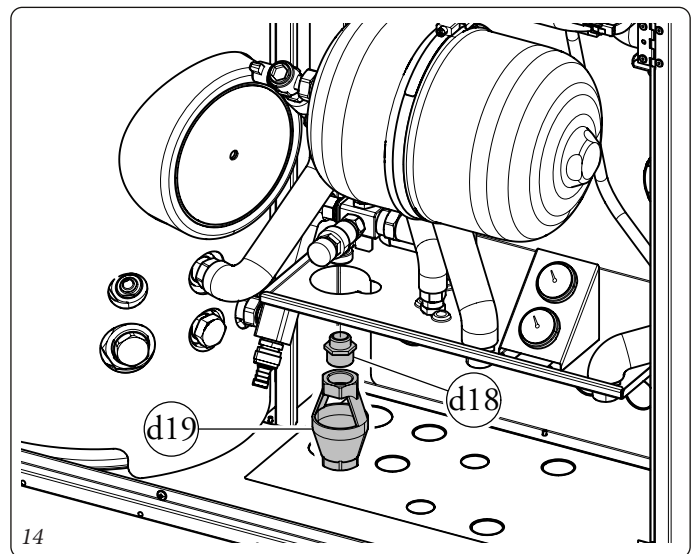
Tighten the rubber fitting (d20) to the safety valve of the hydronic group. Connect the silicone pipe (d21) to the fitting (d19) and, after having cut it to size, insert it into the funnel (d19) as shown in Fig. 14.

The appliance safety valves outlet must be connected to a draining funnel. 

Otherwise, the appliance's manufacturer declines any responsibility in case of flooding if the drain valves cut.

A treatment of the heating and water system water is required, in compliance with the technical standards in force, in order to protect the system and the appliance from deposits (e.g. scale), slurry or other hazardous deposits.

Water connections must be made in a rational way using the couplings on the indoor unit template.



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

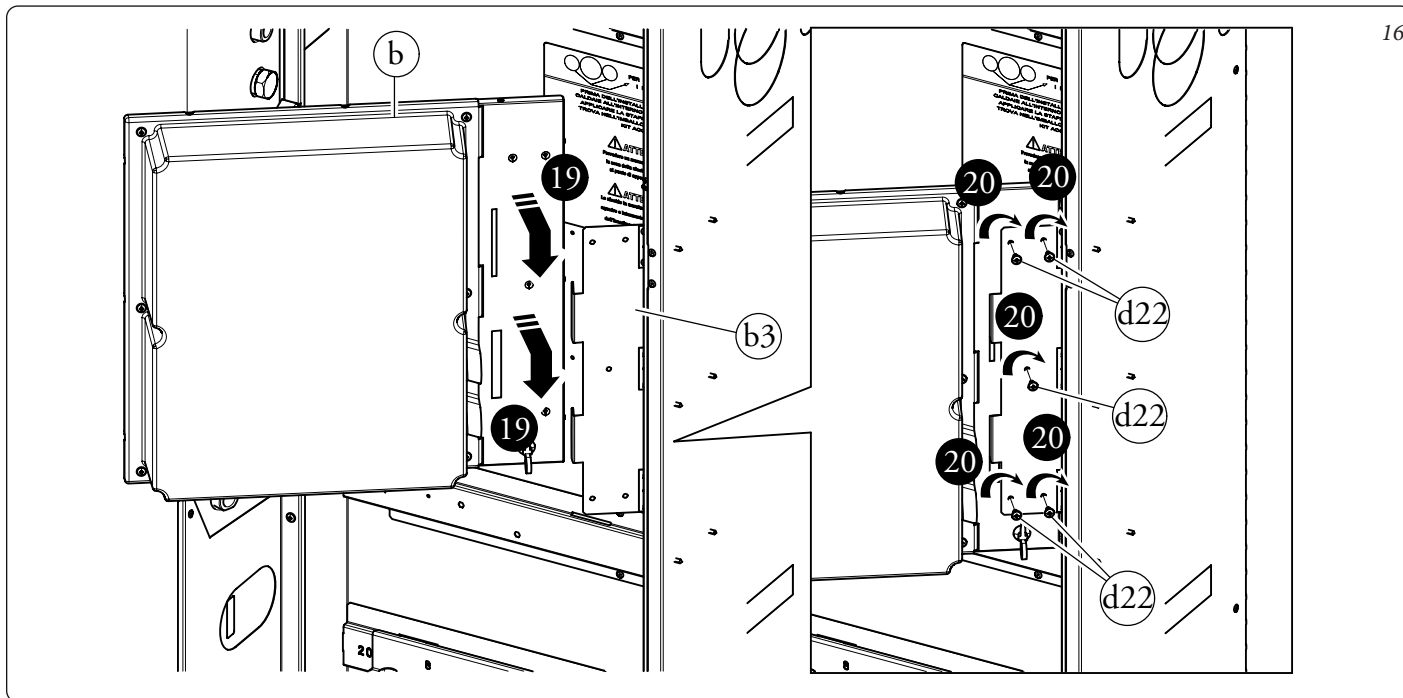


In order to meet the system requirements established by EN 1717 in terms of pollution of drinking water, we recommend installing the IMMERGAS anti-backflow kit to be used upstream of the cold water inlet connection of the indoor unit. We also recommend using category 2 heat transfer fluid (ex: water + glycol) in the 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 (valid only for Domus Container).



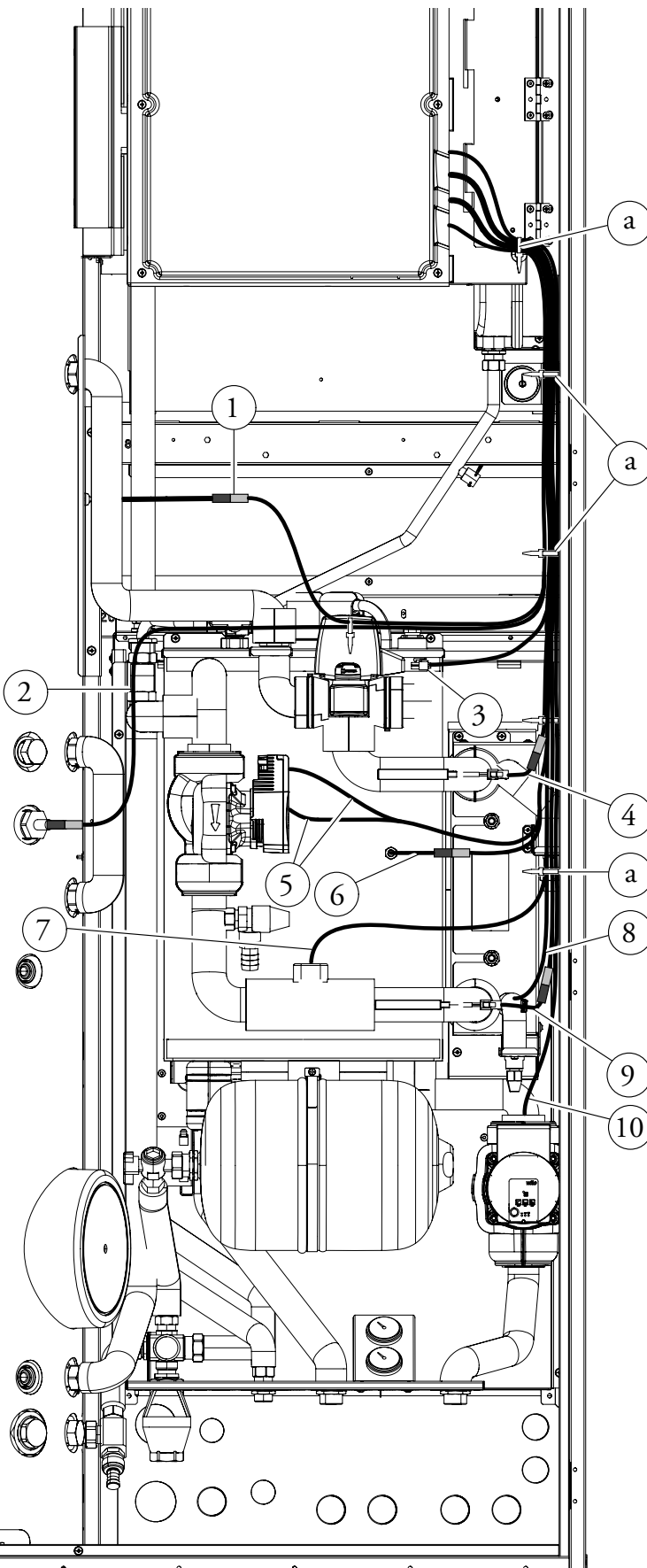
- Fit the electrical panel (b) on the bracket (b3) as shown in *Fig. 15*. Once completed the installation, fix everything with the screws (d22).



16

1.8 ELECTRICAL CONNECTIONS TO THE MAIN PANEL.

17



The connection cables must follow the predetermined path using the special cable glands (a) (Fig. 17).

Key (Fig. 17):

- 1 - DHW probe connection (B2)
- 2 - DHW (Domestic hot water) integrative electric resistance connection (E15)
- 3 - 3-way valve connection (M50)
- 4 - Heat pump flow probe connection (B1-HP)
- 5 - System pump connection (M1)
- 6 - System probe connection (B1)
- 7 - Flow meter connection (B25)
- 8 - Liquid phase detection probe connection (B29)
- 9 - Heat pump return probe connection (B5-HP)
- 10 - Direct zone pump connection (M10-1)
- a - Cable gland

The electrical connections available are:

- Zone 2 flow probe.
- Zone 1 humidistat and thermostat.
- Zone 2 humidistat and thermostat.
- Optional system integrative resistances.
- Zone 2 pump.
- Zone 2 Mixing Valve.
- Photovoltaic contact.
- Multifunction relay 1.
- Multifunction relay 2.
- Zone 1, 2 remote devices (Zone remote panel, Temperature/humidity probe, Dominus).
- Heat pump disabling contact.

Make the various electrical connections according to your needs.

Outdoor unit electrical connection.

The indoor unit must be coupled to an outdoor condensing unit by connecting terminals F1 and F2 as shown in the wiring diagram (Fig. 21). The outdoor unit is powered at 230 V, regardless of the indoor unit. Configure the "HP Model" parameter as indicated in paragraph (Par. 3.9) depending on the type of connected outdoor condensing unit.

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1.9 CHILLER LINE INSTALLATION.

Connect the chiller line of the outdoor unit as shown in *Fig. 18*.

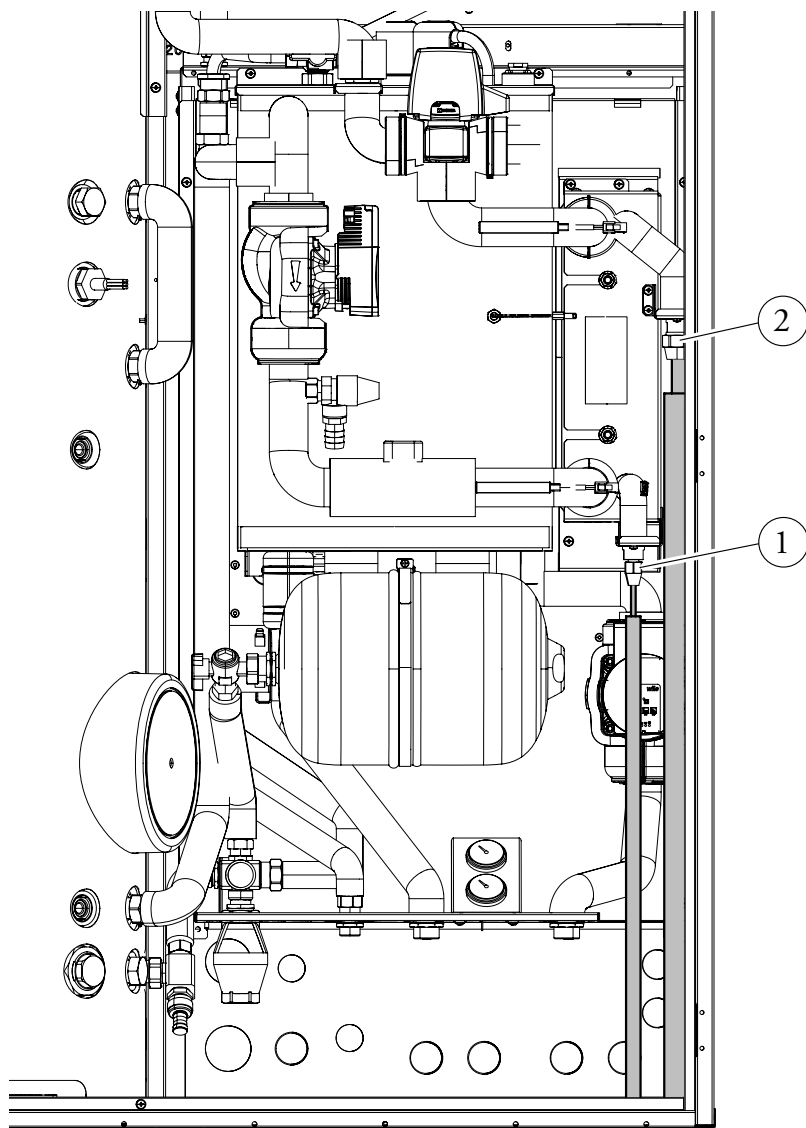
Connect the smaller pipe on the fitting (1) and the larger pipe on the fitting (2).

Using a torque wrench, tighten the nuts (1 and 2) to the tightening torque indicated on the outdoor unit manual.

As far as connecting the chiller line is concerned, all the instructions contained in the outdoor condensing unit instructions booklet must be followed.

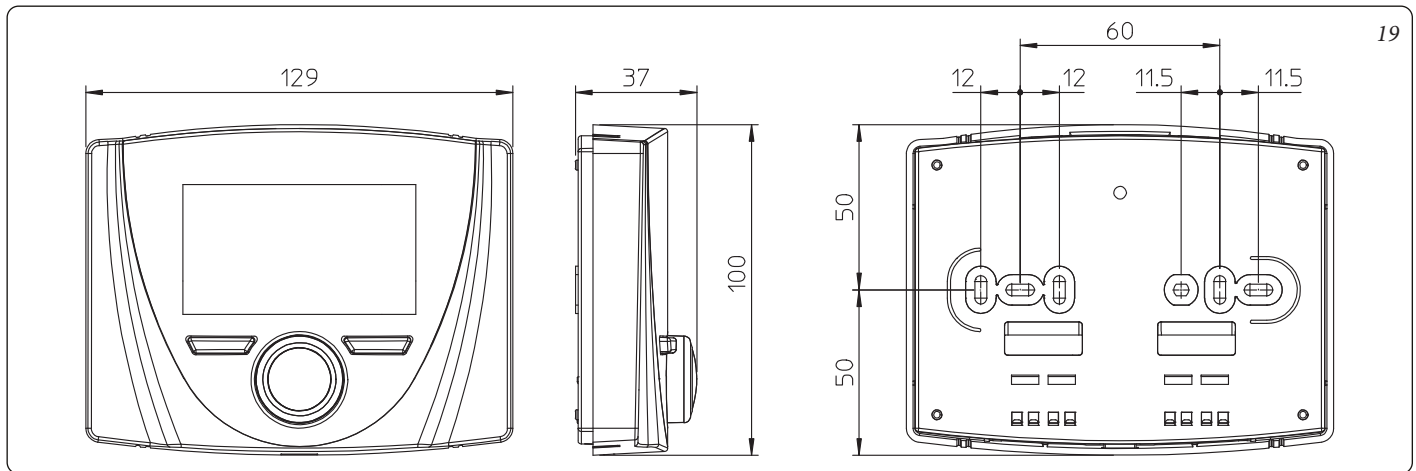
Make the connections directly on the indoor unit couplings (*Fig. 18*).

It is suggested to apply thermal insulation over the entire length of the pipes and connection fittings to reduce the formation of condensate during summer operation.



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1.10 TRIO PACK REMOTE PANEL.



1.11 REMOTE PANEL INSTALLATION OPERATIONS.

- 1) Separate the fixing template from the body of the remote panel using a screwdriver as a lever in the relative recess (Fig. 20). Install the remote panel away from heat sources and in a suitable position to detect the room temperature correctly.
- 2) Install the remote panel using the openings on its rear part directly onto the wall or on a recess box using the relative supplied screws.
- 3) Connect the remote panel to the electronic management clamps, as indicated in the diagram (Fig. 21).

The connection is made using wires with a minimum section of 0.50 mm² and maximum section of 1.5 mm² and with a maximum length of 50 metres.

N.B: for correct installation, prepare a dedicated line to connect the remote control according to the Standards in force regarding electrical systems. If this is not possible, interference due to other electric cables could cause malfunctioning of the remote control itself.



- 4) Fix the body of the remote control to the mount template, engaging it with pressure.
- 5) After the pack has been powered, wait about 30 seconds before regulation so that communication between remote panel and the pack has established.

1.12 ELECTRICAL CONNECTION.

The Trio Pack Electric device has protection rating IPX5D. Electrical safety of the appliance is reached only when it is correctly connected to an efficient earthing system as specified by current safety standards.

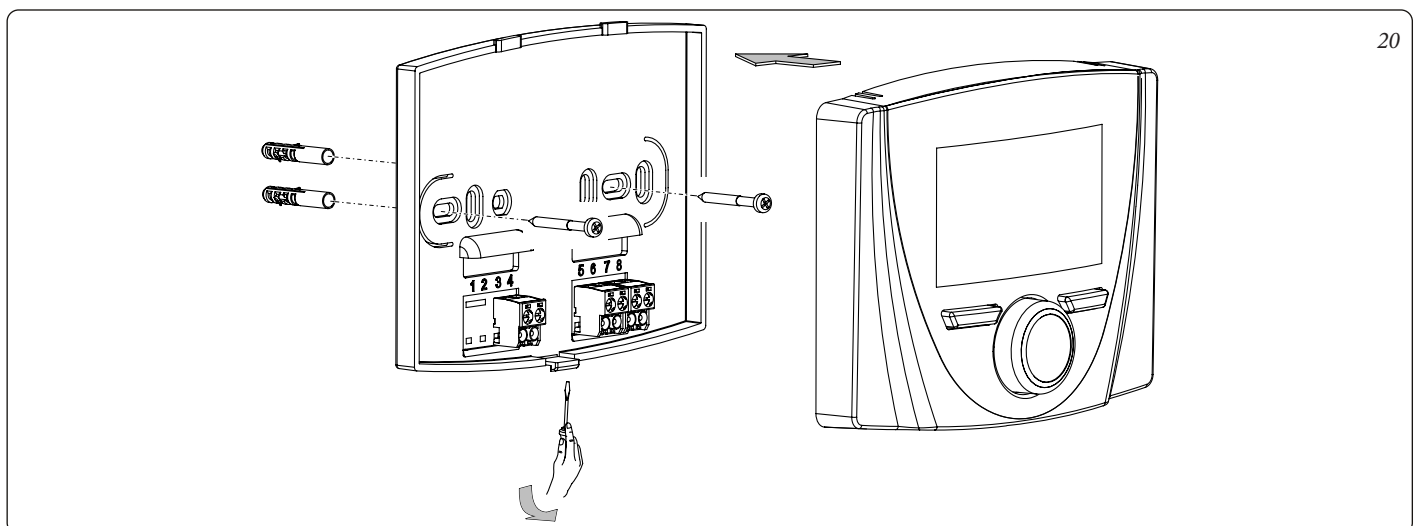
ATTENTION.

The manufacturer declines any responsibility for damage or physical injury caused by failure to connect the Trio Pack Electric device to an efficient earthing system or failure to comply with the reference standards.



Also ensure that the electrical system corresponds to maximum absorbed power specifications as shown on the Trio Pack Electric data nameplate.

The pack is supplied complete with an “X” type 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 multi-pole circuit breaker with class III overvoltage category in compliance with installation regulations.



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



If the power supply cable is damaged, it must be replaced by a special cable or assembly, which are only available from the manufacturer or its Authorised After-Sales Technical Assistance Centre.



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


Provide an additional power supply cable with a minimum section of 1.5 mm² for the power supply inside the electrical panel of the domestic integrative resistance.



If the fuses on the circuit boards need to be replaced, this must also be done by qualified personnel.

The device is equipped with two fuses: one 230 V fast 3.15A fuse and one 315 mA fuse.

For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

- **Wiring connection.** Connect the wiring as described in *Par. 1.7*.
- **Pack electrical connection.** The power cable must be connected to a 230V $\pm 10\%$ / 50Hz mains, respecting L-N polarity and the earthing connection ; this network must have a multi-pole circuit breaker with Class III overvoltage category. When replacing the power supply cable, contact a qualified company (e.g. the Immergas Authorised After-Sales Technical Assistance Service). For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.
- **Remote panel electrical connection.** The pack only operates if connected to the standard supplied remote panel. This must be connected as shown in *Fig. 21*.

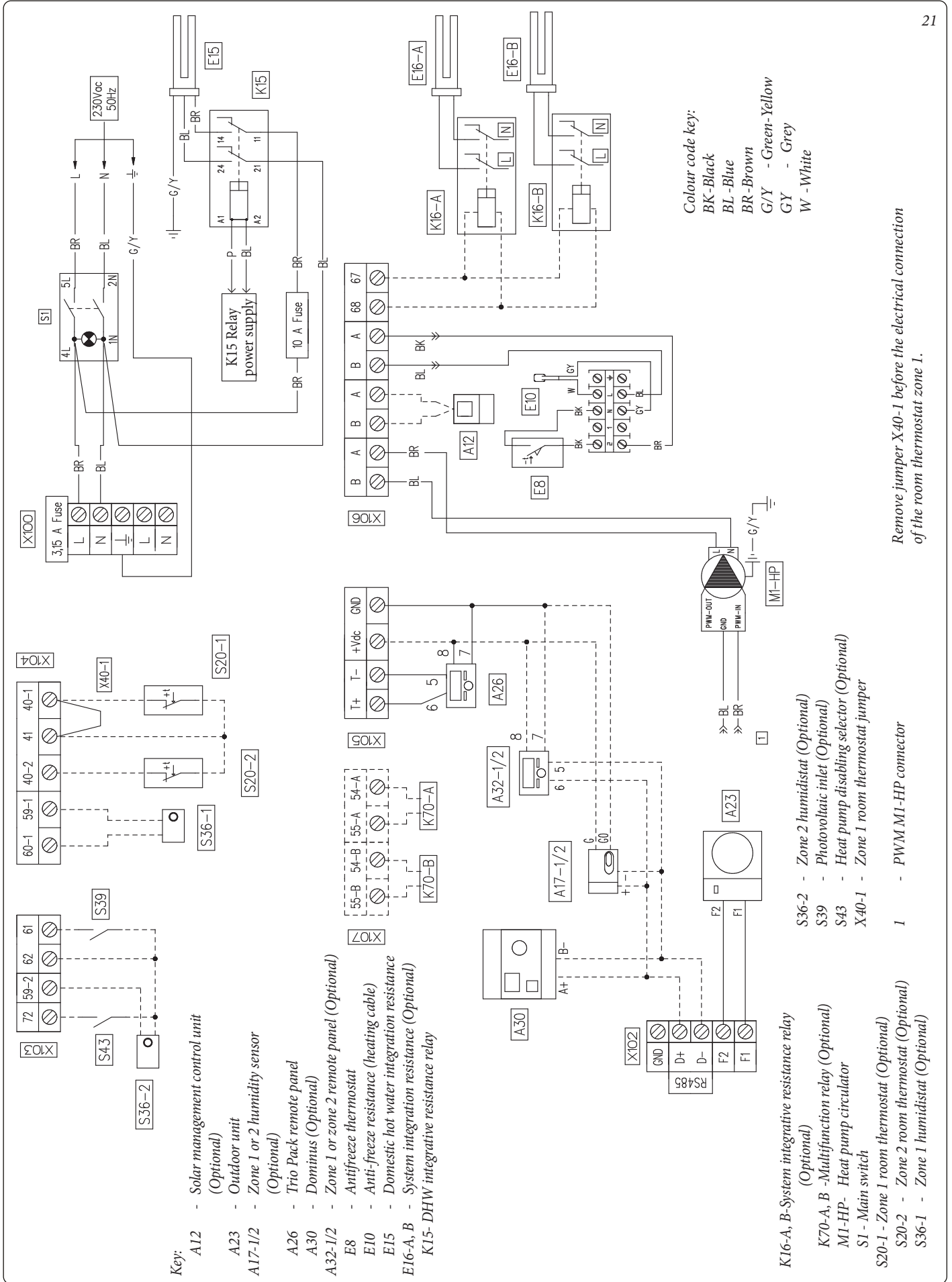
IMPORTANT.

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.



- **Manifold solar probe electrical connection.** Connect the manifold solar probe (in the kit) to the manifold and control unit (*Ref. 11 Fig. 37*).
- **Solar control unit electrical connection.** Connect the solar control unit to the system as indicated in the relative instructions manual.

Connections diagram.



1.13 ZONE REMOTE CONTROL (OPTIONAL).

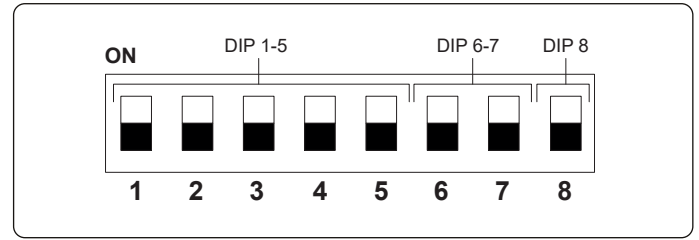
This remote device is used to adjust the setpoints and to view the main information of the zone where it was configured.
 Connect the appliance as shown (Fig. 21).
 To correctly configure the device, set the parameters as described below:

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

1.14 MODBUS TEMPERATURE AND HUMIDITY ROOM PROBES (OPTIONAL).

The Modbus temperature and humidity probe is used to detect the room temperature and humidity and to calculate the dew point. In addition, by setting the relative zone room setpoints available on the Control panel (see Par. 2.4.3), it is possible to check the temperature and humidity of a room.
 Connect the appliance as shown (Fig. 21).

DIP-Switch configuration table.



DIP 1-5 (Address)	<p>ON</p> <p>1 2 3 4 5</p>	Zone 1 (Address 131)
	<p>ON</p> <p>1 2 3 4 5</p>	Zone 2 (Address 132)

DIP 6-7 (Type)	<p>ON</p> <p>6 7</p>	Modbus 1 - 8 - E - 1
-------------------	----------------------	-------------------------

DIP 8 (Speed)	<p>ON</p> <p>8</p>	9600 bit/s
------------------	--------------------	------------

1.15 DOMINUS (OPTIONAL).

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

Connect the appliance as shown (Fig. 21).

The following is necessary to enable Dominus:

- position the Dip Switches: OFF-OFF-OFF-ON;
- set the System supervision parameter on the control panel = Domin;
- configure the Dominus APP profile on Trio.

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



For further information, consult the relative instruction sheet.

1.16 ROOM CHRONO-THERMOSTATS (OPTIONAL).

The indoor unit is prepared for the application of room chrono-thermostats, which are available as optional kits (Fig. 21). A maximum of 2 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 appliance before any electrical connection.



On/Off Immergas digital chrono-thermostat.

The chrono-thermostat allows:

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

The chrono-thermostat is powered by two 1.5V LR 6 type alkaline batteries.

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

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



On/Off ambient thermostat or Chrono-thermostat: must be connected to the 40-1 / 41 terminals, eliminating the X40-1 jumper for zone 1 and 40-2 / 41 for zone 2.

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

The connections must be made on the terminal board inside the control panel or the appliance’s main panel (Fig. 21).

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



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

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

1.17 HUMIDISTAT ON/OFF (OPTIONAL).

You can make a dehumidification demand by using a humidistat. Connect the appliance as shown (Fig. 21).

1.18 EXTERNAL TEMPERATURE PROBE (OPTIONAL).

The outdoor condensing unit has a standard external probe that can be used as an external probe of the heat pump.

The external probe is used to:

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

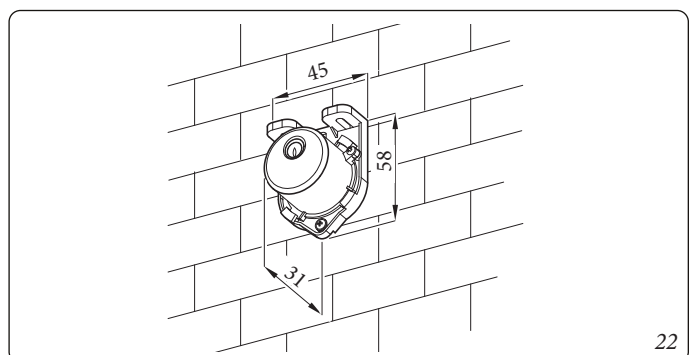
If the outdoor condensing unit is positioned in an area that is not suitable for temperature reading, it is advisable to use an additional external probe (Fig. 22), which is available as an optional kit. Refer to the relative instruction sheet for positioning of the external probe.

For the correct operation of the optional probe, it is necessary to install the Expansion Kit (optional) and then enable it (Par. 3.24). 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 “Zone” menu and by the “User” menu for the offset values based on the curves shown in the diagram (Par. 1.19).

If the system is divided into two 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.



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



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1.19 TEMPERATURE CONTROL SETTING.

By setting the parameters in the menus

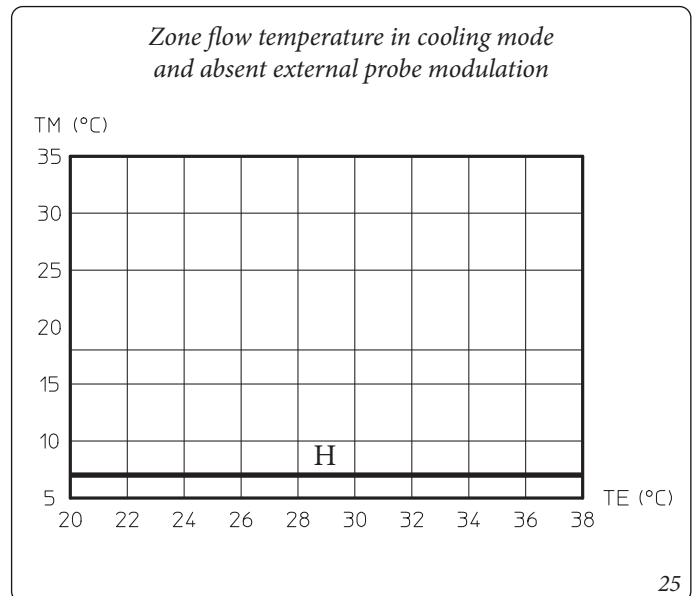
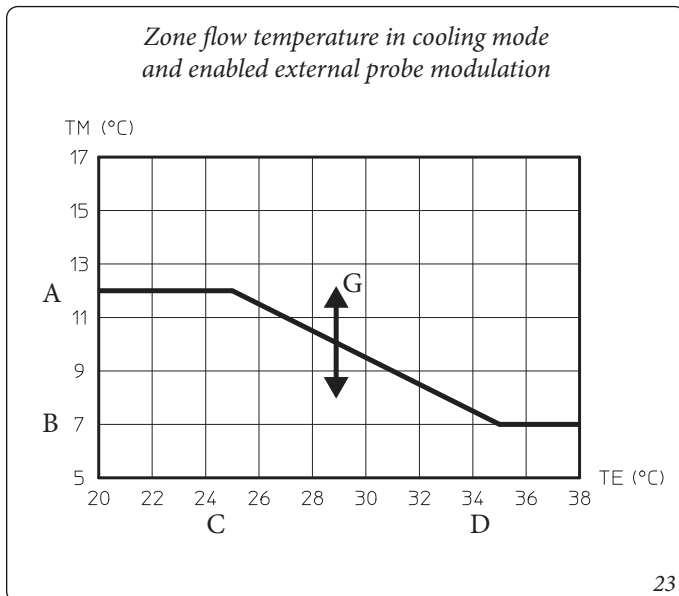
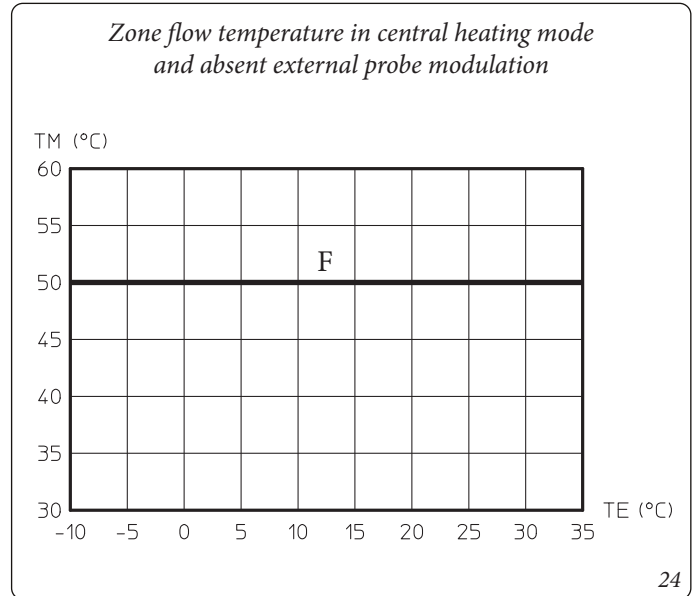
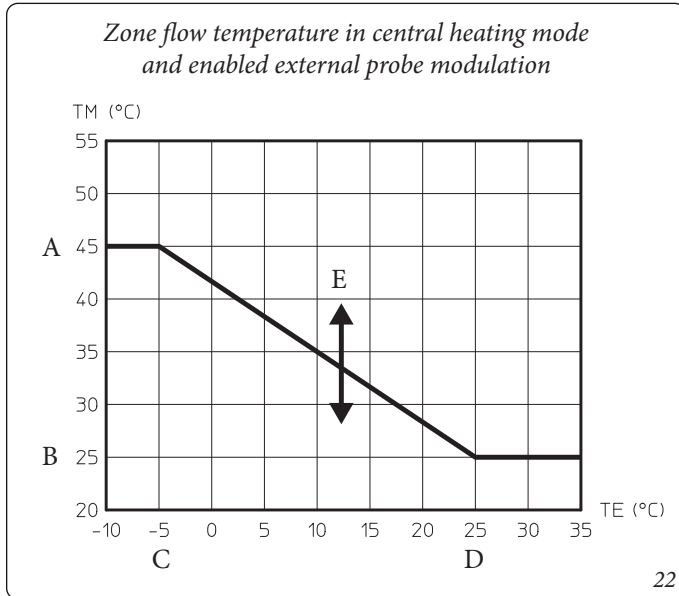
Zones/Configuration

it is possible to automatically adjust the flow temperature of each zone according to the outdoor temperature.

This can be done by enabling the external probe modulation in the menu

Zones/Enablings.

The curves (Fig. 22, 23, 24 and 25) show the default settings in the various operating modes available both with external probe and without.



Key (Fig. 22, 23, 24 and 25)

- A - Maximum flow set
- B - Minimum flow set
- C - External minimum temperature
- D - External maximum temperature
- E - Central heating flow temp offset
- F - Central heating / C.H. flow set
- G - Cooling flow temperature offset
- H - Cooling flow set
- TE - Outside temperature
- TM- Flow temperature

1.20 ANTIFREEZE PROTECTION.

Assembly instructions.

- Wind the heating cable (d23) around the connection pipes and safety valve.

Attention: the graphic representation of the heating cable is purely indicative.

Recommendations for the technician.

The antifreeze kit was inspected and tested in the factory; therefore, it does not require testing or inspection upon installation. Once the antifreeze kit has been installed, it is always connected and operational.

Minimum temperature -5°C. The pack comes standard with an antifreeze function that activates the electric resistance when the temperature in the Solar Container falls below 4°C.

The antifreeze function is only guaranteed if:

- the pack is connected properly to the electrical circuit and is constantly powered;
- the essential components are not faulty.

In these conditions the pack is protected against freezing up to an ambient temperature of -5°C.

Minimum temperature -15°C. If the pack is installed in a place where the temperature drops below -5°C, the appliance may freeze.

To prevent the risk of freezing, there is an accessory kit that can be supplied on request (antifreeze kit); for the installation, follow the instructions in the instruction sheet of the antifreeze kit (optional).

The warranty does not cover damage due to interruption of the electrical power supply and failure to comply with what is stated in the relative instructions.

1.21 SYSTEM FILLING.

Once the indoor unit is connected, fill the system using the filling cock (Fig. 37 pos. 15).

The indoor unit has one incorporated automatic vent valve located on the manifold and one manual vent valve located on the filling pipe (Fig. 37, pos. 16).

It is recommended to open the manual vent valve during the filling phases to completely eliminate the air from the system.

Make sure that the hoods are loosened.



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

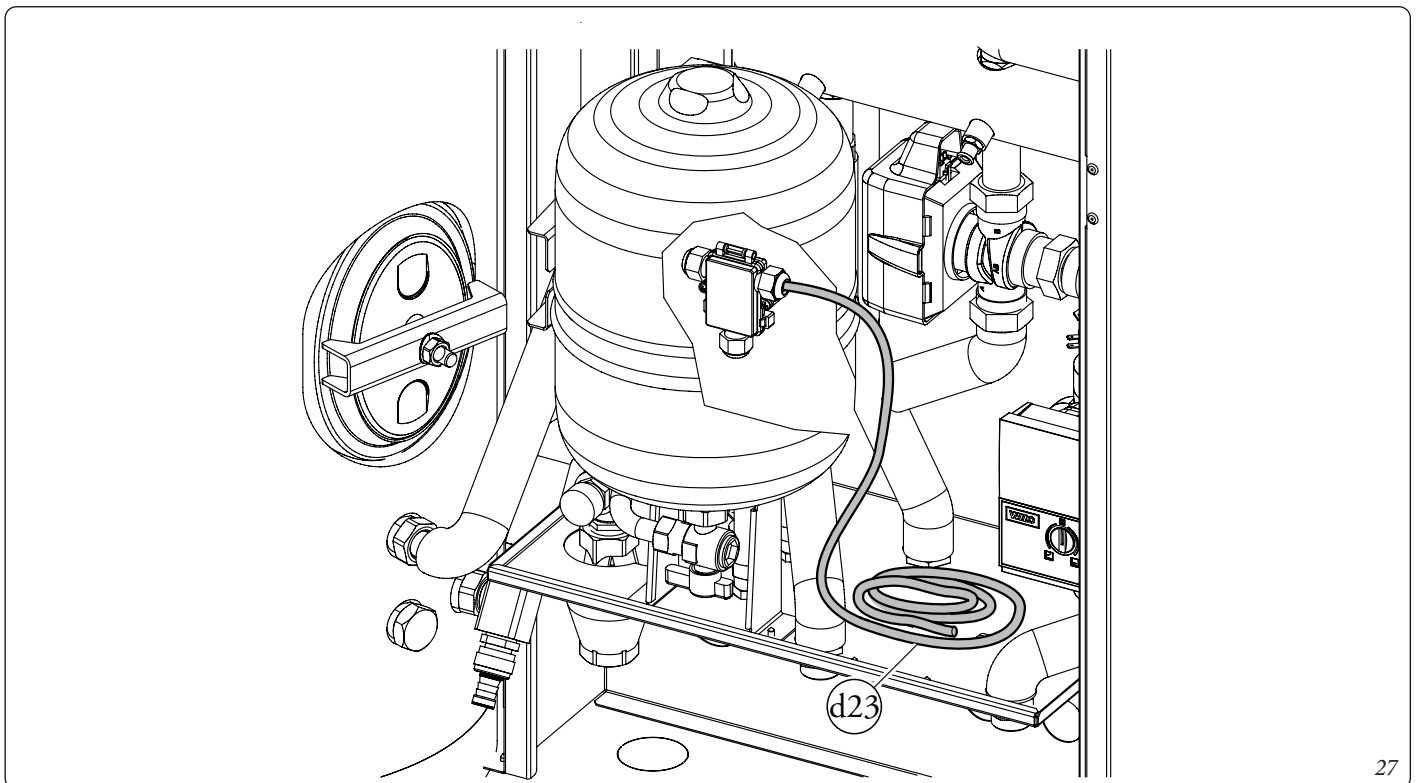
During these operations, enable the manual "De-aeration" functions, which lasts about 9 hours (Par. 3.10).



System minimum water content.

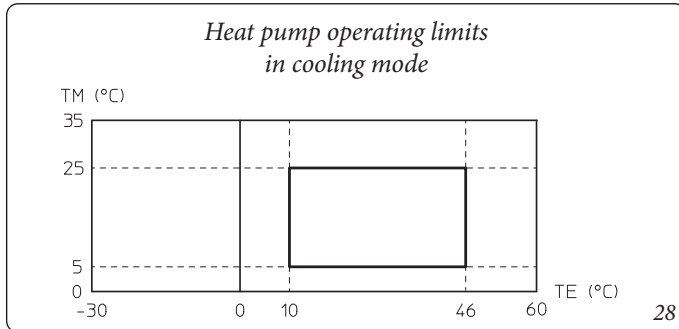
The appliance has a hydraulic manifold acting as the inertial storage tank of primary water sufficient for the good operation of the system.

This is why it is not necessary to add any kind of inertial storage tank to the system.



1.22 OPERATING LIMITS.

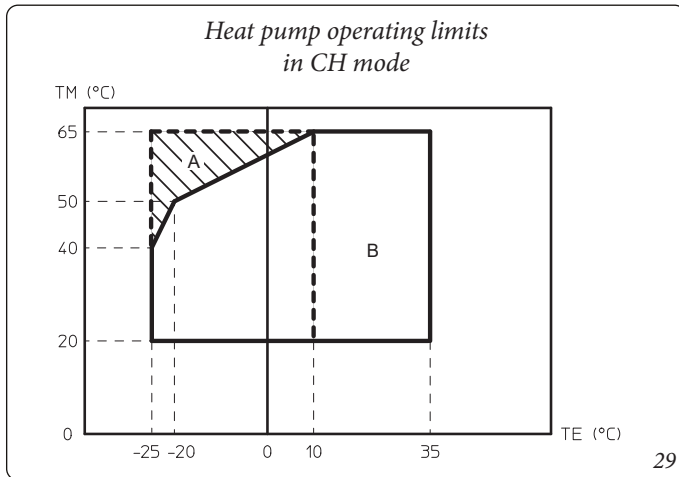
The appliance was designed to work in a specific range of outdoor temperatures and at a specific maximum flow temperature. The chart (Fig. 28, 29 and 30) shows these limits.



Key (Fig. 28):

TE= Outside temperature

TM= Flow temperature



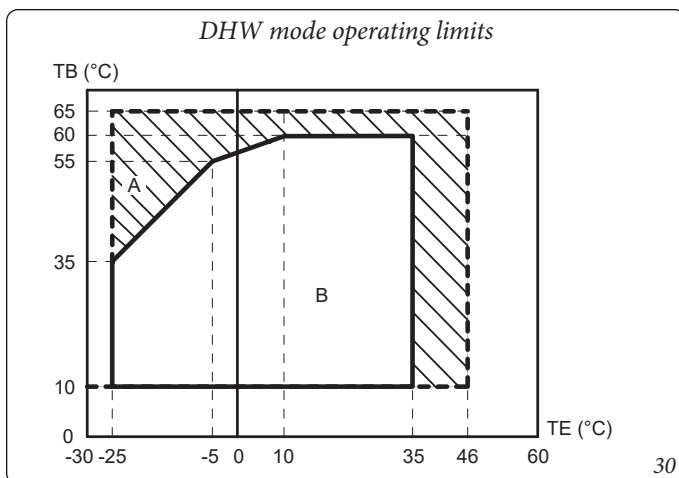
Key (Fig. 29):

TE= Outside temperature

TM= Flow temperature

A = With system electrical resistance (optional)

B = Without electrical resistances enabled



Key (Fig. 30):

TE= Outside temperature

TB= Storage tank unit temperature

A = With integration electrical resistance

B = Without electrical resistance enabled

1.23 INDOOR UNIT START-UP (IGNITION).

After having installed the chiller lines on the outdoor condensing unit, to commission the heat pump (the operations listed below must only be performed by qualified personnel and in the presence of staff only):

- 1) Check connection to a 230V-50Hz power mains, correct L-N polarity and the earthing connection;
- 2) Switch the indoor unit on and check correct ignition;
- 3) Check the intervention of the main switch located upstream from the indoor unit and in the indoor unit.
- 4) Set the first ignition parameters (Par. 3.10).

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.



Apply the product data nameplate contained inside the warranty envelope, in an accessible and visible position.



1.24 CIRCULATION PUMP.

The appliance is supplied with two circulators: the heat pump circulator, which deals with the heat exchange with outdoor condensing unit, and the zone pump 1, which deals with the power supply to the system.

- Heat pump circulator

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

Pump LED.

The LED flashes green when the pump is powered and the 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 speed and without control.



- Zone 1 circulator

The pump is ideal for the requirements of each central heating system in a domestic and residential environment.

In fact, the pump is equipped with electronic control that allows to set advanced functions.

Adjustment

Press the button on the front to adjust the pump.

By rotation, it is possible to select the following pump control mode:

- Fixed speed I, II, III.
- Proportional head I, II, III.
- Constant head I, II, III.

Fixed speed

Adjusts the pump speed in fixed mode.

It is possible to set 3 different speeds:

- I: Minimum Speed.
- II: Intermediate speed.
- III: Maximum speed.

Factory set speed = Fixed speed III.



Proportional head ($\Delta P-V$)

This allows the pressure level (head) to be proportionally reduced as the system heat demand decreases (flow rate reduction).

Thanks to this function, the electric power consumption of the circulator pump is reduced further: the energy (power) used by the pump decreases according to the pressure level and flow rate.

With this setting, the pump guarantees optimal performance in most heating systems, thereby being particularly suitable in single-pipe and two-pipe installations.

Any noise originating from the water flow in the pipes, valves and radiators is eliminated by reducing the head.

Optimal conditions for thermal comfort and acoustic well-being.

Constant head ($\Delta P-C$)

The circulator pump maintains the pressure level (head) constant as the system heat demand decreases (flow rate reduction).

With these settings, the circulator pump is suitable for all floor systems where all the circuits must be balanced for the same drop in head.

Other functions:

- The **vent function** of the pump is activated by pressing and holding (3 seconds) the control key and automatically venting the pump.

This function does not act on the central heating / C.H. system. The pump venting function starts and lasts 10 minutes.

The two sets of upper and lower LEDs flash alternately every 1 second.

To interrupt, press the control key for 3 seconds.

- The **manual restart** is activated by pressing and holding (5 seconds) the control key and releases the pump when needed (e.g. after prolonged inactivity periods during the summer period).

- The **keyboard block** is activated by pressing and holding (8 seconds) the control key and block the pump settings. The keyboard block protects against unintentional or unauthorised pump changes.

Activate the keyboard block by pressing the control key for 8 seconds, until the selected setting LEDs flash briefly and then release.

The LEDs flash continuously 1 second apart.

If the keyboard block is active, the pump settings can no longer be modified.

The deactivation of the keyboard block takes place in a similar manner to the activation.

Troubleshooting.

Faults	Causes	Solutions
Pump not working with power supply on.	Faulty electrical fuse	Check the fuses
	The pump is without voltage	Eliminate the power supply cut-off
The pump generates noise.	Cavitation due to insufficient flow pressure	Increase the system pressure within the allowed field
		Check the head setting and eventually set a lower head
The building does not heat up.	Heat output of the radiant panels too low	Increase the delivery value
		Set the adjustment mode to ΔP -c instead of ΔP -v

Diagnostics in real time

- The anomaly LED indicates a fault.
- The pump stops (depending on the fault), and performs cyclical attempts to restart.

LED	Faults	Causes	Solutions
It lights up red	Block	Rotor seized	Activate the manual restart or contact the Authorised Technical Service Centre
	Contact/winding	Faulty winding	
It flashes with red light	Under/Overvoltage	Feed side power supply voltage too low/high	Check the mains voltage and operating conditions, ask the Authorised Technical Assistance Centre
	Excessive module temperature	Inside of the too hot module	
	Short-circuit	Motor current too high	
It flashes with red/green light	Turbine operation	The hydraulic system of the pumps is fed but the pump has no mains voltage	Check the mains voltage, the water pressure/flow rate as well as the environmental conditions
	Dry operation	Air in the pump	
	Overload	The motor runs with difficulty. The pump complies with the specifications (e.g. high module temperature). The number of revolutions is lower than normal operation	

Manual restart

When a blockage is detected, the pump tries to automatically restart.

If the pump does not automatically restart:

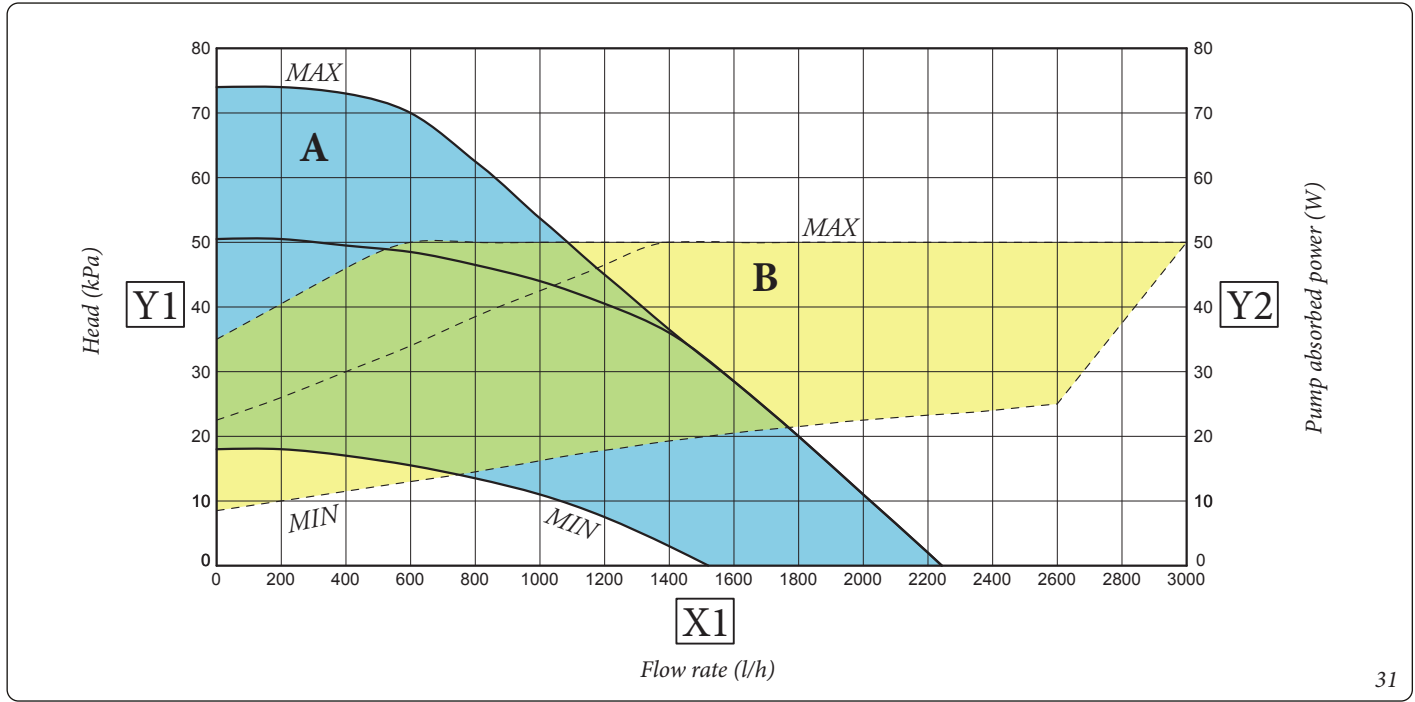
- Activate the manual restart by pressing the control key for 5 seconds, then release.
- The restart function starts and last max. 10 minutes.
- The LEDs flash one after the other clockwise.
- To interrupt, press the control key for 5 seconds.

Zone 2 pumps (optional)

The zone 2 pumps have the same functional characteristics as zone pump 1.

For the setting and management of anomalies, refer to zone pump 1.

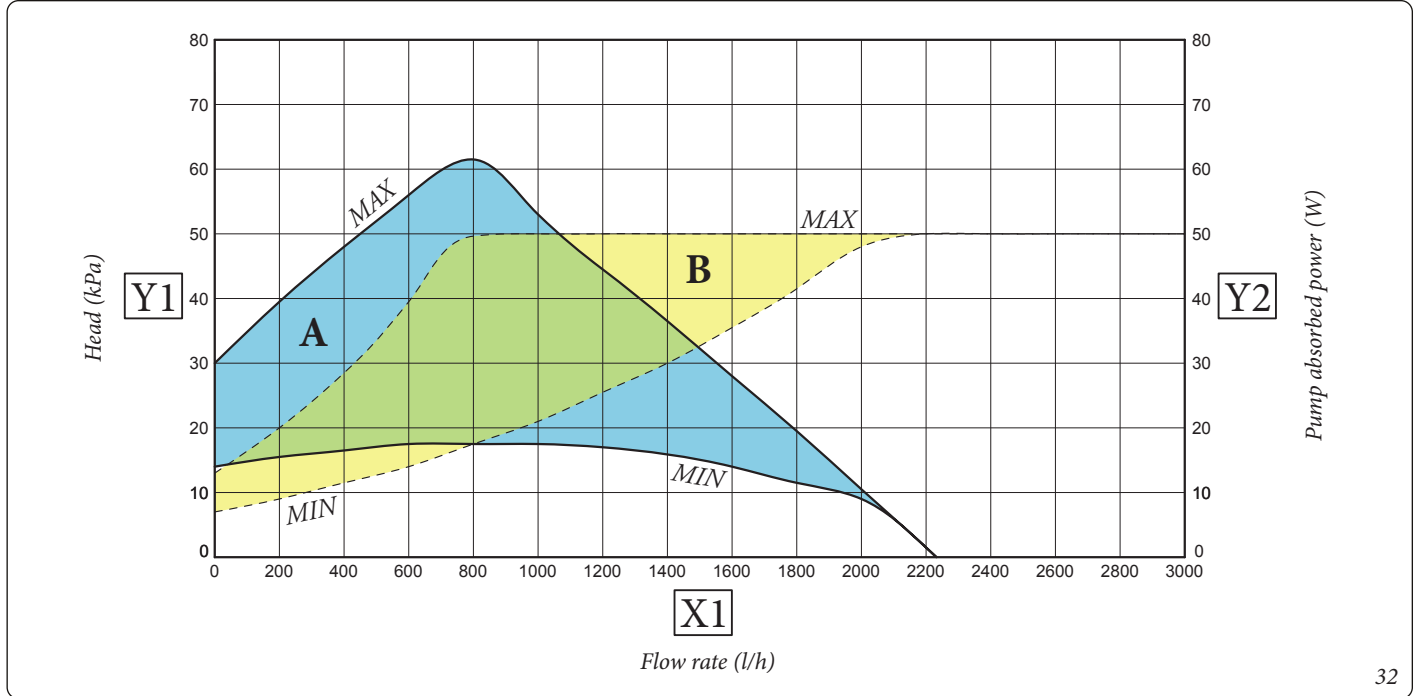
Head available to the direct zone 1 system fixed speed.



Key (Fig. 31):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

Head available to the proportional head direct zone 1 system.



Key (Fig. 32):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

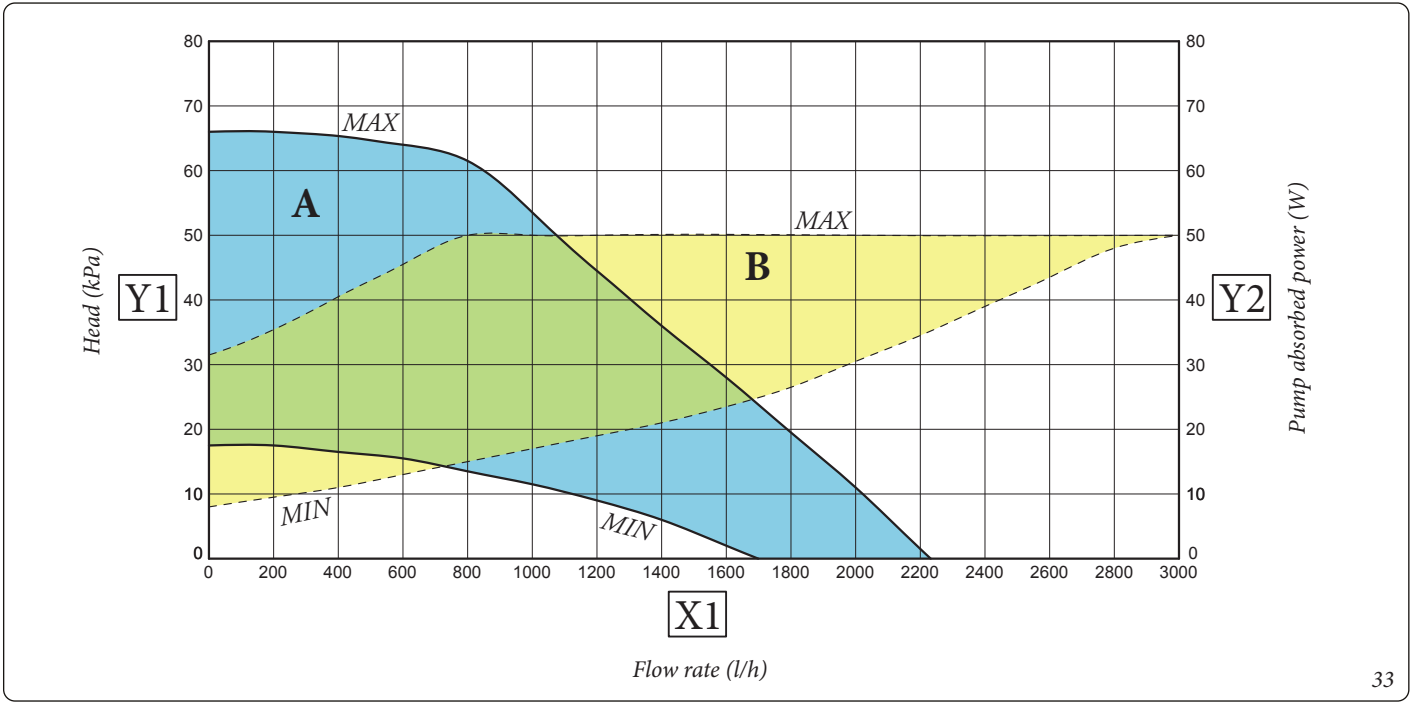
INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

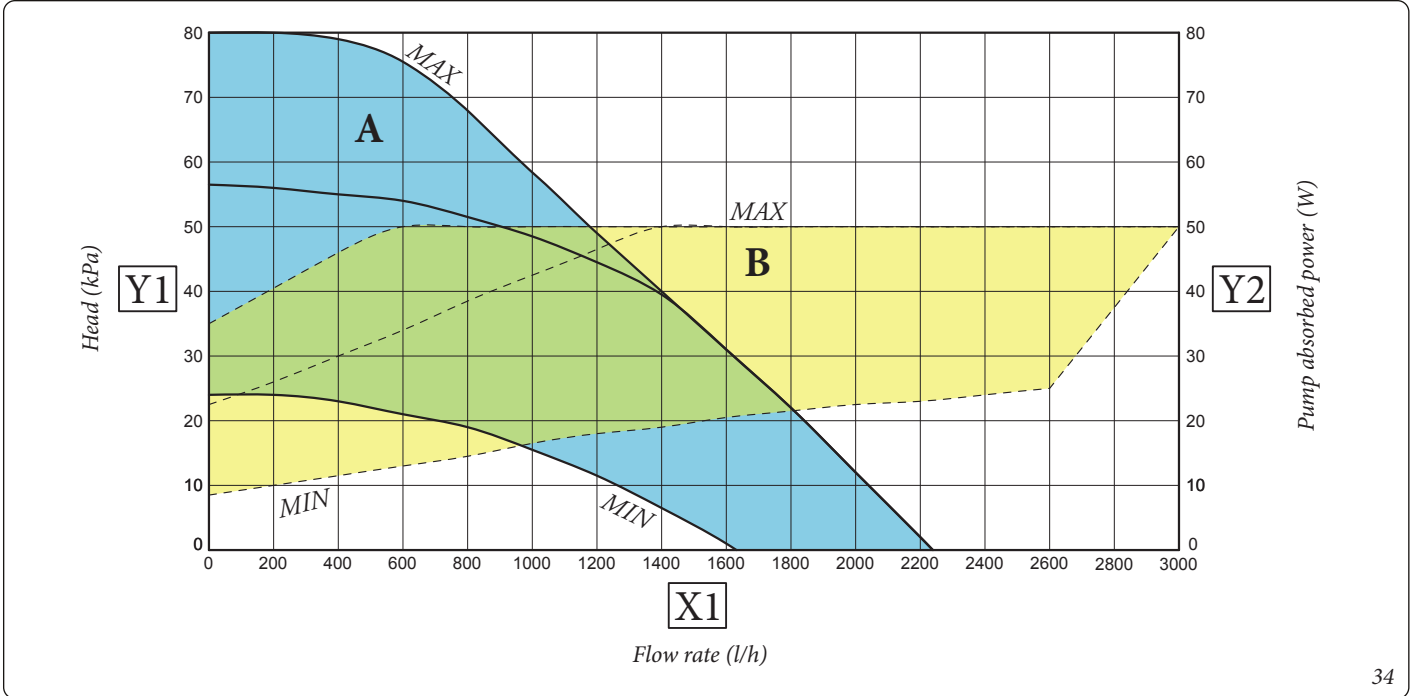
Head available to the constant head direct zone 1 system.



Key (Fig. 33):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

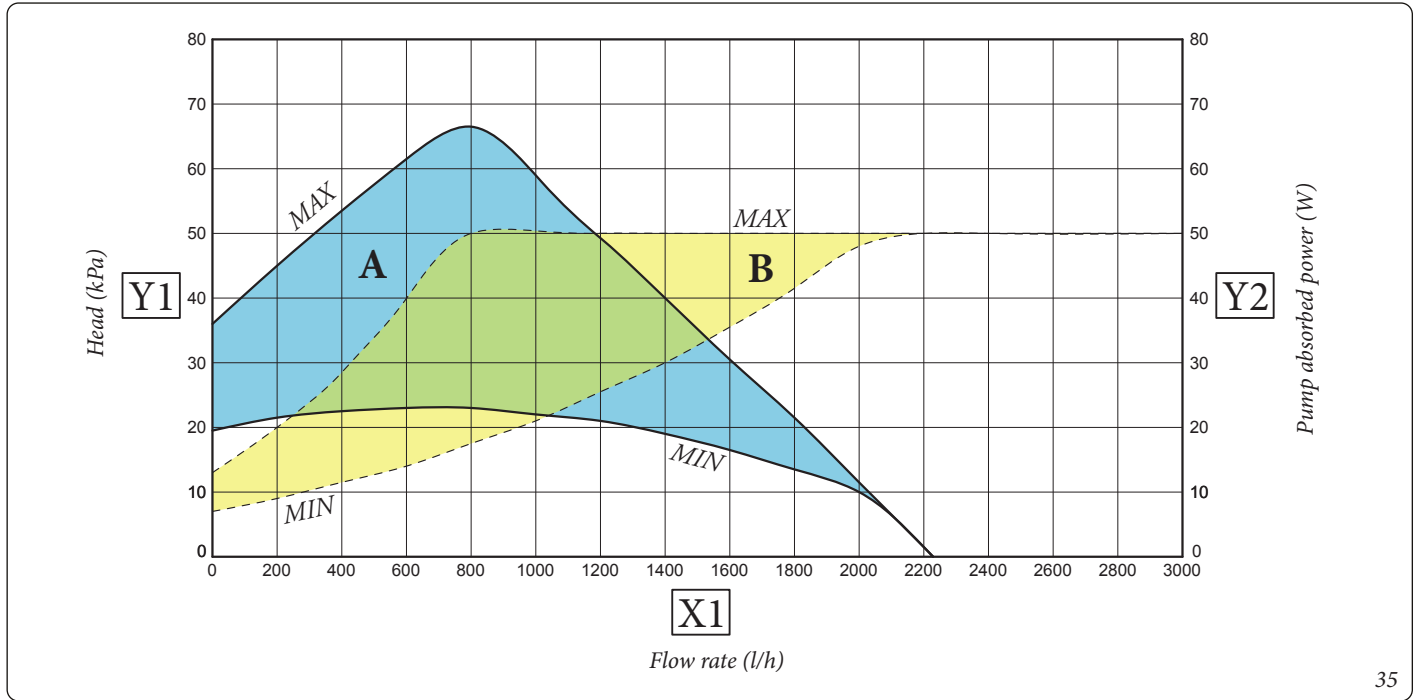
Head available to the fixed speed mixed zone 2 system - open mixing valve.



Key (Fig. 34):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

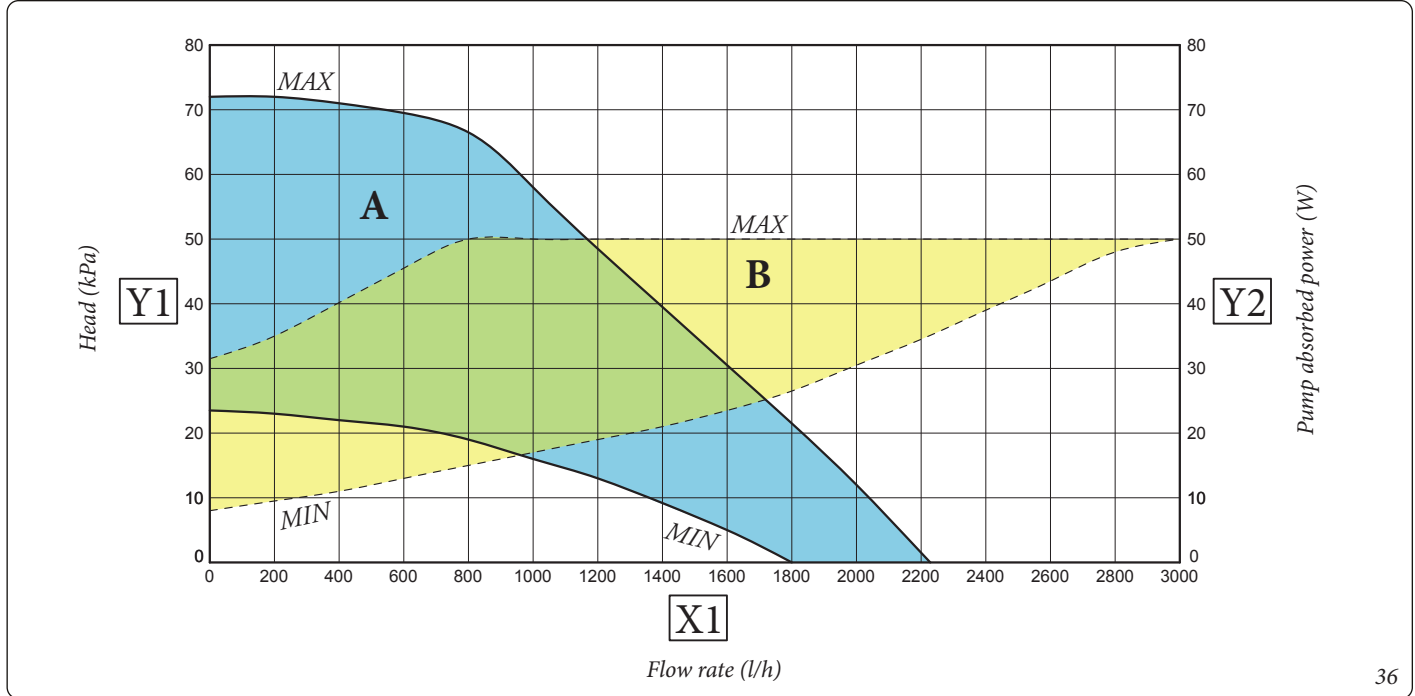
Head available to the proportional head mixed zone 2 system - open mixing valve.



Key (Fig. 35):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

Head available to the constant head mixed zone 2 system - open mixing valve.



Key (Fig. 36):

- A = Head available to the system
- B = Absorbed power by the circulator (dotted area)

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

1.25 DOMESTIC HOT WATER STORAGE TANK UNIT.

The storage tank unit in the appliance is the accumulation type with a capacity of 157 litres.

It contains large coiled stainless steel heat exchanger pipes, which allow to notably reduce hot water production times.

These storage tank units constructed with stainless steel casing and bottoms, guarantee long duration through time.

The assembly concepts and welding (T.I.G.) are implemented to the minimum detail to ensure maximum reliability.

The side inspection flange ensures practical control of the storage tank unit and the coiled heat exchanger and easy internal cleaning.

The Magnesium Anode holder caps include the same, are supplied as standard for the internal protection of the storage tank unit from possible corrosion. These caps are positioned on the side of the storage tank (*Fig. 37*).

1.26 KITS AVAILABLE ON REQUEST.

- Recirculation kit. The appliance is designed for application of the recirculation kit. Immergas supplies a series of fittings and attachments that allow connection between the appliance and domestic hot water system.
- Polyphosphate dispenser kit. The polyphosphate dispenser reduces the formation of lime-scale and preserves the original heat exchange and domestic hot water production conditions. The appliance is prepared for application of the polyphosphate dispenser kit (only for Domus Container).
- Second mixed zone kit. In the event one wishes to add a second mixed zone, providing it with a separate adjustment and maintaining a high water flow-rate, there is a kit available which includes the pump and mixing valve.

- Solar coupling kit. The kit is available for connecting the appliance to the solar heating system as an additional energy source. This is supplied complete with expansion vessel, circulation unit, connection pipes and solar control unit.
- System shut-off valves kit (on request). The Trio Pack Electric is designed for the installation of system interception cocks, to be placed on the flow and return pipes of the connection assembly. This kit is particularly useful for maintenance as it allows the Trio Pack Electric to be drained separately without having to empty the entire system.
- Connection unit (on request). The system is dispatched from the factory without the connection unit. The kit includes the pipes and fittings for connecting the Trio Pack Electric pack. It is also possible to select the connection choosing between the kit with bottom, rear or side connection.
- System integrative resistance kit. The Kit makes it possible to insert up to 2 3kW integrative resistances, each to integrate the system central heating.
- Anti-freeze kit (optional). The kit makes it possible to extend the product operation range, ensuring protection up to -15°C.
- Two multifunction relay kit (optional). The Kit makes it possible to enable the room dehumidifier control in neutral air or cooled air, or of a summer/winter diverter valve.
- Expansion kit. The Kit makes it possible to enable the reporting of anomalies in the system dehumidifiers, enable the optional external temperature probe and enable a multifunction relay having the same features as the multifunction relay kit.

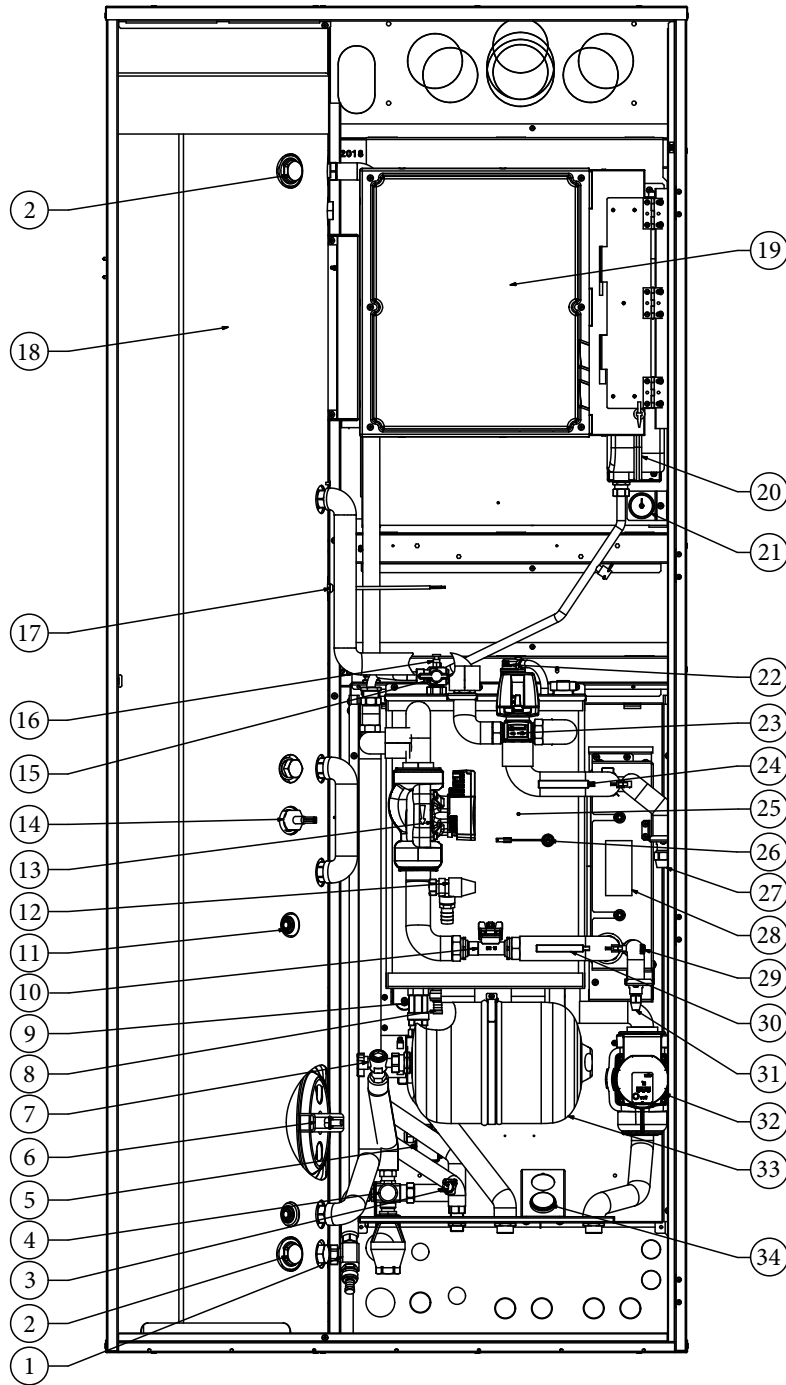
The above-mentioned kits are supplied complete with instructions for assembly and use.



For the installation, see the relevant instruction manual.

1.27 MAIN COMPONENTS KIT.

37



Key (Fig. 37):

- | | | |
|---|--|---|
| 1 - Draining cock / tap storage tank unit | 12 - 3 bar safety valve | 24 - Heat pump flow probe |
| 2 - Sacrificial anode | 13 - System circulator pump | 25 - Hydraulic manifold |
| 3 - Antifreeze thermostat | 14 - 1.5 kW Domestic hot water integrative electric resistance | 26 - System probe |
| 4 - 8 bar safety valve | 15 - Filling cock / tap | 27 - Chiller line connection gaseous status |
| 5 - Antifreeze kit connection box | 16 - Manual air vent valve | 28 - Plate heat exchanger |
| 6 - Storage tank unit flange | 17 - DHW probe | 29 - Liquid phase detection probe |
| 7 - Shut-off cock DHW vessel | 18 - Storage tank unit | 30 - Heat pump return probe |
| 8 - Manifold draining valves | 19 - Management electronics | 31 - Chiller line connection liquid status |
| 9 - One-way valve | 20 - 8 l System expansion vessel | 32 - Direct zone pump |
| 10 - System flow-meter | 21 - Primary circuit pressure gauge | 33 - 8 l domestic hot water expansion vessel |
| 11 - Solar probe (Optional) | 22 - Automatic air vent valve | 34 - Direct zone flow temperature thermometer |
| | 23 - 3-way valve (motorised) | |

INSTALLER

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2 INSTRUCTIONS FOR USE AND MAINTENANCE.

2.1 GENERAL WARNINGS.

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 must not be carried out by unsupervised children.

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



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

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



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



Do not open or tamper with the appliance.



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



Do not climb on the appliance, do not use the appliance as a supporting surface.



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 it when bare-foot;
- never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.);
- the appliance power cable must not be replaced by the user;
- in the event of damage to the cable, switch off the appliance and contact exclusively qualified staff for replacement;
- if the appliance is not to be used for a certain period, disconnect the main indoor unit external switch.

Water at a temperature of more than 50 °C can cause serious burns.



Always check the water temperature before any use.

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



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

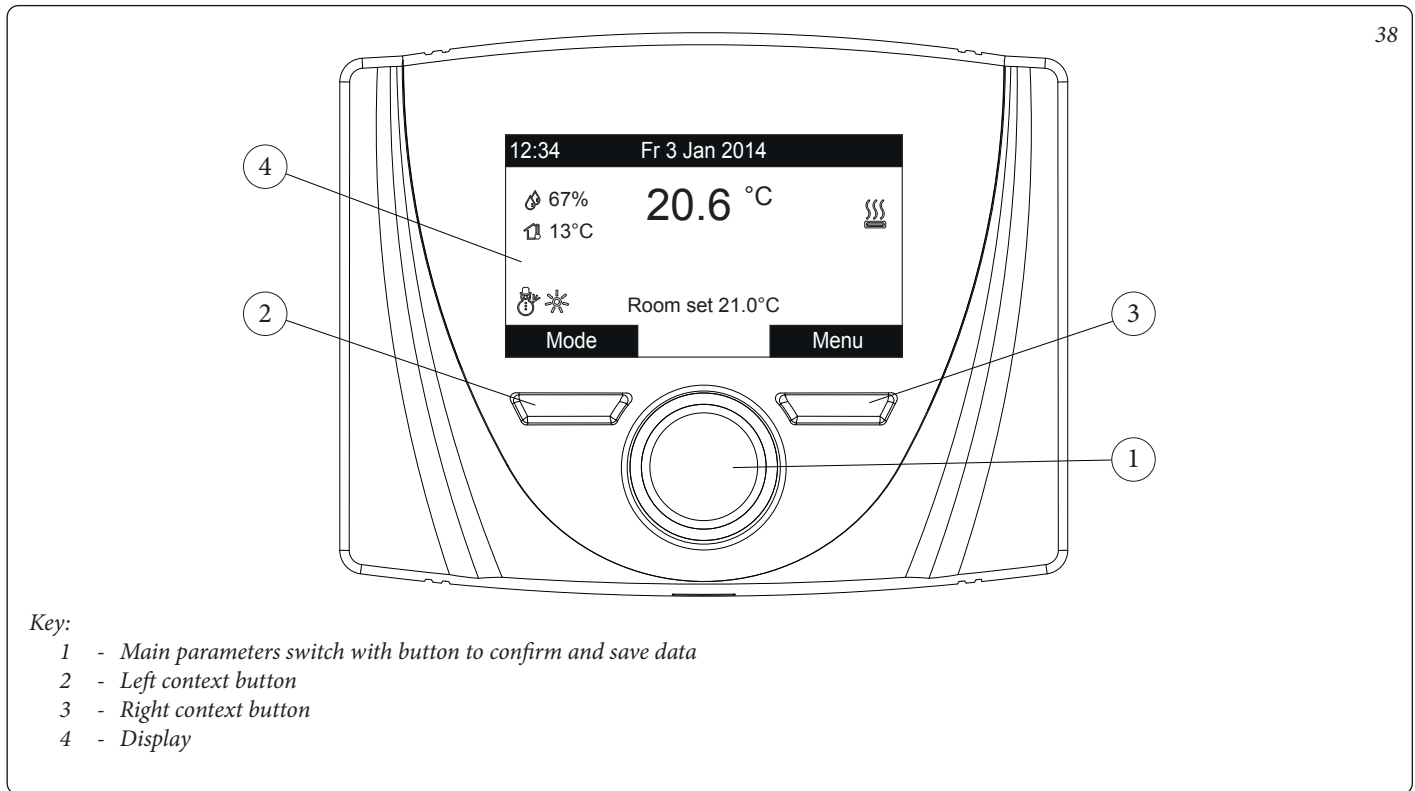


2.2 CLEANING AND MAINTENANCE.

To preserve system integrity and keep the distinguishing safety features, performance and reliability unchanged over time, you must execute maintenance operations on a yearly basis in compliance with what is stated in the point regarding “annual appliance check and maintenance”.



2.3 TRIO PACK ELECTRIC REMOTE PANEL (MAIN).














2.3.1 System use.

The integrated electronics, depending on the climatic conditions and on the settings, establishes which system to use to satisfy the system requests, choosing the most convenient and suitable energy sources, or using them simultaneously to achieve the best possible comfort.

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

The operation mode is general and applies to all zones, the current mode in use is displayed by the relative icon at the bottom left corner (Fig. 39).

Also, depending on the system's configuration, the main screen displays various information regarding the system, amongst which:

Status	Description
	Room humidity value (if humidity probe is present)
	External temperature value (external probe enabled)
	Production of Domestic Hot Water in progress
	Request for room central heating or cooling in progress
	Dehumidify and cool room in progress
	Dehumidify room in progress
	Comfort temperature operation
	Economy temperature operation
	Operation in manual mode
	External probe enabled
	Anomaly present

The area to which the information refers is shown at the centre of the display. It is possible to display one of the two areas and the information on the domestic hot water part.

Simply press the main switch to cyclically go from Zone 1, Zone 2 and DHW (Domestic hot water).

The lower part of the display shows the parameter that can be changed (it varies according to configuration). Once the system has captured the data (indicated with the text "Attesa dati..." (Waiting for data...)), it is possible to change the value by turning the main switch and pressing to confirm the parameter change.

The values that can be found according to the configuration, are:

- Set room: defines the room zone temperature.
- Set flow: defines the system's flow temperature to the zone.
- Flow offset: changes the operation curve of the external probe.
- DHW (Domestic hot water) set: this defines the DHW temperature.

2.3.2 Operating mode.

The indoor unit can work in the following modes:

- STAND-BY (🔌);
- SUMMER (☀️);
- SUMMER WITH COOLING (☀️❄️);
- WINTER (❄️🔌).

Press the "MODE" button in sequence to set the system to stand-by 🔌, summer ☀️, summer with cooling ☀️❄️, winter ❄️🔌 position.

• "Stand-by" Mode

Press the "MODE" button in succession until the 🔌 symbol appears.

In this mode, the system is able to ensure protection functions only, such as: antifreeze function, antiblock function and any anomaly signals (Fig. 39).

In these conditions the system must still be considered powered.



• Summer

Press the "MODE" button in succession until the ☀️ symbol appears.

In this mode the system allows the production of domestic hot water and ensures protection (Fig. 39).

• Summer with cooling

Press the "MODE" button in succession until the ☀️❄️ symbol appears.

In this mode the system allows the production of domestic hot water, room cooling and dehumidification and ensures protection (Fig. 39).

• Winter





Press the "MODE" button in succession until the ❄️🔌 symbol appears.

In this mode the system allows the production of domestic hot water and room central heating / C.H. and ensures protection (Fig. 39).

List of functions

The following functions can be set on the internal unit:

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

Status	Description	DHW	Cooling	Central heating	Antifreeze
	Stand-by	Disabled	Disabled	Disabled	Activated
	Summer	Enabled	Disabled	Disabled	Activated
	Summer with Cooling	Enabled	Enabled	Disabled	Deactivated
	Winter	Enabled	Disabled	Enabled	Activated

DHW

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

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

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

The selection takes place in two ways:

or by entering the DHW (Domestic hot water) menu and setting the "Time slot enabling" parameter. This change remains active until the next change of the "Time slot enabling" parameter.

or by turning the main switch of the main DHW (Domestic hot water) page.

This change remains active until the next time slot change within the active calendar or until the default value of the parameter is restored.

Manual adjustment (Man)

The temperature of the DHW (Domestic hot water) is set to MAN mode using the "Set DHW (Domestic hot water)" knob *Fig. 38* after having pressed it until the message "DHW (Domestic hot water) set" appears and then turned to the desired value, or by modifying the "Manual set" value within the "DHW (Domestic hot water)" menu.

Automatic adjustment (Auto)

The AUTOMATIC domestic hot water temperature adjustment involves setting the "Set comfort" and "Set economy" parameters in the "DHW (Domestic hot water)" menu and choosing the calendar inside the menu.

Clock and programs/DHW (Domestic hot water) Program.

In the selected time slots, the DHW (Domestic hot water) set will be automatically set to the "Set comfort" value; outside these, the set DHW (Domestic hot water) will be set to "Set economy" value. It is possible to temporarily modify the DHW (Domestic hot water) set by setting a manual value using the knob of *Fig. 38* after having pressed it until the message "DHW (Domestic hot water) set" appears and then turned to the desired value.

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

DHW (Domestic hot water) Boost

Activating the "DHW (Domestic hot water) Boost" function via the menu.

DHW (Domestic hot water)/Boost Function = On

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

Central heating

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

The selection is made by entering the "Set Point Zone" menu of the zone concerned.

Settings/Operating Mode.

There are two types of requests:

- Request from room temperature in the presence of remote control.

Enablings/Enabl. Remote control=Probe/Panel.

- Request from TA (room thermostat).

Enablings/Enabl. Room thermostat = YES.

In the first case, the system works in the following way:

Manual adjustment (Man)

The central heating / C.H. request is adjusted according to a fixed room setpoint.

Central heating / C.H./Central heating / C.H. manual set.

When the room temperature is lower than the manual central heating / C.H. set, the appliance is started in central heating / C.H.mode.

Automatic adjustment (Auto)

There are two reference setpoints:

Central heating / C.H./Central heating / C.H. comfort set.

Central heating / C.H./Central heating / C.H. economy set.

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

When the detected room temperature is below the central heating / C.H. set active at that moment, the appliance is activated in central heating / C.H. mode.

Adjustment OFF

Central heating / C.H. always off.

In the second case, the system works in the following way:

Manual adjustment (Man)

The central heating / C.H. demand is activated according to the closing of the TA contact of the relative zone.

Automatic adjustment (Auto)

The central heating / C.H. demand is activated according to the closing of the TA contact of the relative zone, only during zone presence in the comfort band.

Adjustment OFF

Central heating / C.H. always off.

Cooling

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

The selection is made by entering the "Set Point Zone" menu of the zone concerned.

Settings/Operating Mode.

There are two types of requests:

- Request from room temperature in the presence of remote control.

Enablings/Enabl. Remote control=Probe/Panel.

- Request from TA (room thermostat).

Enablings/Enabl. Room thermostat = YES.

In the first case, the system works in the following way:

Manual adjustment (Man)

The cooling request is adjusted according to a fixed room setpoint.

COOLING/Manual cool. set

When the room temperature is higher than the manual cooling set, the appliance is started in cooling mode.

Automatic adjustment (Auto)

There are two reference setpoints:

Cooling/Set cooling comfort.**Cooling/Cooling economy set.**

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

When the detected room temperature is above the cooling set active at that moment, the appliance is activated in cooling mode.

Adjustment OFF

Cooling always off.

In the second case, the system works in the following way:

Manual adjustment (Man)

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

Automatic adjustment (Auto)

The cooling demand is activated according to the closing of the TA contact of the relative zone, only during zone presence in the comfort band.

Adjustment OFF

Cooling always off.

Dehumidify

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

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

The selection is made by entering the "Set Point Zone" menu of the zone concerned.

Dehumidification disabling

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

Dehumidification/Hourly disabling = Yes

and the start and end times of disabling.

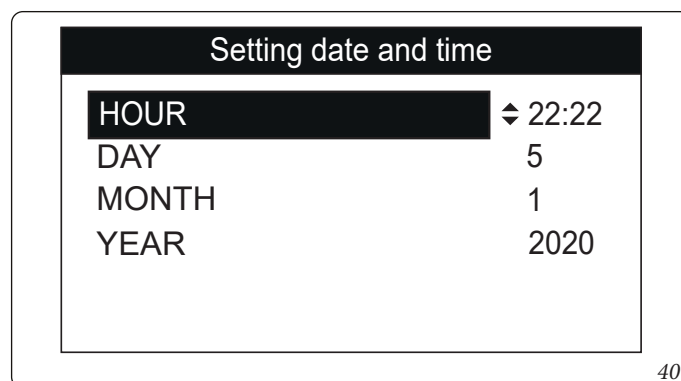
In central heating or cooling request mode, if the temperature of the water in the system meets the request, the system can work simply by activating the circulator pump.

**Clock and programs**

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

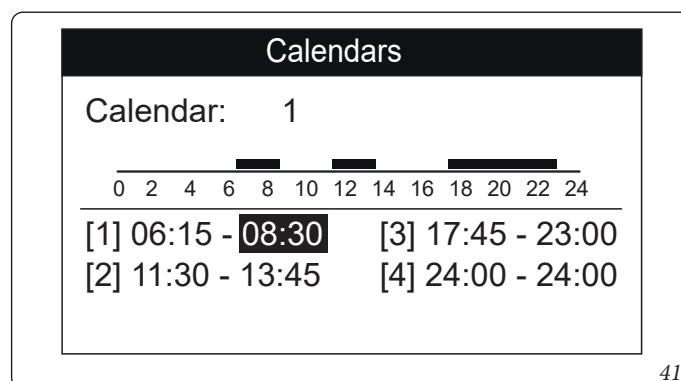
• Date and time.

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

Clock and Programs/Set date and time.**• Time slots**

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

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

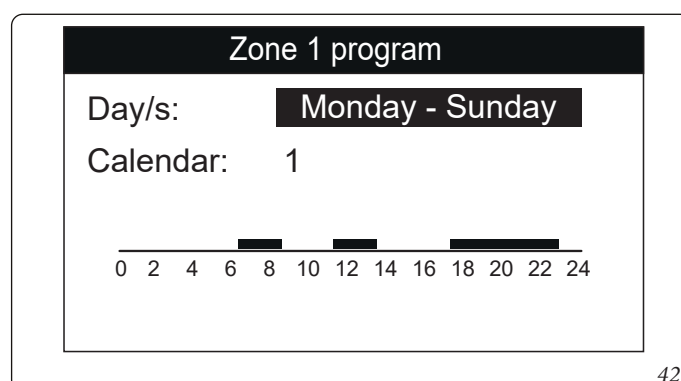
Clock and programs/Time slots.**• Program for Zone 1, Zone 2 (if present), DHW (Domestic hot water).**

Time ranges (calendars from 1 to 4) are assigned to Zone 1, Zone 2 (if present), DHW (Domestic hot water) and Central heating / C.H. in these menus.

You can assign the calendar to a single day or to a group of days (single day, Monday - Friday, Saturday - Sunday, Monday - Saturday, Monday - Sunday).

Therefore each day may be personalised with 4 different operating programs.

For convenient selection, the bottom part displays the graphics of the relevant calendar being selected (Fig. 42).



On the menu

Zone/Information

it is possible to identify the status of the various controls managing the central heating / C.H..



• Holiday program.

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

Clock and Programs/Holiday Program.

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

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

The antifreeze function is still ensured during the holiday period.

Heat pump disabling

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

User/Heat pump disabling = Yes

and the start and end times of disabling.

Integration Disabling

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

User/Integration disabling = Yes.

Heat pump power reduction

It is possible to reduce the output efficiency of the heat pump for a certain time slot, by setting:

User/Heat pump power reduction = Yes

and enabling the parameter:

Support/System Def./HP power reduction enabling

and the start and end times of the reduction.

Screed Heater Function

The indoor unit is equipped with a function to perform the thermal shock on new radiant panel systems, as required by the applicable standard.

Contact the manufacturer of the radiant panels for the thermal shock characteristics and its correct execution.



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



The active zone pumps are those with ongoing requests, made via the room thermostat input.

The standard function lasts in total 7 days - 3 days at the lowest temperature set and 4 days at the highest temperature set (Fig. 43). Duration can be changed by changing the value of the parameters:

User/Heat-Time at minimum set.

User/Heat-Time at maximum set.

and the temperature gradients within the same menu.

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

Screed heater/Activation.

At this point, the message "Anomaly no.139: Screed heater in progress" appears on the display.

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

Operation with external probe

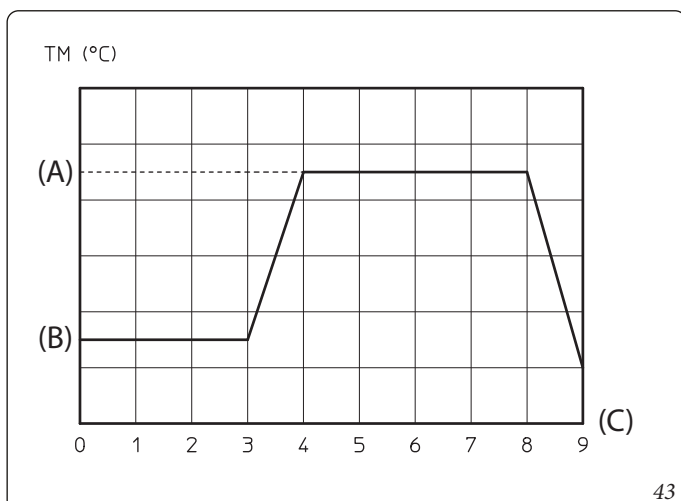
It is possible to use the thermoregulation functions associated to an external probe.

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

With the external probe connected and the thermoregulation function active, the system flow setpoint for room central heating / C.H. or cooling is managed by the system according to the outdoor temperature measured (Par. 1.19).

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

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



Key (Fig. 43):

(A) - Top set

(B) - Lower set

(C) - Days

TM- Flow temperature

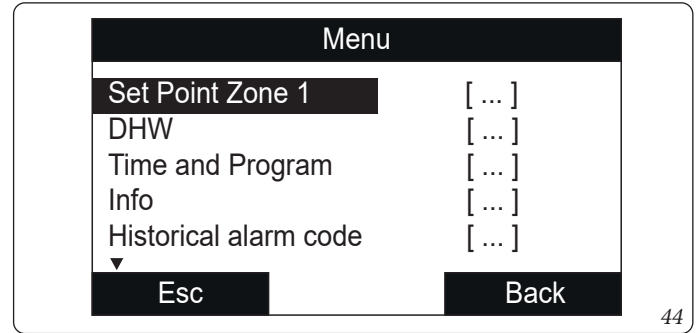
2.3.3 Settings menu.

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

To browse the menus, which can be accessed by pressing the relative “RH” or “LH” context buttons, scroll through the sub-menus displayed by turning the main switch. Press the said selector to select the one highlighted.


By pressing repeatedly, you can scroll down the menu levels and go back to a previous level by pressing the “Indietro” (Back) context button. To exit the menu completely, press the “Esci” (Exit) button, which will take you back to the initial page of normal operation. To confirm the parameter change, press the main switch.

The following menus refer to firmware rev. 1.0.



Hereunder is a list of available menus

ATTENTION.
By selecting the zone number equal to 1, the only zone present is identified as Zone 1.




MAIN MENU	
Voice menu	Description
Set Point Zone 1	Defines the operating parameters to manage zone 1
Set Point Zone 2	Defines the operating parameters to manage the zone 2 (present with zone 2 optional kit)
DHW	Defines the operation parameters in domestic circuit mode
Time and Program	Defines the date/time and time operating slots
User	Defines the system parameters that can be modified by the user
Information	Display system operating data
Historical alarm code	Displays the list of the last 10 anomalies
Service	Password protected menu dedicated to a qualified technician
Language	Defines the remote panel operation language

Set Point Zone 1 Menu				
Voice menu	Description	Range	Default	Personalized value
Set comfort heat	Room temperature in central heating zone 1 Comfort mode	15 - 35 °C	20	
Set economy heat	Room temperature in central heating zone 1 Economy mode	5 - 25 °C	16	
Set manual heat	Room temperature in central heating zone 1 Manual mode	5 - 35 °C	20	
Set flow heat	Flow temperature in room zone 1 central heating mode	20 - 65 °C	25	
Offset flow heat	Offset temperature for central heating zone 1	- 15 - + 15 °C	0	
Set comfort cool.	Room temperature in cooling zone 1 Comfort mode	15 - 35 °C	25	
Set economy cool.	Room temperature in cooling zone 1 Economy mode	15 - 35 °C	28	
Set manual cool.	Room temperature in cooling zone 1 Manual mode	15 - 35 °C	25	
Set humidity cool.	Humidity value set for zone 1 in cooling mode	30 - 70 %	50	
Set flow cool.	Flow temperature in room zone 1 cooling mode	5 - 25 C	20	
Offset flow cool.	Offset temperature for cooling zone 1	-15 - + 15 °C	0	
Operating mode	Zone 1 operating mode	AUTO-MAN-OFF	AUTO	

Set Point Zone 2 Menu (present with 2 zones kit optional)

Voice menu	Description	Range	Default	Personalized value
Set comfort heat	Room temperature in central heating zone 2 Comfort mode	15 - 35 °C	20	
Set economy heat	Room temperature in central heating zone 2 Economy mode	5 - 25 °C	16	
Set manual heat	Room temperature in central heating zone 2 Manual mode	5 - 35 °C	20	
Set flow heat	Flow temperature in room zone 2 central heating mode	20 - 65 °C	25	
Offset flow heat	Offset temperature for central heating zone 2	- 15 - + 15°C	0	
Set comfort cool.	Room temperature in cooling zone 2 Comfort mode	15 - 35 °C	25	
Set economy cool.	Room temperature in cooling zone 2 Economy mode	15 - 35 °C	28	
Set manual cool.	Room temperature in cooling zone 2 Manual mode	15 - 35 °C	25	
Set humidity cool.	Humidity value set for zone 2 in cooling mode	30 - 70 %	50	
Set flow cool.	Flow temperature in room zone 2 cooling mode	5 - 25 C	20	
Offset flow cool.	Offset temperature for cooling zone 2	-15 - + 15 °C	0	
Operating mode	Zone 2 operating mode	AUTO-MAN-OFF	AUTO	

N.B.: the zone 1 central heating / C.H. flow must be greater or equal to the zone 2 flow setpoint. 

The zone 1 cooling flow must be lower or equal to the zone 2 flow setpoint.

DHW

Voice menu	Description	Range	Default	Personalized value
Comfort set	DHW storage temperature in Comfort phase	20 - 60 (65) °C*	20	
Economy set	DHW storage temperature in Economy phase	10 - 60 (65) °C*	10	
Set manual	HP DHW temperature in Manual phase	10 - 60 (65) °C*	10	
DHW Time Slot Enable	Enabling of the DHW (Domestic hot water) setpoint management in automatic mode	AUTO-MAN	MAN	
Boost Function	Defines the Boost function enabling	No/Yes	No	

(*) the range is extended to 65°C with DHW (Domestic hot water) integration enabling.

Time and Program

Voice menu	Description	Range	Default	Personalized value
Date and time	Current date and time setting			
Time slots	Defines the time range for operation in Comfort and Economy mode			
	Calendar 1 Slot 1 ON	0-24, 0-45	00:00	
Zone 1 Program	Zone 1 time scheduling			
	Zone 1: Monday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Tuesday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Wednesday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Thursday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Friday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Saturday	CAL1, CAL2, CAL3,CAL4	CAL1	
	Zone 1: Sunday	CAL1, CAL2, CAL3,CAL4	CAL1	
Zone 2 Program	Zone 2 time scheduling			

Time and Program				
Voice menu	Description	Range	Default	Personalized value
	Zone 2: Monday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Tuesday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Wednesday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Thursday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Friday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Saturday	CAL1, CAL2, CAL3, CAL4	CAL1	
	Zone 2: Sunday	CAL1, CAL2, CAL3, CAL4	CAL1	
DHW Program	DHW operation time programming			
	DHW (Domestic hot water) - Monday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW (Domestic hot water) - Tuesday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW (Domestic hot water) - Wednesday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW (Domestic hot water) - Thursday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW - Friday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW (Domestic hot water) - Saturday	CAL1, CAL2, CAL3, CAL4	CAL1	
	DHW (Domestic hot water) - Sunday	CAL1, CAL2, CAL3, CAL4	CAL1	
Holiday Program	Defines the period during which the system disables both hot water heating and room central heating and/or cooling functions. At the end of the set days, the previously active functions will be reset.		Deactive	

User Menu				
Voice menu	Description	Range	Default	Personalized value
HP Disable	It allows to disable the heat pump according to the set time slot.	Yes/No	No	
HP Disable - Start time	Allows to set when disabling starts.	0 - 23	0	
HP Disable - End time	Allows to set when disabling ends.	0 - 23	0	
Disable integration	Allows to permanently disable the integration generator.	Yes/No	Yes	
FD - Time at min set	Defines the time spent at minimum operating temperature during the active function.	1 - 7 days	3	
FD - Rise gradient	Defines the ascent gradient of the temperature.	3 - 30 °C/g	30	
FD - Time at max set	Defines the time spent at maximum operating temperature during the active function.	1 - 14 days	4	
FD - Fall gradient	Defines the descent gradient of the temperature.	3 - 30 °C/g	30	
FD - Min Flow set	Defines the minimum delivery temperature of the screed heater function.	20 - 45 °C	25	
FD - Max Flow set	Defines the maximum delivery temperature of the screed heater function.	25 - 55 °C	45	
Floor Drying - Start		Yes/No	No	
Dehum. zone 1 disable	It allows to disable the zone 1 dehumidifier according to the set time slot	Yes/No	No	
Dehum. zone 1 disab. start	Allows to set when disabling starts.	0 - 23	0	
Dehum. zone 1 disab. end	Allows to set when disabling ends.	0 - 23	0	
Dehum. zone 2 disable	It allows to disable the zone 2 dehumidifier according to the set time slot.	Yes/No	No	
Dehum. zone 2 disab. start	Allows to set when disabling starts.	0 - 23	0	
Dehum. zone 2 disab. end	Allows to set when disabling ends.	0 - 23	0	
HP power red. disable	It allows to activate the heat pump power reduction according to the set time slot.	Yes/No	No	
HP power red. disab. start	It allows to set the reduction start time.	0 - 23	0	
HP power red. disab. end	It allows to set the reduction end time.	0 - 23	0	

Information Menu	
Voice menu	Description
Leaving Water Temp.	Heat pump flow temperature.
Entering Water Temp.	Heat pump return temperature.
External temperature	External temper. detected by the external probe (optional).
Calculated plant setpoint	Flow temperature requested by the generators.
Temp. set zone 1	Temperature set on zone 1.
Flow temperature zone 1	Zone 1 flow temperature.
Dew point zone 1	Zone 1 dew temperature.
Temp. set zone 2	Temperature set on zone 2.
Flow temperature zone 2	Zone 2 flow temperature.
Dew point zone 2	Zone 2 dew temperature.
Zone 1 RT state	Zone 1 TA contact closed.
Zone 2 RT state	Zone 2 TA contact closed.
Set DHW	Displays the domestic hot water flow set.
DHW temperature	DHW (Domestic hot water) storage tank water temperature.
HP Power	Instantaneous power percentage being used at this moment by the system.
HP system Mode	Describes the heat pump operation mode.
COP HP	Displays the current COP of the heat pump(Displayed only with DHW (Domestic hot water) or central heating / C.H. request).
Heating Integration	Indicates whether the system request is integrated by another energy source in addition to the heat pump.
DHW Integration	Indicates whether the system request is integrated by another energy source in addition to the heat pump.
Firmware version	Management board software revision
Display Firmware version	Main remote panel software revision
Hours of oper. integration	No. of system operation / functioning hours with energy integration.
Hours of oper.	No. of operating hours of the heat pump.
Audax Pro Model	Identifies the heat pump model of the Audax pro range (4 - 6 - 9).
FD - Days Remaining	Days left until completion of the screed heater function.

Historical alarm code Menu
Description
Displays the history log of the last 10 anomalies, see <i>Par. 2.4.5</i> .

Service Menu				
Voice menu	Description	Range	Default	Personalized value
Password protected menu dedicated to a qualified technician				

Language Menu				
Voice menu	Description	Range	Default	Personalized value
Language	Defines the remote panel operation language	ITA - ENG	ITA	

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

2.3.4 DHW (Domestic hot water) set setting.


To obtain a good DHW (Domestic hot water) comfort, pay attention to the setting of parameters relating to domestic hot water. There is only one DHW probe in the system, therefore it is sufficient to set a single DHW (Domestic hot water) set to regulate the water temperature.

The DHW (Domestic hot water) set can be the one in the main page or the “comfort/eco/manual” set of the DHW (Domestic hot water) menu.

- **DHW (Domestic hot water) set** (manual or eco/comfort).
Setting of the wanted domestic hot water temperature.

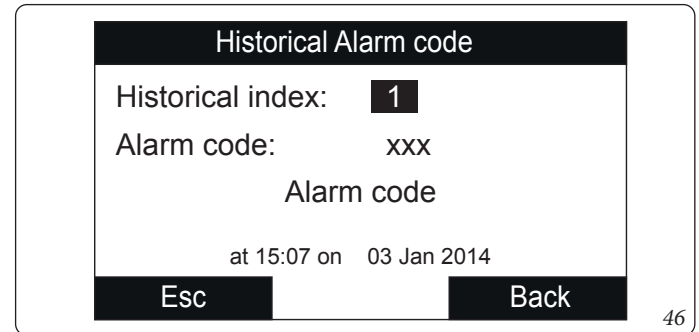
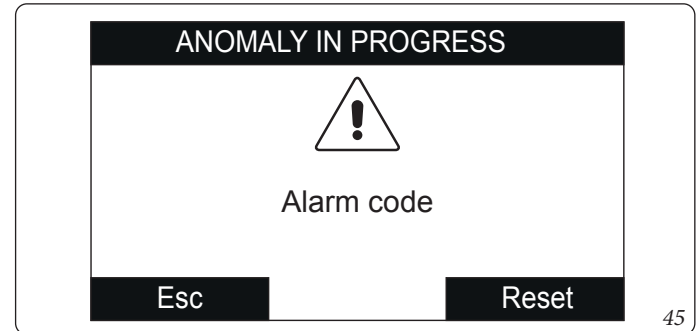
2.3.5 Fault and anomaly warnings.


The system signals any anomalies by displaying the attention screen with the relative anomaly code (Fig. 45).

By pressing the Reset button (for resettable anomalies) it is possible to reset the anomaly. Press the “esci” (exit) button to go back to the main screen and the anomaly is displayed with the  symbol.

You must access the “Storico anomalie” (Anomalies log) menu to display the anomalies log where the last 10 system anomalies are displayed in time order (Fig. 46). Turn the main switch to scroll through the list.

From the “Anomalies log” menu, it is also possible to reset the list by selecting “Reset anomalies”.



The indoor unit signals any anomalies by means of a code with a key symbol next to it "  " in the centre of the display.

Error Code	Anomaly signalled	Cause	System status / Solution
5	Flow probe anomaly	The board detects an anomaly on the flow NTC probe.	The system does not start (1).
12	Domestic hot water probe anomaly	The board detects an anomaly on the domestic hot water probe.	The hydronic module is unable to produce domestic hot water (1).
15	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).
23	Return probe anomaly	The board detects an anomaly on the return NTC probe	The system does not start (1).
26	Flowmeter anomaly	The board detects an anomaly on the flowmeter. Booster pump, if any, always working.	The system does not start (1). Make sure the booster pump (optional) only activates when requested.
27	Insufficient circulation	This happens when the hydronic module overheats due to poor water circulation in the primary circuit. The causes can be: - hp pump blocked; free the pump; - damaged flowmeter.	Check system circulation and flowmeter. Press the Reset button (1).
32	Zone 2 flow temperature probe anomaly	If the board detects an anomaly on the zone 2 probe, the system cannot work in the affected area.	(1)
48	System probe anomaly	The board detects an anomaly on the system flow NTC probe	
50	External probe anomaly	In the event the external probe is not connected or is faulty, the anomaly is indicated.	Check the external probe connection. The system continues to operate with the external probe integrated in the external condensing unit (1). If the external probe is replaced, repeat the installation operations.
120	Alarm set high for dehumidification zone 1	The cooling flow set calculated for dehumidification exceeds the limit set in zone 1.	The calculated flow set is higher than the limit allowed by the dehumidifier. Cool the room and wait for the dew temperature to go back within acceptable values (1).

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

Error Code	Anomaly signalled	Cause	System status / Solution
121	Zone 1 offline device alarm	The device connected to zone 1 is offline.	(1)
122	Zone 2 offline device alarm	The device connected to zone 2 is offline.	(1)
125	Zone 1 room temperature probe error	The zone 1 room probe has an out of range resistive value.	(1)
126	Zone 2 room temperature probe error	The zone 2 room probe has an out of range resistive value.	(1)
129	Zone 1 humidity probe error	Anomaly on the zone 1 humidity probe.	In addition to the humidity, the dew point is not calculated for the zone either (1). Zone humidity cannot be checked.
130	Zone 2 humidity probe error	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.
132	Alarm set high for zone 2 dehumidification	The cooling flow set calculated for dehumidification is higher than the limit set in zone 2	The calculated flow set exceeds the limit permitted by the dehumidifier. Cool the room and wait for the dew temperature to go back within acceptable values (1).
133	Zone 1 dehumidifier fault alarm	Anomaly coming from the dehumidifier (optional) on zone 1	The system does not dehumidify in the relative zone (1)
134	Zone 2 dehumidifier fault alarm	Anomaly coming from the dehumidifier (optional) in zone 2	The system does not dehumidify in the relative zone (1)
137	Reset system alarm – Restart the system	When the default parameters are restored, the system needs to be restarted.	Turn the system off and on.
138	Screed heater in progress	Screed heater function in progress.	No demand can be made until the end of the function in progress (1).
139	Deaeration in progress	Air deaeration function in progress.	No demand can be made until the end of the function in progress (1).
142	Errore Dominus offline	Communication with Dominus is offline.	(1)
177	DHW maximum time alarm	Domestic hot water production is not met within the pre-established time (see parameter P014).	The system continues to operate with non-optimal performance (1)
178	Block: anti-legionella cycle not successful	The anti-Legionella cycle is run without success within the pre-established time (see parameter P013).	Press the Reset button (1)
179	Liquid phase probe alarm	The board detects an anomaly on the liquid phase NTC probe.	The system does not start (1).
183	Outdoor condensing unit in test mode	A signal notifies that the outdoor condensing unit is in test mode.	During this time, room air conditioning and domestic hot water production requirements cannot be met
188	Request out of operating range	A request is made with the outdoor temperature exceeding the operating limits (<i>Par. 1.23</i>).	The system does not start (1). Wait for the outdoor condensing unit to be restored within operating limits.
189	Time out alarm with communication board	If communication between the printed circuit boards is lost, an anomaly is signalled.	The system does not start (1). Check communication between the P.C.B. and the interface board.
195	Alarm low liquid phase probe temperature	Too low temperature is detected in the liquid phase.	Check that the cooling circuit is working properly (1).
196	High flow temp. block	Excessively high temperature is detected in the flow circuit of the heat pump.	Check the hydraulic circuit (1).
197	Communication board configuration error	An incorrect communication board configuration has been detected.	The system does not start (1).

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

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List of anomalies outdoor condensing unit.

If the outdoor condensing unit is faulty, the error code is displayed in the middle of the control panel (Fig. 37), with code 1xxx and a key symbol next to it “”.

Error Code	Anomaly signalled	System status / Solution
101	Outdoor unit communication error	Check the communication cable to the outdoor unit. Check that the interface board works properly. (1)
109	Communication error due to incorrect address of interface board	Check the address on the interface board. (1)
111	MODBUS communication error	Check communication between the management board and interface boards. (1)
162	EEPROM error	Replace the main board of the outdoor condensing unit (1)
177	Emergency error	(1)
198	Error of thermal fuse terminal board (open)	(1)
201	Communication error (failed coupling) between the interface board and the outdoor condensing unit	Check the communication cable to the outdoor condensing unit. Check that the interface board and main board of the outdoor condensing unit work properly. (1)
202	Communication error (failed coupling) between indoor unit and interface board	Check the communication cable to the outdoor condensing unit. Check that the interface board and main board of the outdoor condensing unit work properly (1)
203	Communication error between Inverter and main board of the outdoor condensing unit	Check wiring of communication between the two boards. Replace the main board. Replace the inverter board. (1)
221	Outdoor condensing unit air temperature sensor error	Check the position of the sensor. Check the relative wiring. Replace the sensor. (1)
231	Condenser temperature sensor error	Check the position of the sensor. Check the relative wiring. Replace the sensor. (1)
251	Discharge temperature sensor error	Check the position of the sensor. Check the relative wiring. Replace the sensor.
320	Compressor sensor error (overload protection sensor)	Check the position of the sensor. Check the relative wiring. Replace the sensor. (1)
403	Freezing detection (during cooling operation)	Check the chiller cycle. Check the temperatures of the plate heat exchanger. (1)
404	Protection of outdoor condensing unit when in overload (during safety start-up, normal operating status)	Check the chiller cycle. Check the compressor connections. Check the resistances between the different phases of the compressor. (1)
407	Compressor not working due to high pressure	Check the chiller cycle. (1)
416	The compressor discharge is overheated	(1)
419	Outdoor condensing unit EEV operation error	(1)
425	Not used on this model	(1)
440	Central heating blocked (outdoor temperature beyond 35°C)	(1)
441	Cooling blocked (outdoor temperature below 9°C)	(1)
458	Error of outdoor condensing unit fan no.1	(1)

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

Error Code	Anomaly signalled	System status / Solution
461	Compressor start-up error (Inverter)	Check the chiller cycle. Check the compressor connections. Check the resistances between the different phases of the compressor. (1)
462	Inverter total current overload error	Check the inlet current. Check the refrigerant charge. Check normal operation of the fan. (1)
463	Compressor overheated sensor	Check the compressor sensor. (1)
464	Inverter IPM current overload error	Check the compressor connections and its normal operation. Check the refrigerant charge. Check whether there are obstacles around the outdoor condensing unit. Check whether the service valve is open. Check whether the installation pipes are mounted properly. (1)
465	Compressor overload error	Check the compressor connections and its normal operation. Check the resistances between the different phases of the compressor. (1)
466	Low voltage error of DC circuit	Check the input voltage. Check the power connections. (1)
467	Compressor rotation error	Check the compressor connections. Check the resistances between the different phases of the compressor. (1)
468	Current sensor error (inverter)	Check the main board. (1)
469	Voltage sensor error of DC circuit (inverter)	Check the power connector of the inverter board. Check the connectors RY21 and R200 of the inverter board. (1)
470	EEPROM reading/writing error of outdoor condensing unit	Check the main board. (1)
471	EEPROM reading/writing error of outdoor condensing unit	Check the main board. (1)
474	Inverter temperature sensor error	Replace inverter board (1).
475	Error of outdoor condensing unit fan no.2 (where present)	Check the wiring. Check that the fan is powered. Check the board fuses. (1)
484	PFC overload	Check inductances. Replace inverter board. (1)
485	Incoming current sensor error	Replace inverter board. (1)
500	IPM overheated	Check temperature of inverter board. Switch the machine off. Wait for the inverter to cool down. Switch the machine back on. (1)
554	Coolant gas leak error	Check that the coolant is charged. Check the liquid sensor of the indoor unit. Check whether the service valve is open. Check whether the installation pipes are mounted properly. (1)
590	Inverter board error	Check normal operation of the main board. Replace the main board. (1)
601	Not present	(1)
604	Not present	(1)
653	Not present	(1)
654	Not present	(1)
899	Not present	(1)
900	Not present	(1)

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

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Error Code	Anomaly signalled	System status / Solution
901	Not used	Indoor unit error. Check indoor unit. (1)
902	Not used	Indoor unit error. Check indoor unit. (1)
903	Not used	Indoor unit error. Check indoor unit. (1)
904	Not used	Indoor unit error. Check indoor unit. (1)
906	Not used	Indoor unit error. Check indoor unit. (1)
911	Not used	Indoor unit error. Check indoor unit. (1)
912	Not used	Indoor unit error. Check indoor unit. (1)
916	Not used	Indoor unit error. Check indoor unit. (1)
919	Not used	Indoor unit error. Check indoor unit. (1)

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

2.4 USING THE SECONDARY ZONE REMOTE 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 main remote panel.

Moreover, the main remote panel is not disabled if there is any zone remote panel.

2.5 RESTORE CENTRAL HEATING SYSTEM PRESSURE.

1. Periodically check the system water pressure (the indoor unit's pressure gauge hand must indicate a value between 1 and 1.2 bar).
2. If the pressure falls below 1 bar (when the system is cold) restore normal pressure via the relevant cock located to the left of the manifold, accessible from the main door (refer to the main components).
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.

2.6 DRAINING THE SYSTEM.


Make sure that the filling cock is closed.

Open the draining cock (*Fig. 37, pos. 8*).

Open all the vent valves present.

At the end, close the draining cock.

Close all the 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. 

2.7 DRAINING THE DOMESTIC HOT WATER 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.

Then open the storage tank unit draining cock (*Fig. 37, pos. 1*) and loosen the storage tank hot water outlet fitting to facilitate water drain.

2.8 DECOMMISSIONING.

In the event of permanent system shutdown, contact professional staff for the procedures and ensure that the electrical, water supply lines are previously shut off and disconnected and that the solar collector (if present) is covered.

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3 MAINTENANCE AND INITIAL CHECK INSTRUCTIONS.

3.1 GENERAL WARNINGS.

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

The list of possible PPE is not complete as they are indicated by the employer.



Before performing any maintenance operation, make sure:

- 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 condensing unit before installation and any type of operation on the cooling 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 warming (GWP 675).



3.2 INITIAL CHECK.

To commission the package, you must:

- make sure that the declaration of conformity for installation is supplied with the appliance;
- 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;
- make sure the chiller circuit has been filled according to what is described in the outdoor condensing unit instructions booklet;
- check the activation of the main switch located upstream of the indoor unit;
- ensure activation of all adjustment devices;
- ensure production of domestic hot water;
- check tightness of water circuits.

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



3.3 YEARLY EQUIPMENT CHECK AND MAINTENANCE.

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



- Check for water leaks or oxidation from/on the fittings.
- Check, after discharging the system pressure and bringing it to zero (read on indoor unit pressure gauge), that the expansion vessel charge is at 1.0 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.
- Visually check that the safety and control devices have not been tampered with and/or short-circuited.
- Check the condition and integrity of the electrical system and in particular:
 - the power cables must be inside the cable fixings;
 - there must be no traces of blackening or burning.
- Check correct lighting and functioning.
- Check correct operation of control and adjustment devices of the appliance. and in particular:
 - system regulation probes intervention.
 - 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.

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 EXTERNAL UNIT FINNED AIR COIL MAINTENANCE.

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



- This depends on the environment where the unit is installed. The level of fouling will be worse in urban and industrial sites, as well as near trees that lose their leaves.
- There are two maintenance levels to clean the coils:
- If the air heat exchangers are encrusted, clean them gently with a brush in a vertical direction.
 - Turn off the fans before working on the air heat exchangers.
 - To perform this type of intervention, stop the unit only if the maintenance considerations allow it.
 - Perfectly clean air heat exchangers ensure an optimal operation of the unit. When the air heat exchangers begin to encrust, they must be cleaned. The cleaning frequency depends on the season and location of the unit (ventilated, wooded, dusty, etc.).
 - Do not use pressurised water without a large diffuser. Do not use high-pressure cleaners for Cu/Cu and Cu/Al air coils.
 - Concentrated and/or rotating water jets are strictly prohibited. Never use fluid with a temperature above 45°C to clean the air heat exchangers.
 - Proper and frequent cleaning (approx. every three months) prevents 2/3 of corrosion problems.
- Clean the air coil using suitable products.

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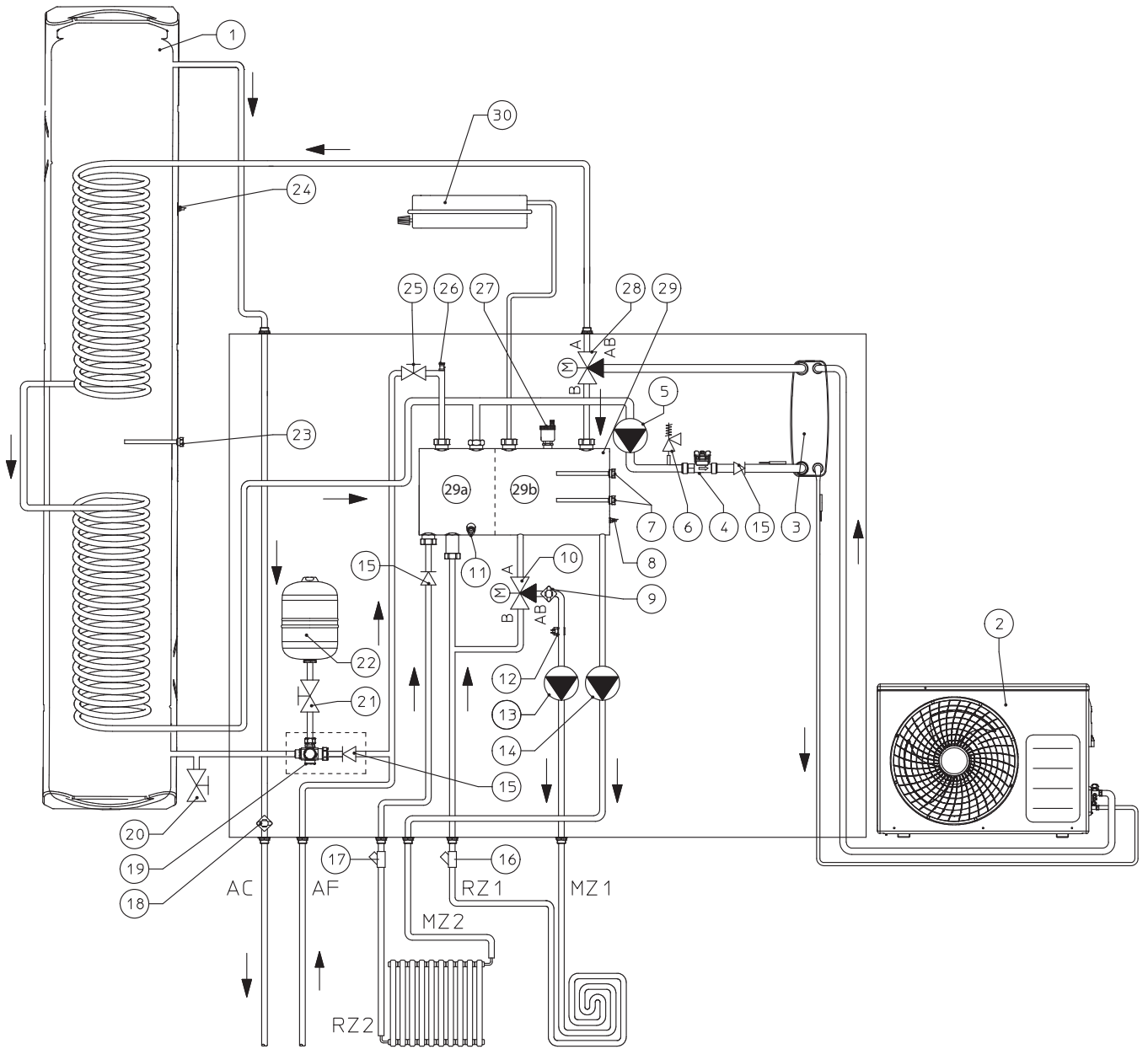
3.5 HYDRAULIC DIAGRAM.

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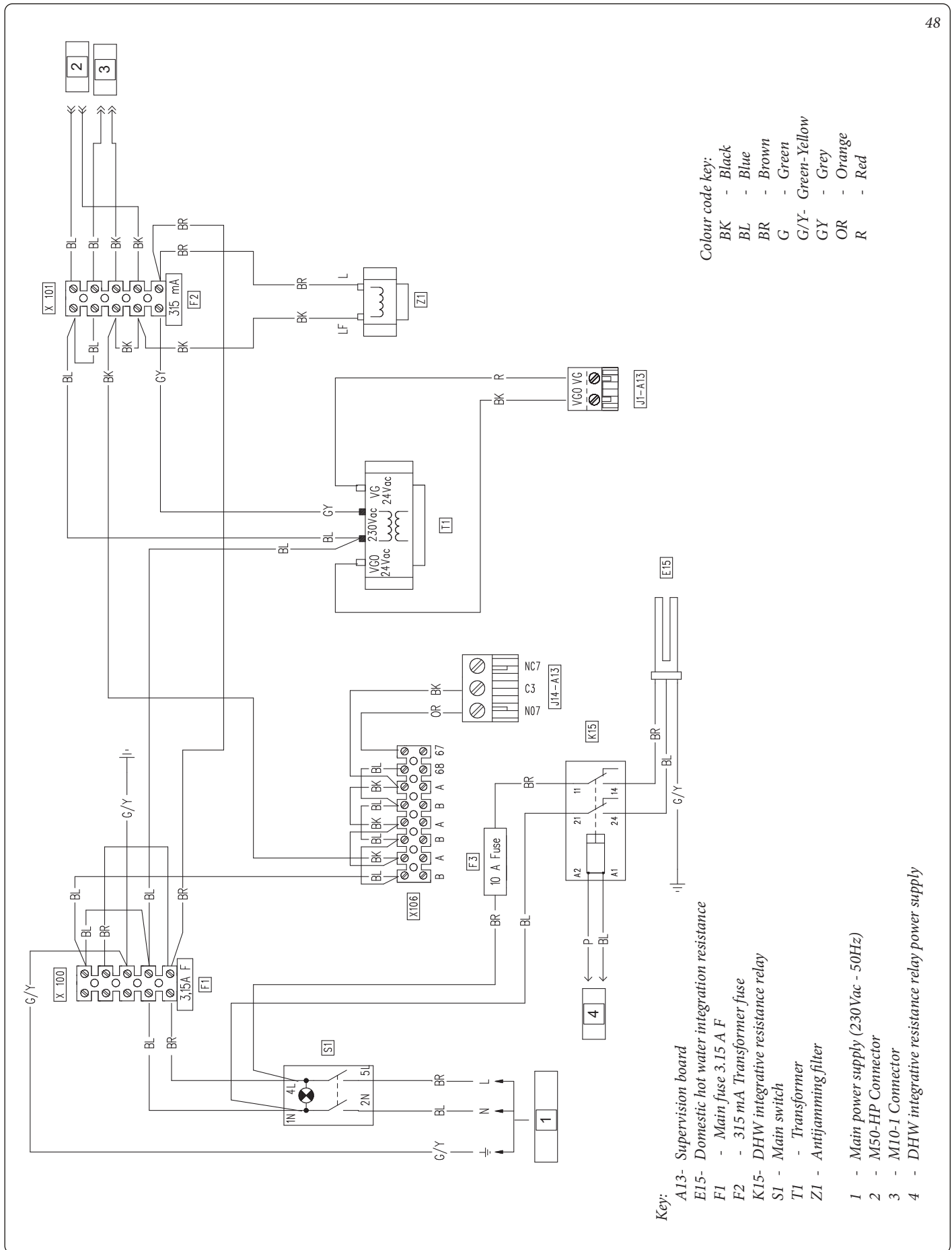


Key:

- | | |
|--|--|
| 1 - Storage tank / Cylinder | 20 - Storage tank draining cock / tap |
| 2 - Outdoor condensing unit | 21 - Domestic hot water vessel shut-off cock |
| 3 - Plate heat exchanger | 22 - 8 l domestic hot water expansion vessel |
| 4 - System flow-meter | 23 - DHW electrical resistance |
| 5 - System circulator pump | 24 - Storage tank probe |
| 6 - 3 bar safety valve | 25 - Filling cock / tap |
| 7 - System Electrical resistance (optional) | 26 - Manual air vent valve |
| 8 - System flow probe | 27 - Automatic vent valve |
| 9 - Safety thermostat | 28 - 3-way valve (Motorised) |
| 10 - 3-way mixing valve (optional) | 29 - Hydraulic manifold |
| 11 - Manifold draining valves | 29a - Manifold flow sector |
| 12 - Mixed zone flow probe (optional) | 29b - Manifold return sector |
| 13 - Mixed zone pump / circulator (optional) | 30 - 8 l System expansion vessel |
| 14 - Direct zone pump | |
| 15 - One-way valve | |
| 16 - Filter that can be inspected (optional) | |
| 17 - Filter that can be inspected | |
| 18 - Antifreeze thermostat | |
| 19 - 8 bar safety valve | |
| | AC - Domestic hot water outlet |
| | AF - Domestic cold water inlet |
| | MZ1 - Mixed zone system flow |
| | RZ1 - Mixed zone system return |
| | MZ2 - Direct zone system flow |
| | RZ2 - Direct zone system return |

3.6 WIRING DIAGRAM.

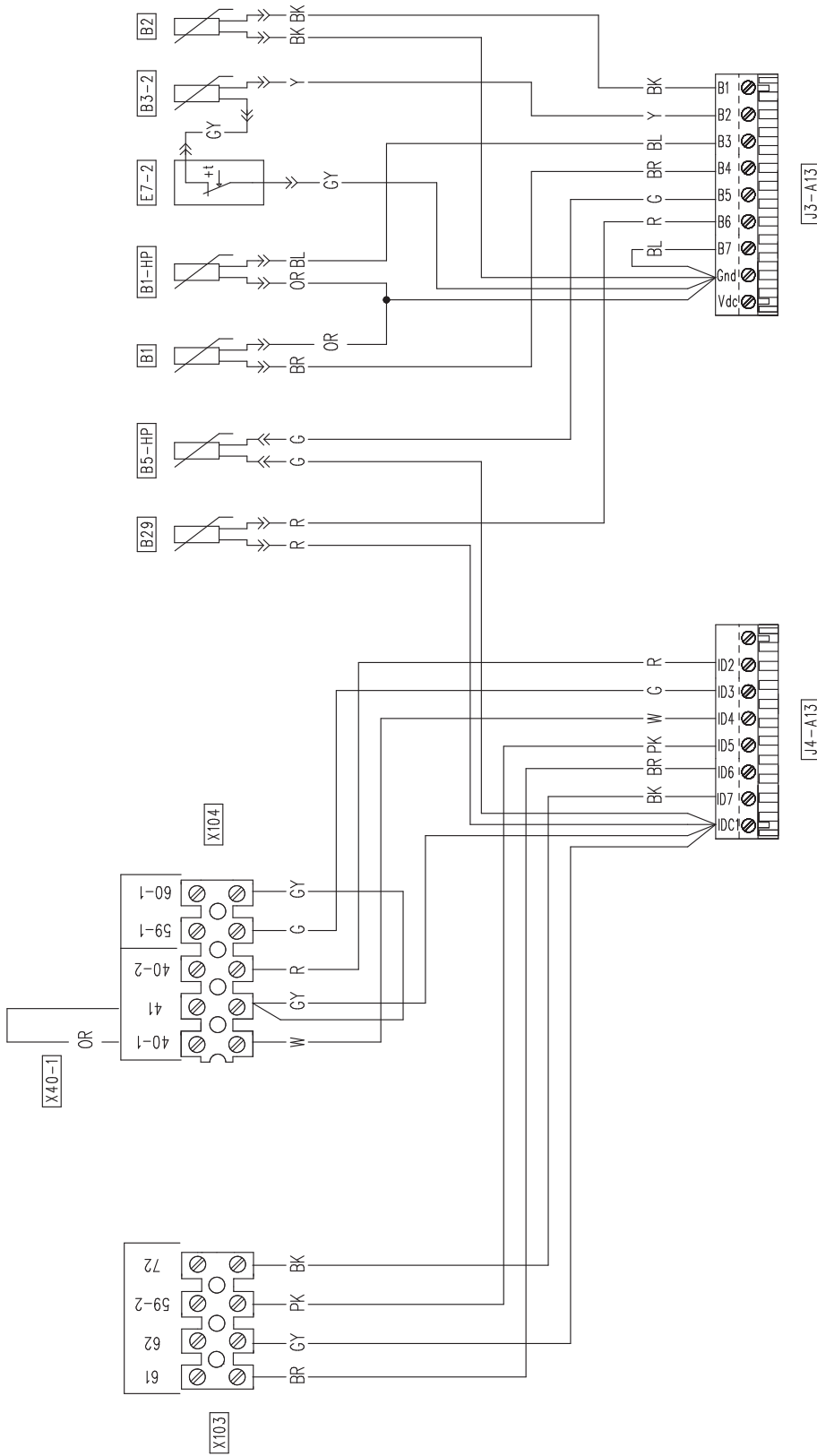
Practical power supply diagram.



Colour code key:
 BK - Black
 BL - Blue
 BR - Brown
 G - Green
 G/Y - Green-Yellow
 GY - Grey
 OR - Orange
 R - Red

- Key:
- A13- Supervision board
 - E15- Domestic hot water integration resistance
 - F1 - Main fuse 3.15 A F
 - F2 - 315 mA Transformer fuse
 - K15- DHW integrative resistance relay
 - S1 - Main switch
 - T1 - Transformer
 - Z1 - Antijamming filter
 - 1 - Main power supply (230Vac - 50Hz)
 - 2 - M50-HP Connector
 - 3 - M10-1 Connector
 - 4 - DHW integrative resistance relay power supply

Main connection diagram.



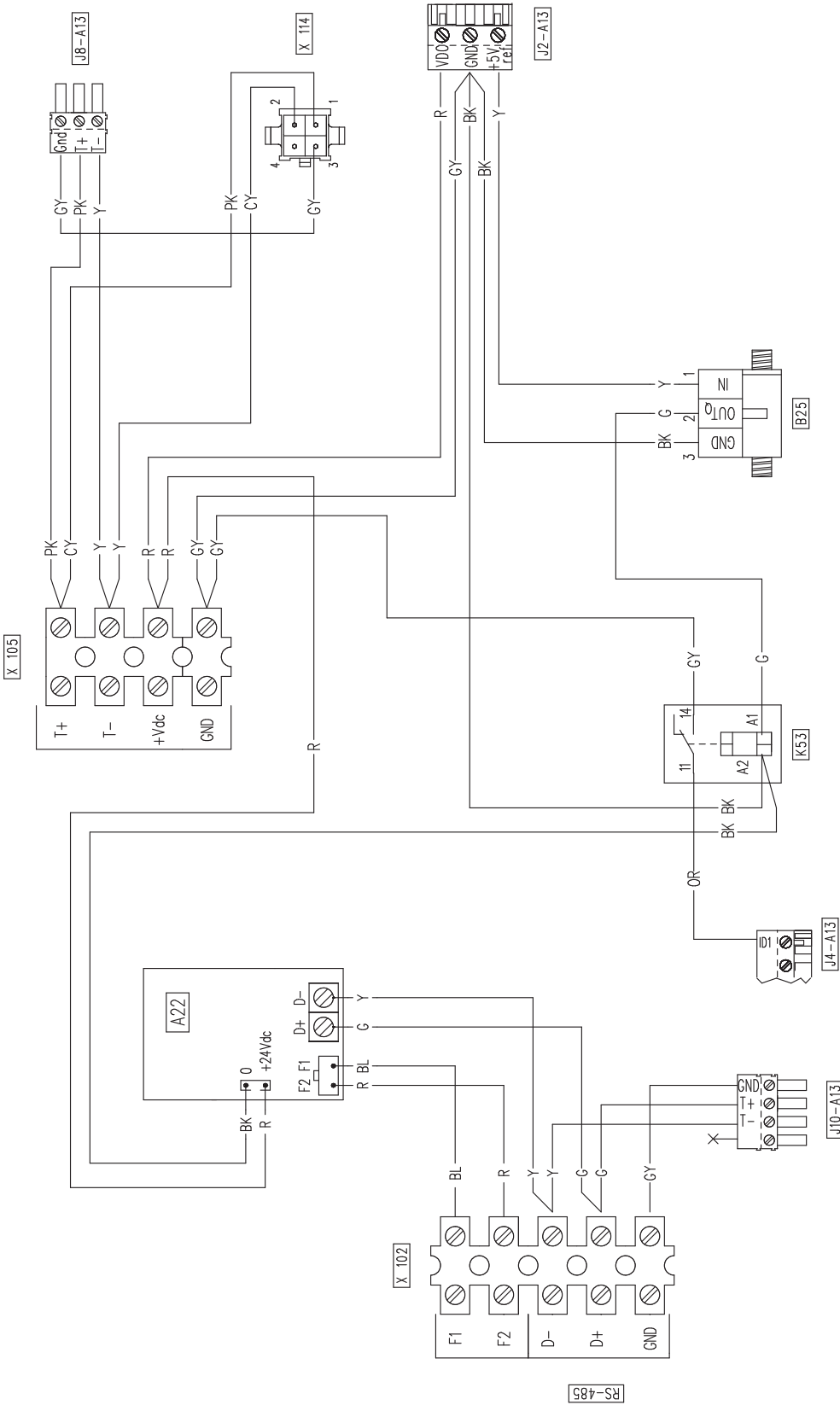
Key:

- A13 - Supervision board
- B1 - Flow probe
- B1-HP - HP Flow probe
- B2 - DHW probe
- B3-2 - Mixed zone 2 flow probe (optional)
- B5-HP - HP Return probe
- B29 - Liquid phase probe
- E7-2 - Zone 2 safety thermostat (optional)
- X40-1 - Zone 1 thermostat jumper

Colour code key:

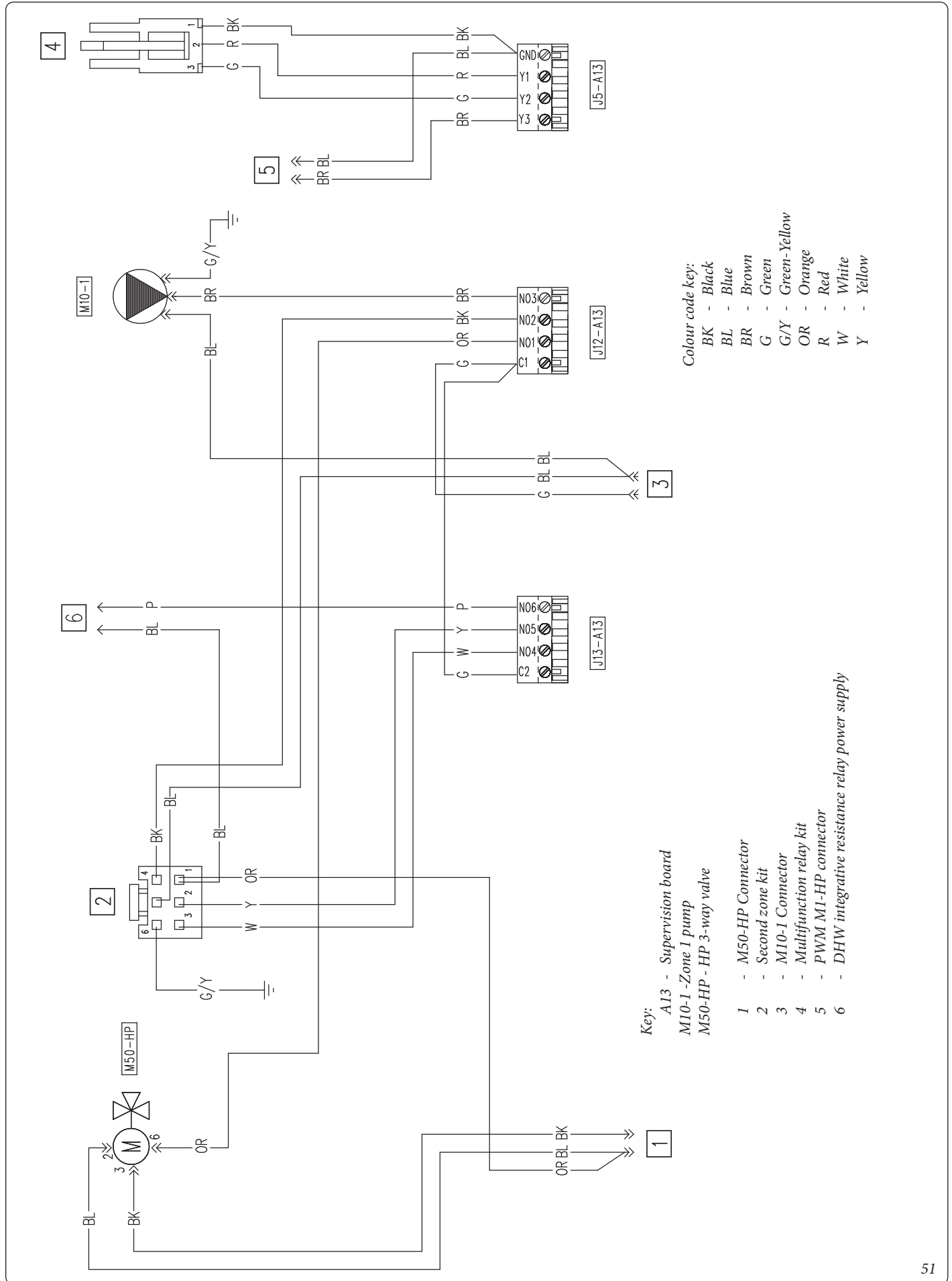
- BK - Black
- BL - Blue
- BR - Brown
- G - Green
- GY - Grey
- OR - Orange
- P - Purple
- PK - Pink
- R - Red
- W - White
- Y - Yellow
- G/Y - Green-Yellow

X102 and X105 Terminal board connections diagram.



- Key:
- A13- Supervision board
 - A22- Condensing unit interface board
 - B25- System flow-meter
 - K53- Flow meter Signal conversion relay
 - X114 - In-line test connector
- Colour code key:
- BK - Black
 - BL - Blue
 - BR - Brown
 - CY - Cyan
 - G - Green
 - GY - Grey
 - OR - Orange
 - P - Purple
 - PK - Pink
 - R - Red
 - W - White
 - Y - Yellow
 - G/Y- Green-Yellow

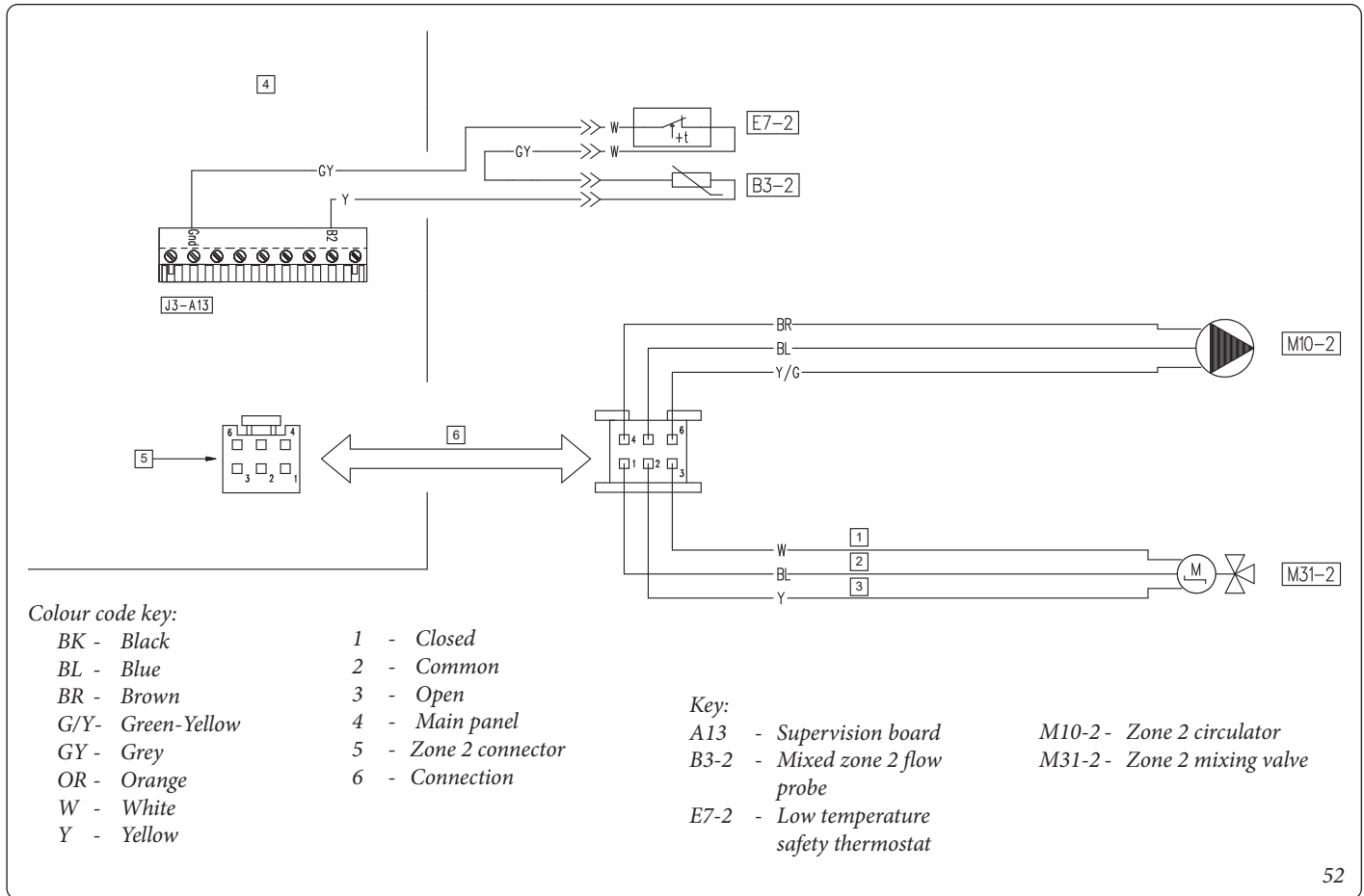
Zone connection diagram.



Colour code key:
 BK - Black
 BL - Blue
 BR - Brown
 G - Green
 G/Y - Green-Yellow
 OR - Orange
 R - Red
 W - White
 Y - Yellow

- Key:
- 1 - Supervision board
 - M10-1 - Zone 1 pump
 - M50-HP - HP 3-way valve
 - 1 - M50-HP Connector
 - 2 - Second zone kit
 - 3 - M10-1 Connector
 - 4 - Multifunction relay kit
 - 5 - PWM MI-HP connector
 - 6 - DHW integrative resistance relay power supply

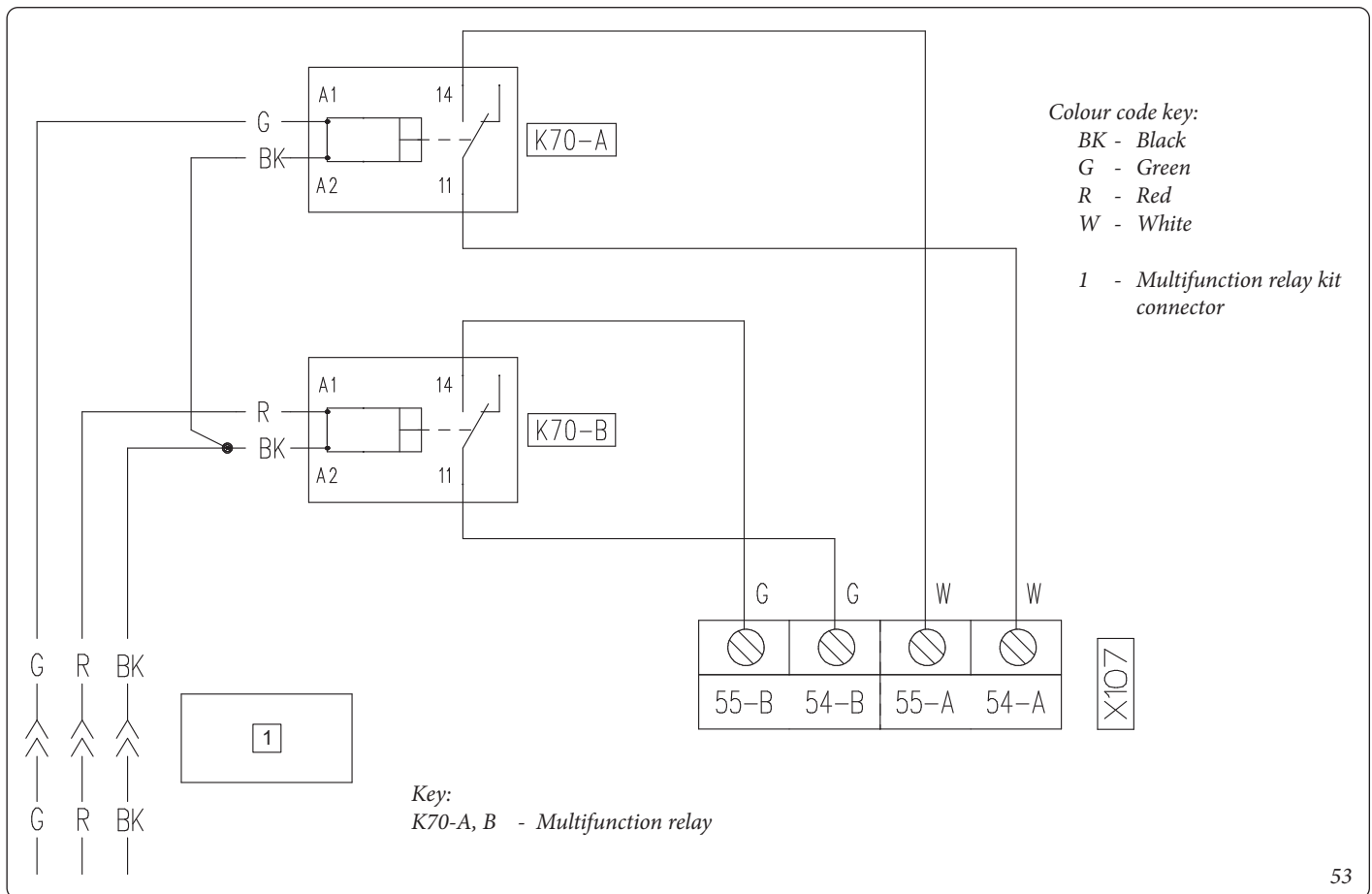
Zone 2 connection diagram.



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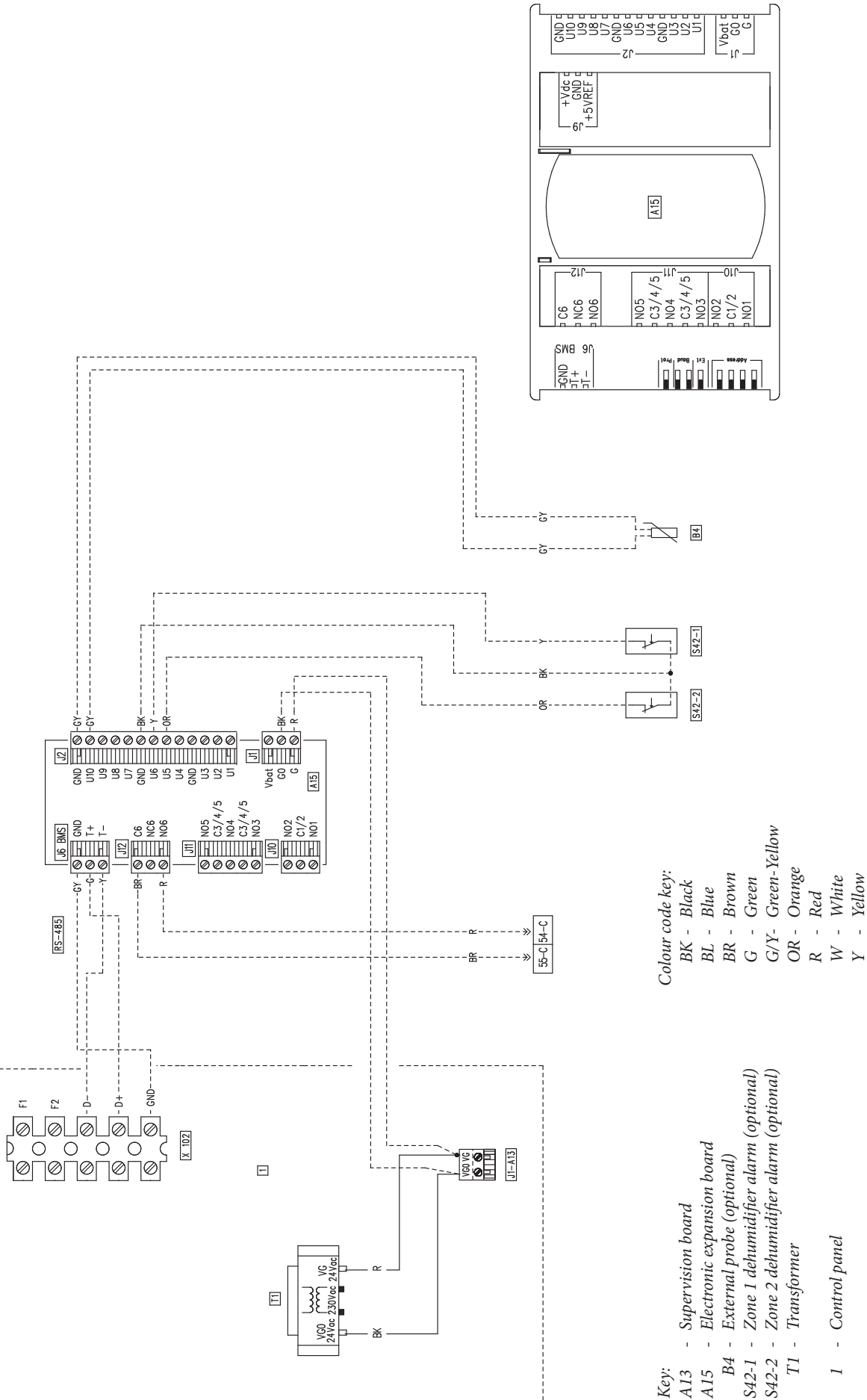
Two relay kit connection diagram.



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Expansion kit connection diagram.



- Key:
- A13 - Supervision board
 - A15 - Electronic expansion board
 - B4 - External probe (optional)
 - S42-1 - Zone 1 dehumidifier alarm (optional)
 - S42-2 - Zone 2 dehumidifier alarm (optional)
 - T1 - Transformer
 - I - Control panel

- Colour code key:
- BK - Black
 - BL - Blue
 - BR - Brown
 - G - Green
 - G/Y - Green-Yellow
 - OR - Orange
 - R - Red
 - W - White
 - Y - Yellow

3.7 POSSIBLE PROBLEMS AND THEIR CAUSES.

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



Noise due to air in the system.

Check opening of the special air vent valve cap (*Det. 12, Fig. 37*). 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.

3.8 SYSTEM PROGRAMMING.

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. Access the “Assistenza” (Assistance) menu by pressing the right “Menu” button and turning the main switch until selecting the desired menu. Press the main switch to confirm the selection. Insert the relative access code and customise the parameters according to your requirements.

Service Menu		
Voice menu	Description	Range
Definition of Zone 1	Zone 1 system setting sub-menu.	-
Definition of Zone 2	Zone 2 system setting sub-menu (present with zone 2 optional kit).	-
System definition	Sub-menu to define the devices connected to the system.	-
Thermoregulation	Temperature control setting sub-menu.	-
DHW definition	Setting sub-menu of the system in DHW (Domestic hot water) mode.	-
Integration	System integration setting sub-menu.	-
Heat pump	Heat pump operating parameters sub-menu.	-
Manual	Manual operating parameters sub-menu.	-
Factory settings	Allows to reset all parameters with factory values.	Yes / No

Service Menu -> Definition of Zone 1				
Voice menu	Description	Range	Default	Personalized value
Mode	Establishes the zone 1 operating mode.	- Hot - Cold - Hot+Cold	Hot + Cold	
Enable remote control	Enables operation with a remote zone control To be enabled if a remote zone control is used in zone 1 as room control and not the remote panel, which is used in zone 2 (main zone). - NO = No remote control installed. - Contr = Not used. - Pan = Secondary remote zone panel used to control zone 1. - Probe = Temperature and humidity probe.	No / Contr / Pan / Probe	No	
Room sensor modul.	Enables modulation with room probe.	Yes / No	No	
Enable room thermostat	Enables operation of a room thermostat to check the zone.	Yes / No	No	
Enable dew point	In the presence of the humidity sensor, enable calculation of the dew point. The calculation is particularly needed in case of radiant panel systems.	Yes / No	Yes	
Enable dehumidifiers	Enables the operation of a dehumidifier.	Yes / No	No	
Humidistat	Enables the operation of a humidistat.	No / Yes	No	
Max Temp dehumidifier	Maximum flow temperature acceptable for the dehumidifier, beyond which it is kept switched off.	15 - 50	25	
Set Alarm Dehum.	Maximum flow set calculated, acceptable by the dehumidifier.	15 - 50	25	

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Service Menu -> Definition of Zone 2 (present with 2 zones kit optional)

Voice menu	Description	Range	Default	Personalized value
Mode	Establishes the zone 2 operating mode.	- Hot - Cold - Hot + Cold	Hot + Cold	
Enable remote control	Enables operation with a remote zone control To be enabled if a remote zone control is used in zone 2 as room control and not the remote panel, which is used in zone 1 (main zone). - NO = No remote control installed. - Contr = Remote zone control to manage zone 2. - Pan = Secondary remote zone panel used to control zone 2. - Probe = Temperature and humidity probe.	No / Contr / Pan / Probe	No	
Room sensor modul.	Enables modulation with room probe.	Yes / No	No	
Enable room thermostat	Enables operation of a room thermostat to check the zone.	Yes / No	Yes	
Enable dew point	In the presence of the humidity sensor, enable calculation of the dew point. The calculation is particularly needed in case of radiant panel systems.	Yes / No	No	
Enable dehumidifiers	Enables the operation of a dehumidifier.	Yes / No	No	
Humidistat	Enables the operation of a humidistat.	No / Yes	No	
Max Temp dehumidifier	Maximum temperature acceptable of the dehumidifier.	15 - 50	25	
Set Alarm Dehum.	Maximum setpoint calculated, acceptable by the dehumidifier.	15 - 50	25	

Service Menu -> System definition

Voice menu	Description	Range	Default	Personalized value
Main zone	Defines the main zone of the system in which the remote panel will be used.	1 - 2	1	
Zones number	Defines the number of zones of the system.	1 - 2	1	
HP Model	Defines the heat pump model combined with the system (No = no heat pump installed).	No Pro4V2, Pro6V2, Pro9V2.	Pro6V2	
Photovoltaic Enable	Enables the operation combined with a photovoltaic system. If the photovoltaic production is sufficient, the system sets itself for maximum exploitation of the electricity produced.	Yes / No	No	
Activation time	Waiting time before activation of the correction.	1 - 120	20	
Increase time	Time interval for the increase or decrease of 1°C of correction.	1 - 20	5	
Max. correction in heating	Max correction during central heating mode.	0 - 10	0	
Max. correction in cool.	Max correction during cooling mode.	-10 - 0	0	
BMS	Enabling connection to Dominus or System supervisor.	NO/Domin/ BMS	No	
TA request delay	The generator request is made after the set delay.	0 - 600 s	0	
ZN1 Definition	Defines the zone 1 configuration.	Dir/Mix	--*	
ZN1 Probe Enable	Zone 1 optional probe enabling (necessary only with mixed zone 1)	No / Yes	--*	
HP disable contact	Enables the disabling contact of the heat pump.	No / Yes	No	

Service Menu -> System definition				
Voice menu	Description	Range	Default	Personalized value
Multifunction relay 1	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact.	0 - 5	0	
Multifunction relay 2	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact.	0 - 5	0	
HP pump logic	Enable the pump operation with speed set "Max.speed" or the modulating mode with tracking of the "Modulating" temperature differential.	Max sp / Modul	Modul	
HP pump min speed	Value of minimum speed used in modulating operation.	40 - 50 %	50 %	
HP pump max speed	Value of maximum speed used in modulating operation.	50 - 100 %	100 %	
HP pump Delta T	Temperature delta to be maintained with modulating operation.	2 - 20	5	
HP Enable power red.	Enables HP operation frequency reduction, the activation of which is controlled by the relative parameter and the time slot settable from the user menu.	No / Yes	No	
Reduced power	Power percentage in reduction mode.	50 - 100 %	75 %	
Parameter 1	0 = Disabled. 1 = Expansion board enabling.	0 - 100	0	
Parameter 2	0 = Disabled. 1 = Zone 1 in neutral air dehumidification contact. 2 = Zone 2 in neutral air dehumidification contact. 3 = Zone 1 in cooled air dehumidification contact. 4 = Zone 2 in cooled air dehumidification contact. 5 = Summer/Winter valve contact.	0 - 100	0	
Parameter 3	Do not use.	0 - 100	--*	
Parameter 4	Do not use.	0 - 100	--*	
Parameter 5	Do not use.	0 - 100	--*	
Parameter 6	Do not use.	0 - 100	--*	
Parameter 7	Do not use.	0 - 100	--*	
Parameter 8	Do not use.	0 - 100	--*	
Parameter 9	Do not use.	0 - 100	--*	
Parameter 10	Do not use.	0 - 100	--*	

(*): the "--" symbol indicates that the function is not available.

Service Menu -> Thermoregulation				
Voice menu	Description	Range	Default	Personalized value
External probe	Defines the external probe connection.	No/OU/Boil./IU	OU	
Ext. probe correction	Correction of the external probe value.	-9 - +9	0	
Zone 1 thermor. enable	Enables operation with the external probe for zone 1.	No / Yes	Yes	
Zone 2 thermor. enable	Enables operation with the external probe for zone 2.	No / Yes	No	
Thermoregulation heat	Access to the Central heating temperature control submenu	[...]	[...]	
Thermoregulation cool	Access to the Cooling temperature control submenu	[...]	[...]	

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Service Menu -> Thermoregulation -> Thermoregulation heat

Voice menu	Description	Range	Default	Personalized value
Zone 1 Set min flow	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature.	20 - 65 °C	25	
Zone 1 Set max flow	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature.	20 - 65 °C	45	
Zone 1 external min temp.	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature.	-25 - +15 °C	-5	
Zone 1 external max temp.	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature.	-5 - +45 °C	25	
Zone 2 Set min flow	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature (not present on the version with one zone).	20 - 65 °C	25	
Zone 2 Set max flow	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature (not present on the version with one zone).	20 - 65 °C	45	
Zone 2 external min temp.	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature.	-25 - +15 °C	-5	
Zone 2 external max temp.	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature.	-5 - +45 °C	25	

Service Menu -> Thermoregulation -> Thermoregulation cool

Voice menu	Description	Range	Default	Personalized value
Zone 1 Set min flow	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	5 - 25 °C	18	
Zone 1 Set max flow	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	5 - 25 °C	20	
Zone 1 external min temp.	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 - 45 °C	25	
Zone 1 external max temp.	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	5 - 45 °C	35	
Zone 2 Set min flow	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature (not present on the version with one zone)	5 - 25 °C	18	
Zone 2 Set max flow	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature (not present on the version with one zone)	5 - 25 °C	20	
Zone 2 external min temp.	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 - 45 °C	25	
Zone 2 external max temp.	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	5 - 45 °C	35	

Service Menu -> DHW definition

Voice menu	Description	Range	Default	Personalized value
DHW hysteresis	It establishes at which temperature different must the system activate to heat the domestic hot water with respect to the set value.	3 - 10 °C	5	
Antilegionella Enabling	Enables the anti-legionella function.	Yes / No	No	
Antilegio. Time cycle	Establishes the time of activation of the anti-legionella function.	-- : --	02 : 00	
Antilegio Day cycle	Establishes the day of activation of the anti-legionella function.	Mon - Sun	Mon	
Priority	In case of simultaneous system request (heat or cool) and DHW, the heat pump works based on precedence or on the DHW or the system (only enabled with boiler present).	DHW / Sys	DHW	
Max Time DHW	Time after which an alarm is signalled for incomplete DHW (Domestic hot water).	1 - 48 (hours)	5	
Antilegio. Max Time	Time after which an alarm is signalled for incomplete anti-legionella cycle.	1 - 48 (hours)	3	
DHW delivery offset	The DHW (Domestic hot water) flow temperature is given by the DHW (Domestic hot water) set + DHW (Domestic hot water) flow offset.	0 - 55 °C	10	
DHW optimization	Enabling of the DHW (Domestic hot water) energy optimisation function.	No / Yes	--*	

(*): the "--" symbol indicates that the function is not available.

Service Menu -> Integration

Voice menu	Description	Range	Default	Personalized value
Min. temp. of integration	Temperature threshold below which integration is activated at the heat pump.	-25 - +35 °C	-15	
DHW integration mode	Establishes whether the heat pump can operate together with another energy source of integration.	Simultaneous / Alternative	Alternative	
DHW Integration	It is possible to select which generator takes care of the dhw mode:	0 = HP 1 = HP - I 2 = Integ.	HP	
CH integration mode	Establishes whether the HP can work simultaneously with the system electric resistance in central heating mode (optional).	Contemporary/ Alternative	Alternative	
Concomitant mode	Enabling of conjunction function.	No / Yes	No	
CH Integration	It is possible to select which generator takes care of the heating mode:	0 = HP 1 = HP - I 2 = Integ.	HP	
Waiting time Heating	Waiting time to reach the setting set before activation of the integration in room central heating / C.H.	0 - 540'	120'	
Waiting time DHW	Waiting time to reach the setting set before activation of the integration in the production of domestic hot water.	0 - 540'	180'	
DHW priority time	It is the maximum time of operation in DHW in case of simultaneous request.	0 - 540'	60'	
CH priority time	It is the maximum time of operation in central heating in case of simultaneous request.	0 - 540'	120'	
Integration band	If the flow temperature of the heat pumps is lower than the heating-set value minus the activation band divided by 2, then after a period equal to the activation delay time, the supplementary heater will be turned on.	0 - 20 °C	3	
Integration multiplier	Changes the integration ignition time in relation to HP ignition.	0 - 99	1	
Reset HP Counter	Reset the number of operating hours of the heat pump.	Yes / No	No	
Reset Integr. Counter	Reset hours of operation of the room central heating / C.H. integration.	Yes / No	No	

N.B.: the manual operation is only active with the system in stand-by.



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Service Menu -> Heat pump			
Parameter name	Voice menu	Description	Unit of measure
HP Setpoint	Heat pump set	Request setpoint to heat pump.	° C
Leaving Water Temp.	Flow temperature	Instant outlet temperature from the heat pump.	° C
Entering Water Temp.	HP Return temperature	Instant inlet temperature to the heat pump.	° C
Discharge Temp.	Compressor outlet temperature °C	Current heat pump compressor temperature.	° C
Plate exchange Temp.	Cool.temp. on het exchanger	Coolant temperature inside the plate heat exchanger.	° C
Coil temperature	Coil temperature	Coil temperature.	° C
External temperature	Outside temperature	Room temperature (heat pump installation place) °C.	° C
HP Frequency	HP frequency	Heat pump frequency.	Hz
System Mode req	HP Request mode	Status of the request to heat pump.	
System Mode status	HP Status	Heat pump status.	
HP Flowmeter	Flow meter	HP circulator instantaneous speed.	
System State	Status parameter	Technical parameter (only for Immergas Assistance).	
Integration State	Integration state parameter	Technical parameter (only for Immergas Assistance).	
Output status	Output status parameter	Technical parameter (only for Immergas Assistance).	
EEV	Exp.valve position	Position of the expansion valve.	
Inverter Current	Inverter current	Outdoor condensing unit inverter current.	
Fan Speed	Fan speed	Outdoor condensing unit fan speed.	
Audax Pro setpoint	Audax Setpoint	Heat pump current setpoint.	
OU revision	OU Board revisions	Access to external unit board revision submenu	
Information 1	-	-	
Information 2	-	-	
Information 3	-	-	
Information 4	-	-	
Information 5	-	-	
Information 6	-	-	
Information 7	-	-	
Information 8	-	-	
Information 9	-	-	
Information 10	-	-	

Service Menu -> Heat pump -> OU revision			
Parameter name	Voice menu	Description	Value
OU main board rev. n.	UE board rev. no.	Outdoor condensing unit main board firmware revision.	
OU main board rev. date	UE board rev. data	Outdoor condensing unit main board firmware data.	
OU inverter rev. n.	UE inverter rev. no.	Outdoor condensing unit inverter board firmware revision.	
OU inverter rev. date	UE inverter rev. data	Outdoor condensing unit inverter board firmware data.	
OU eeprom rev. n.	UE eeprom rev. no.	Outdoor condensing unit EEPROM firmware revision.	
OU eeprom rev. date	UE eeprom rev. data	Outdoor condensing unit EEPROM firmware data.	
OU interface rev. n.	UE interface rev. no.	Communication board firmware revision.	
OU interface rev. date	UE interface rev. data	Communication board firmware data.	
Expans. board rev. (H)	Expans.board Rev. (H)	Revision of the expansion board (top part).	
Expans. board rev. (L)	Expans.board Rev. (L)	Revision of the expansion board (bottom part).	

Service Menu -> Manual

Voice menu	Description	Range	Default	Personalized value
Deaeration enab.	Enables the deaeration function of the system.	Yes / No	No	
DHW Three-way	Manual activation of the DHW (Domestic hot water) 3-way.	On / Off	Off	
CH EH Enable	Manual ignition of the system resistance.	On / Off	Off	
DHW EH Enable	Manual ignition of the DHW (Domestic hot water) resistance.	On / Off	Off	
Circulator zone 1	Manual ignition of zone 1 circulator pump.	On / Off	Off	
Mixing valve zone 2	Manual enabling of the mixing valve on zone 2.	- Off - Close - Open	Off	
Dehumidifier zone 1	Manual ignition of dehumidifier on zone 1.	On / Off	Off	
Air conditioning zone 1	Manual ignition of air conditioner on zone 1.	On / Off	Off	
Circulator zone 2	Manual zone 2 circulator ignition (present with zone 2 optional kit).	On / Off	Off	
Dehumidifier zone 2	Manual ignition of the zone 2 dehumidifier (present with zone 2 optional kit).	On / Off	Off	
Manual operation	Heat pump operation override (all controls on the flow and return sensors are disabled with these modes). 0 - Off. 1 - Test cooling. 2 - Test central heating. 3 - Test cooling with ramp. 4 - Test central heating with ramp.	0 - 4	0	
HP Pump forcing	Enables the circulation pump to be manually overridden at the set speed.	0 - 100 %	0 %	
Leaving Water Temp.	Heat pump flow temperature.			
Entering Water Temp.	Heat pump return temperature			
HP Frequency	Compressor frequency.	0 - 100 Hz		
HP Flowmeter	Flow meter	HP circulator instantaneous speed		

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3.9 PROGRAMMING AND USE OF THE ZONE REMOTE PANEL.

Trio Pack Electric remote panel on zone 1 and Remote zone panel on zone 2.

Zone 1	Zone 2
Trio Pack Electric remote panel	Remote zone control
Assistance Menu -> System definition -> Main zone:1	Assistance Menu -> Device configuration -> Slave address: 42
Assistance Menu -> Zone 1 Definition ->	Assistance Menu -> Device configuration -> Baud rate: 9600
Remote control enabling: NO	Assistance Menu -> Device configuration -> Parity bit: Even
Assistance Menu -> Zone 2 Definition ->	Assistance Menu -> Device configuration -> Stop Bits: 1
Remote control enabling: Panel	Assistance Menu -> Device configuration -> Heat pump control: NO

Trio Pack Electric remote panel on zone 2 and Remote zone panel on zone 1.

Zone 1	Zone 2
Remote zone control	Trio Pack Electric remote panel
Assistance Menu -> Device configuration -> Slave address: 41	Assistance Menu -> System definition -> Main zone:2
Assistance Menu -> Device configuration -> Baud rate: 9600	Assistance Menu -> Zone 1 Definition ->
Assistance Menu -> Device configuration -> Parity bit: Even	Remote control enabling: Panel
Assistance Menu -> Device configuration -> Stop Bits: 1	Assistance Menu -> Zone "2" Definition ->
Assistance Menu -> Device configuration -> Heat pump control: NO	Remote control enabling: NO

3.10 FIRST IGNITION PARAMETER SETTING.

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

In the menu

Assistance/System definition

it is possible to modify the heat pump circulator speed by modifying the parameter "HP circ max speed".

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

It is suggested to set the following values:

Trio Pack Electric 4: Speed = 60%

Trio Pack Electric 6: Speed = 70%

Trio Pack Electric 9: Speed = 80%

IT IS also necessary to adjust the speed of the zone pumps according to the type of system present.

This operation must be carried out directly on the relative zone pump (see *Par. 1.24*).

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

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

Modifying the parameter:

Integration/Enable DHW (Domestic hot water) integration

it is decided whether to activate only the heat pump or only the resistance or both to perform the DHW Mode.

Modifying the parameter:

Integration/DHW integration mode.

it is decided whether to activate the heat pump and the resistance in an alternate or simultaneous manner.

Modifying the parameter:

Integration/DHW (Domestic hot water) wait time

it is decided how long to activate the heat pump and the electrical resistance or both together.

When the outdoor temp is below:

Integration/Minimum intgr.temperature

the electrical resistance activates automatically.

In case of simultaneous DHW (Domestic hot water) and system requests, the system alternates the two operating modes according to the times set in the parameters:

Integration/DHW (Domestic hot water) preced. time

Integration/DHW (Domestic hot water) preced. time

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

Configuration/Precedence.

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

Max DHW (Domestic hot water) time/configuration

beyond which the alarm is signalled.

The heat pump can manage up to 2 distribution pumps.

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

System definition/Zone number.

IT IS possible to customise the operation of each individual zone. Each zone can be enabled for a single operating mode, modifying the parameter:

Zone 1-2 Definition/Mode.

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

Zone 1-2 Definition/Enabl. room thermostat

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

Zone 1-2 Definition/Enabl. Remote control.

Automatic Vent Function

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

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

The function is activated by setting:

User/Enabl. Func. De-aeration = Yes.

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

User/Enabl. Func. De-aeration = No.

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

Zone 1-2 Definition/Enabl. dehumidifiers.

It can happen with the dehumidifier that there are problems in receiving a too high flow temp. For this reason, dehumidifier ignition can be prevented until the flow water drops below the level:

Zone 1-2 Definition/Max dehumidif. temp.

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

Zone 1-2 Definition/Set dehumidif. alarm

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

Zone 1-2 Definition/Humidistat.

In the presence of a floor system, it is necessary to avoid the formation of condensate in the floor by enabling the use of the dew temperature calculation:

Zone 1-2 Definition/Enabl. dew point.

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

Zone 1-2 Definition/Room probe modul.

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

3.11 DHW (DOMESTIC HOT WATER) BOOST FUNCTION.

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

Integration/Enable DHW (Domestic hot water) integration and enabling the function by modifying the parameter:

DHW (Domestic hot water)/Boost Function

3.12 ANTI-LEGIONELLA FUNCTION.

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

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

The function is enabled via the menu:

Config. DHW (Domestic hot water)/Anti-legion. enabling.

The function is activated at the time set via the parameter:

Config. DHW (Domestic hot water)/Anti-legion.cycle time.

on the week day set on the menu:

Config. DHW (Domestic hot water)/Anti-legion.cycle day;

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

Config. DHW (Domestic hot water)/Max legionella time;

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

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



3.13 HEAT PUMP CIRCULATOR FUNCTION.

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

System definition/HP circulator mode,

by setting **Max speed** the circulator will always work at the speed defined by the **Maximum HP circulator speed;**

by setting **Modul** the circulator will work at variable speed between the values defined by the **Maximum HP circulator speed** and **Minimum HP circulator speed** with regulation logics aimed at minimising consumption and ensure the temperature delta between flow and return defined by the **HP circulator T Delta parameter.**

3.14 PUMP ANTI-BLOCK FUNCTION.

The hydronic module has a function that starts up the pump at least once every 24 hours for 30 seconds in order to reduce the risk of the pump locking up due to prolonged inactivity.

3.15 3-WAY ANTI-BLOCK SYSTEM.

The hydronic module has a function that activates the motorised 3-way unit 24 hours after the last time it operated by running a complete cycle in order to reduce the risk of the 3-way blocking due to prolonged inactivity.

3.16 SYSTEM SETPOINT CORRECTION FUNCTION.

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

Activation takes place by setting the parameters:

System definition/Max central heating / C.H. correction

System definition/Max cooling correction

with a value > 0°C.

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

System definition/Activation time

and continue by 1°C each:

System definition/Increase time

minutes.

3.17 PHOTOVOLTAIC FUNCTION.

Should the photovoltaic contact (*contact "S39" Fig. 21*) be closed, the accumulated DHW is heated to a temperature of 60 °C via heat pump operation.

In case of simultaneous DHW (Domestic hot water) and system request, the system will decide which service to satisfy, in order to ensure the best comfort.

Install a mixing valve at the storage tank outlet.



3.18 INTEGRATION WITH THE SYSTEM ELECTRICAL RESISTANCES.

The heat pump can be added with system electrical resistances (optional) to have an alternative source of energy available to use in the central heating mode / C.H. mode.

The enabling of all electrical resistances is implemented through a single parameter.

Modifying the parameter:

Integration/Enable heat.integ.

it is decided whether to activate only the heat pump or only the resistance or both to perform the Central heating mode.

Modifying the parameter:

Integration/CH integration mode.

it is decided whether to activate the heat pump and the resistance in an alternate or simultaneous manner.

Modifying the parameter:

Central heating wait time/integr.

it is decided how long to activate the heat pump and the electrical resistance or both together.

When the outdoor temp is below:

Integration/Minimum integration temperature

the electrical resistance activates automatically.

In case of simultaneous DHW (Domestic hot water) and system requests, the system alternates the two operating modes according to the times set in the parameters:

Integration/DHW (Domestic hot water) preced. time

Integration/DHW (Domestic hot water) preced. time

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

Configuration/Precedence.

3.19 ZONE 2 SAFETY THERMOSTAT FUNCTION.

In case of zone 2 installation, the safety thermostat installed on the flow branch runs a check on the zone flow temperature; if the limit is exceeded, the mixing valve closes leaving the circulator running. IT IS possible to modify these limits through the parameters:

Special parameters/Parameter 2.

3.20 CONJUNCTION MODE.

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

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

IT IS possible to activate operation in this mode by modifying the parameter:

Integration/Conjunction mode.

3.21 HEAT PUMP DISABLING FUNCTION.

With a closed contact (*contact "S43" Fig. 21*) the heat pump operation is inhibited. No request will be met, excluding the safety functions.

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

System definition/Contact Disab. HP = Yes

3.22 DIVERTER VALVE MANAGEMENT (SUMMER / WINTER) (OPTIONAL).

Valid only in conjunction with relay kit 2.



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

The voltage output is active when the appliance is in SUMMER mode with Cooling.

3.23 EXTERNAL PROBE SETTING (OPTIONAL).

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

System definition/Temperature control/External probe.

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

System definition/Temperature control/External probe correct.

3.24 MANUAL DRIVES.

In the menu:

Assistance/Manual

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

These parameters must be used in case of system troubleshooting. To correctly activate the functions, it is necessary to set the system in "stand-by".

3.25 OUTDOOR CONDENSING UNIT TEST MODE FUNCTION.

When test mode is used (see Outdoor condensing unit instruction booklet), the indoor unit must be set in a mode other than "Stand-by".

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

3.26 OUTDOOR CONDENSING UNIT PUMP DOWN FUNCTION.

If the pump down function is used (see outdoor condensing 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.

3.27 SUPERVISION DEVICE CONFIGURATION.

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

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

System definition/System supervision.

It is not possible to configure both devices simultaneously.



3.28 YEARLY MAINTENANCE.

- Check the integrity of the storage tank / cylinder magnesium anode.
- Check tightness of the assembly elements (screws, bolts, plugs, structure elements, etc.).
- Check that the system is in good condition.
- Check for water leaks or oxidation from/on the fittings.
- Perform a visual check to make sure that the safety and control devices have not been tampered with and in particular, the regulator probe, the expansion vessel and the safety valve.
- In case of hard water it is advisable to remove the lime scale from the storage tank / cylinder at least once a year.
- Service the boiler (if present) according to the guidelines in the relative instruction book.
- Service the heat pump (if present) according to the guidelines in the relative instruction book.

Vent

Any air present in the system must be bled:

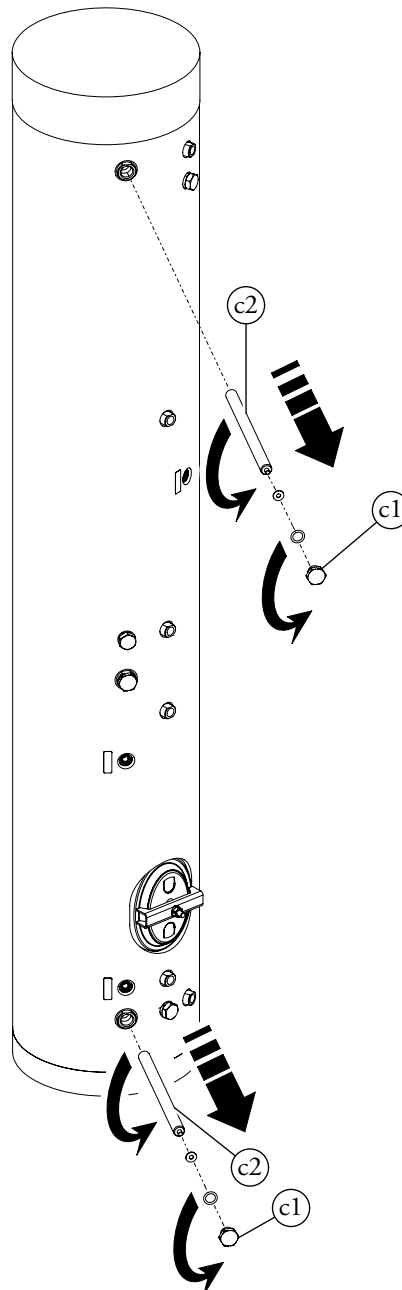
- upon start-up (after filling)
- if necessary, e.g. in the event of breakdown.

Replacing the anode

The anode (c2) present in the storage tank must be replaced every year, as shown below.

3.29 DECOMMISSIONING.

In the event of permanent system shutdown, contact professional staff for the procedures and ensure that the electrical, water and gas supply lines are shut off and disconnected and that the solar collector (if present) is covered.



4 TECHNICAL DATA.

4.1 TECHNICAL DATA TABLES.

The following data refers to product data.

		Trio Pack Electric 4	Trio Pack Electric 6	Trio Pack Electric 9
Nominal data for low temperature applications (A7/W35) *				
Nominal central heating output	kW	4.40	6.00	9.00
Absorption	kW	0.85	1.22	1.87
COP	kW/kW	5.18	4.92	4.81
Nominal data for low temperature applications (A35/W18) *				
Nominal cooling output	kW	5.00	6.50	8.70
Absorption	kW	1.09	1.47	2.11
EER	kW/kW	4.59	4.42	4.12
Nominal data for intermediate temperature applications (A7/W45) **				
Nominal central heating output	kW	4.20	5.40	8.60
Absorption	kW	1.09	1.51	2.33
COP	kW/kW	3.85	3.58	3.69
Nominal data for intermediate temperature applications (A35/W7) **				
Nominal cooling output	kW	3.60	4.70	6.50
Absorption	kW	1.11	1.44	1.95
EER	kW/kW	3.24	3.26	3.33
Nominal data for medium temperature applications (A7/W55) ***				
Nominal central heating output	kW	3.90	4.80	8.00
Absorption	kW	1.32	1.81	2.73
COP	kW/kW	2.95	2.65	2.93

* Central heating mode status: heat exchanger water inlet/remains at 30 °C/35 °C, outdoor air temperature 7 °C db/6 °C wb. Performance in compliance with EN 14511.

Cooling mode status: heat exchanger water inlet/remains at 23 °C/18 °C, outdoor air temperature 35 °C. Performance in compliance with EN 14511.

* Central heating mode status: heat exchanger water inlet/remains at 40 °C/45 °C, outdoor air temperature 7 °C db/6 °C wb.

*** Cooling mode status: heat exchanger water inlet/remains at 12 °C/7 °C, outdoor air temperature 35 °C. Performance in compliance with EN 14511.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Appliance data.

INSTALLER

USER

MAINTENANCE TECHNICIAN

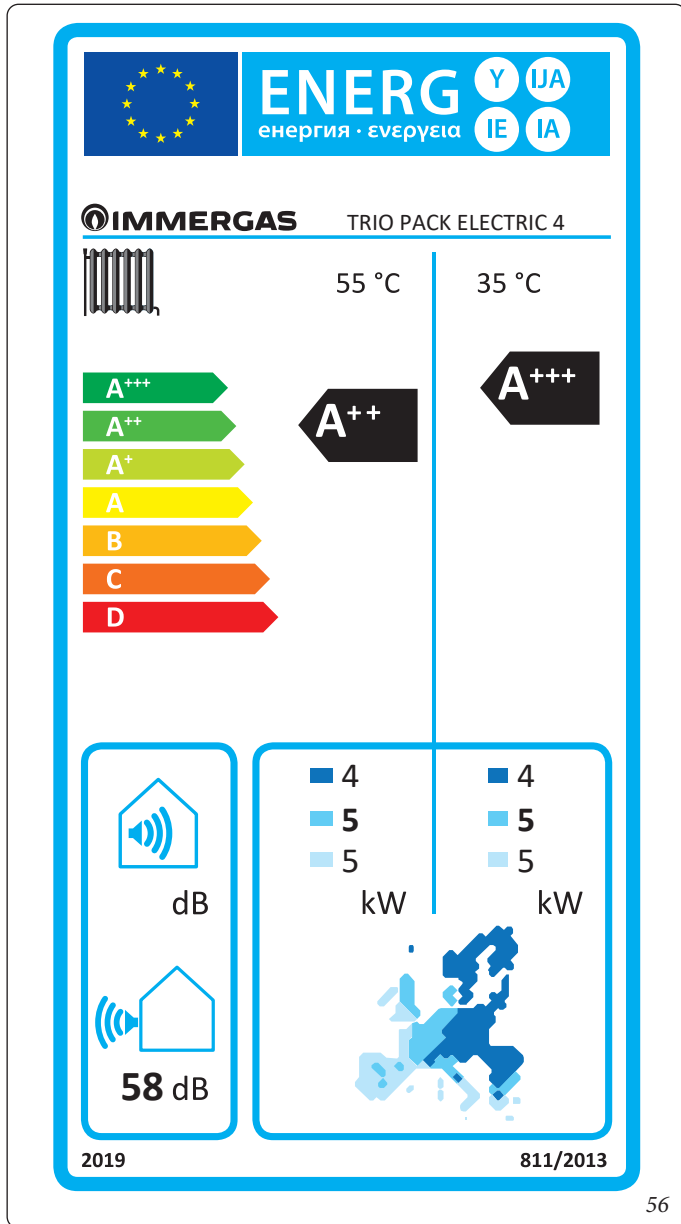
TECHNICAL DATA

		Trio Pack Electric 4	Trio Pack Electric 6	Trio Pack Electric 9
Dimensions of Internal Unit (Width x Height x Depth) Solar - Domus	mm	950x2200x350 - 975x2110x365		
Maximum heating temperature	°C	65		
Adjustable central heating temperature (operating field)	°C	20-65		
Cooling adjustable temperature (operating field)	°C	5-25		
Water content	l	30.4		
System expansion vessel volume	l	8		
System expansion vessel pre-charged pressure	bar	1		
Hydraulic circuit max. operating pressure	bar	3		
Minimum circulation flow rate	l/h	500		
Head available with 1000 l/h flow rate	kPa	53.1		
Head available with 2000 l/h flow rate	kPa	11		
Domestic hot water adjustable temperature	°C	10-60		
Domestic hot water adjustable temperature with DHW integration resistance	°C	10-65		
Domestic hot water circuit min. dynamic pressure	kPa	30		
Maximum domestic hot water circuit pressure	bar	8		
DHW expansion vessel volume	l	8		
DHW expansion vessel pre-charged pressure	bar	3		
Water content in the storage tank unit	l	156.9		
UI Electrical connection	V/Hz	Single-phase, 230Vac, 50Hz		
Absorption without additional loads	W	110		
DHW (Domestic hot water) electrical resistance absorption	W	1500		
System integrative resistance max. absorption (optional)	W	6000		
EEI value	-	≤ 0.20 - Det. 3		
Equipment electrical system protection	-	IPX5D		
UI Ambient temperature range in summer mode	°C	+10 - +40		
UI Ambient temperature range in winter mode	°C	-5 - +35		
Cooling outdoor temperature (operating field)	°C	10 .. 46		
Central heating / C.H. outdoor temperature (operating field)	°C	-25 .. 35		
Domestic hot water outdoor temperature (operating field)	°C	-25 .. 35		
Domestic hot water outdoor temperature with DHW integration resistance (operating field)	°C	-25 .. 46		
Empty UI weight	kg	99.8		
Full UI weight	kg	287.1		

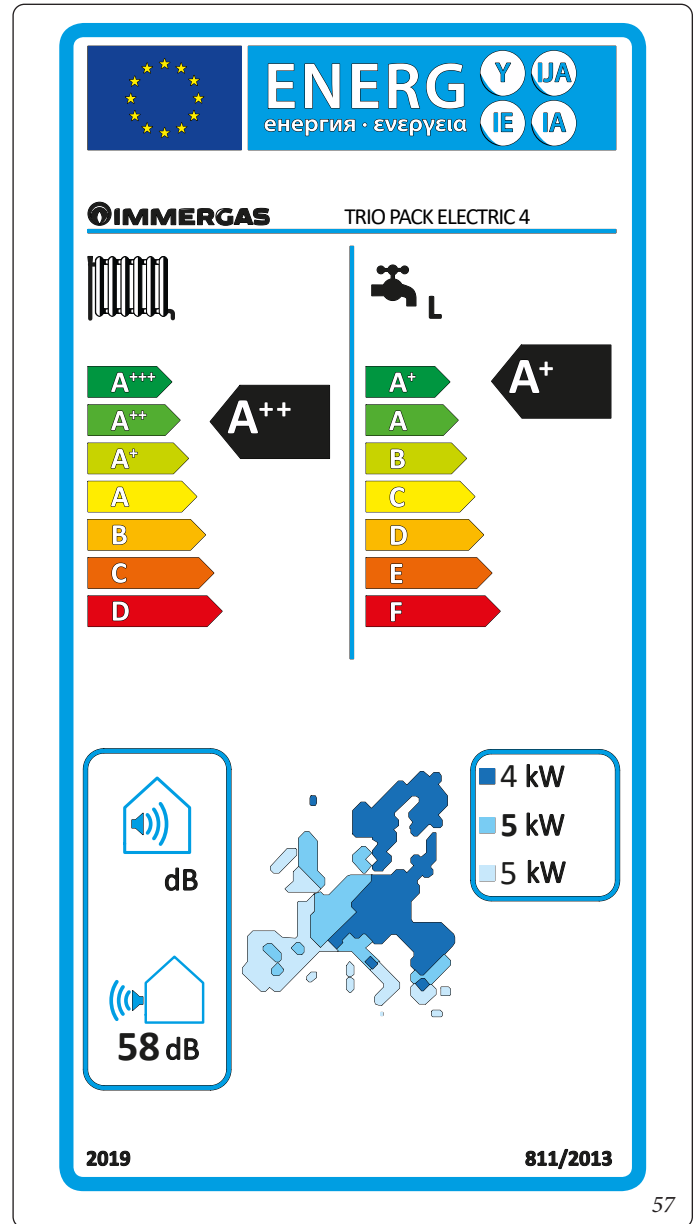
4.2 TRIO PACK ELECTRIC 4 PRODUCT FICHE (IN COMPLIANCE WITH REGULATION 811/2013).

For proper installation of the appliance refer to chapter 1 of this booklet (for the installer) and current installation regulations.

For proper maintenance refer to chapter 3 of this booklet (for the maintenance technician) and adhere to the frequencies and methods set out herein.



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INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Parameter	Unit	Value
η_{WH} (energy efficiency)	%	125
V40 (water mixed at 40°C)	l	182

Low temperature (30/35).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	2781	2280	1130
Room central heating seasonal efficiency (η_s)	η_s %	139	178	233
Nominal heat output	kW	4	5	5

High temperature (47/55).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	3900	3199	1753
Room central heating seasonal efficiency (η_s)	η_s %	98	126	149
Nominal heat output	kW	4	5	5

Average temperature table (47/55) average zones.

Model		TRIO PACK ELECTRIC 4					
Air/water heat pump		yes	Low temperature heat pump			no	
Water/water heat pump		no	With additional central heating device			no	
Brine/water heat pump		no	Mixed central heating device with heat pump:			yes	
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Nominal heat output	Nominal output	5.00	kW	Room central heating seasonal energy efficiency	η_s	126	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature T_j				Performance coefficient declared with indoor temperature equivalent to 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	Pdh	4.4	kW	$T_j = -7\text{ °C}$	COPd	2.10	-
$T_j = +2\text{ °C}$	Pdh	2.7	kW	$T_j = +2\text{ °C}$	COPd	3.10	-
$T_j = +7\text{ °C}$	Pdh	1.7	kW	$T_j = +7\text{ °C}$	COPd	4.46	-
$T_j = +12\text{ °C}$	Pdh	1.9	kW	$T_j = +12\text{ °C}$	COPd	5.72	-
$T_j =$ bivalent temperature	Pdh	4.4	kW	$T_j =$ bivalent temperature	COPd	2.10	-
$T_j =$ operating limit temperature	Pdh	4.2	kW	$T_j =$ operating limit temperature	COPd	1.51	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	Pdh	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	COPd	-	-
Bivalent temperature	T_{biv}	-7	°C	for air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	Pcyc	-	kW	Cycle intervals efficiency	COPcyc or PER-cyc	-	-
Degradation coefficient	Cdh	0.9	-	Water heating temperature operating limit	WTOL	-	°C
Different mode of energy consumption from the active mode				Additional heating appliance			
OFF mode	P_{OFF}	0.004	kW	Nominal heat output	P_{sup}	0.00	kW
Thermostat mode off	P_{TO}	0.012	kW	Type of energy supply voltage	electric		
Standby mode	P_{SB}	0.012	kW				
Guard heating mode	P_{CK}	0.000	kW				
Other items							
Capacity control	VARIABLE			For air/water heat pumps: nominal air output to outside	-	2400	m ³ /h
Indoor/outdoor sound level	L_{WA}	58	dB	For water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m ³ /h
Annual energy consumption	Q_{HE}	3199	kWh or GJ				
For mixed central heating appliances with a heat pump							
Stated load profile	L			Water central heating energy efficiency	η_{wh}	125	%
Daily electrical power consumption	Q_{elec}	3.92	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual energy consumption	AEC	816	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						

INSTALLER

USER

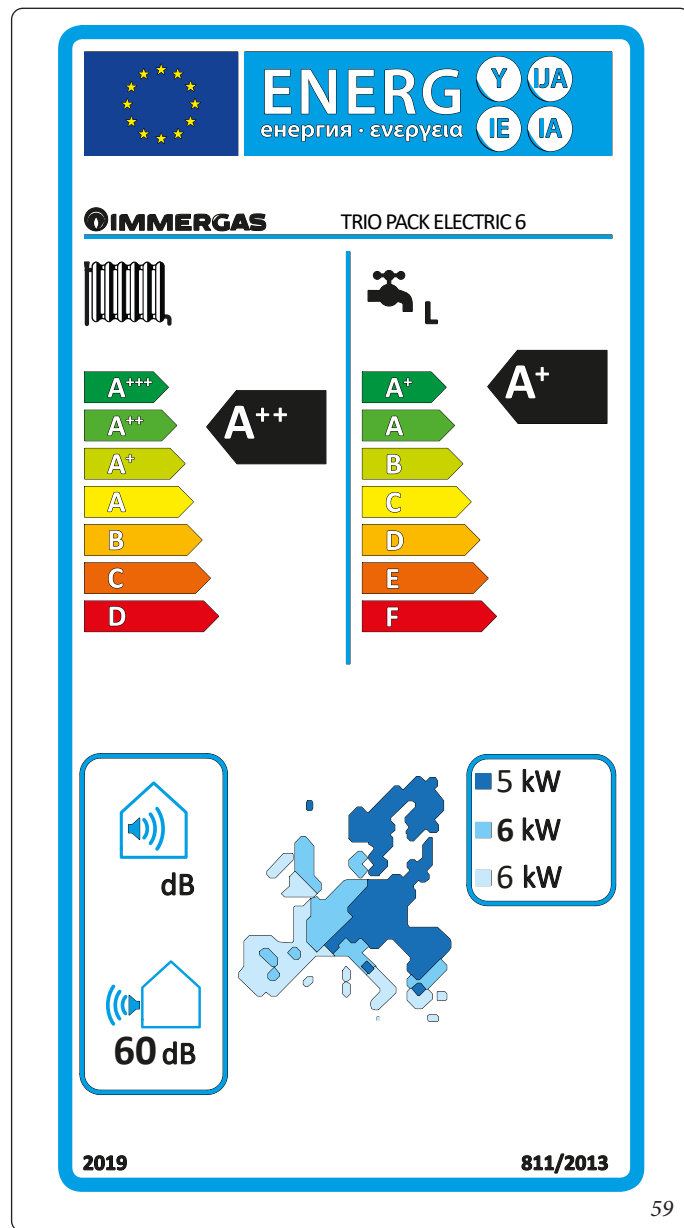
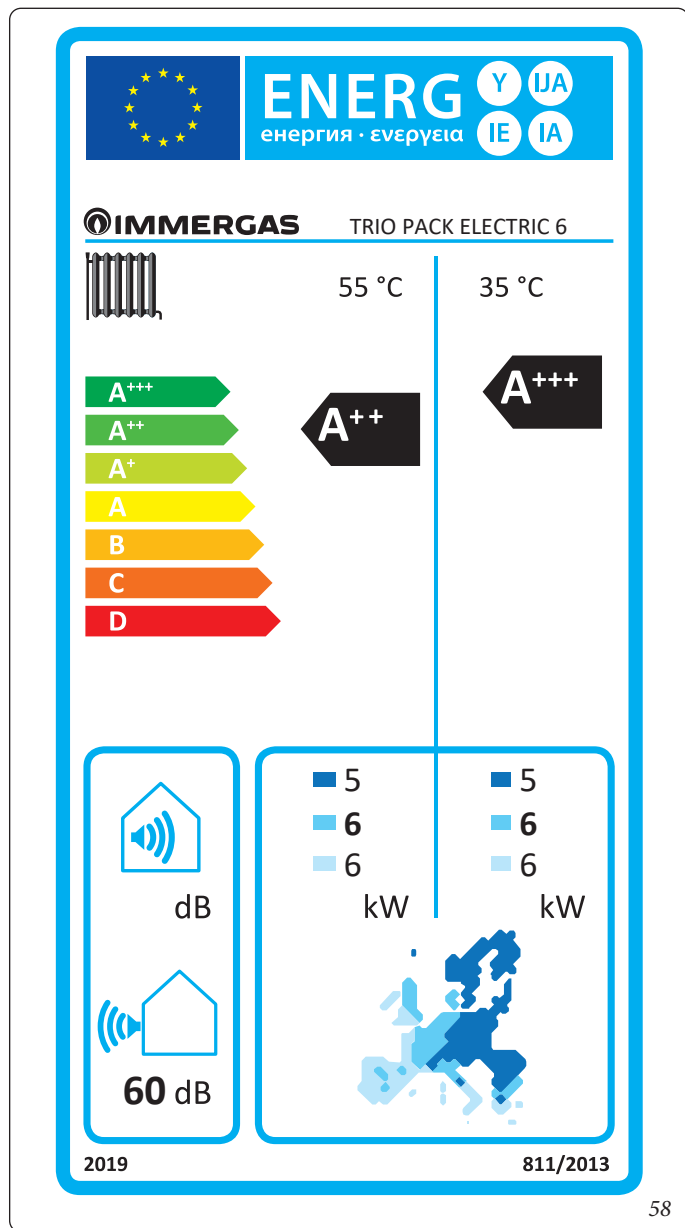
MAINTENANCE TECHNICIAN

TECHNICAL DATA

4.3 TRIO PACK ELECTRIC 6 PRODUCT FICHE (IN COMPLIANCE WITH REGULATION 811/2013).

For proper installation of the appliance refer to chapter 1 of this booklet (for the installer) and current installation regulations.

For proper maintenance refer to chapter 3 of this booklet (for the maintenance technician) and adhere to the frequencies and methods set out herein.



Parameter	Unit	Value
η_{WH} (energy efficiency)	%	118
V40 (water mixed at 40°C)	l	182

Low temperature (30/35).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	3313	2280	1256
Room central heating seasonal efficiency (η_s)	η_s %	140	178	235
Nominal heat output	kW	5	6	6

High temperature (47/55).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	4863	3775	1945
Room central heating seasonal efficiency (η_s)	η_s %	94	128	151
Nominal heat output	kW	5	6	6

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Average temperature table (47/55) average zones.

Model		TRIO PACK ELECTRIC 6					
Air/water heat pump	yes	Low temperature heat pump				no	
Water/water heat pump	no	With additional central heating device				no	
Brine/water heat pump	no	Mixed central heating device with heat pump:				yes	
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Nominal heat output	Nominal output	6.00	kW	Room central heating seasonal energy efficiency	η_s	128	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature T_j				Performance coefficient declared with indoor temperature equivalent to 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	Pdh	5.3	kW	$T_j = -7\text{ °C}$	COPd	2.00	-
$T_j = +2\text{ °C}$	Pdh	3.2	kW	$T_j = +2\text{ °C}$	COPd	3.23	-
$T_j = +7\text{ °C}$	Pdh	2.1	kW	$T_j = +7\text{ °C}$	COPd	4.47	-
$T_j = +12\text{ °C}$	Pdh	1.9	kW	$T_j = +12\text{ °C}$	COPd	5.72	-
$T_j =$ bivalent temperature	Pdh	5.3	kW	$T_j =$ bivalent temperature	COPd	2.00	-
$T_j =$ operating limit temperature	Pdh	5.0	kW	$T_j =$ operating limit temperature	COPd	1.80	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	Pdh	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	COPd	-	-
Bivalent temperature	T_{biv}	-7	°C	for air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	Pych	-	kW	Cycle intervals efficiency	COPcyc or PER-cyc	-	-
Degradation coefficient	Cdh	0.9	-	Water heating temperature operating limit	WTOL	55	°C
Different mode of energy consumption from the active mode				Additional heating appliance			
OFF mode	P_{OFF}	0.004	kW	Nominal heat output	P_{sup}	0.00	kW
Thermostat mode off	P_{TO}	0.012	kW	Type of energy supply voltage	electric		
Standby mode	P_{SB}	0.012	kW				
Guard heating mode	P_{CK}	0.000	kW				
Other items							
Capacity control	VARIABLE			For air/water heat pumps: nominal air output to outside	-	2580	m ³ /h
Indoor/outdoor sound level	L_{WA}	60	dB	For water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m ³ /h
Annual energy consumption	Q_{HE}	3775	kWh or GJ				
For mixed central heating appliances with a heat pump							
Stated load profile	L			Water central heating energy efficiency	η_{wh}	118.0	%
Daily electrical power consumption	Q_{elec}	4.14	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual energy consumption	AEC	865	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

4.4 TRIO PACK ELECTRIC 9 PRODUCT FICHE (IN COMPLIANCE WITH REGULATION 811/2013).

For proper installation of the appliance refer to chapter 1 of this booklet (for the installer) and current installation regulations.

For proper maintenance refer to chapter 3 of this booklet (for the maintenance technician) and adhere to the frequencies and methods set out herein.

ENERG Y IJA
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IMMERGAS TRIO PACK ELECTRIC 9

55 °C | 35 °C

A+++ A++ A+ A B C D

A++ A+++

7 kW | 8 kW | 8 kW | 9 kW

64 dB

2019 811/2013

60

ENERG Y IJA
енергия · ενεργεια IE IA

IMMERGAS TRIO PACK ELECTRIC 9

XL

A+++ A++ A+ A B C D

A++ A A

7 kW | 8 kW | 8 kW

64 dB

2019 811/2013

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USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Parameter	Unit	Value
η_{WH} (energy efficiency)	%	98
V40 (water mixed at 40°C)	l	219

Low temperature (30/35).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	5270	3953	1861
Room central heating seasonal efficiency (η_s)	η_s %	137	175	241
Nominal heat output	kW	8	9	9

High temperature (47/55).

	Value	Colder zones	Average zones	Hotter zones
		■	■	■
Annual energy consumption for the central heating mode (Q_{HE})	kWh/year	7141	5106	2723
Room central heating seasonal efficiency (η_s)	η_s %	94	126	154
Nominal heat output	kW	7	8	8

Average temperature table (47/55) average zones.

Model		TRIO PACK ELECTRIC 9					
Air/water heat pump		yes	Low temperature heat pump			no	
Water/water heat pump		no	With additional central heating device			no	
Brine/water heat pump		no	Mixed central heating device with heat pump:			yes	
The parameters are declared for average temperature application, except for low temperature heat pumps. The parameters for low temperature heat pumps are declared for low temperature application							
The parameters are declared for average climatic conditions							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Nominal heat output	Nominal output	8.00	kW	Room central heating seasonal energy efficiency	η_s	126	%
Central heating capacity declared with a partial load and indoor temperature equivalent to 20°C and outdoor temperature T_j				Performance coefficient declared with indoor temperature equivalent to 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	Pdh	7.1	kW	$T_j = -7\text{ °C}$	COPd	1.76	-
$T_j = +2\text{ °C}$	Pdh	4.3	kW	$T_j = +2\text{ °C}$	COPd	3.23	-
$T_j = +7\text{ °C}$	Pdh	2.8	kW	$T_j = +7\text{ °C}$	COPd	4.62	-
$T_j = +12\text{ °C}$	Pdh	2.6	kW	$T_j = +12\text{ °C}$	COPd	5.88	-
$T_j =$ bivalent temperature	Pdh	7.1	kW	$T_j =$ bivalent temperature	COPd	1.76	-
$T_j =$ operating limit temperature	Pdh	4.9	kW	$T_j =$ operating limit temperature	COPd	1.35	-
for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	Pdh	-	kW	for air/water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C)	COPd	-	-
Bivalent temperature	T_{biv}	-7	°C	for air/water heat pumps: Operating limit temperature	TOL	-10	°C
Central heating capacity cycle intervals	Pcyc	-	kW	Cycle intervals efficiency	COPcyc or PER-cyc	-	-
Degradation coefficient	Cdh	0.9	-	Water heating temperature operating limit	WTOL	55	°C
Different mode of energy consumption from the active mode				Additional heating appliance			
OFF mode	P_{OFF}	0.004	kW	Nominal heat output	P_{sup}	0.00	kW
Thermostat mode off	P_{TO}	0.012	kW	Type of energy supply voltage	electric		
Standby mode	P_{SB}	0.012	kW				
Guard heating mode	P_{CK}	0.000	kW				
Other items							
Capacity control	VARIABLE			For air/water heat pumps: nominal air output to outside	-	2580	m ³ /h
Indoor/outdoor sound level	L_{WA}	64	dB	For water or brine/water heat pumps: nominal flow of brine or water, outdoor heat exchanger	-	-	m ³ /h
Annual energy consumption	Q_{HE}	5106	kWh or GJ				
For mixed central heating appliances with a heat pump							
Stated load profile	XL			Water central heating energy efficiency	η_{wh}	98	%
Daily electrical power consumption	Q_{elec}	8.26	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual energy consumption	AEC	1706	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

4.5 PARAMETERS FOR FILLING IN THE PACKAGE FICHE.

Should you wish to install an assembly starting from the Trio Pack Electric package, use the package fiche shown in (Fig. 63). To complete it properly, fill the relevant spaces (as shown in the package fiche facsimile Fig. 63) with the values referred to in the tables of the paragraphs “Parameters to fill in the low temperature package fiche (30/35)”, “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. 63) for “assemblies” related to the central heating mode (e.g.: heat pump + temperature controller).

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



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

Room central heating seasonal energy efficiency of the heat pump 1 %

Temperature control 2 %
 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 hydronic module 3 %
 From the hydronic module board

Seasonal central heating energy efficiency (in %)

$$(\text{ } - 'I') \times 'II' = - \text{ } \%$$

Solar contribution 4 %
 From the board of the solar device

Dimensions of the manifold (in m²)

Volume of the tank (in m³)

Efficiency of the manifold (in %)

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

$$('III' \times \text{ } + 'IV' \times \text{ }) \times 0.45 \times (\text{ } / 100) \times \text{ } = + \text{ } \%$$

Room central heating seasonal energy efficiency of the assemble in average climate conditions 5 %

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	F	E	D	C	B	A	A*	A**	A***
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %

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

Colder: 5 - 'V' = % Hotter: 5 + 'VI' = %

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

Parameters to fill in the low temperature package fiche (30/35).

Trio Pack Electric 4

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	139	178	233
"II"	*	*	*
"III"	6.68	5.35	5.35
"IV"	2.61	2.09	2.09

Trio Pack Electric 6

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	140	178	235
"II"	*	*	*
"III"	5.35	4.45	4.45
"IV"	2.09	1.74	1.74

Trio Pack Electric 9

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	137	175	241
"II"	*	*	*
"III"	3.82	3.34	3.34
"IV"	1.49	1.31	1.31

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

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

Trio Pack Electric 4

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	98	126	149
"II"	*	*	*
"III"	6.68	5.35	5.35
"IV"	2.61	2.09	2.09

Trio Pack Electric 6

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	94	128	151
"II"	*	*	*
"III"	5.35	4.45	4.45
"IV"	2.09	1.74	1.74

Trio Pack Electric 9

Parameter	Colder zones	Average zones	Hotter zones
	■	■	■
"I"	94	126	154
"II"	*	*	*
"III"	3.82	3.34	3.34
"IV"	1.49	1.31	1.31

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

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Room central heating system package fiche.

INSTALLER

Room central heating seasonal energy efficiency of the heat pump

¹
 %

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 %

+ ²
 %

Supplementary hydronic module
 From the hydronic module board

Seasonal central heating energy efficiency of the room (%)

(- _____) x _____ = - ³
 %

USER

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 %)

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

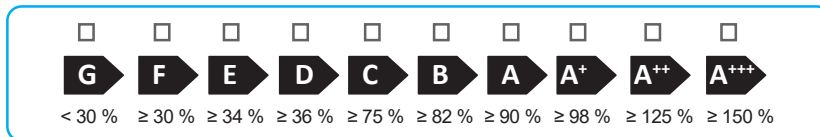
(_____ x + _____ x) x 0.45 x (/ 100) x = + ⁴
 %

MAINTENANCE TECHNICIAN

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

⁵
 %

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



TECHNICAL DATA

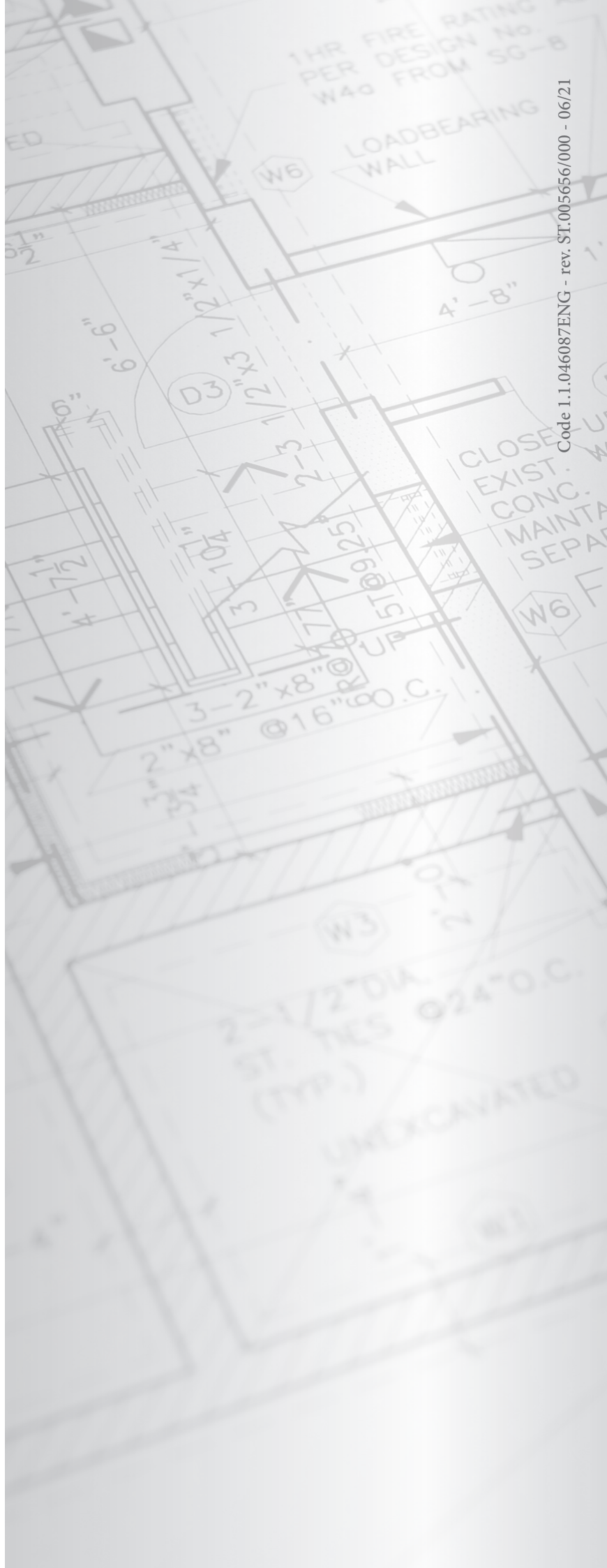
Room central heating seasonal energy efficiency in colder and hotter climate conditions

Colder: ⁵ - _____ = % Hotter: ⁵ + _____ = %

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.



This instruction booklet
is made of ecological paper



Code I.1.046087ENG - rev. ST.005656/000 - 06/21



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