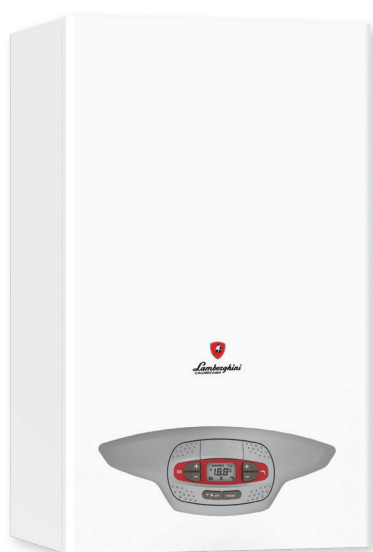




Lamborghini
CALORECLIMA

IDOLA HYBRID C

REVERSIBLE HYBRID AIR-WATER HEAT PUMPS FOR SPLIT INSTALLATION
WITH INSTANTANEOUS DHW PRODUCTION






CE

EN

INSTALLATION, MAINTENANCE AND USER MANUAL

- Read the warnings in this instruction booklet carefully since they provide important information on safe installation, use and maintenance.
- This instruction booklet is an integral and essential part of the product and must be kept with care by the user for future reference.
- If the unit is sold or transferred to another owner or if it is to be moved, always make sure the booklet stays with the appliance so that it can be consulted by the new owner and/or installer.
- Installation and maintenance must be carried out by professionally qualified personnel, according to current regulations and the manufacturer's instructions.
- Incorrect installation or inadequate maintenance can result in damage or injury. The manufacturer declines any liability for damage caused by errors in installation and use or by failure to follow the instructions provided.
- Before carrying out any cleaning or maintenance operation, disconnect the unit from the power supply using the system switch and/or the special cut-off devices.
- In case of a fault and/or poor operation, deactivate the unit and do not try to repair it or directly intervene. Contact professionally qualified personnel. Any repair/replacement of the products must only be carried out by qualified personnel using genuine parts. Failure to comply with the above can compromise the safety of the unit.
- Periodic maintenance performed by qualified personnel is essential in order to ensure proper operation of the unit.
- This unit must only be used for its intended purpose. Any other use is deemed improper and therefore hazardous.
- After unpacking, check the good condition of the contents. The packing materials are potentially hazardous and must not be left within the reach of children.
- The unit can be used by children aged at least 8 years and by persons with reduced physical, sensory or mental capabilities, or lacking experience or the necessary knowledge, only if under supervision or they have received instructions on its safe use and the related risks. Children must not play with the unit. Cleaning and maintenance intended to be done by the user can be carried out by children aged at least 8 years only if under supervision.
- In case of doubt, do not use the unit. Contact the supplier.
- The unit and its accessories must be appropriately disposed of in compliance with current regulations.
- The images given in this manual are a simplified representation of the product. In this representation there may be slight and insignificant differences with respect to the product supplied.

	This symbol indicates "Caution" and is placed next to all safety warnings. Strictly follow these instructions in order to avoid danger and damage to persons, animals and things.
	This symbol calls attention to a note or important notice.
	<p>This symbol, which is used on the product, packaging or documents, means that at the end of its useful life, this product must not be collected, recycled or disposed of together with domestic waste.</p> <p>Improper management of electric or electronic waste can lead to the leakage of hazardous substances contained in the product. For the purpose of preventing damage to health or the environment, users are kindly asked to separate this equipment from other types of waste and to ask for it to be dealt with by the municipal waste service or dealer under the conditions and according to the methods set down in national and international laws transposing the Directive 2012/19/EU.</p> <p>Separate waste collection and recycling of unused equipment helps to save natural resources and to guarantee that this waste is processed in a manner that is safe for health and the environment. For more information about how to collect electric and electronic equipment and appliances, please contact your local Council or Public Authority competent to issue the relevant permits.</p>

Allowed uses

This series of heat pumps is designed to produce cold or hot water for use in hydronic systems for conditioning/heating purposes and instantaneous production of domestic hot water in an indirect way through a storage tank and a heat exchanger.

Any use differing from this proper use or beyond the operating limits indicated in this manual is forbidden unless previously agreed with the manufacturer.



The CE marking certifies that the products meet the essential requirements of the relevant directives in force. The declaration of conformity may be requested from the manufacturer.

SUMMARY

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The manufacturer declines all responsibility for any inaccuracies in this manual due to printing or typing errors.
The manufacturer reserves the right to modify the products contents in this catalogue without previous notice.

1. GENERAL FEATURES

1.1 Presentation of the system

> GENERAL CHARACTERISTICS:

- The family of IDOLA HYBRID C hybrid heat pumps integrates the technology of the heat pump and the condensing boiler with instantaneous dhw production in a single compact product.
- This represents the ideal solution for replacing old existing boilers, also on high temperature system with radiators.
- The compact dimensions, similar to those of a wall-hung boiler, make it easier to replace without losing significant space or requiring significant restructuring work.
- Internal electronics, by running the boiler or the heat pump as the climatic conditions vary, optimise the output of the system by always working in the most economic consumption-related modes possible.
- During heat pump operation in heating or conditioning mode, the boiler can produce dhw at the same time without interfering on heat pump operation, thereby maximising the comfort of both services.
- If the heat pump is partially or fully blocked, the boiler can operate separately in heating and dhw production.
- it is composed of an external inverter unit available in 3 power sizes associated with an internal condensation unit with integrated hydronic module for cooling circuit control.
- A highly versatile system that can operate in particularly cold climatic conditions (outdoor air down to -20°C).
- The split cooling circuit avoids the risk of freezing in particularly cold outdoor applications.
- The user interface is composed of a digital remote controller equipped with a large display and simple setting controls.
- Wall flue gas exhaust in cases pertaining to Lgs.D. 4 July 2014, No. 102.

> CHARACTERISTICS OF EXTERNAL UNIT:

- Approved for outdoor operation in completely exposed site.
- Breakaway starting current thanks to Inverter technology.
- Compressor with twin rotary DC INVERTER motor on vibration damping supports and wrapped in double layer of soundproofing material to reduce vibrations and noise to a minimum.
- The compressor is also equipped with casing oil heating element.
- Two-flow electronic expansion valve, cycle inversion valve.
- Axial fans with brushless DC motor complete with protective grids.
- Outdoor air temperature probe already installed on the unit.

> CHARACTERISTICS OF INTERNAL UNIT:






- A particularly sturdy boiler, suitable for replacements even in particularly critical and resistant systems.
- Combustion module with high modulation range (1:10) with high thickness stainless steel primary exchanger, with larger passes maintaining high efficiency even on old systems with oxidation and soiling
- M.G.R: Methane, LPG, Propane air Ready, with a simple configuration the internal unit can run on methane, lpg and propane-air without the use of any additional conversion kits.
- MC2: Multi Combustion Control, combustion system with gas-adaptive patented technology for better adaptability of use to the varying gas network conditions (ex. pressure fluctuations or drops)
- F.P.S: Flue gas Protection System. The standard flue gas check valve offers easy connection to pressurised collective flue systems
- Particularly suitable for operation in flues requiring "heavy duty" pipes thanks to approval for operation with flue gas exhaust with a diameter of 50mm.
- Can be combined with preheating systems for the domestic hot water.
- Place of installation: also for outdoor use in a partially protected place that is up to -5°C, as standard
- Free methane/LPG/Propane-air conversion at the time of product testing and warranty activation, by the Authorised Assistance Centre

1.2 Available system

MOD.	SYSTEM	INDOOR UNIT	OUTDOOR UNIT
04	IDOLA HY H 04E 28C	IDOLA-UI HYBRID C 08	IDOLA-UE 04
06	IDOLA HY H 06E 28C	IDOLA-UI HYBRID C 08	IDOLA-UE 06
08	IDOLA HY H 08E 28C	IDOLA-UI HYBRID C 08	IDOLA-UE 08


GENERAL FEATURES

1.3 Components supplied with the indoor unit

Description	Shape	Q.ty
Installation, maintenance and user manual (this manual)		1
Square cock with filter (system return)		1
Square cock (system outlet)		1
Remote control		1
Energy label		3*

* The unit is supplied with 3 energy labels (use only that one of the installed system).

1.4 Components supplied with the outdoor unit

Description	Shape	Q.ty
Condensate water drain to be installed under the unit basement		1

1.5 Remote control

The user interface consists of a wired remote controller (up to 50 m from the unit) which allows the management of:

- HEATING AND COOLING SYSTEM. The unit, if activated in heat or cool mode, works by modulating the frequency of the compressor to maintain the temperature of the produced water to the setpoint value set by the controller. Through parameter you can use the remote controller (eg. For single-zone systems) as a room thermostat.

- HEATING WITH BOILER. As a function of the set parameters, can be activated in integration or substitution of the heat pump. The electronic board will activate the boiler in case the heat pump does not work.

- SILENCED MODE: according to a programmed schedule, this reduces the maximum frequency of the compressor and the fan speed, to reduce the generated noise and the power absorbed by the unit.

- ON / OFF using an external contact. The unit can be turned on and off (eg. thermostat / remote switch) via an external contact: in this case the unit will operate in the mode set by the controller keyboard.

- HEAT / COOL via external contacts. The unit can be activated in heat or cool mode via two external contacts (eg. thermostat that manages the heat and cool demand / remote switch).

- ECO MODE: possibility of defining a time slot in hot mode where the heat pump runs with a sliding setpoint defined by the chosen climatic curve. There are 8 climatic curves for low temperature systems (radiant floor) and 8 climatic curves for fan coil or radiator systems).

- WEEKLY PROGRAMMING: this makes it possible to set a different schedule for each day of the week defining the operating mode for each time slot (COLD/HOT) and the work setpoint.

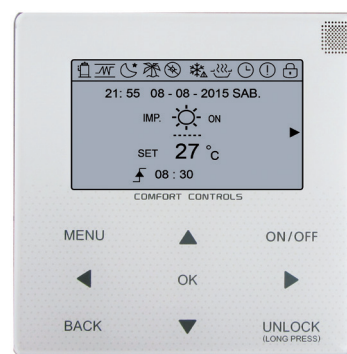


fig. 1 -

GENERAL FEATURES

1.6 Accessories

Plumbig kit

The plumbig kit (cod.012050W0 consisting of a gas cock, water inlet cock and pipes and fittings) is available on request, which allows the hydraulic connection of the unit to the wall.

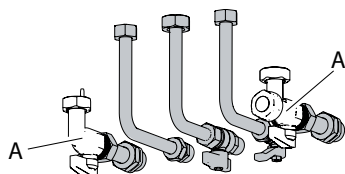


fig. 2 - Hydraulic kit

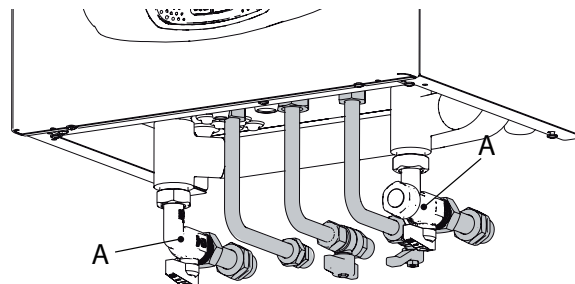


fig. 3 - Hydraulic kit fitted

	Hydraulic kit accessory
A	These two cocks are not part of the kit as they are supplied as standard with the indoor unit.

Cover plumbig kit

The plumbig cover kit (cod. 016008X0) is available on request, which allows the aesthetic covering of the wall hydraulic connections. The kit consists of a galvanized sheet of the same color as the mantle, to be fixed with 4 screws under the indoor unit

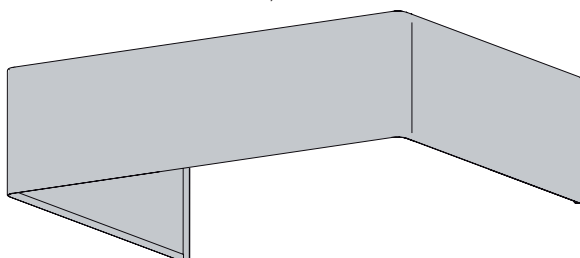


fig. 4 - Cover hydraulic kit

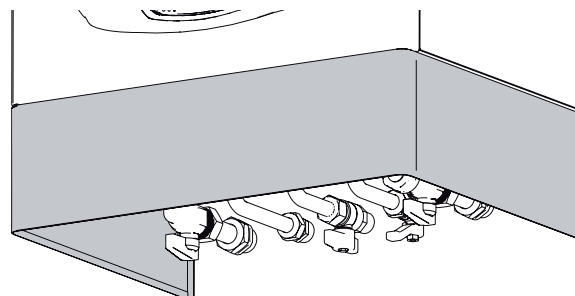








fig. 5 - Cover hydraulic kit fitted

	Accessory cover kit accessory
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TECHNICAL DATA AN PERFORMANCE

2. TECHNICAL DATA AN PERFORMANCE

2.1 System technical data

-	Mod.	04		06		08	
ERP class in heating / Seasonal efficiency medium temperature (produced water 55°C)	(Class G - A++)		127		133		126
ERP class in heating / Seasonal efficiency low temperature (produced water 35°C)	(Class G - A++)		183		187		171
Electric power supply	V-ph-Hz	220-240V ~ 50 Hz					
Type of compressor	-	Twin Rotary					
No. of compressors / No. of cooling circuits	No.	1/1					
Type of exchanger system side	-	piastre inox saldobrasate					
Type of exchanger source side	-	batteria alettata					
Type of fans	-	brushless DC					
No. of fans	No.	1					
Cooler fittings - liquid line	ø	9,52					
Cooler fittings - gas line	ø	15,88					
Internal unit expansion vessel volume	l	8					
SWL - External unit sound power level*	dB(A)	62		66		69	
SWL - Internal unit sound power level*	dB(A)	43					
External unit weight	kg	60		60		76	
Internal unit weight	kg	43					

NOTA: The values refer to units without any optional features or accessories.

Data declared according to EN 14511:

EER (Energy Efficiency Ratio) = ratio of cooling capacity in relation to absorbed power

COP (Coefficient Of Performance) = ratio of heat output in relation to absorbed power

A7W35 = source : air in 7°C b.s. 6°C b.u. / system : water in 30°C out 35°C

A7W45 = source : air in 7°C b.s. 6°C b.u. / system : water in 40°C out 45°C

A35W18 = source : air in 35°C b.s. / system : water in 23°C out 18°C

A35W7 = source : air in 35°C b.s. / system : water in 12°C out 7°C

NOTE: Efficiency class calculated according to European regulation 811/2013. The values refer to units without any optional features or accessories.

2.2 Heat pump technical data

-		Mod.	04	06	08
A7W35	Heating capacity	kW	4,1	6,1	8
	Total power input	kW	0,82	1,29	1,73
	COP	W/W	5	4,73	4,62
	Water flow rate	l/h	705	1049	1376
	Available pressure heat without cocks	kPa	72	66	54
	Available pressure heat with cocks	kPa	68	57	39
A7W45	Heating capacity	kW	4,01	5,96	7,34
	Total power input	kW	1,13	1,68	2,13
	COP	W/W	3,55	3,55	3,45
	Water flow rate	l/h	690	1025	1262
	Available pressure heat without cocks	kPa	72	67	58
	Available pressure heat with cocks	kPa	68	58	45
A35W18	Cooling capacity	kW	4,1	6,2	8
	Total power input	kW	0,84	1,43	1,93
	EER	W/W	4,88	4,34	4,15
	Water flow rate	l/h	705	1066	1376
	Prevalenza utile disponibile senza rubinetti	kPa	72	66	54
	Prevalenza utile disponibile con rubinetti	kPa	68	57	39
A35W7	Cooling capacity	kW	4,12	6,15	6,44
	Total power input	kW	1,3	2,08	2,24
	EER	W/W	3,17	2,96	2,88
	Water flow rate	l/h	709	1058	1108
	Available pressure heat without cocks	kPa	72	66	64
	Available pressure heat with cocks	kPa	68	57	54

The values refer to units without any optional features or accessories.

Data declared according to EN 14511:

EER (Energy Efficiency Ratio) = ratio of cooling capacity in relation to absorbed power

COP (Coefficient Of Performance) = ratio of heat output in relation to absorbed power

A7W35 = source : air in 7°C b.s. 6°C b.u. / system : water in 30°C out 35°C

A7W45 = source : air in 7°C b.s. 6°C b.u. / system : water in 40°C out 45°C

A35W18 = source : air in 35°C b.s. / system : water in 23°C out 18°C

A35W7 = source : air in 35°C b.s. / system : water in 12°C out 7°C

NOTE: Efficiency class calculated according to European regulation 811/2013. The values refer to units without any optional features or accessories.

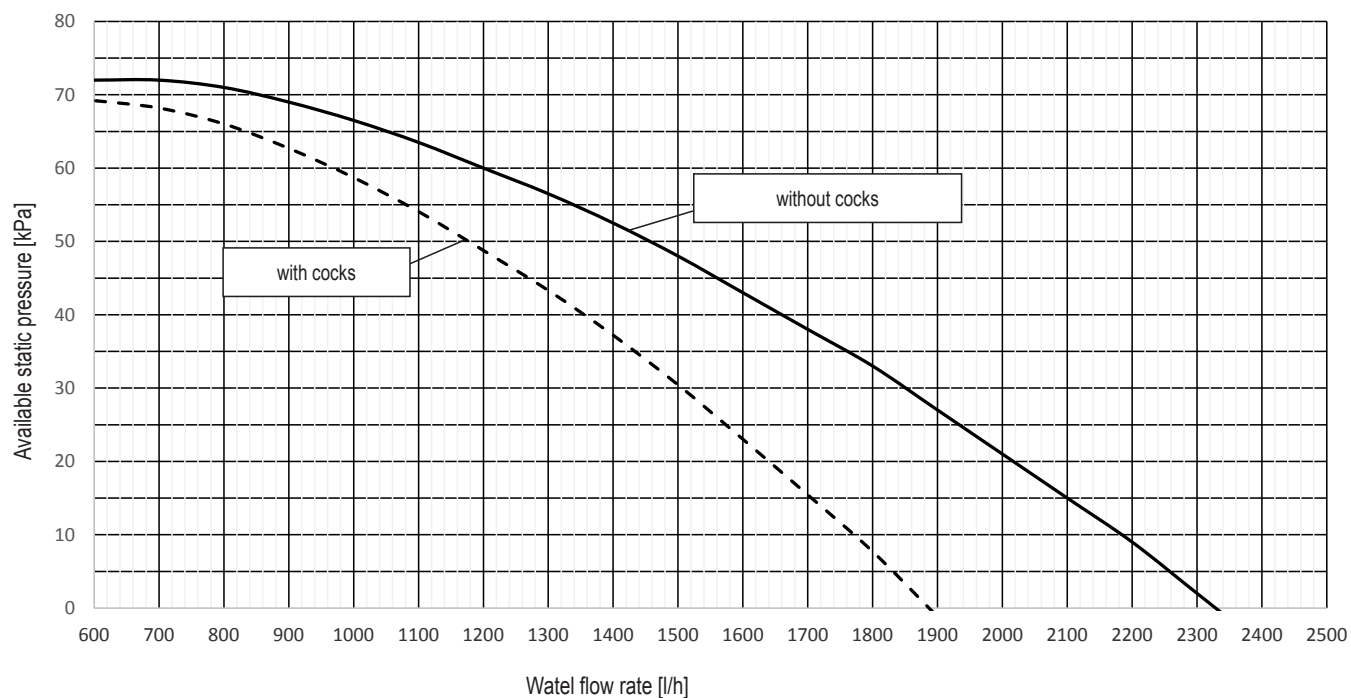
TECHNICAL DATA AN PERFORMANCE

2.3 Boiler technical data

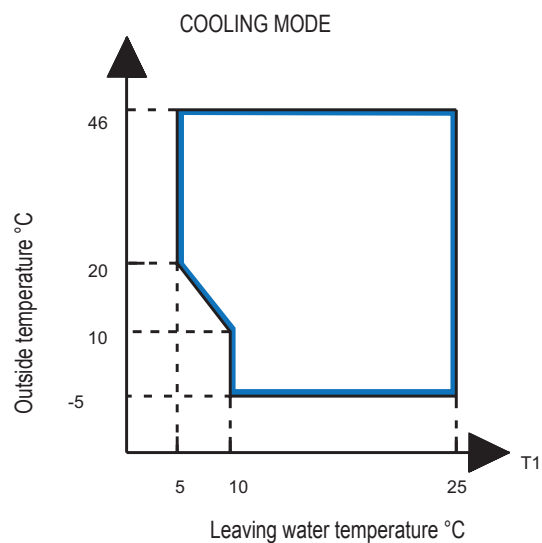
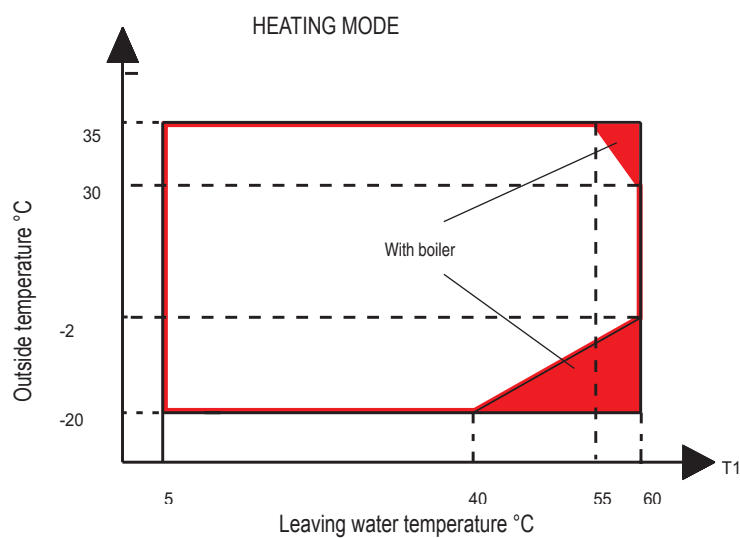
Table. 1 - Boiler technical data

Data	UM	-	
GAS CATEGORY		II2HM3+ (IT) - II2H3+ (ES-GR) - II2H3B/P (RO)	
Max. heating capacity	kW	24,5	Q
Min. heating capacity	kW	2,9	Q
Max. heat output in heating (80/60°C)	kW	24,0	P
Min. heat output in heating (80/60°C)	kW	2,8	P
Max. heat output in heating (50/30°C)	kW	26,0	
Min. heat output in heating (50/30°C)	kW	3,1	
Max. heating capacity in DHW	kW	28,5	
Min. heating capacity in DHW	kW	2,9	
Max. heat output in DHW	kW	28,0	
Min. heat output in DHW	kW	2,8	
Efficiency Pmax (80-60°C)	%	98,1	
Efficiency Pmin (80-60°C)	%	98,0	
Efficiency Pmax (50-30°C)	%	106,1	
Efficiency Pmin (50-30°C)	%	107,5	
Efficiency 30%	%	109,7	
Gas supply pressure G20	mbar	20	
Max. gas flow G20	m³/h	3,02	
Min. gas flow G20	m³/h	0,31	
CO2 - G20	%	9 ±0,8	
Gas supply pressure G31	mbar	37	
Max. gas flow G31	kg/h	2,21	
Min. gas flow G31	kg/h	0,23	
CO2 - G31	%	10 ±0,8	
NOx emissions class	-	6	NOx
Max. working pressure in heating	bar	3	PMS
Min. working pressure in heating	bar	0.8	
Max. heating adjustment temperature	°C	95	tmax
Heating water content	litri	2,9	
Heating expansion vessel capacity	litri	8	
Heating expansion vessel precharge pressure	bar	0.8	
Max. working pressure in DHW	bar	9	PMW
Min. working pressure in DHW	bar	0,3	
DHW flow rate Δt 25°C	l/min	16,1	
DHW flow rate Δt 30°C	l/min	13,4	D
Protection rating	IP	X5D	
Power supply voltage	V/Hz	230V/50Hz	
Electrical power input	W	82	
Empty weight	kg	28	
Type of unit		C10-C11-C13-C23-C33-C43-C53 C63-C83-C93-B23-B33	
PIN CE			
Flue installation pressure C10-C11	Pa	80	

2.4 Available static pressure



2.5 Operating limits heat pump



3. DIMENSIONAL AND PHYSICAL DATA

3.1 Overall dimensions indoor unit

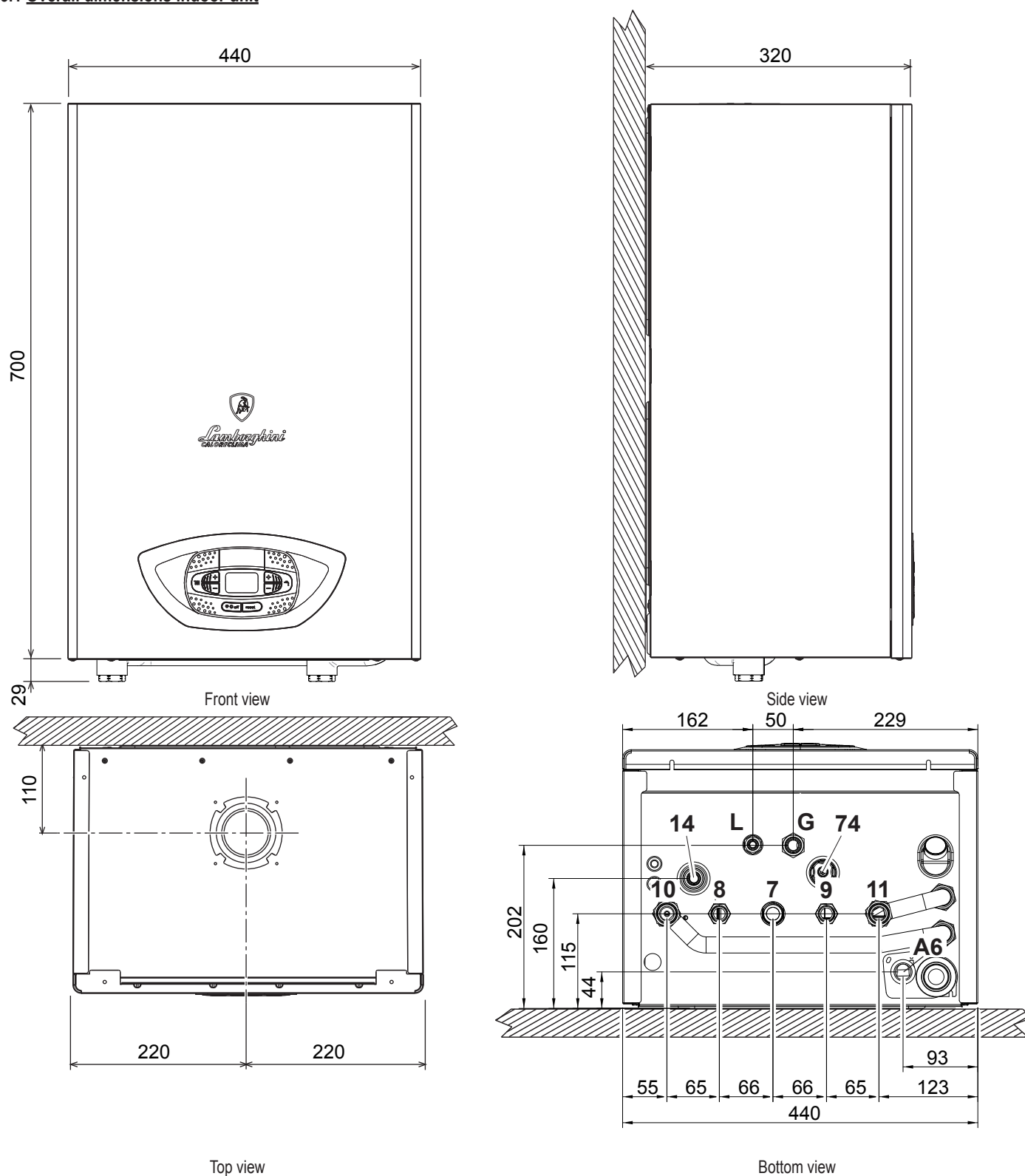


fig. 6 - dimensional data and connections

- 7 Boiler Gas inlet - Ø 3/4"
- 8 DHW water outlet - Ø 1/2"
- 9 DHW water inlet - Ø 1/2"
- 10 Plant delivery - Ø 3/4"
- 11 Plant return - Ø 3/4"

- 14 Safety valve drain / drain taps
- 74 System filling cock
- A6 Condensate discharge connection
- L Liquid line
- G Gas line

DIMENSIONAL AND PHYSICAL DATA

3.2 Overall dimensions outdoor unit

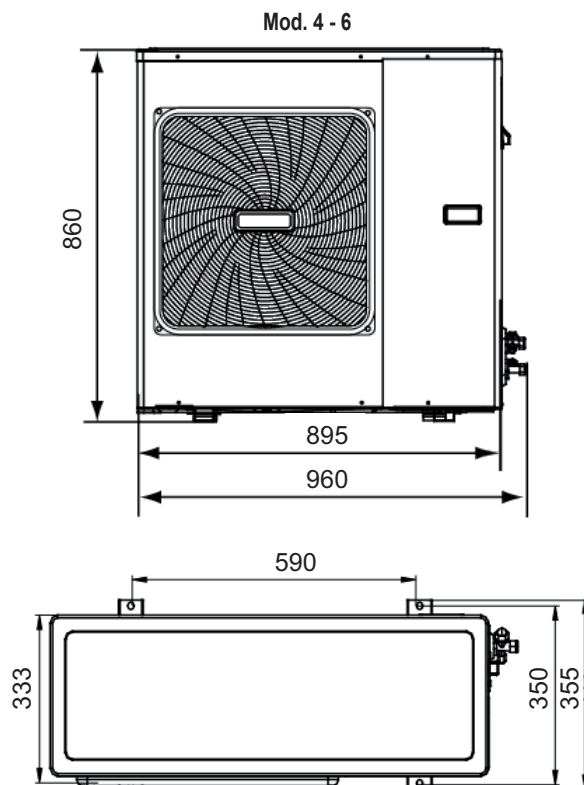


fig. 7 -

Mod.	4	6	UM
Weight net	60	60	kg

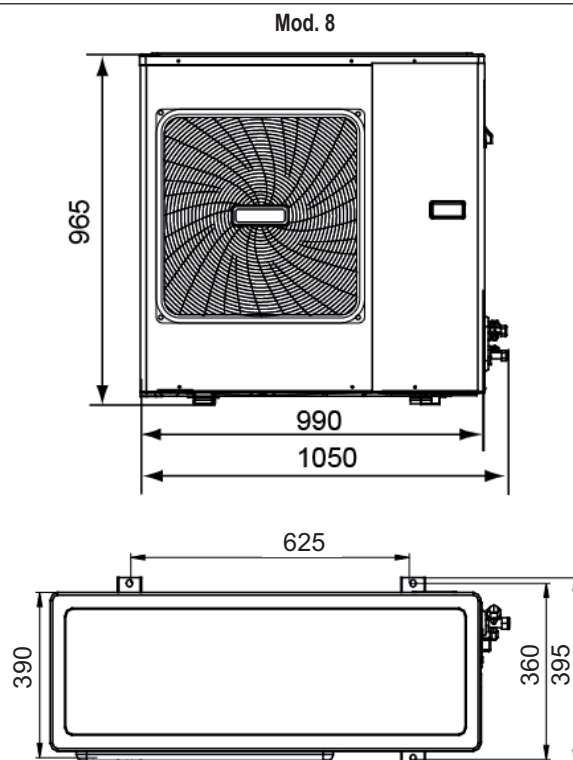


fig. 8 -

Mod.	8	UM
Weight net	76	kg

GENERAL VIEW AND INTERNAL UNIT HYDRAULIC DIAGRAM

4. GENERAL VIEW AND INTERNAL UNIT HYDRAULIC DIAGRAM

4.1 General view

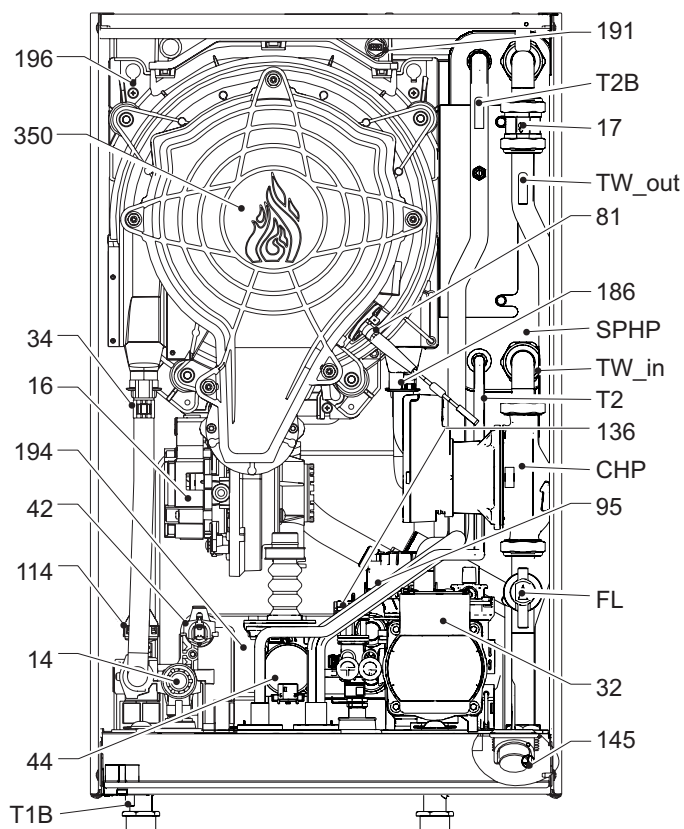
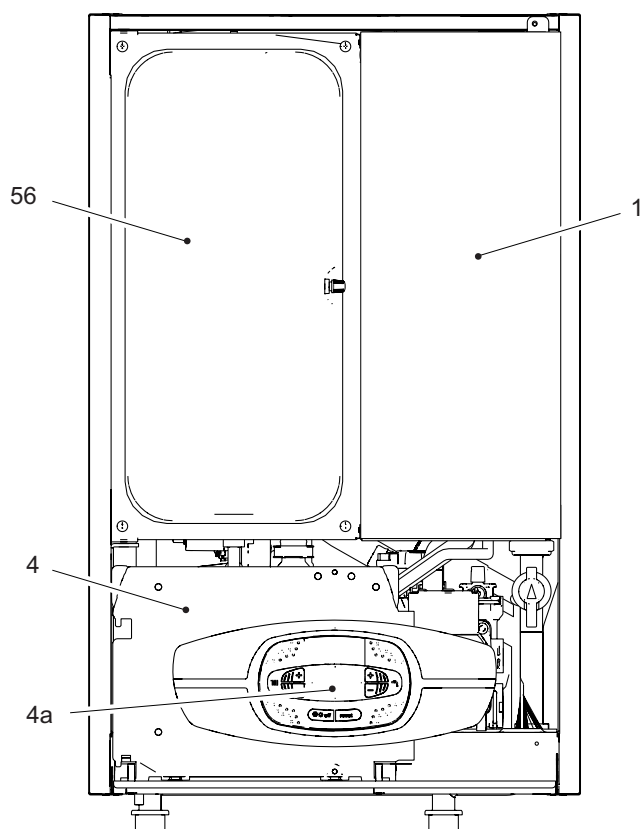
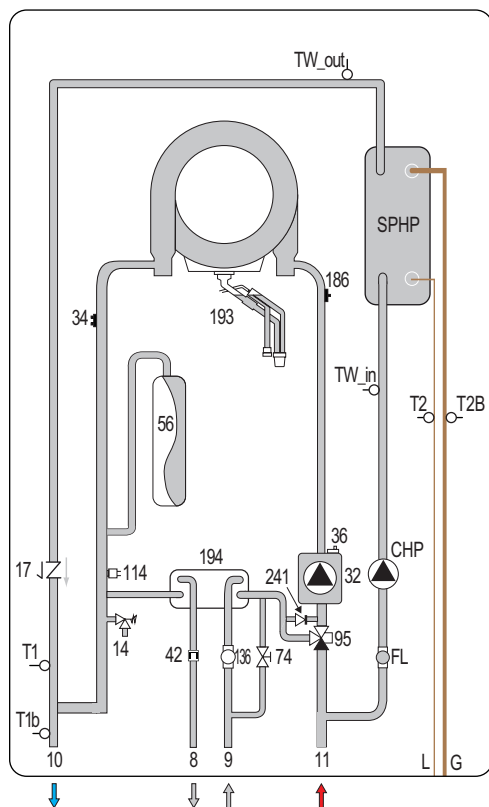


fig. 9 - General view

4.2 Indoor unit hydraulic diagram

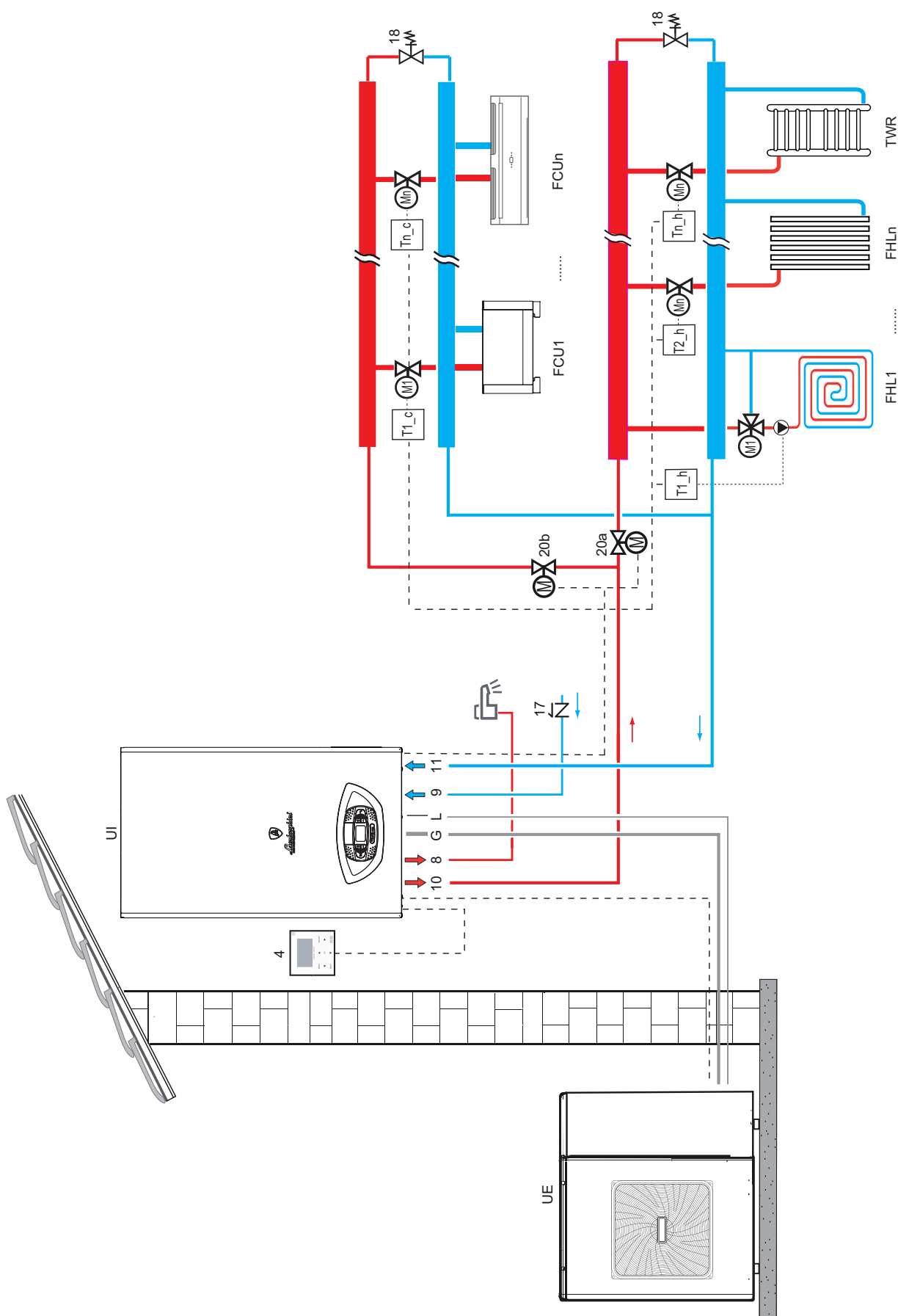


LEGEND

- | | | | |
|-----|-----------------------------------|--------|---|
| 1 | Heat pump electric panel | 186 | Return sensor boiler |
| 4 | Boiler electric box | 191 | Fume temperature sensor |
| 4a | Boiler controller | 193 | Trap boiler |
| 8 | DHW water outlet | 194 | DHW exchanger |
| 9 | DHW water inlet | 196 | Condensate tray |
| 10 | Plant delivery | 241 | Automatic bypass (inside the pump unit boiler) |
| 11 | Plant return | 350 | Burner/Fan assembly |
| 14 | Safety valve | CHP | Circulator heat pump |
| 16 | Fan | FL | Flow heat pump |
| 17 | Check valve | G | Gas line |
| 32 | Heating circulating pump boiler | L | Liquid line |
| 34 | Heating temperature sensor boiler | SPHP | Heat pump plate heat exchanger |
| 36 | Automatic air vent | T1 | Heat pump outlet water temperature probe |
| 42 | DHW temperature probe | T1B | Indoor unit outlet water temperature probe |
| 44 | Gas valve | T2 | Heat pump liquid refrigerant temperature probe |
| 56 | Expansion vessel | T2B | heat pump gas temperature probe |
| 74 | System filling tap | TW_in | Heat pump plate heat exchanger water inlet temperature probe |
| 81 | Ignition/Ionisation electrode | TW_out | Heat pump plate heat exchanger water outlet temperature probe |
| 95 | Diverter valve boiler | | |
| 114 | Water pressure switch | | |
| 136 | Flow meter | | |
| 145 | Water gauge | | |

fig. 10 - Indoor unit hydraulic diagram

5. SYSTEM EXEMPLARY SCHEMES



> KEY **UI** Internal unit **EU** External unit **4** Wired remote control (provided as standard with the heat pump) **8** DHW inlet - Ø 1/2" **9** DHW outlet - Ø 3/4" **10** System delivery - Ø 1/2" **11** System return - Ø 3/4" **17** Check valve (not supplied) **18** Bypass valve (not supplied) **20a** Two-way valve (not supplied), controlled by SV2 **20b** Two-way valve (not supplied), controlled by SV2 in denied logic **G** Gas Line **L** Liquid Line **T1_c** - **Tn_c** Cold request room thermostat (not supplied) **T1_h** - **Tn_h** Hot request room thermostat (not supplied) **FCU 1...n** Air terminal: it can only be used for cooling with radiant floor heating or for cooling and heating without radiant floor **FHL 1...n** Radiant floor / radiator only heating in zones **TWR** Integration of towel warmer in bathroom: if connected to the heating system it must be integrated with an electrical resistor (R) actuated by the control (C) if not connected to the system, heating is provided by the resistor only (R) actuated by the control (C) - - - - Electrical connections

6. INSTALLATION

6.1 Inspections on arrival

Upon receipt of the unit it is essential to check that you have received all the material indicated on the accompanying document, and also that it has not been damaged during transport. If so, have the dispatcher ascertain the extent of the damage suffered, alerting our customer management office in the meantime. Only by acting in this way and in a timely manner will it be possible to have the missing material or compensation for damages.

Packing and storing

All machines are packed in cardboard boxes specific for each unit.

The indications required to correctly handle the appliance while storing and installing it are written on the packing.

The storage temperature must be between -25°C and 55°C.



NOTA: Do not dispose of the packaging in the environment.

Do not dispose of, leave or leave within the reach of children the packaging material as it may be a potential source of danger.

Once the place in which the unit is to be installed has been chosen (see the relative sections) proceed as follows to unpack the two units.

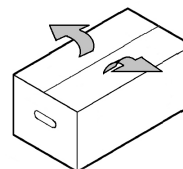


fig. 11 -

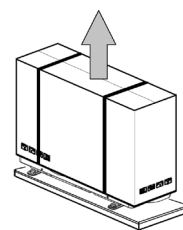


fig. 12 -

6.2 Selecting the installation site and minimum operating area indoor unit

The place of installation must be free of powders, flammable objects or materials or corrosive gases.

The unit is designed for wall hanging installation and is equipped as standard with a hooking bracket. The fixing to the wall must guarantee a stable and effective support.



For the dismantling of the paneling and for normal maintenance activities the minimum operating spaces must be respected.

Select an installation location where the following conditions are met:

- Place that allows to respect the maximum lengths allowed for pipes, connections to the unit of temperature probes, remote control etc ..
- Do not place objects or equipment on top of the unit.
- Make sure that all the precautions and prescriptions foreseen by local laws and regulations regarding possible refrigerant leaks are correctly applied.
- It is advisable to place the boiler for domestic hot water production as close as possible to the indoor unit.

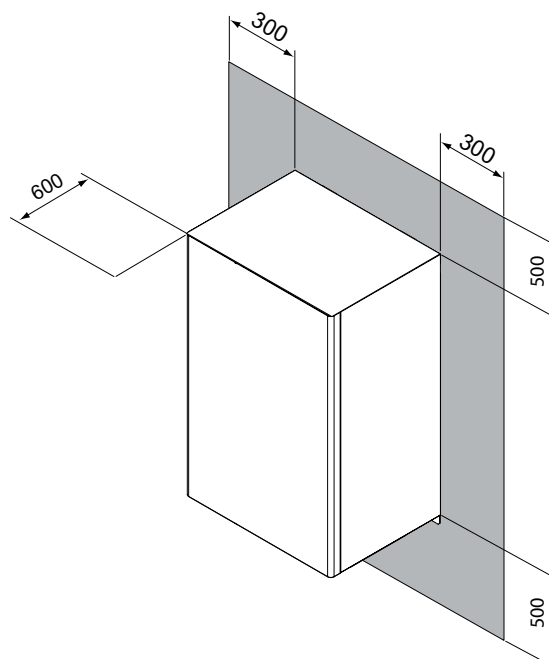


fig. 13 -

INSTALLATION

6.3 Selecting the installation site and minimum operating area outdoor unit

Select an installation site where the following conditions are satisfied and one that meets with your customer's approval.

- Places that are well-ventilated.
- Places where the unit does not disturb next-door neighbors.
- Safe places which can bear the unit's weight and vibration and where the unit can be installed at an even level.
- Places where there is no possibility of flammable gas or product leak.
- The equipment is not intended for use in a potentially explosive atmosphere.
- Places where servicing space can be well ensured.
- Places where the units' piping and wiring lengths come within the allowable ranges.
- Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked drain pipe).
- Places where rain can be avoided as much as possible.
- Do not install the unit in places often used as a work space. In case of construction work (e.g. grinding etc.) where a lot of dust is created, the unit must be covered.
- Do not place any objects or equipment on top of the unit (top plate)
- Do not climb, sit or stand on top of the unit.
- Be sure that sufficient precautions are taken in case of refrigerant leakage according to relevant local laws and regulations.

⚠ Be sure to provide for adequate measures in order to prevent that the unit be used as a shelter by small animals. Small animals making contact with electrical parts can cause malfunctions, smoke or fire. Please instruct the customer to keep the area around the unit clean.

Single installation

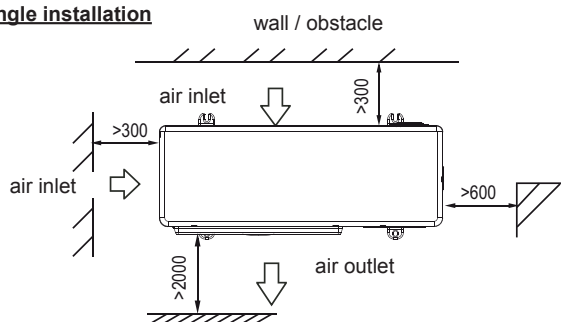


fig. 14 -

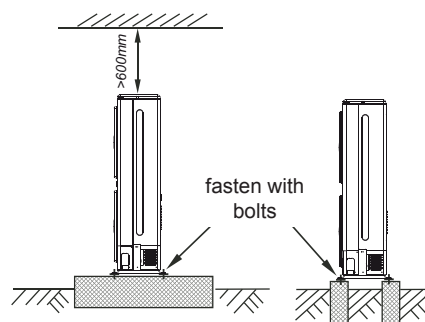


fig. 15 -

Multiple installation in parallel between 2 or more units (lateral)

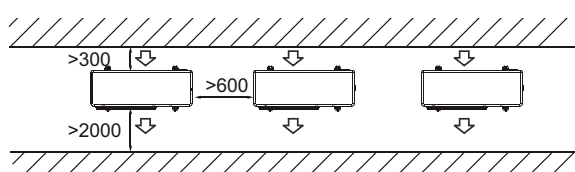


fig. 16 -

Multiple installation in parallel between 2 or more units (front / back)

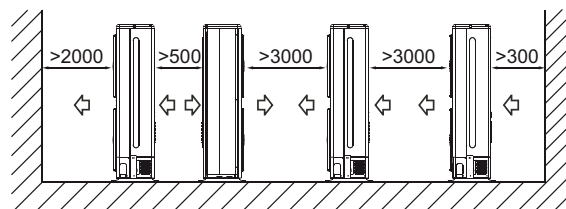


fig. 17 -

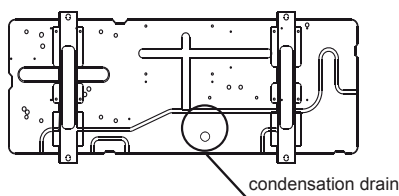


fig. 18 -

INSTALLATION

- Prepare a water drainage channel around the foundation, to drain waste water from around the unit.
- If water does not easily drain from the unit, mount the unit on a foundation of concrete blocks, etc. (the height of the foundation should be about 100 mm).
- If you install the unit on a frame, please install a waterproof plate (about 100 mm) on the underside of the unit to prevent water from coming in from the low side.
- When installing the unit in a place frequently exposed to snow, pay special attention to elevate the foundation as high as possible.
- In heavy snowfall areas it is very important to select an installation site where the snow will not affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is not affected by the snow (if necessary construct a lateral canopy).
- As the outdoor temperature is measured via the outdoor unit air thermistor, make sure to install the outdoor unit in the shade, or a canopy should be constructed to avoid direct sunlight, so that it is not influenced by the sun's heat, otherwise protection may be possible to the unit.
- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installation.
- In accordance with the foundation drawing in the figure, fix the unit securely by means of the foundation bolts. (Prepare four sets each of Ø10 Expansion bolts, nuts and washers which are readily available on the market.)
- It is best to screw in the foundation bolts until their length is 20 mm from the foundation surface.

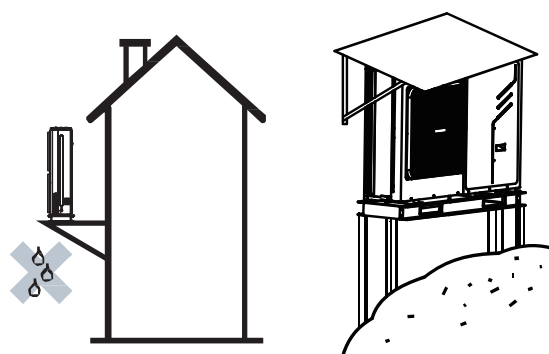


fig. 19 -

When installing the unit in a place exposed to strong wind, pay special attention to the following.

Set the outlet side at a right angle to the direction of the wind.

Strong winds of >5 m/s or more blowing against the unit's air outlet causes a short circuit (suction of discharge air), and this may have the following consequences:

- Deterioration of the operational capacity.
- Frequent frost acceleration in heating operation.
- Disruption of operation due to rise of high pressure.
- When a strong wind blows continuously on the front of the unit, the fan can start rotating very fast until it breaks.

6.4 Installation diagrams

L'installazione può essere eseguita o con unità interna posta sopra l'unità esterna o viceversa.

Outdoor unit positioned at the bottom and indoor unit at the top

In this case a trap (6) must be made on the intake piping (3) to halt the downflow of refrigerant and to avoid liquid returning to the compressor. The relative connection pipes must be insulated.

Key:

1. Outdoor unit
2. Indoor unit
3. Piping on gas side (larger diameter)
4. Piping on liquid side
5. Trap

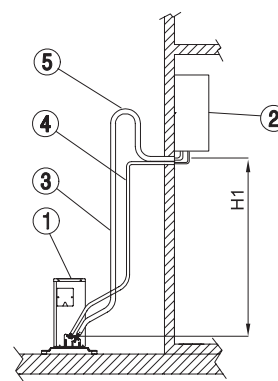


fig. 20 -

Outdoor unit positioned at the top and indoor unit at the bottom

In this case, traps (6) must be installed on the suction piping (3), every three meters of difference in level. These traps will allow the oil to return to the compressor. The relative connection pipes must be insulated.

Key:

1. Outdoor unit
2. Indoor unit
3. Piping on gas side (larger diameter)
4. Piping on liquid side
5. Trap



N.B.: The maximum difference in level between the indoor unit and outdoor unit must not exceed the values given in the "LIMITS TO THE LENGTH AND HEIGHT DIFFERENCE OF REFRIGERANT PIPES" section.

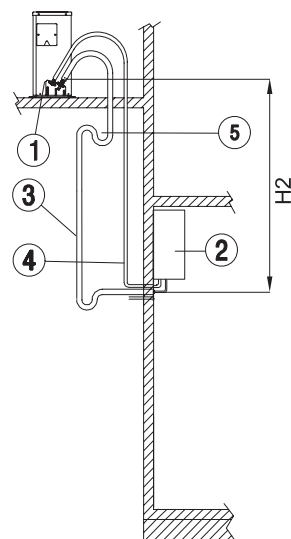


fig. 21 -

INSTALLATION

6.5 Limits to the length and height difference of refrigerant pipes

The length of the refrigerant pipes between the indoor and outdoor units must be as short as possible and is in any case limited by compliance with the maximum height difference values between the units.

Diminution of the difference in height between the units (H1,H2) and of the pipe lengths (L) will limit the load losses, consequently increasing the overall efficiency of the machine.

Comply with the limits given in the following tables.

MOD.		4-6	8
Connections LIQUID line	"	3/8	
Connections GAS line	"	5/8	
Length with standard charge	m	10	
Cooling line maximum length	m	20	30
Maximum diff.in height Outdoor unit low (H1)	m	8	15
Maximum diff.in height Outdoor unit high (H2)	m	10	20
Refrigerant charge	Type	R410A	
Quantity of additional refrigerant per meter	g/m	54	

Contact our technical department for the required modifications if the units must operate beyond the specifications given above.

6.6 Refrigerant connections indoor unit

Comply with the following indications when connecting the cooling pipes:

- Match the ends of the previously flared pipe with those of the connections on the indoor units (see part. L e G "fig. 6 - dimensional data and connections" on page 11).
- Tighten the union by hand and then torque it with the aid of an adequate wrench.

6.7 Refrigerant connections outdoor unit

- Match the ends of the pipe previously flared with those of the taps on the outdoor unit.
- Screw the fitting by hand and then tighten it with a suitable wrench.

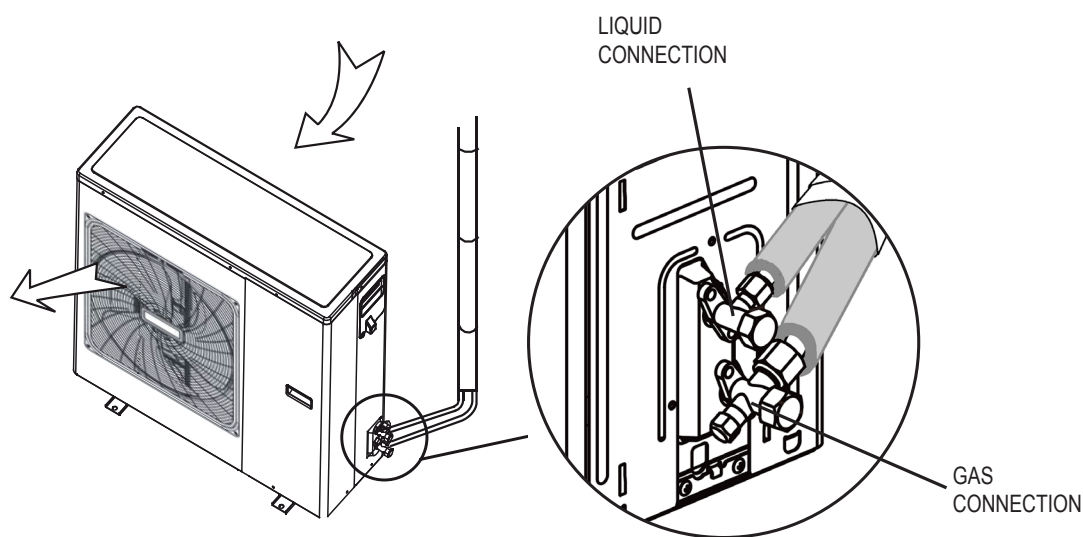


fig. 22 -

INSTALLATION

6.8 Refrigerant pipe insulation

To ensure system efficiency and its correct operation it is necessary to use pre-insulated cooling connection lines easily available on the market. Pay also attention to the connection points according to what described.

Use thermal insulating tape to tie the hoses, from the area connecting the outdoor unit cocks to the upper end of the hose in correspondence of the wall entry point. (side figure) .

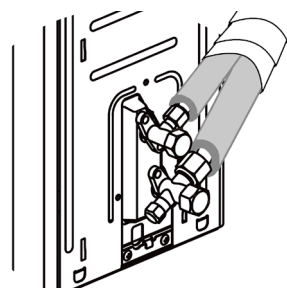


fig. 23 -

6.9 Pipe fittings tightening

Make sure that the connecting zone is free from dust and dirt.

- Make sure that the flare and connection are perfectly aligned.
- Tighten the union first by hand and then with an adequate torque wrench.

Leaks could occur if the parts are insufficiently tightened, while the flare could be damaged if it is tightened too strongly.

The table below lists the torques recommended for the various pipe diameters.

Nominal Diameter (")	External Diameter (mm) Ø	Tightening torque Nxm
3/8	9.52	30-40
5/8	15.88	60-65

6.10 Tightness check (recommended operation)

Before setting the system in a vacuum, it is advisable to make sure that the cooling circuit is tight, including the connecting joints between the pipes and the indoor unit. Proceed in the following way:

- With the service valves of the outdoor unit completely shut, remove the cap from the service tap (1- side figure) of the gas connection (the larger one)
- Connect the service valve to a monometric unit plus nitrogen bottle (N₂).
- Pressurize the system to a maximum 30 bar using the nitrogen in the bottle.
- Use liquid soap to check that the joints are tight.

Keep the bottle vertical during the pressurizing operation to prevent liquid nitrogen from infiltrating into the system!

- Check all the connection joints on both the outdoor and indoor units to make sure that they are tight. Bubbles will form if leaks are present. If bubbles appear, make sure that the unions have been tightened and that the flares are the right shape.
- Wipe off the liquid soap with a rag.
- Reduce the pressure of the nitrogen in the circuit by loosening the charge pipe from the bottle.
- Having reduced the pressure, disconnect the nitrogen bottle.

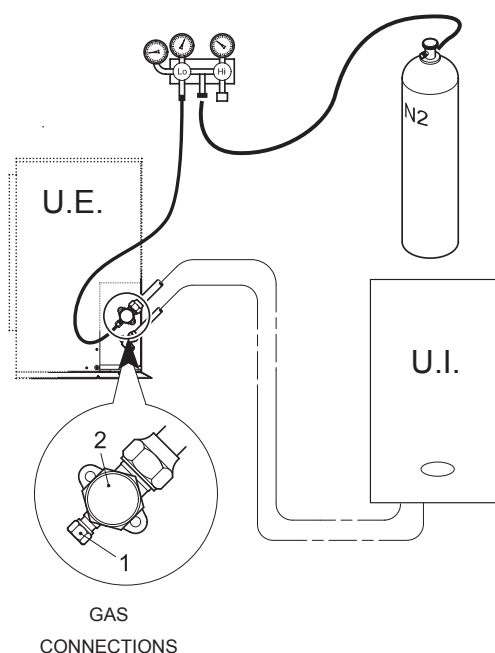


fig. 24 -

6.11 Vacuum operation (obligatory)

ir and humidity in the cooling circuit impair the operation of the unit with effects such as:

- Increased pressure.
- Reduced efficiency.
- Formation of ice on the capillary and subsequent blockage of the same.
- Corrosion in the circuit.

This is why a vacuum must be created in the connection pipes and indoor unit. Proceed in the following way:

- Connect the previously described charging pipe to the vacuum pump.
- Turn on the relative knob on the monometric unit to allow the pump to access the cooling circuit.
- Wait until the pressure level measured by the pressure gauge is around 3 mm Hg (400 Pa)
- As soon as the required vacuum value is reached, shut the connection cock and stop the vacuum pump.

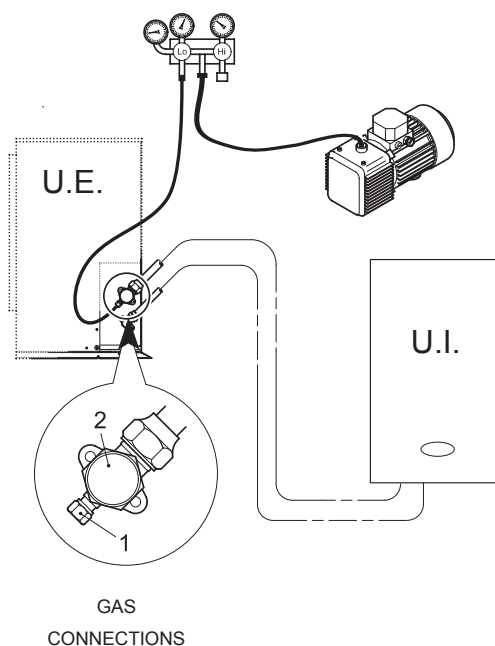


fig. 25 -

NOTA

- To activate the system it is necessary to open both the liquid and gas shut-off valves of the outdoor unit: remove the caps from both valves, and then open the valves with an Allen wrench.
- It is advisable to open the valves when the installation of the system is complete from an electric and hydraulic point of view and it is therefore possible to proceed with the first start-up.

6.12 Indoor unit hydraulic connections



The safety valve outlet must be connected to a funnel or collection pipe to prevent water spurting onto the floor in case of overpressure in the heating circuit. Otherwise, if the discharge valve cuts in and floods the room, the boiler manufacturer cannot be held liable.



Before installation, flush all the pipes of the system thoroughly to remove any residuals or impurities that could affect proper operation of the unit.

In case of replacement of generators in existing installations, the system must be completely emptied and cleaned of any sludge and pollutants. For that purpose only use suitable guaranteed products for heating systems (see next section), that do not harm metals, plastics or rubber.

The manufacturer declines any liability for damage caused to the generator by failure to properly clean the system.




Since the joints of the unit are made of brass and brass is an easily deformable material, using appropriate tools for connecting the hydraulic circuit, inappropriate tools will cause damage to the pipes.

Make the connections to the respective points (see "fig. 6 - dimensional data and connections" on page 11) and to the symbols given on the unit.

Antifreeze system, antifreeze fluids, additives and inhibitors

When necessary, antifreeze fluids, additives and inhibitors can be used only if the manufacturer of such fluids or additives guarantees that they are suitable and do not cause damage to the exchanger or other components and/or materials of the boiler/heat pump and system. Do not use generic antifreeze fluids, additives or inhibitors that are not specific for use in heating systems and compatible with the materials of the boiler/heat pump and system.

System water characteristics

 The heat pumps are suitable for installation in heating systems with non-significant entry of oxygen (ref. systems "case I" EN14868). A physical separator (e.g. plate heat exchanger) must be provided in systems with continuous entry of oxygen (e.g. underfloor systems without antidiffusion pipes or open vessel), or intermittent (less than 20% of system water content).

The water within a heating system must have the characteristics required by UNI 8065, and comply with laws and regulations in force and the provisions of EN14868 (protection of metallic materials against corrosion).

The filling water (first filling and subsequent replenishment) must be clear, with hardness below 15°F and treated with suitable chemical conditioners against the initiation of corrosion, that are not aggressive on metals and plastics, do not develop gases and, in low-temperature systems, do not cause proliferation of bacterial or microbial masses.

The water in the system must be periodically checked (at least twice a year during the season when the systems are used, as required by UNI8065) and have: possibly a clear appearance, hardness below 15°F for new systems or 20°F for existing systems, pH above 7 and below 8.5, iron content (Fe) below 0.5 mg/l, copper content (Cu) below 0.1 mg/l, chloride content below 50mg/l, electrical conductivity below 200 µs/cm, and must contain chemical conditioners in a concentration sufficient to protect the system for at least one year. Bacterial or microbial loads must not be present in low temperature systems.

Only use conditioners, additives, inhibitors and antifreeze liquids declared by the producer suitable for use in heating systems and that do not cause damage to the heat exchanger or other components and/or materials of the boiler and system.

Chemical conditioners must ensure complete deoxygenation of the water, contain specific protection for yellow metals (copper and its alloys), anti-fouling agents for scale, neutral pH stabilizers and, in low-temperature systems, specific biocides for use in heating systems.

Recommended chemical conditioners:

SENTINEL X100 and SENTINEL X200

FERNOX F1 and FERNOX F3

The unit is equipped with a frost protection system that activates the heat pump in heating mode when the system delivery water temperature falls below 4°C. The device is not active if the power and/or gas supply to the unit is turned off. If necessary, for system protection use a suitable antifreeze liquid that meets the same requirements as set out above and provided for by Standard UNI 8065.

In the presence of adequate chemical/physical system and feed water treatments and related high cyclicity controls able to ensure the required parameters, for industrial process applications the product can be installed in open-vessel systems with vessel hydrostatic height able to ensure compliance with the minimum operating pressure indicated in the product technical specifications.

The presence of deposits on the indoor unit exchange surfaces due to non-compliance with the above requirements will involve non-recognition of the warranty.

Water filter

A water filter must be installed at the entrance of the unit.

The unit is supplied as standard with two square taps. The tap with a blue handle is equipped with a filter (which can be disassembled by unscrewing the rear fitting) and therefore acts as an interception tap and a water filter; this tap must be mounted on the system return connection (see part.10 "fig. 6 - dimensional data and connections" on page 11). The tap with red handle must be mounted on the system delivery connection (see part 11 "fig. 6 - dimensional data and connections" on page 11).

Tips for a successful installation

For a correct design and installation of the hydraulic plant comply the local laws governing safety matters and sound.

The following information is suggestion for a correct installation of the unit.

- Before connecting the unit to the system wash adequately the pipes using clean water, filling and emptying and cleaning the filters.
- Only after that proceed connecting the unit to the system; this operation is crucial to ensure proper start-up without the need to have repeated stops to clean the filter, with the possible risk of damage to heat exchangers and other components.
- Check by qualified personnel the quality of the water or of the mixture used; avoid the presence of inorganic salts, biological load (seaweeds, etc.) suspended solids, dissolved oxygen and the pH. Water with inadequate characteristics can cause a pressure drop increase due to a rapid fouling of the filter, energy efficiency decrease and corrosive symptom increase that can damage the unit.
- The pipes must have the least possible number of bends to minimize load losses and must be adequately supported in order to prevent the connections of the unit from being excessively stressed.
- Install on-off valves near components that need to be serviced to isolate them when maintenance work needs to be done and to allow them to be replaced without having to discharge the system.
- Before isolating the pipes and charging the system, carry out preliminary inspections to make sure that there are no leaks.
- Isolate all the chilled water pipes to prevent condensation from forming along the pipes themselves. Make sure that the material used is the steam barrier type, failing this, cover the insulation with an appropriate protection. Also make sure that the air venting valves can be accessed through the insulation.
- The circuit can be maintained under pressure using an expansion vessel (present in the unit) and a pressure reducer. A system filling device can be used that automatically, under a pressure value, provides for the loading and maintenance of the desired pressure.
- Check that all plant components are able to withstand the maximum static pressure (depending on the height of the building to be served).



NOTE

- If there is no glycol in the system (antifreeze) or if the unit is not able to remain electrically powered for possible blackouts, in order to avoid possible icing problems, empty the water during winter.
- The unit is only to be used in a closed water system. Application in an open water circuit can lead to excessive corrosion of the water piping.
- Water connections must be made in accordance with the outlook diagram delivered with the unit, with respect to the water intake and water outlet (refer to section "DIMENSIONAL AND PHYSICAL DATA").
- If air, moisture or dust gets in the water circuit, problems may occur. Therefore, always take into account the following when connecting the water circuit:
 - Use clean pipes only.
 - Hold the pipe end downwards when removing burrs
 - Cover the pipe end when inserting it through a wall so that no dust and dirt enter.
 - Use a good thread sealant for sealing the connections. The sealing must be able to withstand the pressures and temperatures of the system.
 - When using non-brass metallic piping, make sure to insulate both materials from each other to prevent galvanic corrosion. Never use Zn-coated parts in the water circuit. Excessive corrosion of these parts may occur as copper piping is used in the unit's internal water circuit.

Filling with water

1. Connect the water supply to the relevant connection (see part 9 "fig. 6 - dimensional data and connections" on page 11) and open the valve.
2. Make sure the automatic air purge valve is open (at least 2 turns).
3. Fill with water until the manometer indicates a pressure of approximately 2.0 bar. Remove air in the circuit as much as possible using the air purge valves. Air present in the water circuit might cause malfunctioning of the backup heater.



NOTE

During filling, it might not be possible to remove all air in the system. Remaining air will be removed through the automatic air purge valves during the first operating hours of the system. Topping up the water afterwards might be required.

The water pressure indicated on the manometer will vary depending on the water temperature (higher pressure at higher water temperature). However, at all times water pressure should remain above 0.3 bar to avoid air entering the circuit.

Piping insulation

The complete hydraulic circuit that includes all the pipes must be insulated to avoid heat loss, condensation during operation, reduction of heating or cooling capacity, as well as to prevent freezing of water pipes during winter.

6.13 Boiler gas connection



Before making the connection, ensure that the unit is arranged for operation with the type of fuel available.

The gas must be connected to the corresponding union (vedi fig. 6) in conformity with current regulations, with a rigid metal pipe or with a continuous flexible s/steel tube, installing a gas cock between the system and boiler. Make sure that all the gas connections are tight. Otherwise there may be a risk of fire, explosion or suffocation.

INSTALLATION

6.14 Boiler fume ducts

⚠ THE BOILER MUST BE INSTALLED IN PLACES THAT MEET THE FUNDAMENTAL REQUIREMENTS FOR VENTILATION. OTHERWISE THERE IS A DANGER OF SUFFOCATION OR INTOXICATION.

READ THE INSTALLATION AND MAINTENANCE INSTRUCTIONS BEFORE INSTALLING THE UNIT.

ALSO FOLLOW THE DESIGN INSTRUCTIONS.

IN CASE OF PRESSURES ABOVE 200 Pa INSIDE THE FUME EXHAUST PIPES, CLASS “H1” FLUES MUST BE USED.

Important

The unit is “type C” with sealed chamber and forced draught; the air inlet and fume outlet must be connected to one of the following extraction/suction systems. Before installation, check and carefully observe the above prescriptions. Also, comply with the provisions concerning the positioning of wall and/or roof terminals and the minimum distances from windows, walls, vents, etc.

Installation type C10

In case of flues under pressure in a collective flue, before installation and at subsequent maintenance operations, close the fume discharge duct coming from the flue. OTHERWISE THERE IS DANGER OF SUFFOCATION DUE TO PRODUCTS OF COMBUSTION ESCAPING INTO THE BOILER ROOM.

Installation of the boiler according to type C10 must be carried out by specialist personnel doing the calculations required by current regulations in compliance with the maximum positive pressure of the flue and the boiler.

Connection with coaxial pipes

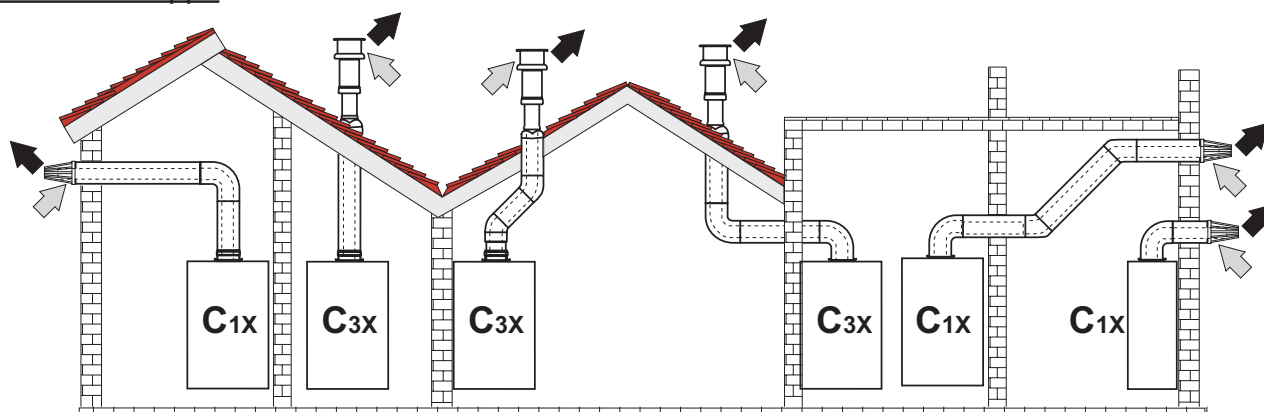


fig. 26 - Examples of connection with coaxial pipes (⇐ = Air / ➡ = Fumes)

For coaxial connection, fit the unit with one of the following starting accessories. For the wall hole dimensions, refer to the figure on the cover. Any horizontal sections of the fume exhaust must be kept sloping slightly towards the boiler, to prevent possible condensate from flowing back towards the outside and causing dripping.

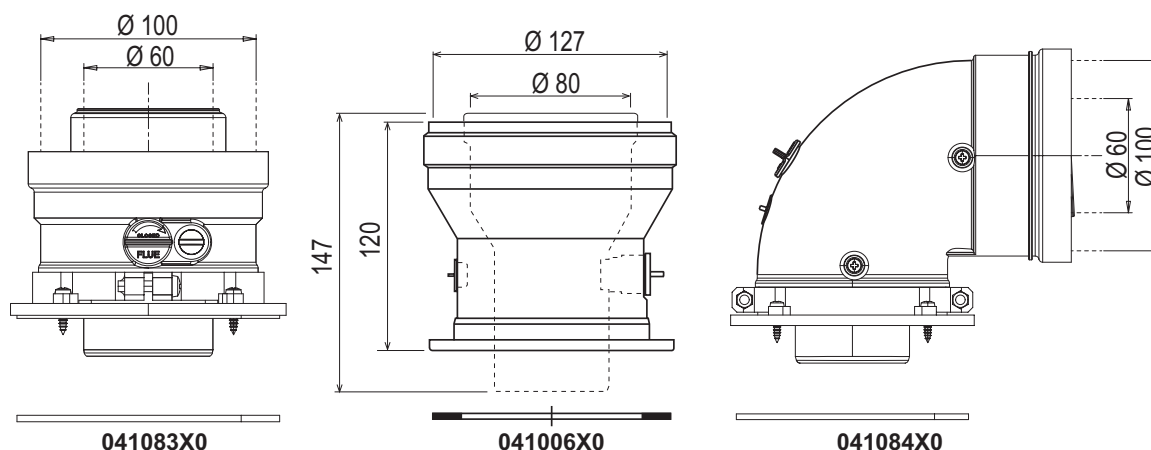


fig. 27 - Starting accessories for coaxial ducts

INSTALLATION

Table. 2 - Max. length coaxial ducts

	Coaxial 60/100	Coaxial 80/125
Max. permissible length (horizontal)	7 m	20 m
Max. permissible length (vertical)	8 m	
Reduction factor 90° bend	1 m	0.5 m
Reduction factor 45° bend	0.5 m	0.25 m

Connection with separate pipes

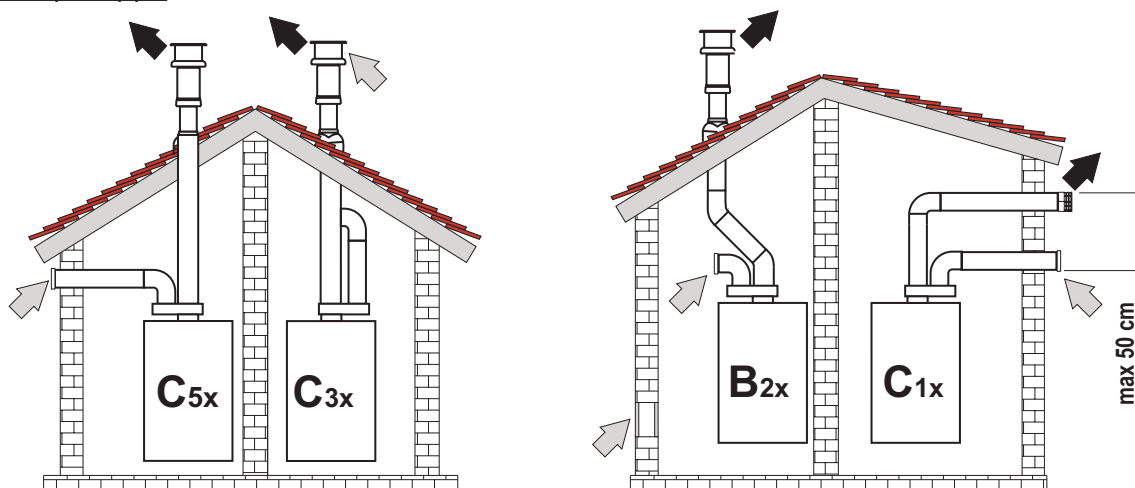


fig. 28 - Examples of connection with separate pipes (= Air / = Fumes)

Table. 3 - Typology

Type	Description
C1X	Wall horizontal exhaust and intake. The inlet/outlet terminals must be concentric or close enough to be undergo similar wind conditions (within 50 cm)
C3X	Roof vertical exhaust and intake. Inlet/outlet terminals like for C12
C5X	Wall or roof exhaust and intake separate or in any case in areas with different pressures. The exhaust and intake must not be positioned on opposite walls.
C6X	Intake and exhaust with separately certified pipes (EN 1856/1)
B2X	Intake from installation room and wall or roof exhaust △ IMPORTANT - THE ROOM MUST BE PROVIDED WITH APPROPRIATE VENTILATION

For the connection of separate ducts, fit the unit with the following starting accessory:

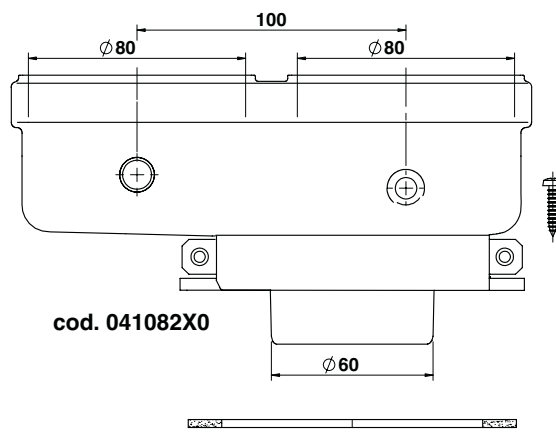


fig. 29 - Starting accessory for separate ducts

Before installation, make sure the maximum permissible length has not been exceeded, by means of a simple calculation:


1. Establish the layout of the system of split flues, including accessories and outlet terminals.
2. Consult "Table. 5 - Accessories" on page 25 and identify the losses in meq (equivalent meters) of every component, according to the installation position.
3. Check that the sum total of losses is less than or equal to the maximum permissible length in "Table. 4 - Max. length separate ducts" on page 24.

Table. 4 - Max. length separate ducts

Max. permissible length	70 m _{eq}
-------------------------	--------------------

INSTALLATION

Table. 5 - Accessories

				Losses in m _{eq}		
				Air intake	Fume exhaust	
					Vertical	Horizontal
Ø 80	PIPE	1 m M/F	1KWMA83W	1,0	1,6	2,0
	BEND	45° M/F	1KWMA65W	1,2	1,8	
		90° M/F	1KWMA01W	1,5	2,0	
	PIPE SECTION	with test point	1KWMA70W	0,3	0,3	
	TERMINAL	air, wall	1KWMA85A	2,0	-	
		fumes, wall with antiwind	1KWMA86A	-	5,0	
	FLUE	Split air/fumes 80/80	010027X0	-	12,0	
		Fume outlet only Ø80	010026X0 +		4,0	
1KWMA86U						
Ø 60	PIPE	1 m M/F	1KWMA89W		6.0	
	BEND	90° M/F	1KWMA88W		4.5	
	REDUCTION	80/60	041050X0		5.0	
	TERMINAL	fumes, wall with antiwind	1KWMA90A		7.0	
Ø 50	PIPE	1 m M/F	041086X0		12	
	BEND	90° M/F	041085X0		9	
	REDUCTION	80/50	041087X0		10	
		ATTENTION: CONSIDER THE HIGH PRESSURE LOSSES OF Ø50 and Ø60 ACCESSORIES; USE THEM ONLY IF NECESSARY AND AT THE LAST FUME EXHAUST SECTION.				

Use of Ø50 and Ø60 flexible pipe (for ducting only)

The chart includes the starting accessories code 041087X0 for Ø50 and code 041050X0 for Ø60.

Up to 4 m. of Ø80 mm flue can be used between the boiler and the passage with reduced width (Ø50 or Ø60), and up to 4 m. of Ø80 mm flue on the intake (with max. length of Ø50 and Ø60 flues).

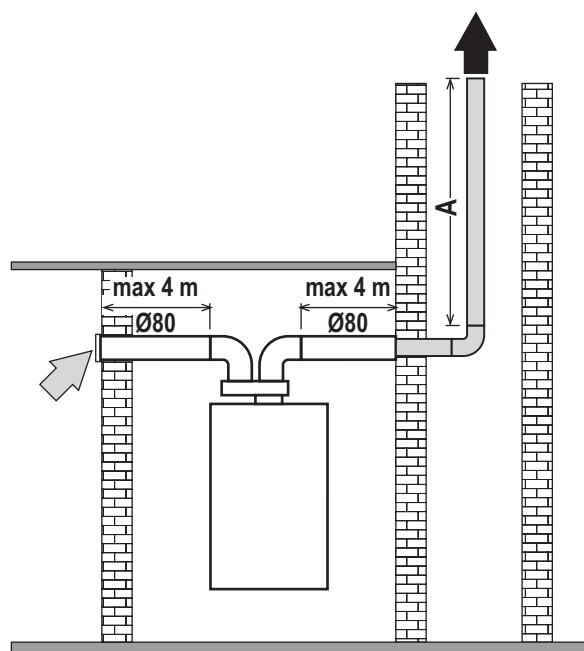


fig. 30 -

A =
 Ø50 - 22 m MAX
 Ø60 - 60 m MAX

INSTALLATION

To use this width, follow the instructions below.

Access the SC menu (follow the instructions given in par. ““Sc” - Combustion Control Parameters Menu” on page 72) and bring the parameter SC04 to a value corresponding to the length of the flue used.

SC04

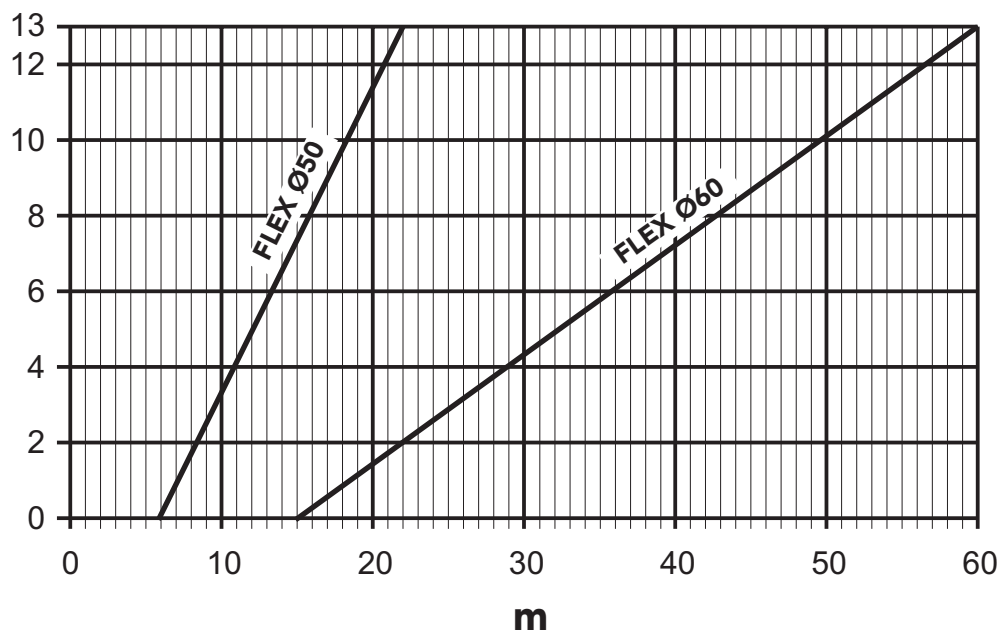


fig. 31 - Chart for flue parameter choice

Connection to collective flues

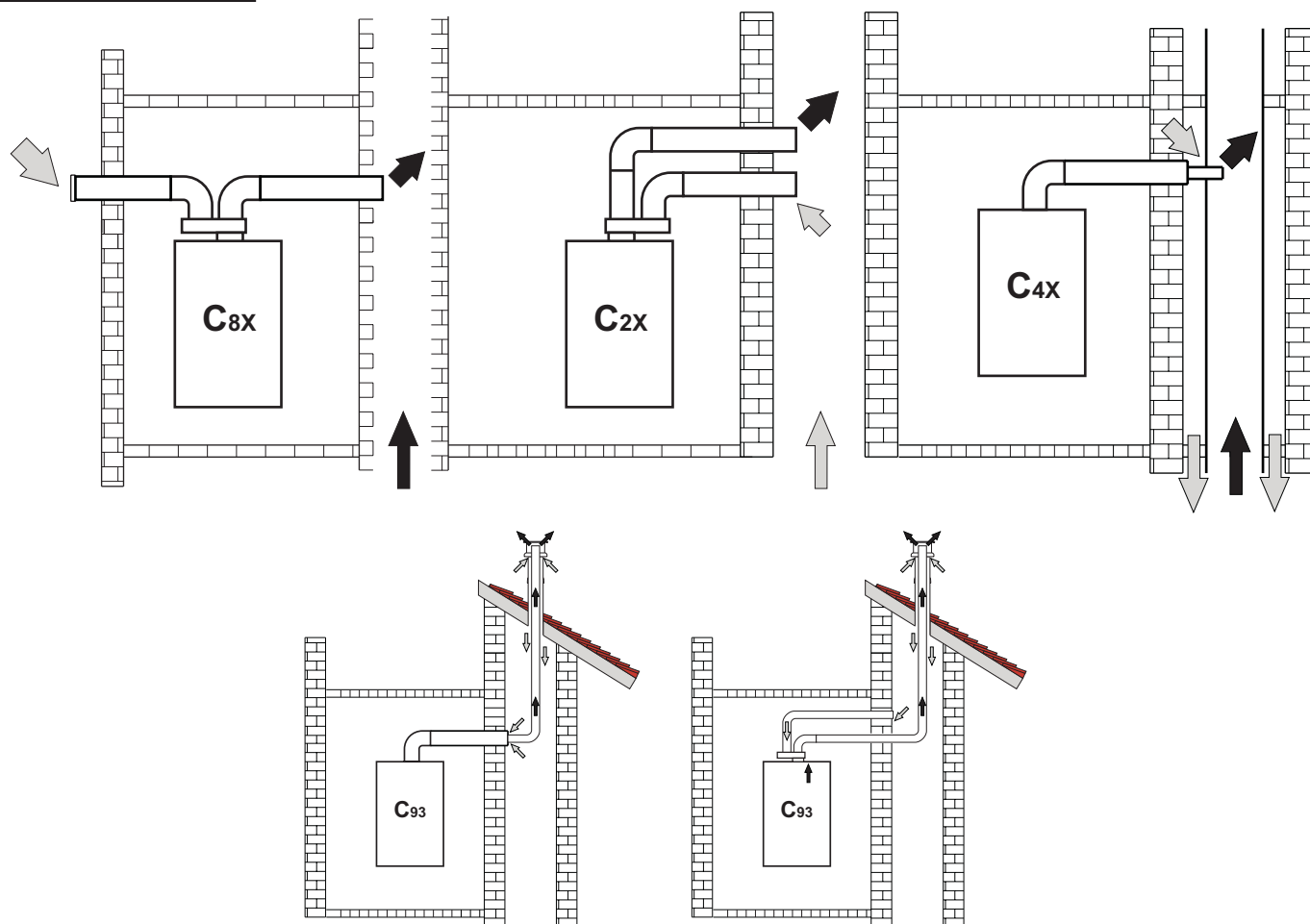


fig. 32 - Examples of connection to collective flues (→ = Air / → = Fumes)

INSTALLATION

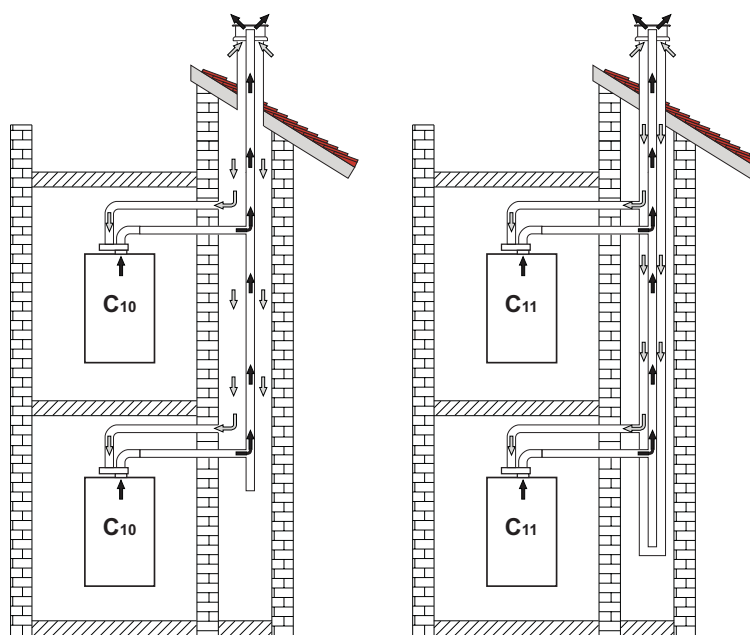


fig. 33 - Connection examples - system C10 and C11 (= Air / = Fumes)

Table. 6 - Typology

Type	Description
C10	Unit connected through its ducts to a system of common flue pipes under pressure obtained in the structure
C11	Unit connected through its ducts to a system of common flue pipes under pressure
C2X	Intake and exhaust in common flue (intake and exhaust in same flue)
C4X	Intake and exhaust in common and separate flues, but undergoing similar wind conditions
C8X	Exhaust in single or common flue and wall intake
B3X	Intake from installation room by means of concentric duct (that encloses the exhaust) and exhaust in common flue with natural draft. △ IMPORTANT- THE ROOM MUST BE PROVIDED WITH APPROPRIATE VENTILATION
C93	Exhaust to a vertical terminal and intake from existing flue.

To connect the boiler to a collective flue or to a single chimney with natural draught, flue or chimney, they must be specifically designed by qualified technical personnel in compliance with current regulations and be suitable for sealed chamber units equipped with fan.

ONLY FOR THE ITALIAN MARKET

According to Art. 5 Para. 2, f) and g) of Min. Decree 37/08, gas systems, chimneys, flues and smoke systems with a capacity of over 50 kW and in any case all multiple flues installed in Italy must be designed by a Professional registered in the appropriate professional registers

Backflow valve

The boiler is equipped as standard with a backflow valve (anti-reflux system), therefore it can be connected to collective positive pressure flues only if running on G20 gas.

With type C10 boiler installation, apply the relevant yellow sticker (included in the bag of documents supplied with the unit) in a CLEARLY VISIBLE PLACE ON THE FRONT CASING.

After installation, check the tightness of the flueways and gas circuit.

OTHERWISE THERE IS DANGER OF SUFFOCATION DUE TO PRODUCTS OF COMBUSTION ESCAPING.

6.15 Condensate drain connection boiler

IMPORTANT

The boiler has an internal trap for draining condensate. Install the hose "B" by pressing it into place. Before commissioning, fill the trap with approx. 0.5 L of water and connect the hose to the disposal system.



ATTENTION: THE UNIT MUST NEVER BE OPERATED WITH THE TRAP EMPTY!

OTHERWISE THERE IS A DANGER OF SUFFOCATION DUE TO THE EMISSION OF THE COMBUSTION FUMES.

IT IS NECESSARY TO MAKE THE CONDENSATE DISCHARGE CONNECTION TO THE SEWER NETWORK SYSTEM SO THAT THE LIQUID CONTAINED CANNOT FREEZE.

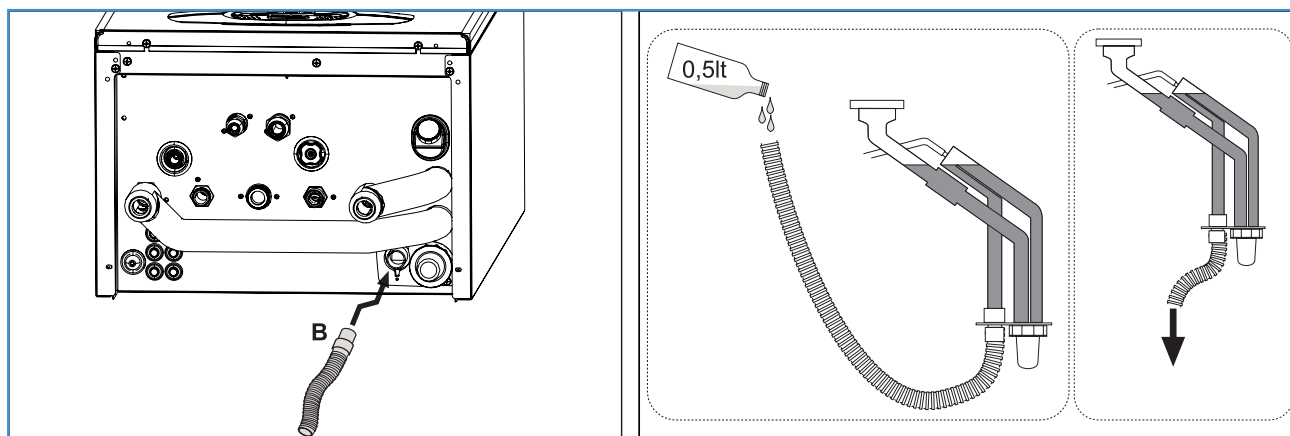


fig. 34 - Condensate drain connection

6.16 Electrical connections indoor unit

WARNINGS



BEFORE ANY OPERATION WHICH REQUIRES REMOVING THE COVER, DISCONNECT THE INDOOR UNIT FROM THE POWER SUPPLY THROUGH THE MAIN SWITCH.

DO NOT TOUCH THE ELECTRICAL COMPONENTS IN ANY CASE WITH THE CLOSED MAIN SWITCH! THERE IS THE RISK OF ELECTRIC SHOCK WITH RISK OF INJURY OR DEATH!



The appliance must be connected to an effective earthing system, as provided for by the current safety regulations. Have the efficiency and suitability of the earthing system checked by professionally qualified personnel, the manufacturer is not responsible for any damage caused by lack of earthing of the system.

The indoor unit is prewired and provided with a three-pole cable, without a plug, for connection to the electric line. The connections to the grid must be made with a permanent connection and equipped with a bipolar switch whose contacts have a minimum opening of at least 3 mm, interposing fuses of max. 3A between the indoor unit and the line. Make sure to respect the polarities (LINE: brown wire / NEUTRAL: blue wire / GROUND: yellow-green wire) in the connections to the electric line.



The unit's supply cable MUST NOT BE REPLACED BY THE USER. If the cable gets damaged, turn the unit off and have the cable replaced only by professionally qualified personnel. In case of replacement, only use cable "HAR H05 VV-F" 3x0.75 mm² with max. external diameter of 8 mm.

INSTALLATION

Procedure

1. Remove the front panel (sez. "15.7 Extraordinary maintenance and replacement of heat pump components" on page 91)
2. Connect the cables to the appropriate terminals as shown on the diagram, taking care to pass the cables through the cable glands on the bottom of the boiler (see "fig. 35 -" on page 29)
3. Then secure the cables with cable ties.

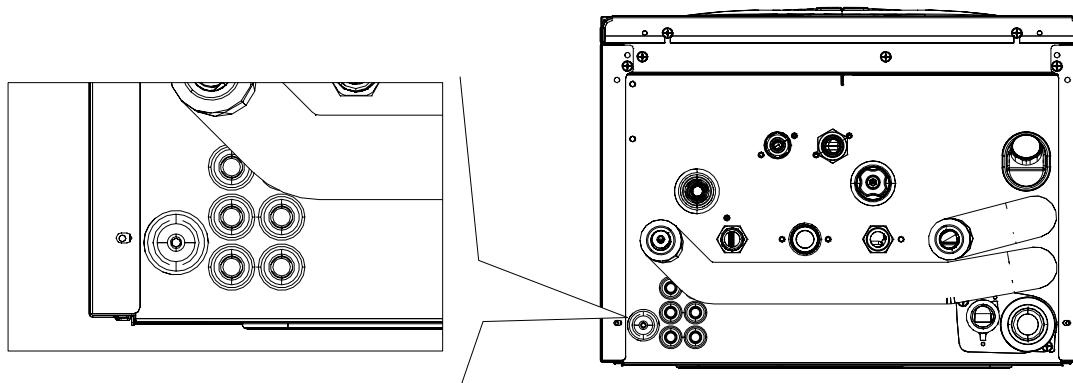


fig. 35 -

Dati elettrici

Outdoor unit	MOD.	04	06	08
Power input	"	220-240V 50 Hz		
Automatic circuit breaker	A	16		20
Power supply cross-section of cable	mm ²	3x2,5		3x4,0

Indoor unit	MOD.	08
Power input	"	220-240V 50 Hz
Automatic circuit breaker	A	2

Recommended cable H05RN-F or as installed. See specific legislation. The customer must install the automatic circuit breaker.

Communication cable between indoor and outdoor unit	MOD.	04	06	08
Wiring size (shielded cable)	mm ²	3x0,75		

View of the indoor unit without front panel and without panel heat pump electric box

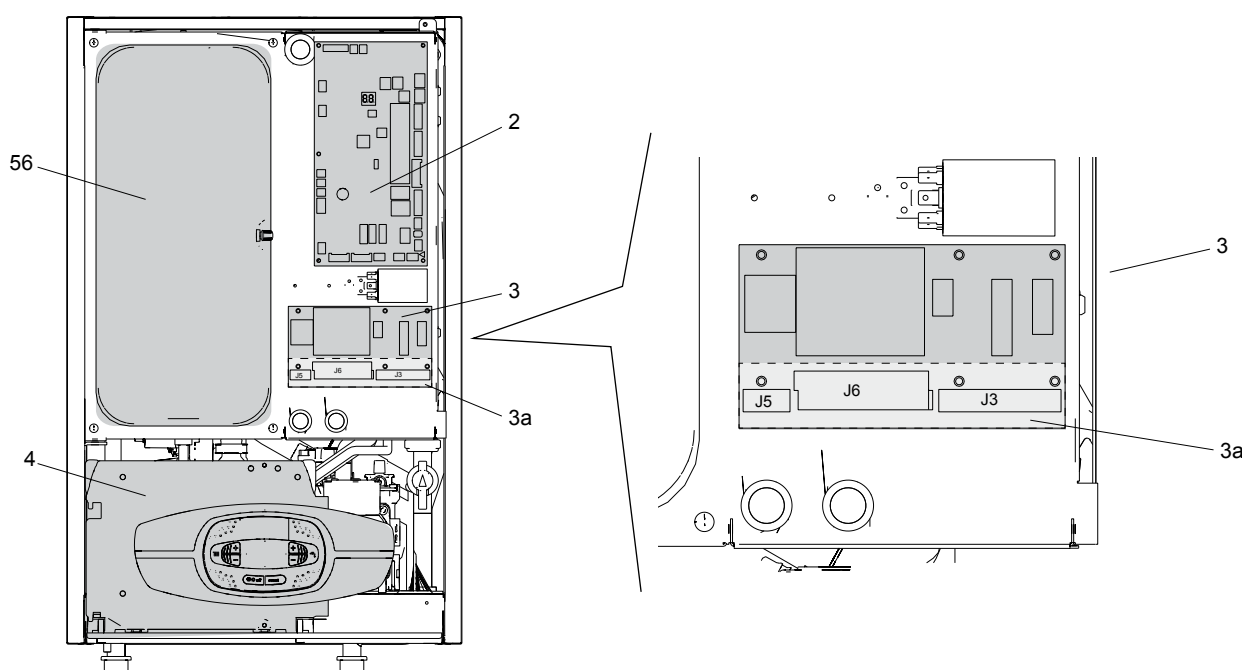


fig. 36 -

Legend

- 2 Electronic heat pump board
- 3 Wiring board
- 3a Terminal Blocks J5, J6, J3
- 4 Boiler electric box

56 Expansion vessel

INSTALLATION

DETAIL 3A "FIG. 36 -"

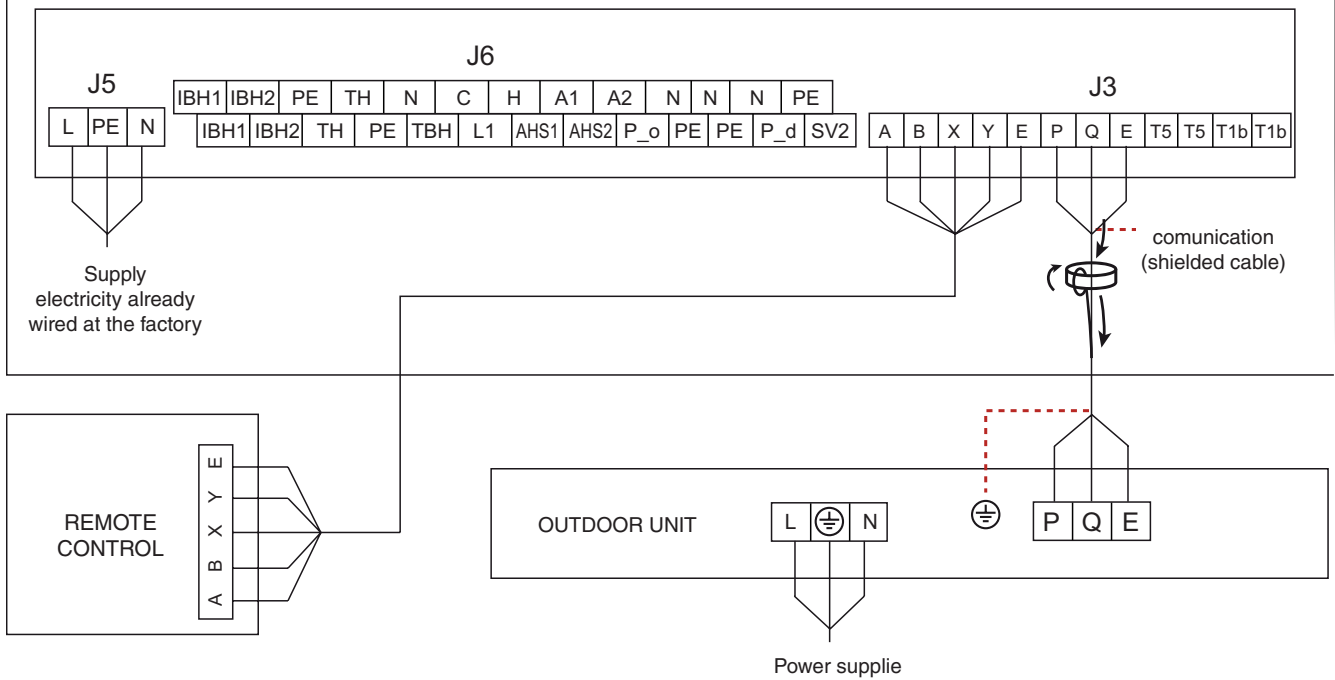


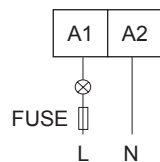
fig. 37 -

NOTE

Connect the communication cable between indoor unit and outdoor unit keeping the correspondence of the letters indicated on the terminals (P with P, Q with Q, E with E).
Connect the communication cable between indoor unit and remote control keeping the correspondence of the letters indicated on the terminals (A with A, B with B....).

Connections between indoor unit terminal block and plant components

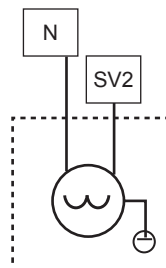
Remote alarm



Voltage	Passive signal port (dry contact)
Maximum running current	0.5A
Wiring size	0.75mm ²

fig. 38 -

2-way valve (SV2)



Voltage	220-240VAC
Maximum running current	0.2A
Wiring size	0.75mm ²

fig. 39 -

NOTE

The SV2 valve is powered when the heat pump is operating in HEAT mode.

Room thermostat (ON/OFF - HEAT/COOL by digital input)

External ON / OFF (thermostat)

INSTALLATION

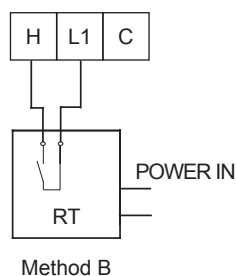


fig. 40 -

External COOL/HEAT (thermostat)

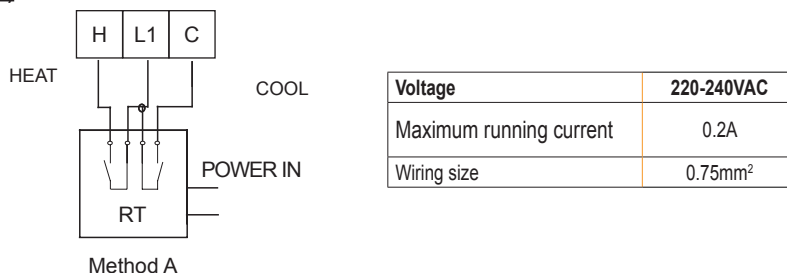


fig. 41 -

Method	ON/OFF	Heat / COOL	Digital input effect	Remote controller	Setup*
A		✓	The operation mode is defined by the digital input. The unit will be ON in COOL mode when L1-C is closed. The unit will be ON in HEAT mode when H-L1 is closed. If both digital input are closed the unit will be ON in COOL mode.	The user can only set the target water flow temp.	<div>6 ROOM THERMOSTAT</div> <div>ROOM THERMOSTAT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NON</div> <div>MODE SETTING <input checked="" type="checkbox"/> YES <input type="checkbox"/> NON</div> <div>DUAL ROOM <input type="checkbox"/> YES <input checked="" type="checkbox"/> NON</div> <div>THERMOSTAT</div> <div>SCROLL</div>
B	✓		The unit will be ON when the digital input is closed. The unit will operate in the mode defined by the controller.	The user can set the operation mode and the target water flow temp.	<div>6 ROOM THERMOSTAT</div> <div>ROOM THERMOSTAT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NON</div> <div>MODE SETTING <input type="checkbox"/> YES <input checked="" type="checkbox"/> NON</div> <div>DUAL ROOM <input type="checkbox"/> YES <input checked="" type="checkbox"/> NON</div> <div>THERMOSTAT</div> <div>SCROLL</div>

NOTE: For more details refer to paragraph “**ROOM THERMOSTAT**” (for more details refer to paragraph “8.8 Room thermostat (ON/OFF - HEAT/COOL by digital input”).

Boiler (AHS)

Connection already made at the factory.

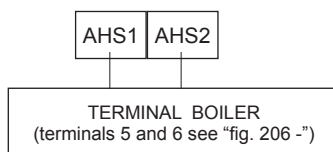


fig. 42 -

Outside circulation pump (P_o)

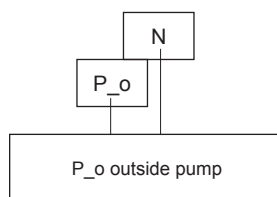


fig. 43 -

Voltage	220-240VAC
Maximum running current	0.2A
Spessore cablaggio	0.75mm ²

INSTALLATION

User interface

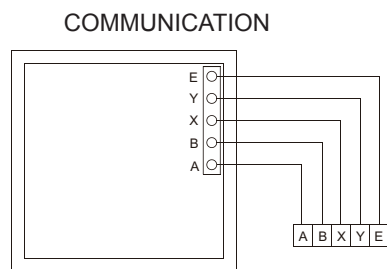


fig. 17

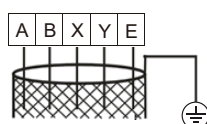


fig. 44 -

Please use shielded wire and earth the wire.



NOTE

This device supports the Modbus RTU communication protocol.

Connect the communication cable between indoor unit and remote control keeping the correspondence of the letters indicated on the terminals (A with A, B with B....).

Procedure:

1. Remove the rear part of the user interface.
2. Connect the cable to the appropriate terminals as shown in the picture
3. Reattach the rear part of the user interface

6.18 Electrical connections outdoor unit



WARNING

- A main switch or other means of disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local laws and regulations.
- Switch off the power supply before making any connections.
- Never squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- All field wiring and components must be installed by a licensed electrician and must comply with relevant local laws and regulations.
- The field wiring must be carried out in accordance with the wiring diagram supplied with the unit and the instructions given below.
- Be sure to use a dedicated power supply. Never use a power supply shared by another appliance.
- Be sure to establish a ground. Do not ground the unit to a utility pipe, surge protector, or telephone ground.

Incomplete grounding may cause electrical shock.

- Be sure to install a ground fault circuit interrupter. Failure to do so may cause electrical shock.
- Be sure to install the required fuses or circuit breakers.



NOTE

- Be sure to install a differential switch with the following characteristics:
 - intervention value equal to 30 mA
 - trip time less than 0.1 s
 - that it is compatible with the inverter (resistant to high frequency electromagnetic disturbances) in order to avoid unnecessary interventions

1. Remove the side panel (1).
2. Make the connections referring to the wiring diagrams of the unit.
3. Close the machine up again.

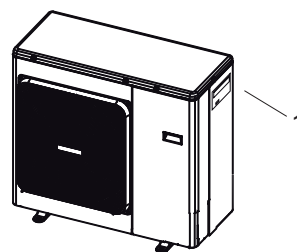


fig. 45 -



NOTE. The unit is equipped with an inverter. Installing a power factor correction not only reduces the effect of power factor improvement, but can also cause an abnormal heating of the condenser due to high frequency waves. Never install a power factor device as it may cause damage to the unit.

7. REMOTE CONTROLLER - USER MENU

REMOTE CONTROLLER - USER MENU

7.1 Keyboard and display

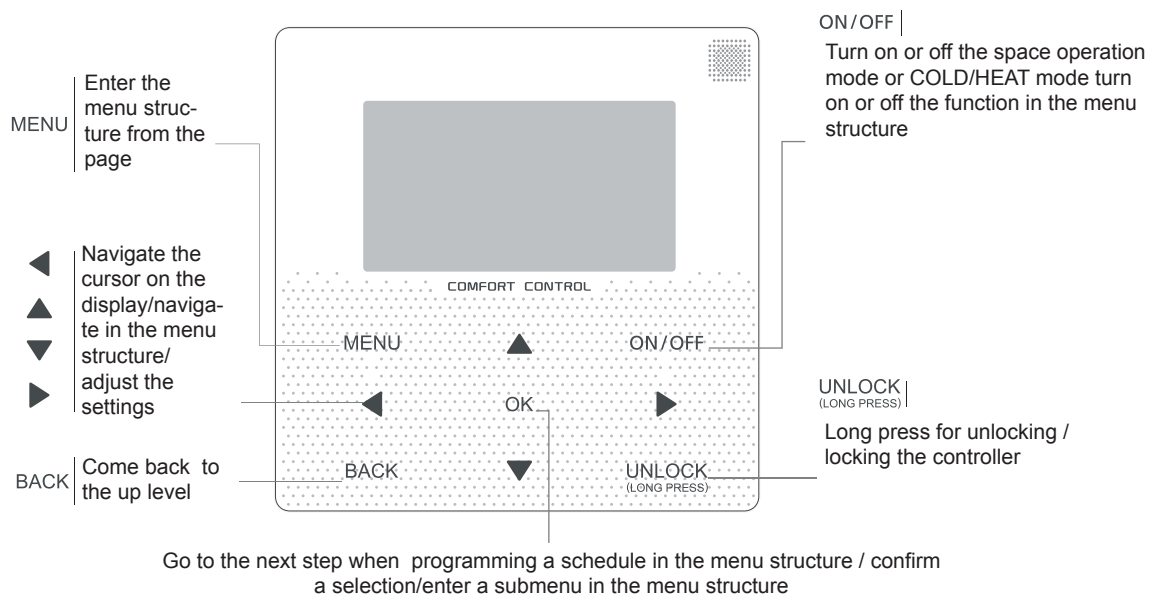


fig. 46 -

Status icons

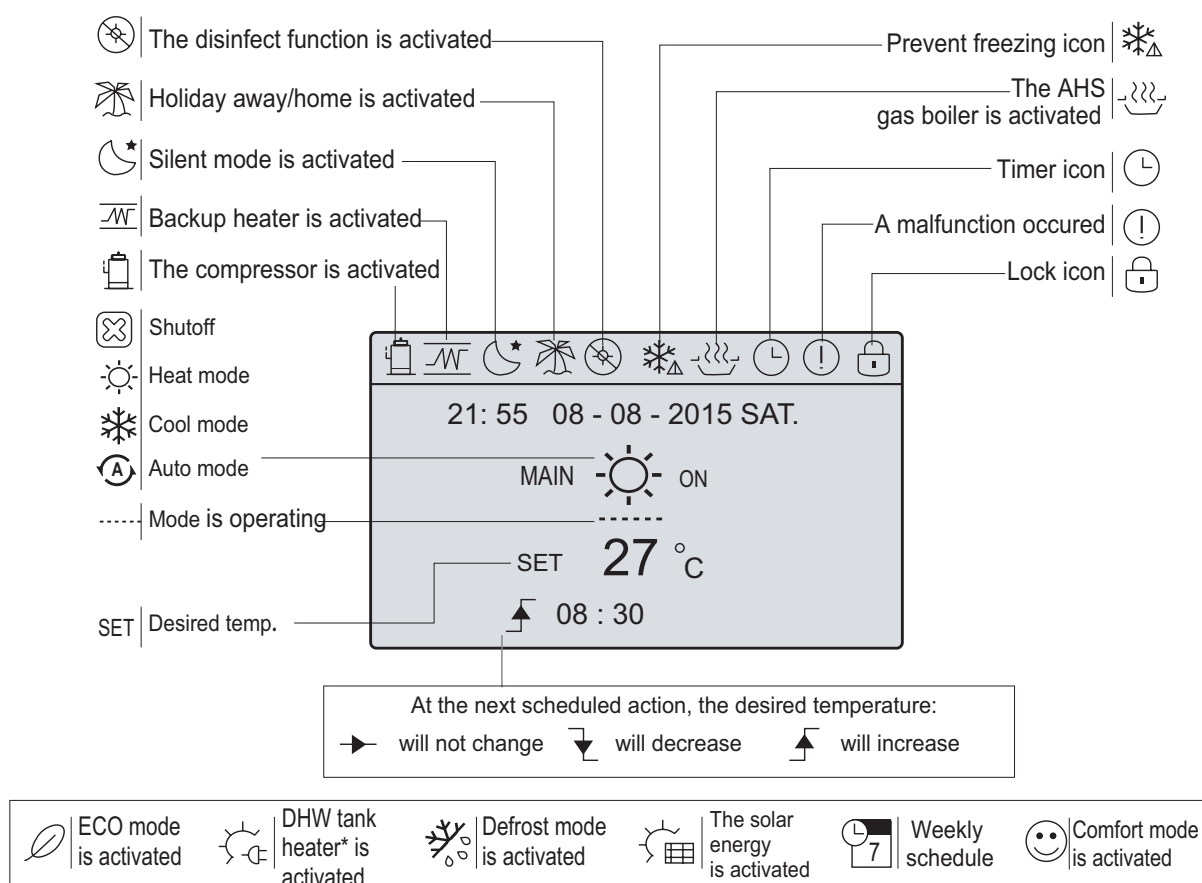
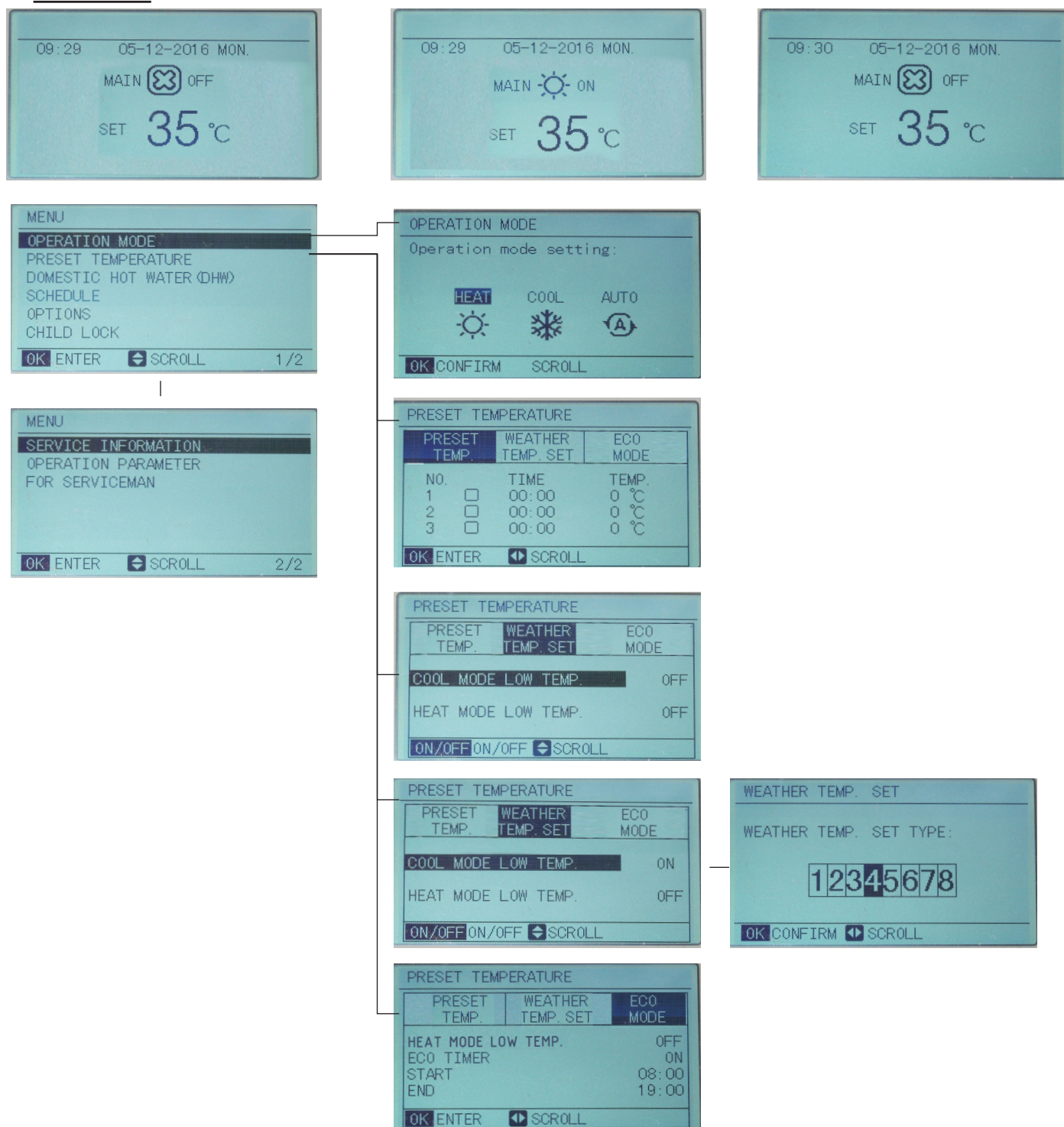


fig. 47 -

* : function not active.

REMOTE CONTROLLER - USER MENU

7.2 Menu structure



REMOTE CONTROLLER - USER MENU

MENU

OPERATION MODE

PRESET TEMPERATURE

DOMESTIC HOT WATER (DHW)

SCHEDULE

OPTIONS

CHILD LOCK

OK ENTER SCROLL 1/2

DOMESTIC HOT WATER (DHW)

DHW mode is setting OFF

OK ENTER SCROLL

OPTIONS

SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
-------------	--------------	--------------	---------------

BACKUP HEATER 1 OFF

OK ENTER SCROLL

SCHEDULE

TIMER	WEEKLY SCHEDULE	TIME
NO.	START	END
1	<input type="checkbox"/> 00:00	00:00
2	<input type="checkbox"/> 00:00	00:00
3	<input type="checkbox"/> 00:00	00:00

HEAT 0 °C

OK ENTER SCROLL

SCHEDULE

TIMER	WEEKLY SCHEDULE	TIME
MON.	TUE.	WED.
THU.	FRI.	SAT.
SUN.		

SET CANCEL

OK ENTER SCROLL

SCHEDULE

TIMER	WEEKLY SCHEDULE	TIME
CURRENT TIME		09:34
CURRENT DAY		05-12-2016

OK ENTER SCROLL

OPTIONS

SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
-------------	--------------	--------------	---------------

CURRENT STATE OFF

SILENT LEVEL

TIMER ENTER

OK ENTER SCROLL

OPTIONS

SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
-------------	--------------	--------------	---------------

CURRENT STATE OFF

DHW MODE ON

DISINFECT ON

HEAT MODE ON

OK ENTER SCROLL

OPTIONS

SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
-------------	--------------	--------------	---------------

FROM 02-12-2016

UNTIL 02-12-2016

SCROLL 2/2

OPTIONS

SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
-------------	--------------	--------------	---------------

CURRENT STATE OFF

FROM 02-11-2016

UNTIL 08-11-2016

TIMER ENTER

OK ENTER SCROLL

CHILD LOCK

Please input the password:

123

OK ENTER ADJUST SCROLL

CHILD LOCK

COOL/HEAT TEMP. ADJUST UNLOCK

COOL/HEAT MODE ON/OFF UNLOCK

DHW TEMP. ADJUST UNLOCK

DHW MODE ON/OFF UNLOCK

UNLOCK LOCK/UNLOCK SCROLL

REMOTE CONTROLLER - USER MENU

MENU

SERVICE INFORMATION

OPERATION PARAMETER
FOR SERVICEMAN

OK ENTER SCROLL 2/2

SERVICE INFORMATION

SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
PHONE NO.		00000000000000	
MOBILE NO.		00000000000000	

SCROLL

SERVICE INFORMATION

SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
There is no error code.			

SCROLL

SERVICE INFORMATION

SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
ROOM SET TEMP.		-- °C	
MAIN SET TEMP.		35 °C	
TANK SET TEMP.		50 °C	
ROOM ACTUAL TEMP.		-- °C	

OK ENTER SCROLL

SERVICE INFORMATION

SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
MAIN ACTUAL TEMP.		15 °C	
TANK ACTUAL TEMP.		28 °C	

SCROLL 2/2

SERVICE INFORMATION

SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
LANGUAGE		EN	
BACKLIGHT		ON	
BUZZER		ON	
SCREEN LOCK TIME		120SEC	

OK ENTER SCROLL

OPERATION PARAMETER

OPERATE MODE	OFF
COMPRESSOR CURRENT	1 A
COMPRESSOR FREQUENCY	0 Hz
COMP. RUN TIME1	0 MIN
COMP. RUN TIME2	0 MIN
COMP. RUN TIME3	0 MIN

SCROLL 1/5

OPERATION PARAMETER

COMP. RUN TIME4	
EXPANSION VALVE	304 P
FAN SPEED	0 R/MIN
BACKUP HEATER1 CURRENT	0 A
BACKUP HEATER2 CURRENT	0 A
T1 LEAVING WATER TEMP.1	15 °C

SCROLL 2/5

OPERATION PARAMETER

T1B LEAVING WATER TEMP.2	15 °C
T2 PLATE F-OUT TEMP.	15 °C
T2B PLATE F-IN TEMP.	15 °C
T3 OUTDOOR EXCHANGE TEMP.	15 °C
T4 OUTDOOR AIR TEMP.	16 °C
T5 WATER TANK TEMP.	28 °C

SCROLL 3/5

OPERATION PARAMETER

Ta ROOM TEMP.	-- °C
Th COMP. SUCTION TEMP.	15 °C
Tp COMP. DISCHARGE TEMP.	16 °C
TW_0 PLATE W-OUTLET TEMP.	16 °C
TW_I PLATE W-INLET TEMP.	15 °C
P1 COMP. PRESSURE1	1240kPa

SCROLL 4/5

OPERATION PARAMETER

P2 COMP. PRESSURE2	0 kPa
POWER CONSUMPTION	0 KWH

SCROLL 5/5

REMOTE CONTROLLER - USER MENU

7.3 Home page

You can use the home pages to read out and change settings that are meant for daily usage. Depending on the system layout, the following home pages may be possible:

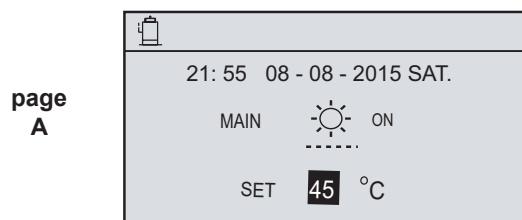
- Room temperature (**ROOM.**)
- Water flow temperature (**MAIN.**)

Depending on system temp. type setting (water flow Temp. / Room temp.) set on the controller of the unit (for more details refer to the "8.7 Temp. Type setting (to activate the internal temperature probe of the controller as room thermostat)" on page 56).

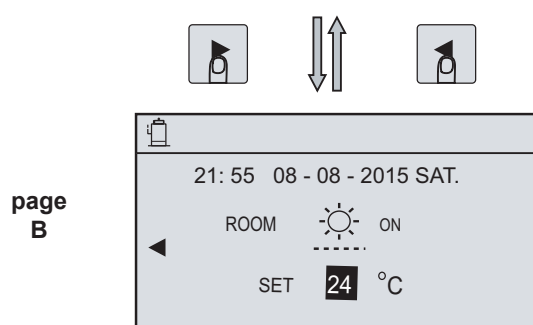
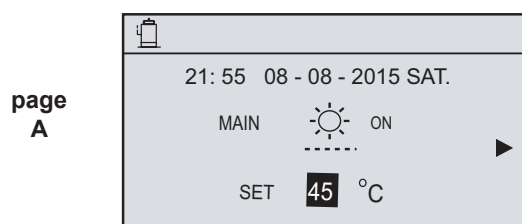
The following table shows the possible combinations::

Home page	TEMP. TYPE SETTING	
	Water flow temp	Room temp
1	YES	NON
2	YES	YES

home page1



home page2



next page
fig. 48 -

Note for home page 2.

The screen B appears if the remote controller (that is equipped with an internal temperature probe) is setup as room thermostat. For more details refer to paragraph "8.7 Temp. Type setting (to activate the internal temperature probe of the controller as room thermostat)".

7.4 Screen Unlock

If the icon  is on the screen, the controller is locked. The page is displayed:

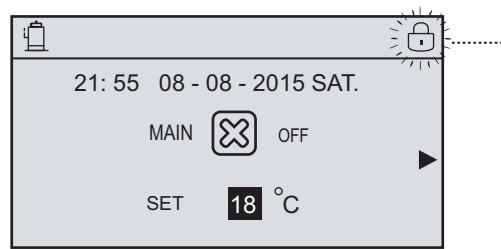



fig. 49 -

Press any key, the icon  will flash. Long press the "UNLOCK" key. The icon  will disappear, the interface can be controlled.

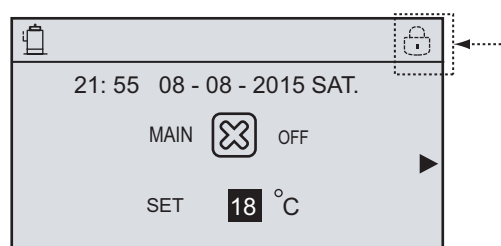


fig. 50 -

The interface will be locked if there is no handling for a long time (about 60 seconds); it can be set by the interface, **SERVICE INFORMATION**.

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

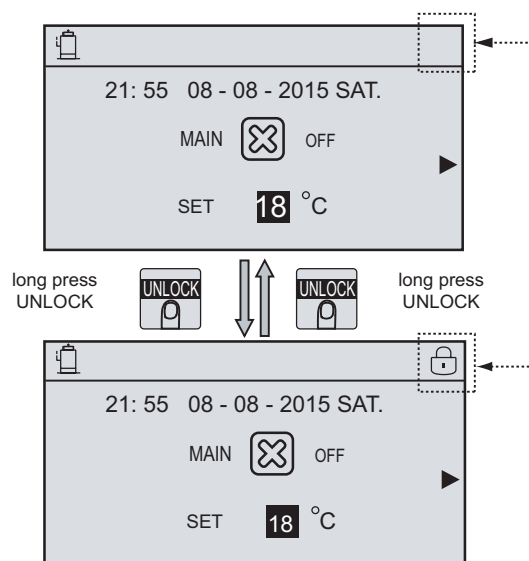


fig. 51 -

7.5 Turning ON/OFF controls

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

■ The **ON/OFF** of the unit can be controlled by the interface if the **ROOM THERMOSTAT** is **NON**. (see **ROOM THERMOSTAT SETTING** on paragraph "8.8 Room thermostat (ON/OFF - HEAT/COOL by digital input)")

■ Press "◀", "▶" on home page, the black cursor will appear:

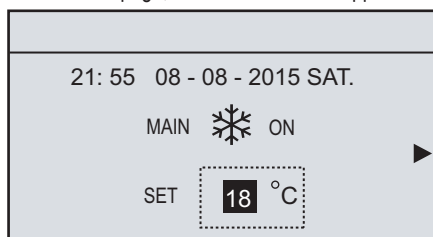


fig. 52 -

1) When the cursor is on space operation mode side (Including heat mode ☀, cool mode ❄ and auto mode A), press "ON/OFF" key to turn on/off the operation mode.

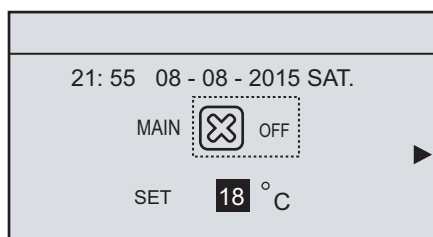
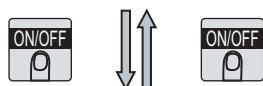
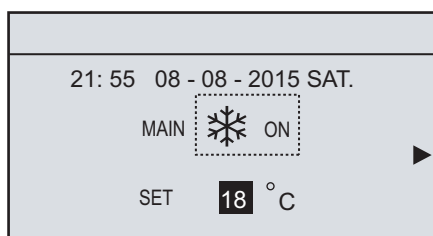


fig. 53 -

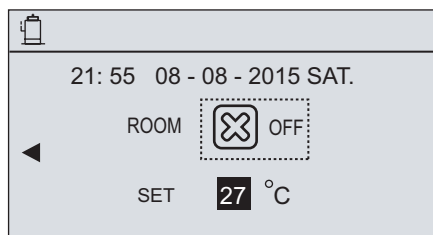
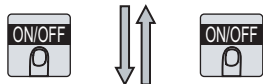
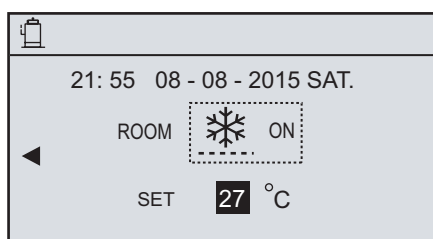


fig. 54 -

If the **ROOM THERMOSTAT** is set YES (for more details refer to paragraph "8.8 Room thermostat (ON/OFF - HEAT/COOL by digital input)") the unit is turned ON/OFF by the room thermostat, if you press ON/OFF on the remote controller the page will display:

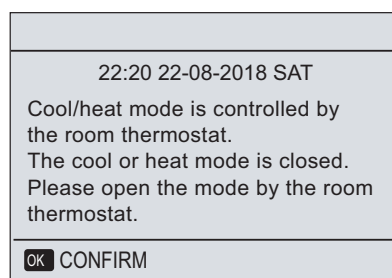


fig. 55 -

7.6 Change the water setpoint and the room setpoint

To change the water set point from page A of the home page press the cursor "▼" to select the set point, then use the cursors "▼", "▲" to change the working setpoint of the 'water'.

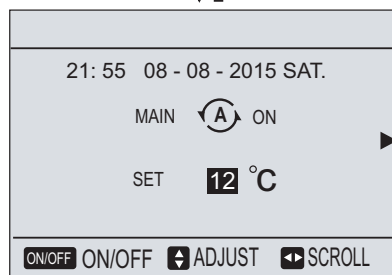
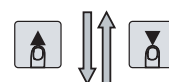
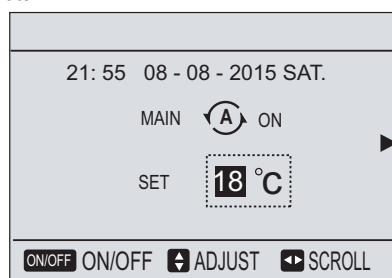


fig. 56 -

Quindi per modificare il set point ambiente premere il cursore "▶" per spostarsi nella pagina B della home page.

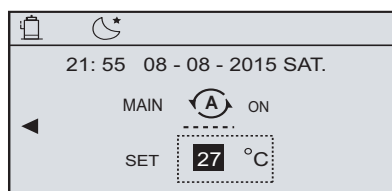
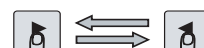


fig. 57 -

Per modificare il set point ambiente premere il cursore "▼" per selezionare il set point, quindi usare i cursori "▼", "▲" per modificare il setpoint ambiente.

REMOTE CONTROLLER - USER MENU

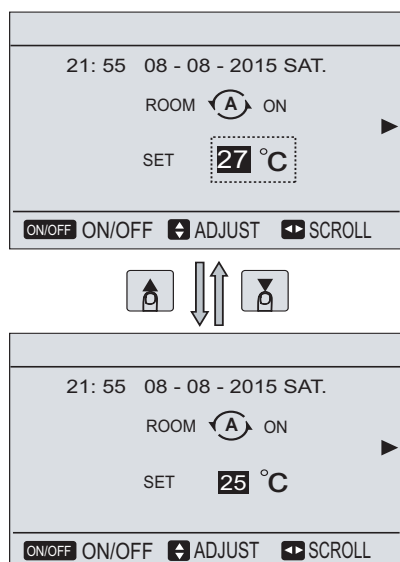


fig. 58 -

7.7 Adjusting space operation mode (HEAT/COOL/AUTO)

- Adjusting space operation mode by interface

Go to "MENU" > "SPACE OPERATION MODE". Press "OK", the page will appear:

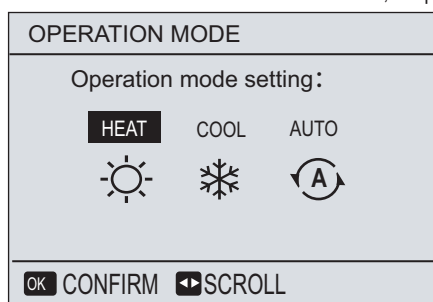


fig. 59 -

- There are three modes to be selected including heat, COOL and AUTO. MODE. Use the "◀", "▶" to scroll, press "OK" to select. If there is only heat(cool) mode, the page will appear:

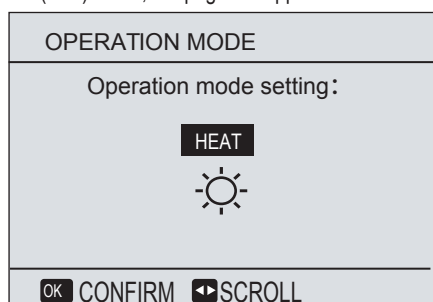





fig. 60 -

- The operation mode can not be changed see COOL MODE SETTING on installation owner's manual.

If you select...	Operation mode
 caldo	Always heat mode
 freddo	Always cool mode
 auto	The SW automatically, based on the outside air temperature, decides whether to activate the unit in HOT or COLD mode. See also paragraph "7.7 Adjusting space operation mode (heat/cool/AUTO)".

- If room thermostat and mode setting are set YES (for more details refer to paragraph "ROOM THERMOSTAT (ON/OFF - HEAT/COOL) by digital input".) the operation mode of the unit is defined by the room thermostat, if you try to setup the mode by the remote controller the page will display:

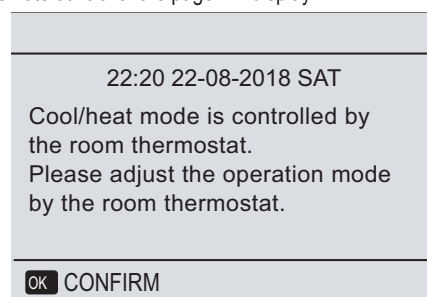


fig. 61 -

7.8 User menu

È possibile utilizzare il menu utente per leggere e configurare le impostazioni e i parametri.

From a home page, press "MENU".

Result: The menu structure appear:

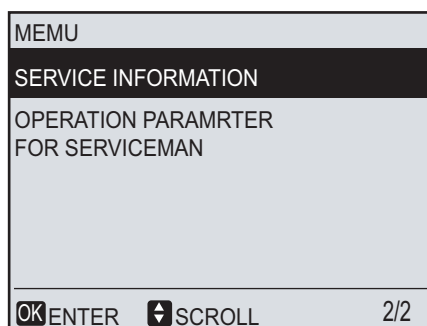
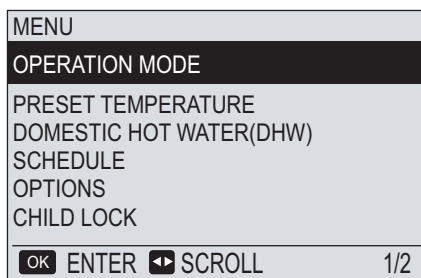


fig. 62 -

To navigate in the menu structure
Use "▼" - "▲" to scroll

7.9 Operation mode

See "7.7 Adjusting space operation mode (heat/cool/AUTO)".

7.10 Preset temperature

PRESET TEMPERATURE has:

PRESET TEMP \ WEATHER TEMP.SET \ ECO MODE.

TEMP. PRE

PRESET TEMP. function is used to set different temperature set point on 6 different time bands. The unit will work for granting the set point in the working mode defined by user interface or by digital inputs.

■ **PRESET TEMP.** = Preset temperature

■ The **PRESET TEMP.** function will be off in these conditions.

1) **AUTO** mode is running.

2) **TIMER** or **WEEKLY SCHEDULE** is running.

■ Go to "**MENU**" > "**PRESET TEMPERATURE**" > "**PRESET TEMP.**". Press "**OK**".

The following page will appear:

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
NO.	TIME	TEMPER
1 <input type="checkbox"/>	00:00	25°C
2 <input type="checkbox"/>	00:00	25°C
3 <input type="checkbox"/>	00:00	25°C
⬅️ ➡️ SCROLL		1/2

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
NO.	TIME	TEMPER
4 <input type="checkbox"/>	00:00	25°C
5 <input type="checkbox"/>	00:00	25°C
6 <input type="checkbox"/>	00:00	25°C
⬅️ ➡️ SCROLL		2/2

fig. 63 -

use "◀", "▶", "▼", "▲" to scroll and use "▼", "▲" to adjust the time and the temperature.

When the cursor is on "■", as the following page:

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
NO.	TIME	TEMPER
1 <input checked="" type="checkbox"/>	00:00	25°C
2 <input type="checkbox"/>	00:00	25°C
3 <input type="checkbox"/>	00:00	25°C
OK <input checked="" type="checkbox"/> SELECT ⬅️ ➡️ SCROLL		1/2

fig. 64 -

You press "OK", and the "■" becomes "◻". The timer 1 is selected.

You press "OK" again, and the "◻" becomes "■". The timer 1 is unselected.

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
NO.	TIME	TEMPER
1 <input checked="" type="checkbox"/>	08:30	35°C
2 <input type="checkbox"/>	00:00	25°C
3 <input type="checkbox"/>	00:00	25°C
⬅️ ➡️ SCROLL		1/2

fig. 65 -

use "◀", "▶", "▼", "▲" to scroll and use "▼", "▲" to adjust the time and the temperature.

Set six periods and six temperatures can be set.

For example: Now time is 8:00 and temperature is 30°C. We set the **PRESET TEMP** as follows table. The following page will appear:

8:00 08-08-2015 SAT.		
MAIN	ON	DHW
SET 27 °C		TANK 55 °C
⬅️ 08:30		

NO.	TIME	TEMPER
1	8:30	35°C
2	9:00	25°C
3	10:00	35°C
4	11:00	25°C
5	12:00	35°C
6	13:00	25°C

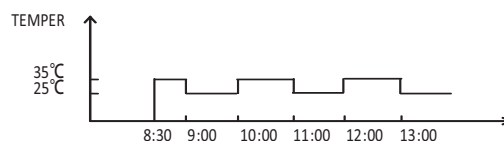


fig. 66 -



NOTA

The **PRESET TEMP.** function can be used in the heat mode or cool mode. But if the operation mode is changed, the **PRESET TEMP.** function need re-set again.

WEATHER TEMP.SET

■ **WEATHER TEMP.SET** = weather temperature set

■ Weather temp.set function is used to preset the desired the water flow temperature automatically depending on the outside air temperature. During the warmer weather the demand for space heating is reduced. To prevent the heat pump from producing excessive water flow temperature for the primary circuit, the weather temp.set can be used to maximise efficiency and reduce running costs.

Go to "**MENU**" > "**PRESET TEMPERATURE**" > "**WEATHER TEMP. SET**". Press "OK".

The following page will appear:

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
COOL MODE LOW TEMP.		OFF
HEAT MODE LOW TEMP.		OFF
ON/OFF ON/OFF SCROLL		

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
COOL MODE LOW TEMP.		ON
HEAT MODE LOW TEMP.		OFF
ON/OFF ON/OFF SCROLL		

fig. 67 -

NOTA

■ **WEATHER TEMP. SET** have four kinds of curves :

- curves of the high temperature setting for heating mode,
- curves of the low temperature setting for heating mode,
- curves of the high temperature setting for cooling mode,
- curves of the low temperature setting for cooling mode.

If the **HEAT mode** is set for **HIGH TEMPERATURE**, for **HEAT mode** will only be available climatic curves **HIGH TEMPERATURE**.

If the **HEAT mode** is set for **LOW TEMPERATURE**, for **HEAT mode** will only be available climatic curves **LOW TEMPERATURE**.

If the **COOL mode** is set for **HIGH TEMPERATURE**, for **COOL mode** will only be available climatic curves **HIGH TEMPERATURE**.

If the **COOL mode** is set for **LOW TEMPERATURE**, for **COOL mode** will only be available climatic curves **LOW TEMPERATURE**.

■ Refer to the paragraph of this manual "**COOL MODE SETTING / HEAT MODE SETTING**" in the section "**SETUP OF THE SYSTEM**" in the Installation and maintenance manual.

■ The desired temperature (T1S) can't be adjusted, when the temperature curve is set ON.

■ If you press ON the following submenu will appear where you can select a climatic curve from the 8 available (by default the n° 4 is proposed).

NB are available:

- 8 climatic curves by mode **CALDO ALTA TEMPERATURA**
- 8 climatic curves by mode **CALDO BASSA TEMPERATURA**
- 8 climatic curves by mode **FREDDO ALTA TEMPERATURA**
- 8 climatic curves by mode **FREDDO BASSA TEMPERATURA**

WEATHER TEMP. SET	
WEATHER TEMP. SET TYPE:	
1	2
3	4
5	6
7	8
OK CONFIRM SCROLL	

fig. 68 -

Use '◀', '▶' to scroll .Press "OK" to select.

■ If the weather **TEMP.SET** is activated,the desired temperature can not be adjusted on the interface.Press the "▼", "▲" to adjust the temperature on home page. The following page will appear:

5:30 08-08-2016 SAT.	
Weather temp.set function is on. Do you want to turn off it?	
NO	YES
OK ENTER SCROLL	

fig. 69 -

Move to "NO",press "OK" to come back to home page,move to "YES",press "OK" to reset the **WEATHER TEMP. SET**.

TEMPERATURE PREDEFINITE		
TEMP. PRE.	TIPOCURVA CLIM.	MODULO ECO
MODO FREDDO BASSA TEMP.		OFF
MODO CALDO BASSO TEMP.		OFF
ON/OFF ON/OFF SCORRERE		

fig. 70 -

ECO MODE

Use **ECO MODE** is used to save energy during the night .

The **ECO MODE** function is available only when the unit is working in **HEAT MODE**.

If **ECO mode** is activated,  is displayed on the home page Go to "**MENU**" > "**PRESET TEMPERATURE**" > "**ECO MODE**". Press "OK" . The following page will appear:

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
HEAT MODE LOW TEMP.		OFF
ECO TIMER		ON
START		08:00
END		19:00
ON/OFF ON/OFF SCROLL		

Use "ON/OFF" to select ON or OFF and use "▼", "▲" to scroll.

In this row you can see **HEAT MODE LOW TEMP.** or **HEAT MODE HIGH TEMP.** as a function of the T1S parameter setup (**LOW** or **HIGH**), of the **HEAT MODE** under the menù **FOR SERVICE-MAN** (refer to the installation manual).

3. HEAT MODE SETTING		
HEAT MODE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
T1S RANGE	<input checked="" type="checkbox"/> LOW	<input type="checkbox"/> HIGH
T4HMAX	25	°C
T4HMIN	-15	°C
dT1SH	5	°C
SCROLL 1/2		

fig. 71 -

When you press the ON/OFF button is displayed the following page where it is possible to select one to the 8 weather temperature set.

REMOTE CONTROLLER - USER MENU

MODO ECO

MODO ECO

1 2 3 4 5 6 7 8

OK CONFIRM ◀▶ SCROLL

fig. 72 -

Use '◀', '▶' to scroll. Press 'OK' to select.

When the cursor scroll on start/end, as following page.

PRESET TEMPERATURE

PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
HEAT MODE LOW TEMP.		OFF
ECO TIMER		ON
START		08: 00
END		19: 00

OK ENTER ◀▶ SCROLL

fig. 73 -

Press 'OK' or '▶' to set the time. The following page will appear:

PRESET TEMPERATURE

PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
HEAT MODE LOW TEMP.		OFF
ECO TIMER		ON
START		08: 00
END		19: 00

◀ ADJUST ▶ SCROLL

fig. 74 -

Use '◀', '▶' to scroll and use '▼', '▲' to adjust the time.



NOTE

If **HEAT MODE LOW TEMP.** or **HEAT MODE HIGH TEMP.** is **OFF**, **ECO** mode is not active. To activate it set **ON**.

HEAT MODE	ECO TIMER	DESCRIPTION
OFF	OFF	ECO function not active
OFF	ON	ECO function active in the time bands
ON	ON	ECO function always active

Usare '◀', '▶', '▼', '▲' per spostarsi e usare '▼', '▲' per modificare i parametri quando si regola il **GIORNO DI FUNZIONAMENTO** e l'ora di **INIZIO**. Se il **GIORNO DI FUNZIONAMENTO** è **VENERDI** e l'ora di **INIZIO** è 23:00, la funzione **ANTILEGIONELLA** verrà attivata il venerdì sera alle 23:00.

If **CURRENT STATE** is **OFF**, **DISINFECT** is not active.

If the disinfect function is running, the following page will appear:

☀️ ☂️

23: 55 10 - 08 - 2015 FRI.

☂️

fig. 75 -

7.11 Schedule

SCHEDULE menu contents as following:

- 1) **TIMER** to set the day schedule (in this case the schedule is the same for all the days of the week).
- 2) **WEEKLY SCHEDULE** to set the weekly schedule (to set a different setup for each day of the week)
- 3) **TIME** to set the current time and date.

TIMER

If the weekly schedule function is on, the timer is off, the later setting is effective.

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

SCHEDULE

TIMER	WEEKLY SCHEDULE	TIME
NO.	START	END
1	00:00	00:00
2	00:00	00:00
3	00:00	00:00
4	00:00	00:00

◀▶ SCROLL 1/2

SCHEDULE

TIMER	WEEKLY SCHEDULE	TIME
NO.	START	END
5	00:00	00:00
6	00:00	00:00

◀▶ SCROLL 2/2

fig. 76 -

■ Use '◀', '▶', '▼', '▲' to scroll and use '▼', '▲' to adjust the time, the mode and the temperature.

Move to '■', press 'OK' to select or unselect (■ the timer is selected □ the timer is unselected.) six timers can be set.

If you want to cancel the **TIMER**, you move the cursor to ■, press 'OK', the ■ become □, the timer is not active.

Example:

Six timer is set as following:

NO.	START	END	MODE	TEMP
T1	1:00	3:00	CALDO	28 °C
T2	7:00	9:00	CALDO	28 °C
T3	11:30	13:00	FREDDO	20 °C
T4	14:00	16:00	CALDO	28 °C
T5	15:00	19:00	FREDDO	20 °C
T6	18:00	23:00	CALDO	28 °C

The unit will run as following:

REMOTE CONTROLLER - USER MENU

The operation of the controller at the following time:

Time	The operation of the controller
1:00	DHW mode is turned ON
3:00	DHW mode is turned OFF
7:00	HEAT MODE mode is turned ON
9:00	HEAT MODE mode is turned OFF
11:30	COOL MODE mode is turned ON
13:00	COOL MODE mode is turned OFF
14:00	HEAT MODE mode is turned ON
15:00	COOL MODE mode is turned ON and HEAT MODE mode is turned OFF
16:00	HEAT MODE mode is turned OFF
18:00	DHW mode is turned ON
19:00	COOL MODE mode is turned OFF
23:00	DHW mode is turned OFF

NOTE

If the start time is the same of the end time, the timer is not active.

Weekly schedule

If the timer function is on the **weekly schedule** is off, the later setting is effective.

If **WEEKLY SCHEDULE** is activated,  is displayed on the home page.

Go to "MENU" > "SCHEDULE" > "WEEKLY SCHEDULE". Press

"OK". The following page will appear:



SCHEDULE							
TIMER	WEEKLY SCHEDULE					TIME	
MON	TUES	WED	THUR	FRI	SAT	SUN	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SET				CANCEL			
OK MON SELECT   SCROLL							

fig. 77 -

First select the days of the week you wish to schedule.

Use "◀", "▶" to scroll, press "OK" to select on/unselect the day.

"MON" means that the day is selected, "MON" means that the day is unselected.





SCHEDULE							
TIMER	WEEKLY SCHEDULE					TIME	
MON	TUES	WED	THUR	FRI	SAT	SUN	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SET				CANCEL			
OK MON SELECT   SCROLL							

fig. 78 -

Use "◀" or "▶" move to SET, press "ok". The Monday to Friday are selected to be scheduled and they have the same schedule

The following pages will appear:

SCHEDULE					
TIMER	WEEKLY SCHEDULE				TIME
NO.	START	END	MODE	TEMP	
1	<input checked="" type="checkbox"/>	00:00	02:00	HEAT	30°C
2	<input checked="" type="checkbox"/>	03:00	04:00	COOL	20°C
3	<input checked="" type="checkbox"/>	06:00	08:00	HEAT	35°C
4	<input checked="" type="checkbox"/>	09:00	10:00	HEAT	32°C
  SCROLL					1/2



SCHEDULE					
TIMER	WEEKLY SCHEDULE				TIME
NO.	START	END	MODE	TEMP	
5	<input type="checkbox"/>	00:00	00:00	HEAT	0°C
6	<input type="checkbox"/>	00:00	00:00	HEAT	0°C
  SCROLL					2/2

fig. 79 -

Use "◀", "▶", "▼", "▲" to scroll and adjust the time, the mode and the temperature. Timers can be set, including start time and end time, mode and temperature.

How to cancel the **WEEKLY SCHEDULE**

Cancel the schedule: first select the days of the week.

Use "◀", "▶" to scroll.



SCHEDULE							
TIMER	WEEKLY SCHEDULE					TIME	
MON	TUES	WED	THUR	FRI	SAT	SUN	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SET				CANCEL			
OK ENTER   SCROLL							

fig. 80 -

Use "◀", "▶" to move to "CANCEL", press "OK" to cancel the schedule. If you want to exit WEEKLY SCHEDULE, press "BACK".

NOTE

The **TIMER** or **WEEKLY SCHEDULE** is not active, if the unit has been set to be activated by ROOM THERMOSTAT or by digital input.

TIME (setting day and hour)

The **TIME** function is used to set the local actual time and date.

Go to "MENU" > "SCHEDULE" > "TIME". Press "OK". The following page will appear:

REMOTE CONTROLLER - USER MENU

SCHEDULE	
TIMER	WEEKLY SCHEDULE
CURRENT TIME	12: 30
CURRENT DAY	01-01-2015
SCROLL	

fig. 81 -

Use "◀", "▶", "▼", "▲" to scroll and Use "▲", "▼" adjust the time and date.

NOTE

- The **ECO MODE** has the highest priority, the **TIMER** or **WEEKLY SCHEDULE** has the second priority and the **PRESET TEMP.** or **WEATHER TEMP. SET** has the lowest priority.
- The **PRESET TEMP.** or **WEATHER TEMP. SET** becomes not active, when the **ECO** is active. In this case it is necessary to reset the **PRESET TEMP.** or **WEATHER TEMP. SET**.
- **TIMER** or **WEEKLY SCHEDULE** is not affected when **ECO** is active. **TIMER** or **WEEKLY SCHEDULE** is activated when the **ECO** is not running.
- **TIMER** and **WEEKLY SCHEDULE** have the same priority. The last set function is active. The **PRESET TEMP.** becomes not active when **TIMER** or **WEEKLY SCHEDULE** is active. The **WEATHER TEMP. SET** is not affected by the setting of **TIMER** or **WEEKLY SCHEDULE**.
- **PRESET TEMP** and **WATHER TEMP.SET** have the same priority. The last set function is active.

7.12 Options

OPTIONS menu contents as following:

- 1) **SILENT MODE**
- 2) **HOLIDAY AWAY**
- 3) **HOLIDAY HOME**
- 4) **BACKUP HEATER**

SILENT MODE

The **SILENT MODE** is used to decrease the sound of the unit. However, it also decreases the heating/cooling capacity of the system. There are two silent mode levels.

Level 1 is more silent than level 2, and the heating or cooling capacity is also more decreasing.

There are two method to use the silent mode:

- 1) silent mode in all time;
 - 2) silent mode in timer.
- Go to the home page to check if silent mode is activated. If is displayed, If the silent mode is activated, will display on the home page.
 - Go to "**MENU**" > "**OPTIONS**" > "**SILENT MODE**". Press "**OK**". The following page will appear:

OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
CURRENT STATE	OFF		
SILENT LEVEL			
TIMER	ENTER		
SCROLL			

fig. 82 -

Use "**ON/OFF**" to select **ON** or **OFF**.

If **CURRENT STATE** is **OFF**, **SILENT MODE** is invalid.

When you select **SILENT LEVEL**, and press "**OK**" or "**▶**". The following page will appear:

OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
CURRENT STATE	ON		
SILENT LEVEL			
TIMER	ENTER		
SCROLL			

LEVEL 1

OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
CURRENT STATE	ON		
SILENT LEVEL			
TIMER	ENTER		
SCROLL			

LEVEL 2

fig. 83 -

You can use "▼", "▲" to select level 1 or level 2. Press "**OK**".

If the silent **TIMER** is selected, Press "**OK**" to enter, the following page will appear.


OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
NO.	START	END	
T1 <input checked="" type="checkbox"/>	12:00	15:00	
T2 <input checked="" type="checkbox"/>	22:00	07:00	
SCROLL			

fig. 84 -


There are two timers for setting. Move to "■", press "OK" to select or unselect. If both time bands are unselected, the silent mode will operate in all time. Otherwise, it will operate according to the time band.

REMOTE CONTROLLER - USER MENU

HOLIDAY AWAY

■ If the function **HOLIDAY AWAY** is active,  will display on the home page. This function is used to "soften" the unit's activities still keeping active all the anti-freeze functions in the event of a prolonged absence (due eg. To a vacation). The function also allows you to have all previous settings at the end of the vacation.

Go to "**MENU**" > "**OPTIONS**" > "**HOLIDAY AWAY**".
Press "OK". The following page will appear:

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


OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
▲			
FROM		07-08-2015	
UNTIL		07-08-2015	
▲ ADJUST 			2/2

fig. 85 -

Then you can do the following:

- 1) Configure the holiday. configure the following settings:
- 2) Activate the holiday mode.

Go to "**MENU**" > "**OPTIONS**" > "**HOLIDAY AWAY**".

Press "OK".

Use "**ON/OFF**" to select "OFF" or "ON" and use "◀", "▶", "▼", "▲" to scroll and adjust.

Setting	Value
Holiday away	ON
From	02-02-2016
Until	16-02-2016
Mode	Heating
Disinfect	ON

NOTE

- If **DHW mode** in holiday away function is ON, The **DISINFECT FUNCTION** set by the user is not active.
- If **HOLIDAY AWAY** function is ON, the timer and weekly schedule are not active.
- If the **CURRENT STATE** is OFF, the **HOLIDAY AWAY** is OFF.
- If the **CURRENT STATE** is ON, the **HOLIDAY AWAY** is ON.
- If **HOLIDAY AWAY** is ON the remote control doesn't accept any orders.
- Disinfect function will be activated on 23:00 of the day before the return from your vacation.

HOLIDAY HOME

The **HOLIDAY HOME** function is used to deviate from the normal schedules without having to change them during the holiday at home.

- During your holiday, you can use the holiday mode to deviate from your normal schedules without having to change them.

Period	Them...
Before and after your holiday	Your normal schedules will be used.
During your holiday	The configured holiday settings will be used.

To activate or deactivate the holiday home mode:

Go to "**MENU**" > "**OPTIONS**" > "**HOLIDAY HOME**".

Press "OK". The following page will appear:


OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
CURRENT STATE			ON
FROM		15-08-2015	
UNTIL		17-08-2015	
TIMER		ENTER	
OK ENTER 			

fig. 86 -

Use "**ON/OFF**" to select "OFF" or "ON" and use "◀", "▶", "▼", "▲" to scroll and adjust.

If the **CURRENT STATE** is OFF, the **HOLIDAY HOME** is OFF.

If the **CURRENT STATE** is ON, the **HOLIDAY HOME** is ON.

Use "▼", "▲" to adjust the date.

Backup Heater (ELECTRICAL BOOSTER)


OPTIONS			
SILENT MODE	HOLIDAY AWAY	HOLIDAY HOME	BACKUP HEATER
 SCROLL			

fig. 87 -

REMOTE CONTROLLER - USER MENU

7.13 Child lock

The **CHILD LOCK** function is used to prevent children error operation. The mode setting and temperature adjusting can be locked or unlocked by use **CHILD LOCK** function (password=123). Go to **"MENU" > "CHILD LOCK"**. The page is displayed:

CHILD LOCK	
Please input the password:	
0 0 0	
OK ENTER	ADJUST SCROLL

fig. 88 -

Input the current password, the following page will appear:

CHILD LOCK	
COOL/HEAT TEMP. ADJUST	UNLOCK
COOL/HEAT MODE ON/OFF	UNLOCK
DHW TEMP. ADJUST	UNLOCK
DHW MODE ON/OFF	UNLOCK
UNLOCK UNLOCK SCROLL	

fig. 89 -

Use "▼", "▲" to scroll and **"UNLOCK"** to select **LOCK** or **UNLOCK**. The temperature can't be adjusted when the temperature is locked. The mode can't be changed when the mode is locked. If you want to change them, you must unlock them use the **CHILD LOCK** function.

7.14 Service information (change language)

About service information

Service information menu contents as following:

- 1) service call: to check service call for contacting;
- 2) error code: to check the error code mean;
- 3) parameter: to review the operation parameters;
- 4) set the display language and configuration.

■ Go to **"MENU" > "SERVICE INFORMATION"**. Press **"OK"**

SERVICE CALL

The following page will appear:

■ The service call can show the service phone or mobile number. The installer can input the phone number. See "8.12 Service call".

SERVICE INFORMATION			
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
PHONE NO.	00000000000000		
MOBILE NO.	00000000000000		
SCROLL			

fig. 90 -

ERROR CODE

Error code is used to show when the fault or protection happen and show the mean of the error code.

SERVICE INFORMATION			
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
E2		14:10	01-08-2015
E2		14:00	01-08-2015
E2		13:50	01-08-2015
E2		13:20	01-08-2015
OK ENTER SCROLL			

fig. 91 -

Press OK the page will appear:

SERVICE INFORMATION			
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
E2		14:10	01-08-2015
E2		14:00	01-08-2015
E2		13:50	01-08-2015
E2		13:20	01-08-2015
OK ENTER SCROLL			

fig. 92 -

Press OK to show the mean of the error code:

12:30 08-08-2015 SAT.			
E2 communication fault between controller and indoor unit			
Please contact your dealer.			
OK CONFIRM			

fig. 93 -

PARAMETER

The parameter function is used to display the main working parameters:

SERVICE INFORMATION			
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
		ROOM SET TEMP.	26°C
		MAIN SET TEMP.	55°C
		TANK SET TEMP.	55°C
		ROOM ACTUAL TEMP.	24°C
OK ENTER SCROLL			

fig. 94 -

REMOTE CONTROLLER - USER MENU

DISPLAY

The display function is used to set the interface, the main items is language, backlight, buzzer and screen lock time:

SERVICE INFORMATION			
SERVICE CALL	ERROR CODE	PARAMETER	DISPLAY
LANGUAGE			EN
BACKLIGHT			ON
BUZZER			ON
SCREEN LOCK TIME			120SEC
<div>OK ENTER ↩ SCROLL</div>			

fig. 95 -

Use "OK" to enter and use "◀", "▶", "▼", "▲" to scroll.

Information: IT (Italian), EN (english), ecc

7.15 Operation parameter

This menu is for installer or service engineer to see all the operation parameters.

■ At home page, go to "MENU" > "OPERATION PARAMETER".

■ Press "OK". There are five pages for the operating parameter as following. Use "▼", "▲" to scroll.

OPERATION PARAMETER	
OPERATE MODE	COOL
COMPRESSOR CURRENT	12A
COMPRESSOR FREQUENCY	24Hz
COMP.RUN TIME1	54MIN
COMP.RUN TIME2	65MIN
COMP.RUN TIME3	10MIN
↩ SCROLL	1/5

OPERATION PARAMETER	
COMP.RUN TIME4	1000HOUR
EXPANSION VALUE	240P
FAN SPEED	600 R/MIN
BACKUP HEATER1 CURRENT	0 A
BACKUP HEATER2 CURRENT	0 A
T1 LEAVING WATER TEMP.1	25°C
↩ SCROLL	2/5

OPERATION PARAMETER	
T1 WATER FLOW TEMP.	25°C
T2 PLATE F-OUT TEMP.	30°C
T2B PLATE F-IN TEMP.	45°C
T3 OUTDOOR EXCHANGE TEMP.	-7°C
T4 OUTDOOR AIR TEMP.	-7°C
T5 OUTDOOR AIR TEMP.	-7°C
↩ SCROLL	3/5

OPERATION PARAMETER	
Ta Room temp	25°C
Th COMP.SUCTION TEMP.	25°C
Th COMP.SUCTION TEMP.	25°C
Tw-0 PLATE W-OUTLET TEMP.	25°C
Tw-I PLATE W-INLET TEMP.	25°C
P1 COMP. PRESSURE1	200kPa
↩ SCROLL	4/5

fig. 96 -

OPERATION PARAMETER	
P2 COMP. PRESSURE2	--kPa
POWER CONSUMPTION	OKWH
↩ SCROLL	5/5

fig. 97 -



NOTE

if some parameter is not be activated (or available), the parameter will show "--".

7.16 For Serviceman

About For Serviceman

FOR SERVICEMAN is used for installer and service engineer.

■ Setting the composition of equipment.

■ Setting the parameters.

Go to "MENU" > "FOR SERVICEMAN". Press "OK".

FOR SERVICEMAN	
Please input the password:	
0 0 0	
<div>OK ENTER ↩ ADJUST ↩ SCROLL</div>	

fig. 98 -

How To Exit For SERVICEMAN

If you have set all the parameter.

Press "BACK", the following page will be appear:

FOR SERVICEMAN	
Do you want to exit the for serviceman?	
NO	YES
<div>OK CONFIRM ↩ SCROLL</div>	

fig. 99 -

Selecting 'YES' and pressing 'OK' exits the menu.



NOTE

When you exit from the menu FOR SERVICEMAN, the unit will be turned off.

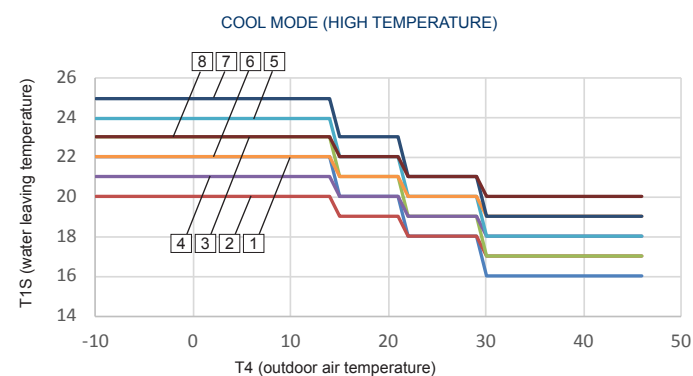
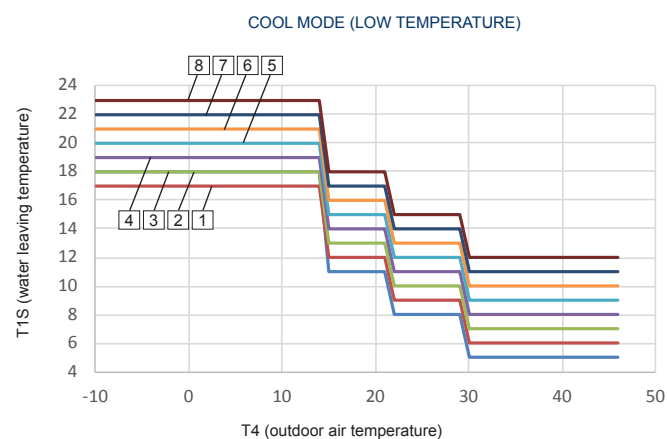
REMOTE CONTROLLER - USER MENU

Nelle tabelle sono indicati i valori di set point (T1S) al variare della temperatura aria esterna (T4) per le varie curve climatiche disponibili.

7.17 Weather temperature set for cool mode

COOL MODE (LOW TEMPERATURE)				
ID \ T4	-10 ~ -14	15 ~ 21	22 ~ 29	30 ~ 46
1	18,0	11,0	8,0	5,0
2	17,0	12,0	9,0	6,0
3	18,0	13,0	10,0	7,0
4	19,0	14,0	11,0	8,0
5	20,0	15,0	12,0	9,0
6	21,0	16,0	13,0	10,0
7	22,0	17,0	14,0	11,0
8	23,0	18,0	15,0	12,0

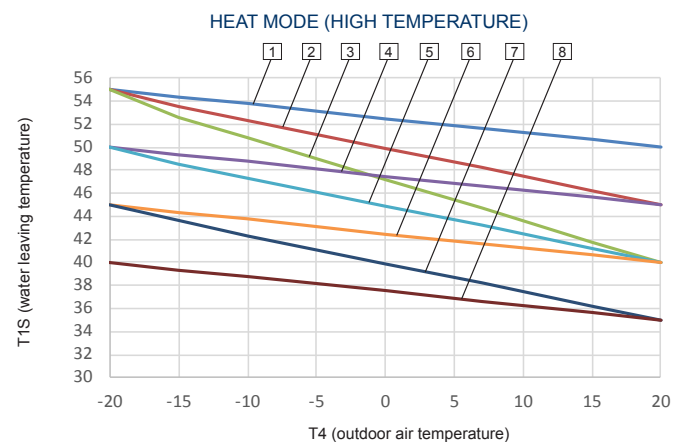
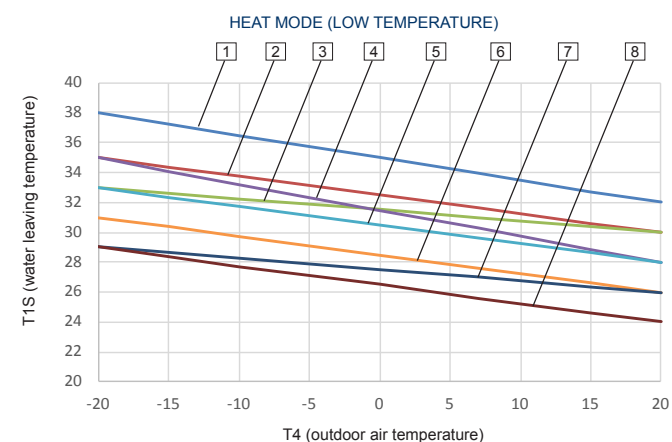
COOL MODE (HIGH TEMPERATURE)				
ID \ T4	-10 ~ -14	15 ~ 21	22 ~ 29	30 ~ 46
1	22,0	20,0	18,0	16,0
2	20,0	19,0	18,0	17,0
3	23,0	21,0	19,0	17,0
4	21,0	20,0	19,0	18,0
5	24,0	22,0	20,0	18,0
6	22,0	21,0	20,0	19,0
7	25,0	23,0	21,0	19,0
8	23,0	22,0	21,0	20,0



7.18 Weather temperature set for heat mode

HEAT MODE (LOW TEMPERATURE)							
ID \ T4	-20	-15	-10	0	7	15	20
1	38,0	37,2	36,5	35,0	33,9	32,7	32,0
2	35,0	34,4	33,7	32,5	31,6	30,6	30,0
3	33,0	32,6	32,2	31,5	31,0	30,4	30,0
4	35,0	34,1	33,2	31,5	30,3	28,9	28,0
5	33,0	32,4	31,7	30,5	29,6	28,6	28,0
6	31,0	30,4	29,7	28,5	27,6	26,6	26,0
7	29,0	28,6	28,2	27,5	27,0	26,4	26,0
8	29,0	28,4	27,7	26,5	25,6	24,6	24,0

HEAT MODE (HIGH TEMPERATURE)							
ID \ T4	-20	-15	-10	0	7	15	20
1	55,0	54,4	53,7	52,5	51,6	50,6	50,0
2	55,0	53,6	52,3	49,9	48,2	46,2	45,0
3	55,0	52,6	50,8	47,2	44,7	41,8	40,0
4	50,0	49,4	48,7	47,5	46,6	45,6	45,0
5	50,0	48,6	47,3	44,9	43,2	41,2	40,0
6	45,0	44,4	43,7	42,5	41,6	40,6	40,0
7	45,0	43,6	42,3	39,9	38,2	36,2	35,0
8	40,0	39,4	38,7	37,5	36,6	35,6	35,0



REMOTE CONTROLLER - FOR SERVICEMAN MENU

8. REMOTE CONTROLLER - FOR SERVICEMAN MENU

8.1 How to go to **FOR SERVICEMAN**

See "**CONTROLLORE REMOTO DEL SISTEMA**"

Go to **MENU> FOR SERVICEMAN**. Press OK

FOR SERVICEMAN

Please input the password:

0 0 0

OK ENTER ↵ ADJUST ⬅ ➡ SCROLL

fig. 100 -

The password is 666 or 234. Use ◀ ▶ to navigate and use ▼ ▲ to adjust the numerical value. Press **OK**. The following page is displayed:

Use ▼ ▲ to scroll and use "ok" to enter submenu for setting the parameters.

FOR SERVICEMAN

1. DHW MODE SETTING

2. COOL MODE SETTING

3. HEAT MODE SETTING

4. AUTO MODE SETTING

5. TEMP. TYPE SETTING

6. ROOM THERMOSTAT

7. OTHER HEATING SOURCE

OK ENTER ⬅ ➡ SCROLL

FOR SERVICEMAN

8. HOLIDAY AWAY MODE SETTING

9. SERVICE CALL SETTING

10. INITIALIZE MANUALLY

11. TEST RUN

12. SPECIAL FUNCTION

13. AUTO RESTART

OK ENTER ⬅ ➡ SCROLL

fig. 101 -



NOTE

ON/OFF by digital input or switch (refer to **room thermostat**).

COOL/HEAT mode managment by digital input (refer to **room thermostat**).

Description of terms

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

ID	Description
T1	Water temperature leaving the heat exchanger plate heat exchanger
T1B	Water temperature sent to the system
T1S	Target outlet water temperature
T2	Temperature of refrigerant at outlet/inlet of plate heat exchanger when in heat mode/cool mode
T2B	Temperature of refrigerant at inlet/outlet of plate heat exchanger when in heat mode/cool mode
T3	Temperature of tube at outlet/inlet of condenser when in cool/heat mode
T4	Outdoor air temperature
T5 (not used)	Temperature of domestic hot water (misured by the temperature probe installed on the DHW tank)
Th	Refrigerant suction temperature
Tp	Refrigerant discharge temperature
TW_in	Inlet water temperature of plate heat exchanger
TW_out	Outlet water temperature of plate heat exchanger
AHS	Boiler
IBH1 (not used)	The first stage of the backup heater (if installed)
IBH2 (not used)	The second stage of the backup heater (if installed)
TBH (not used)	Backup heater in the domestic hot water tank (if installed)
Pe	Refrigerant evaporate/condense pressure in cool/heat mode

8.2 REMOTE CONTROLLER - SERVICE menù

⚠ ALL THE ADJUSTMENTS DESCRIBED IN THIS CHAPTER CAN ONLY BE PERFORMED BY QUALIFIED PERSONNEL..

The following images are only examples, for the correct setting of the parameters refer to the following paragraphs.



REMOTE CONTROLLER - SERVICE MENU

1. 1 ACS MODE		
dT5_ON	4	°C
dT1S5	10	°C
T4DACS MAX	43	°C
T4DACS MIN	-10	°C
t_INTERVAL_ACS	5	MIN
⏮ ⏭ SCROLL		

1. 2 TANK HEATER		
dT5_TBH_OFF	5	°C
T4_TBH_ON	5	°C
t_TBH_DELAY	90	MIN
⏮ ⏭ SCROLL		

1. 3 DISINFECT		
T5S_DI	65	°C
t_DI_HIGHTEMP.	15	MIN
t_DI_MAX	210	MIN
⏮ ⏭ SCROLL		

1. 4 ACS PRIORITY		
t_ACSHP_MAX	180	MIN
t_ACSHP_RESTRICT	180	MIN
⏮ ⏭ SCROLL		

1. 5 DHW PUMP		
TIMER RUNNING	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NON
DISINFECT	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NON
PUMP RUNNING TIME	5	MIN
⏮ ⏭ SCROLL		

7. 1 BACKUP HEATER		
HEAT MODE	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NON
DHW MODE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NON
T4_IBH_ON	-5	°C
dT1_IBH_ON	5	°C
t_IBH_DELAY	30	MIN
t_IBH12_DELAY	5	MIN
⏮ ⏭ SCROLL		

7. 2 ADDITIONAL HEATING SOURCE		
HEAT MODE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NON
DHW MODE	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NON
T4_AHS_ON	-5	°C
dT1_AHS_ON	5	°C
dT1_AHS_OFF	0	°C
t_AHS_DELAY	30	MIN
⏮ ⏭ SCROLL		

REMOTE CONTROLLER - SERVICE MENU



REMOTE CONTROLLER
FOR SERVICEMAN MENU

REMOTE CONTROLLER - SERVICE MENU



8.3 DHW mode setting



NOTE

DHW mode is set to "NOT", the function is not available and therefore cannot be selected by the user.

DHW production is guaranteed by the boiler integrated in the indoor unit. The DHW set point must therefore be set on the boiler controller (see "DHW temperature adjustment" on page 66).

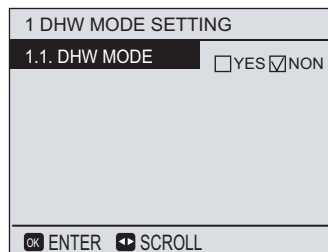


fig. 102 -

FACTORY
SETTINGS

8.4 COOL mode setting

COOL MODE SETTING typically consists of the following:

1. **COOL MODE**: to set if the COOL mode is active or not
2. **T1S RANGE**: Selecting the range of target outlet water temperature
3. **T4CMAX**: Setting the maximum outdoor air operation temperature
4. **T4CMIN**: Setting the minimum outdoor air operating temperature
5. **dT1SC**: Setting the temperature difference for starting the heat pump
6. **t_INTERVAL_C**: to set the compressor stop time before the next start in cool mode

To determine whether the COOL mode is effective, go to **MENU > FOR SERVICE-MAN > COOL MODE SETTING**. Press OK. The following page will be displayed::

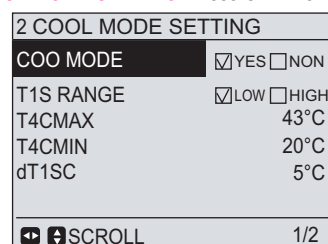


fig. 103 -

FACTORY
SETTINGS

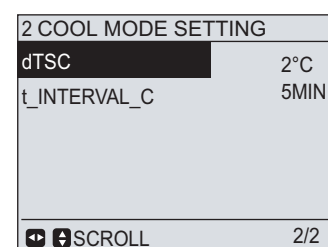


fig. 104 -

FACTORY
SETTINGS

When the cursor is on **COOL MODE**, Use **◀▶** to select **YES** or **NON**. Then press OK to enable or disable the cool mode. When the cursor is on **T1S RANGE**. Use **◀▶** to select the range of outlet water temperature. When **LOW** is selected, the minimum target temperature is 5°C. If the climate-related curve function (corresponds to "weather temperature set" in the user interface) is enabled, the curve selected is the low temperature curve. When **HIGH** is selected, the minimum target temperature is 18°C, if the climate-related curve function (corresponds to "weather temperature set" in the user interface) is enabled, the curve selected is the high temperature curve.

When the cursor is on **T4CMAX**, **T4CMIN**, **dT1SC**, **dTSC** or **t_INTERVAL_C**, Use **◀▶** and **▼▲** to scroll and adjust the parameter.



NOTE

If **COOL MODE** is set "NON", the function is not available and so could not be selected by the user.

T4CMAX is the maximum outdoor air temperature in COOL mode. The unit cannot work if the outdoor air temperature is higher.

T4CMIN is the minimum outdoor air operating temperature in COOL mode. The unit will turn off if the outdoor air temperature drops below it. The relationship between the operation of the unit and outdoor air temperature is shown in the picture below:

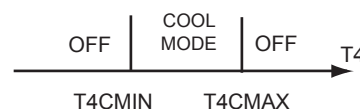


fig. 105 -

dT1SC is the temperature difference between T1 (actual outlet water temperature) and T1S (target outlet water temperature) for starting the unit in cool mode. Only when T1 is high enough will the unit turn on, and will turn off if T1 drops to a certain value. See the diagram below:

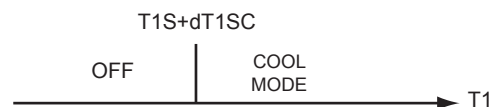


fig. 106 -

Operation note

Minimum water outlet temperature (Twout min) according to the outdoor air temperature read by the T4 probe.

T4 [°C]	≤10	11	12	13	14	15	16	17	18	19	≥20
Twout min [°C]	10	9	9	8	8	7	7	6	6	6	5

With set-point **T1S ≤ 10** the unit starts again when **min (T1, Twout) ≥ 12 °C**; so for example with **T1S = 7 °C** and **dT1SC = 3 °C** the unit does not start again when **T1 = 10 (7 + 3)**, but it can start again only if **T1** and **Twout** reach at least **12 °C**.

If the remote wired controller has been set as room thermostat (thanks to the activation of the temperature probe in the controller) the dTSC parameter is the temperature difference between Ta (internal measured room temperature) and TS (internal room temperature set point) to be able to restart the unit in COLD mode. See graphic below.

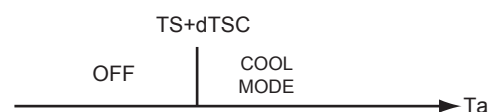


fig. 107 -

8.5 HEAT mode setting

HEAT MODE SETTING typically consists of the following:

1. **HEAT MODE**: to set if the HEAT mode is active or not
2. **T1S RANGE**: Selecting the range of target outlet water temperature
3. **T4HMAX**: Setting the maximum outdoor air operating temperature
4. **T4HMIN**: Setting the minimum operating outdoor air operating temperature
5. **dTISH**: Setting the temperature difference for starting the unit
6. **t_INTERVAL_H**: to set the compressor stop time before the next start in heat mode.

To determine whether the HEAT mode is effective, go to **MENU> FOR SERVICE-MAN> HEAT MODE SETTING**. Press OK. The following page be displayed:

3 HEAT MODE SETTING	
HEAT MODE	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NON
T1S RANGE	<input type="checkbox"/> LOW <input checked="" type="checkbox"/> HIGH
T4HMAX	25°C
T4HMIN	-5°C
dTISH	5°C
◀ ▶ SCROLL	

FACTORY SETTINGS

fig. 108 -

When the cursor is on **HEAT MODE**, Use ◀▶ to scroll to **YES** or **NON** and press OK to enable or disable the heat mode. When the cursor is on the **T1S RANGE**, use ◀▶ to scroll to **YES** or **NON** and press OK to select the range of outlet water temperature. When **LOW** is selected, the maximum target temperature is 55°C. If the climate-related curve function (corresponds to “weather temperature set” in the user interface) is enabled, the curve selected is the low temperature curve. When **HIGH** is selected, the maximum target temperature is 60°C. If the climate-related curve function (corresponds to “weather temperature set” in the user interface) is enabled, the curve selected is the high temperature curve.

When the cursor is on **T4HMAX**, **T4HMIN**, **dTISH**, **dTSH** or **t_INTERVAL_H**, Use ◀▶ and ▼▲ to scroll and adjust the parameter.

T4HMAX is the maximum outdoor air operating temperature for heat mode. The unit will not work if the outdoor air temperature.

NOTE

If **HEAT MODE** is set “**NON**”, the function is not available and so could not be selected by the user.

T4HMAX is the maximum outdoor air operating temperature for heat mode. The unit will not work if the outdoor air temperature is higher.

T4HMIN is the minimum outdoor air operating temperature for heat mode. The unit will turn off if the outdoor air temperature is lower.

The relationship between the operation of the unit and outdoor air temperature can be seen in the picture below:

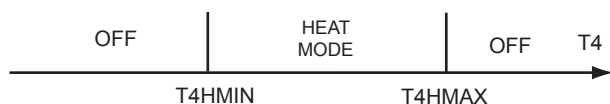


fig. 109 -

dT1SH is the temperature difference between **T1** and **T1S** for switch-off the unit in heat mode. When the target outlet water temperature $T1S < 47$, the unit will turn on or off as described below :

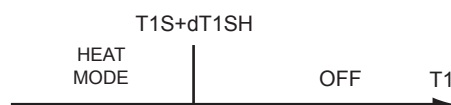


fig. 110 -

When the target outlet water temperature $T1S \geq 47$, the unit will on or off as described below:

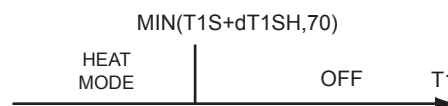


fig. 111 -

If the remote wired controller has been set as a room thermostat (thanks to the activation of the temperature probe in the controller) the **dTSH** parameter is the temperature difference between **Ta** (internal measured room temperature) and **TS** (internal room temperature setpoint) which involves unit shutdown. See diagram below.

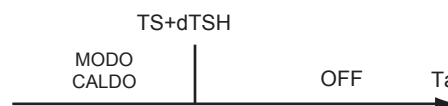


fig. 112 -

8.6 AUTO mode setting

Controlling **AUTO mode** typically consists of the following:

1. **T4AUTOCMIN**: setting the minimum operating outdoor air temperature for cooling
2. **T4AUTOHMAX**: setting the maximum operating outdoor air temperature for heating

To determine whether the **AUTO mode** is effective, go to **MENU> FOR SERVICE-MAN> AUTO MODE SETTING**. Press OK. The following page is displayed.

4 AUTO MODE SETTING	
T4AUTOCMIN	25°C
T4AUTOHMAX	17°C
◀ ▶ SCROLL	

FACTORY SETTINGS

fig. 113 -

Use ◀▶ and ▼▲ to scroll and adjust the parameter.

T4AUTOCMIN is the minimum operating outdoor air temperature for cooling in auto mode. The unit will turn off if the outdoor air temperature is lower when in space cooling operation.

T4AUTOHMAX is the maximum operating outdoor air temperature for heating in auto mode. The unit will turn off if the outdoor air temperature is higher when in space heating operation.

The relationship between heat pump operation and outdoor air temperature is described in the picture below:

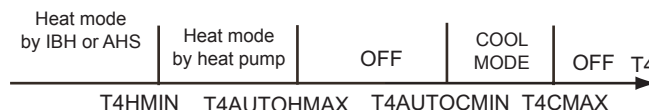


fig. 114 -

8.7 Temp. Type setting (to activate the internal temperature probe of the controller as room thermostat)



NOTE

Through this submenu, you can define whether the unit will operate according to water setpoint sent to the system and / or based on the room temperature setpoint.

The **TEMP. TYPE SETTING** is used for selecting whether the waterflow temperature or room temperature to control the heat pump is **ON/OFF**. When **ROOM TEMP.** is enabled, the target outlet water temperature will be calculated from climate-related curves.

To enter the **TEMP. TYPE SETTING**, go to **MENU> FOR SERVICEMAN> TEMP. TYPE SETTING**. Press OK. The following page is displayed:

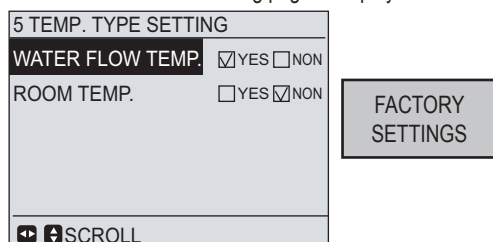


fig. 115 -

If you set **WATER FLOW TEMP.** to **YES**, and set **ROOM TEMP.** to **NON**, the water flow temperature will be displayed on the home page, and the water flow temperature will work as the target temperature.

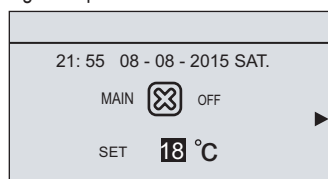


fig. 116 -

If you set **WATER FLOW TEMP.** to **YES**, and set **ROOM TEMP.** to **YES**, then the water temperature will be displayed on the home page. Both water temperature and room temperature will be detected and when either the water temperature or the room temperature reaches the target temperature the unit will turn off.

In this state, the first target outlet water temperature can be set in the main page, the second one can be calculated from the climate-related curves. In heat mode, the higher one will be the real target outlet temperature, while in cool mode, the lower one will be selected.

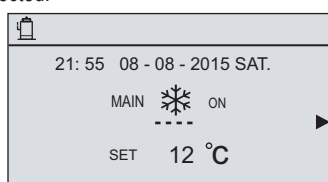


fig. 117 -

If ► is pressed, the main page will display the room temperature:

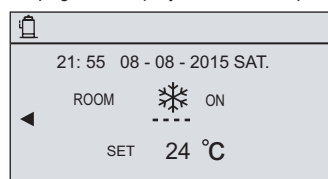


fig. 118 -

If you set **WATER FLOW TEMP.** to **NON**, and set **ROOM TEMP.** to **YES**, then the room temperature will be displayed on the home page, and the room temperature will work as the target temperature. The target outlet water temperature can be calculated from the climate related curves.

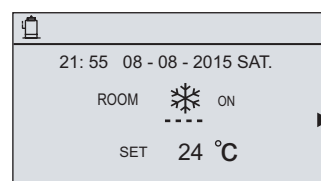


fig. 119 -

8.8 Room thermostat (ON/OFF - HEAT/COOL by digital input)



NOTE

The **ROOM THERMOSTAT** submenu allows you to set the unit operation based on the status of digital inputs on the unit's control board.

To set the **ROOM THERMOSTAT**, go to **MENU> FOR SERVICEMAN> ROOM THERMOSTAT**. Press OK. The following page is displayed:

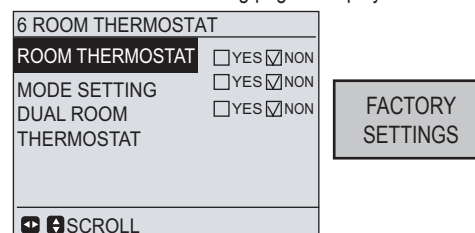


fig. 120 -

If you want to connect a room thermostat (or a remote switch) for the activation and turning off the unit, **ROOM THERMOSTAT** must be set to **YES** and the **MODE SETTING** must be set to **NON**. With this setting, the unit will operate in the mode set as a user interface only when the thermostat closes the contact.

If you want to connect instead a double contact thermostat (or 2 remote switches) to determine the activation of the unit in **HEAT** or **COOL**, **ROOM THERMOSTAT** must be set to **YES** and the **MODE SETTING** must be set to **YES**. With this setting, the unit will operate in the mode required by the thermostat (or by one of two remote switches) and therefore will not be possible to activate the unit nor to change the operation mode through the user interface.

If you set the unit to be activated via digital inputs the timer function and weekly schedule are not available;

The temperature adjustment can be performed from the user interface.



NOTE

"DUAL ROOM THERMOSTAT" must not be used: set to **NON**.

NOTE: The setting in the user interface **MUST** match the thermostat wiring (or remote switches). For more information also see **"ELECTRICAL CONNECTIONS"**.

8.9 Other heating source

The **OTHER HEATING SOURCE** is used to set whether the backup heater, and additional heating sources like a boiler or solar energy kit is available.

To set the **OTHER HEATING SOURCE**, go to **MENU> FOR SERVICEMAN> OTHER HEATING SOURCE**, Press OK. The following page will appear:

7 OTHER HEATING SOURCE	
7.1.BACKUP HEATER	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NON
7.2.AHS	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NON
7.3.SOLAR ENERGY	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NON
<input type="button" value="OK"/> <input type="button" value="SCROLL"/>	

FACTORY
SETTINGS

fig. 121 -



NOTE

"SOLAR ENERGY" must not be used: set to NON.

8.10 AHS (boiler)

Press OK and the following page is displayed:

7.2 AHS (BOILER)	
HEAT MODE	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NON
DHW MODE	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NON
T4_AHS_ON	2°C
dT1_AHS_ON	2°C
dT1_AHS_OFF	-5°C
t_AHS_DELAY	30MIN
<input type="button" value="OK"/> <input type="button" value="SCROLL"/>	

FACTORY
SETTINGS

fig. 122 -

When the cursor is on **HEAT MODE**, Use **◀▶** to select **YES** or **NON**. If **YES** is selected, the additional heating source will be available in the corresponding mode, otherwise it will be unavailable.

When the cursor is on **T4_AHS_ON**, **dT1_AHS_ON**, **dT1_AHS_OFF** or **t_AHS_DELAY**, Use **◀▶** and **▼▲** to scroll and adjust the parameter.

T4_AHS_ON is the outdoor air temperature for starting the additional heating source. When the outdoor air temperature rises above **T4_AHS_ON**, the additional heating source will be unavailable. The relationship between the operation of additional heating source and outdoor air temperature is shown in the picture below:

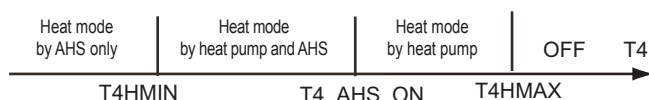


fig. 123 -

dT1_AHS_ON is the temperature difference between **T1S** and **T1B** for turning the additional heating source on (only when $T1B < T1S - dT1_AHS_ON$), **dT1_AHS_OFF** is the temperature difference between **T1S** and **T1B** for turning the additional heating source off (when $T1B \geq T1S + dT1_AHS_OFF$ the additional heating source will turn off), **t_AHS_DELAY** is the time that the compressor has run before starting the additional heating source. It should be shorter than the additional heating source start time interval. The operation of the heat pump and the additional heating source is shown below.

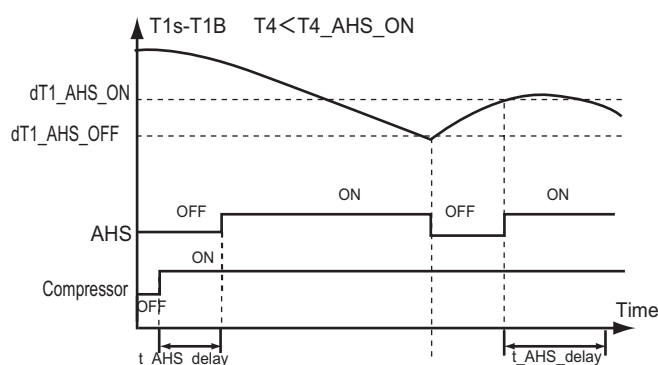


fig. 124 -

8.11 Holiday away setting

The **HOLIDAY AWAY SETTING** is used to set the outlet water temperature to prevent freezing when away for holiday.

To enter the **HOLIDAY AWAY SETTING**, go to **MENU> FOR SERVICEMAN> HOLIDAY AWAY SETTING**. Press OK. The following page is displayed:

8 HOLIDAY AWAY SETTING	
T1S_H.A_H	20°C
T5S_H.M_DHW	15°C
<input type="button" value="OK"/> <input type="button" value="SCROLL"/>	

fig. 125 -

When the cursor is on **T1S_H.A_H** or **T5S_H.M_DHW**, Use **◀▶** and **▼▲** to scroll and adjust the parameter, **T1S_H.A_H** is the target outlet water temperature for space heating when in holiday away mode.

T1S_H.M_DHW is the target outlet water temperature for water heating when in **HOLIDAY AWAY MODE**.

8.12 Service call

The installers can set the phone number of the local dealer in **SERVICE CALL**. If the unit doesn't work properly, call this number for help.

To set the **SERVICE CALL**, go to **MENU> FOR SERVICEMAN> SERVICE CALL**. Press OK. The following page is displayed:

9 SERVICE CALL	
PHONE NO.	00000000000000
MOBILE NO.	00000000000000
<input type="button" value="OK"/> <input type="button" value="CONFIRM"/> <input type="button" value="ADJUST"/> <input type="button" value="SCROLL"/>	

fig. 126 -

Use **▼▲** to scroll and set the phone number. The maximum length of the phone number is 13 digits, if the length of phone number is short than 12, please input **■**, as shown below:

9 SERVICE CALL	
PHONE NO.	*****
MOBILE NO.	*****
<input type="button" value="OK"/> <input type="button" value="CONFIRM"/> <input type="button" value="ADJUST"/> <input type="button" value="SCROLL"/>	

fig. 127 -

8.13 Restore factory settings

The **RESTORE FACTORY SETTING** is used to restore all the parameters set in the user interface to the factory setting.

To restore factory settings, go to **MENU> FOR SERVICEMAN> RESTORE FACTORY SETTINGS**. Press OK. The following page is displayed:

fig. 128 -

Use ◀ ▶ to scroll the cursor to YES and press OK. the following page will be displayed:

fig. 129 -

After a few seconds, all the parameters set in the user interface will be restored to factory settings.

! THE ELECTRONIC HEAT PUMP IS USED ON DIFFERENT SYSTEMS, FOR THE CORRECT OPERATION OF THE SYSTEM CHECK THAT THE PARAMETERIZATION IS IN LINE WITH THE PARAMETER TABLE “8.17 Check parameter list” on page 62.

8.14 Special function

The **SPECIAL FUNCTION** contains **AIR PURGE**, **PREHEATING FOR FLOOR**, and **FLOOR DRYING UP**. It's used in special situations. For example: the initial start of the unit, initial running of floor heating.

NOTE: the special functions can be used by service man only, during special operating other functions (**SCHEDULE**, **HOLIDAY AWAY**, **HOLIDAY HOME**) can't be used.

Go to **MENU> FOR SERVICEMAN> SPECIAL FUNCTION**.

fig. 130 -

Use ▼ ▲ to scroll and use OK to enter.

During air purge, the 3-way valve will open, and the 2-way valve will close. 60 seconds later the pump in the unit (PUMPI) will operate for 10 min, during which the flow switch will not work. After the pump stops, the 3-way valve will close and the 2-way valve will open. 60s later the both the PUMPI and PUMPO will operate until the stop command is received.

fig. 131 -

The number displayed on the page is the time that the air purge has run. During air purge, all the buttons except OK are invalid. If you want to turn off the air purge, please press OK, then the following page is displayed.

fig. 132 -

If **PREHEATING FOR FLOOR** is selected, after press OK, the page will displayed as follows. When the cursor is on T1S, dT1SH or t_fristFH, Use ◀ ▶ and ▼ ▲ to scroll and adjust the parameter.

fig. 133 -

T1S is the target outlet water temperature in preheating for floor mode. The T1S set here should be equal to the target outlet water temperature set in the main page. dT1SH is the temperature difference for stopping the unit. (When $T1 \geq T1S + dT1S$ occurs the heat pump will turn off)

t_fristFH is the time last for preheating floor.

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

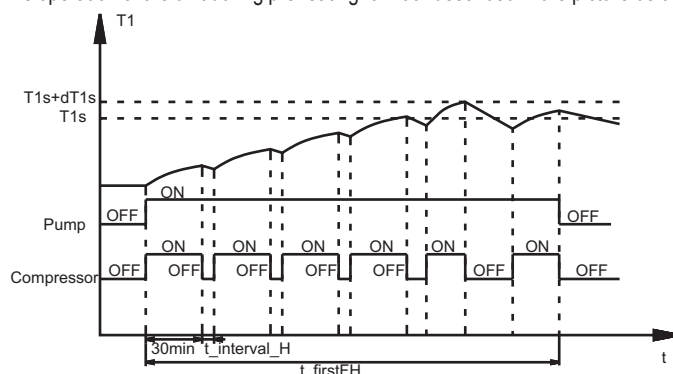


fig. 134 -

REMOTE CONTROLLER - SERVICE MENU

When the cursor is on **OPERATE PREHEATING FOR FLOOR**, Use ◀ ▶ to scroll to YES and press OK. The page will be displayed as follows:

12.2 PREHEATING FOR FLOOR
Preheat for floor is running for 25 minutes. Water flow temperature is 20°C.
OK CONFIRM

fig. 135 -

During preheating for floor, all the buttons except OK are invalid. If you want to turn off the preheating for floor, please press OK. The following page will be displayed:

12.2 PREHEATING FOR FLOOR
Do you want to turn off the preheating for floor function?
NO YES
OK CONFIRM ◀ SCROLL ▶

fig. 136 -

Use ◀ ▶ to scroll the cursor to YES and press OK, the preheating for floor will turn off.

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

If **FLOOR DRYING UP** is selected, after press OK ,the page will displayed as follows:

12.3 FLOOR DRYING UP	
WARM UP TIME(t_DRYUP)	8 days
KEEP TIME(t_HIGHPEAK)	5 days
PEAK TEMP. (T_DRYPEAK)	45°C
START TIME	15:00
START DATE	01-05-2015
◀ SCROLL ▶	1/2

fig. 137 -

When the cursor is on **WARM UP TIME** (t_DRYUP), **KEEP TIME** (t_HIGHPEAK), **TEMP. DOWN TIME** (t_DRYD), **PEAK TEMP.** (T_DRYPEAK), **START TIME** or **START DATA**, Use ◀ ▶ and ▼ ▲ to scroll and adjust the parameter.

t_DRYUP is the day for warming up.

t_HIGHPEAK is the last day of high temperature.

t_DRYD is the day of dropping temperature

T_DRYPEAK is the target peak temperature of water flow during floor drying up.

The target outlet water temperature during floor drying up described

in the picture below:

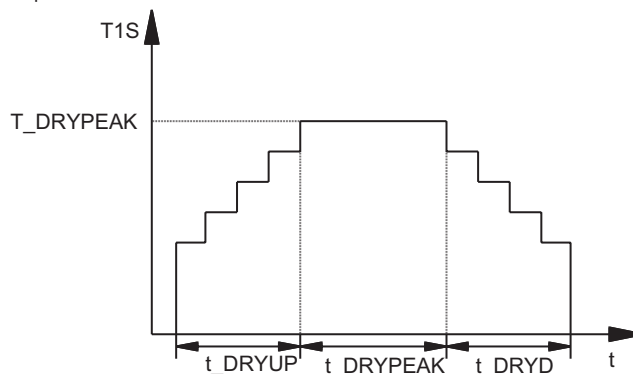


fig. 138 -

When the cursor is on **OPERATE FLOOR DRYING?** Use ◀ ▶ to scroll to YES and press OK. The page will be displayed as follows. During floor drying, all the buttons except OK are invalid. When the heat pump malfunctions, the floor drying mode will turn off when the backup heater and additional heating source is unavailable. If you want to turn off floor drying up, please press OK. Use ◀ ▶ to scroll the cursor to YES and press OK. Floor drying will turn off.

12.3 FLOOR DRYING UP
The unit will operate floor drying on 09:00 16-12-2015.
OK CONFIRM

fig. 139 -

8.15 Auto restart

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

Go to **MENU> FOR SERVICEMAN> AUTO RESTART**

Use ▼, ▲, ◀, ▶ to scroll and use OK to select **YES** or **NON** to enable or disable the auto restart function. If the auto restart function is enabled, when power returns after a power supply failure, the **AUTO RESTART** function reapplies the user interface settings at the time of the power supply failure. If this function is disabled, when power returns after a power supply failure, the unit won't auto restart.

13 AUTO RESTART	
COOL/HEAT MODE	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
DHW MODE	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
◀ SCROLL ▶	

fig. 140 -

8.16 Test run

TEST RUN is used to check correct operation of the valves, air purge, circulation pump operation, cooling, heating and domestic water heating. To enter test run, go to **MENU> FOR SERVICEMAN> TEST RUN**. Press OK.

fig. 141 -

If **YES** is selected, the following page is displayed:

fig. 142 -

Use ▼ ▲ to scroll to the mode you want to run and press OK. The unit will run as selected.

If **11.1 POINT CHECK** is selected, the following page will not be displayed:

fig. 143 -

fig. 144 -

Use ▼ ▲ to scroll to the components you want to check and press **ON/OFF**. For example, when **3-WAY VALVE** is selected and **ON/OFF** is pressed, if the 3-way valve is open/close, then the operation of 3-way valve is normal, and so are other components.

If you select **AIR PURGE** and OK is pressed, the page will displayed as follows:

fig. 145 -

When in air purge mode, the 3-way valve will open, the 2-way valve will close. 60s later the pump in the unit (PUMPI) will operate for 10min during which the flow switch will not work. After the pump stops, the 3-way valve will close and the 2-way valve will open. 60s later both the PUMPI and PUMPO will operate until the next command is received.

When **CIRCULATION PUMP RUNNING** is selected, the page will displayed as follows:

fig. 146 -

When selecting **COOL MODE** is OK, the unit is forced to work in **COOL MODE** and the page opposite appears on the display.

During this function the water setpoint (T1S) is equal to 7 ° C. The unit continues to operate until the setpoint is satisfied or until the next command is received.

fig. 147 -

REMOTE CONTROLLER - SERVICE MENU

When selecting **HEAT MODE** is OK, the unit is forced to operate in **HEAT MODE** and the page opposite appears on the display.

During this function the water setpoint (T1S) is equal to 35 ° C. After 10 minutes of compressor operation the first stage of the electric booster (IBH1) is activated, after 60 seconds the second stage of the electric booster (IBH2) is activated, after 3 minutes IBH1 and IBH2 are turned off. The unit then continues to operate until the setpoint is satisfied or until the next command is received.

11 MODO TEST
Modo test attivo. Modo caldo attivo. Temperatura uscita acqua 15°C.
<input type="button" value="OK"/> CONFERMA

fig. 148 -

When you select **DHW MODE** is OK, the unit is forced to operate in DHW mode and the page opposite appears on the display.

During this function the water cas setpoint (T5S) is equal to 55 ° C. After 10 minutes of compressor operation the ACS electric support heater (TBH) is activated. After 3 minutes TBH is switched off and the unit continues to operate until the setpoint is satisfied or until the next command is received.

11 TEST RUN
Test run is on. DHW mode is on. Water flow temper. is 45°C Water tank temper. is 30°C
<input type="button" value="OK"/> CONFIRM

fig. 149 -

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

11 TEST RUN
Do you want to turn of the test run(air purge) function?
<input type="button" value="NO"/> <input type="button" value="YES"/>
<input type="button" value="OK"/> CONFIRM <input type="button" value="↔"/> SCROLL

fig. 150 -

Use ◀ ▶ to scroll the cursor to YES and press OK. The test run will turn off.

REMOTE CONTROLLER - SERVICE MENU

8.17 Check parameter list

Basic factory settings

1	DHW MODE SETTING	1,1	DHW MODE	YES	NON
		1,2	TANK HEATER	YES	NON
		1,3	DISINFECT	YES	NON
		1,4	DHW PRIORITY	YES	NON
		1,5	DHW PUMP	YES	NON
2	COOL MODE SETTING	2,1	COOL MODE	YES	NON
		2,2	T1S	BASSA	ALTA
		2,3	T4CMAX	43	
		2,4	T4CMIN	10	
		2,5	dT1SC	5	
		2,6	dTSC	2	
		2,7	t_INTERVAL_C	5	
3	IMPOSTAZIONE MODO CALDO	3,1	MODO CALDO	YES	NON
		3,2	T1S	BASSA	ALTA
		3,3	T4HMAX	25	
		3,4	T4HMIN	-15	
		3,5	dT1SH	5	
		3,6	dTSH	2	
		3,7	t_INTERVAL_H	5	
4	AUTO MODE SETTING				
5	TEMP TYPE SETTING	5,1	WATER FLOW TEMP	YES	NON
		5,2	ROOM TEMP	YES	NON
6	ROOM THERMOSTAT	6,1	ROOM THERMOSTAT	YES	NON
		6,2	MODE SETTING	YES	NON
		6,3	DUAL ROOM THERMOSTAT	YES	NON
7	OTHER HEATING SOURCE	7,1	BACKUP HEATER	YES	NON
		7,2	AHS	YES	NON
		7,2,1	HEAT MODE	YES	NON
		7,2,2	DHW MODE	YES	NON
		7,2,3	T4_AHS_ON	-5	
		7,2,4	dT1_AHS_ON	2	
		7,2,5	dT1_AHS_OFF	0	
		7,2,6	t_AHS_DELAY	30	
		7,3	SOLAR ENERGY	YES	NON

Settings to be changed for IDOLA HYBRID C

1	DHW MODE SETTING	1,1	DHW MODE	YES	NON
		2,1	COOL MODE	YES	NON
		2,2	T1S	LOW	HIGH
		2,3	T4CMAX	43	
		2,4	T4CMIN	10	
2	COOL MODE SETTING	2,5	dT1SC	5	
		2,6	dTSC	2	
		2,7	t_INTERVAL_C	5	
3	HEAT MODE SETTING	3,1	HEAT MODE	YES	NON
		3,2	T1S	LOW	HIGH
		3,3	T4HMAX	25	
		3,4	T4HMIN	-5	
		3,5	dT1SH	5	
		3,6	dTSH	2	
		3,7	t_INTERVAL_H	5	
4	AUTO MODE SETTING				
5	TEMP TYPE SETTING	5,1	WATER FLOW TEMP	YES	NON
		5,2	ROOM TEMP	YES	NON
6	ROOM THERMOSTAT	6,1	ROOM THERMOSTAT	YES	NON
		6,2	MODE SETTING	YES	NON
		6,3	DUAL ROOM THERMOSTAT	YES	NON
7	OTHER HEATING SOURCE	7,1	BACKUP HEATER	YES	NON
		7,2	AHS	YES	NON
		7,2,1	HEAT MODE	YES	NON
		7,2,2	DHW MODE	YES	NON
		7,2,3	T4_AHS_ON	2	
		7,2,4	dT1_AHS_ON	2	
		7,2,5	dT1_AHS_OFF	-5	
		7,2,6	t_AHS_DELAY	30	
		7,3	SOLAR ENERGY	YES	NON

Basic factory settings (vedi "8.13 Restore factory settings" on page 58)

Settings to be changed for IDOLA HYBRID C

REMOTE CONTROLLER - SERVICE MENU

Tabella parametri

N°	Code	Meaning	Setting range	Default	Adjust precision	UM
1	-	Working Mode	Auto, Cool, Heat, DHW	Heat/ Cool	/	/
2	-	Room setting temp	cooling:17~30	24	1	°C
			heating:17~30	24	1	°C
			auto:17~30	24	1	°C
3	-	Water outlet setting temp	Cooling 1: 5~25	7	1	°C
			Cooling 2: 18~25	18	1	°C
			Heating 1: 25~55	35	1	°C
			Heating 2: 35~60	45	1	°C
4	-	Domestic hot water tank DHW setting temp	40~60	50	1	°C
5	-	Screen lock time	60~300	120	10	S
6	-	Disinfect time	0:00~23:00	23.00	10	MIN
7	Pump running time (DHW time)	DHW water pump running time	5-120	5	1	MIN
8	-	Time	0:00~24:00		1	HOURL/ MIN
9	-	Date	01-01-2000~31-12-2099	01/01/2016	1	/
10	-	Silent level	1~2	1	1	/
11	T1S	Water outlet setting temp of the first heating floor	25~35	25	1	°C
12	t_firstFH	Running time of the first time heating floor	48~96	72	12	HOURL
13	T4DHWMAX	Max. operation ambient of DHW mode	35~43	43	1	°C
14	T4DHWMIN	Min. operation ambient of DHW mode	-20~5	-10	1	°C
15	dT1SC	Temp difference to start of water outlet temp in cooling mode (flow sensor)	2~10	5	1	°C
16	dTSC	Temp difference to start of room temp in cooling mode (room sensor)	1~10	2	1	°C
17	T4CMAX	Max. operation ambient temp in cooling mode	35~46	43	1	°C
18	T4CMIN	Min. operation ambient temp in cooling mode	-5~25	10	1	°C
19	dT1SH	Temp difference to start of water outlet temp in heating mode (flow sensor)	2~10	5	1	°C
20	dTSH	Temp difference to start of room temp in heating mode (room sensor)	1~10	2	1	°C
21	T4HMAX	Max. operation temp of heating mode	20~35	25	1	°C
22	T4HMIN	Min. operation temp of heating mode	-20~5	-5	1	°C
23	T4AUTOCMIN	Min. operation temp of cooling in Auto mode	20-29	25	1	°C
24	T4AUTOHMAX	Max. operation temp of heating in Auto mode	10-17	17	1	°C
25	T1S_H.A_H	Water outlet setting temp in holiday mode	20~25	25	1	°C
26	T5S_H.A_DHW	Water tank setting temp in holiday mode	20~25	25	1	°C
27	T5S_disinfect	Setting temp of Disinfect mode	60~70	65	1	°C
28	t_DI_HIGHTEMP.	Keep time when reach setting temp in disinfect mode	5~60	15	5	MIN
29	t_DI_max	Operation time of disinfect mode	90~300	210	5	MIN
30	t_DHWHP_MAX	Max. running time of DHW mode	10~600	120	5	MIN
31	t_DHWHP_RESTRICT	Max. running time of heat pump mode	10~600	10	5	MIN
32	dT5_ON	Temp difference to start of water temp in DHW mode	2~10	5	1	°C
33	dT1S5	Temp difference to start of water outlet temp in DHW mode	5~20	10	1	°C
34	t_TBH_DELAY	Activation delay time of DHW tank electrical heater	0~240	90	5	MIN
35	dT5_TBH_OFF	DHW tank temperature difference for DHW resistance deactivation	0~10	5	1	°C
36	T4_TBH_ON	Ambient temp of TBH start	-5~20	5	1	°C
37	T4_IBH_ON	Ambient temp of IBH start	-15~10	-5	1	°C
38	dT1_IBH_ON	Temp difference to start IBH	2~10	5	1	°C
39	t_IBH_DELAY	IBH delay Start Time	15~120	30	5	MIN
40	t_IBH12_DELAY	IBH1,2 delay Start time	5~30	5	5	MIN
41	T4_AHS_ON	Ambient setting temp of AHS start	-15~10	2	1	°C
42	dT1_AHS_ON	Temp different of AHS start	2~10	2	1	°C
43	dT1_AHS_OFF	Temp different of AHS stop	-5~0	-5	1	°C
44	t_AHS_DELAY	AHS Delay start time	5~120	30	5	MIN
45	t_INTERVAL_C	Compressor start interval time in cooling mode	5~30	5	1	MIN
46	t_INTERVAL_H	Compressor start interval time in heating mode	5~60	5	1	MIN
47	t_INTERVAL_DHW	Compressor start interval time in DHW mode	5~30	5	1	MIN
48	t_DRYUP	Running time of rise to T_DRYPEAK	4~15	8	1	DAY
49	t_HIGHPEAK	Keep time of reach the T_DRYPEAK	3~7	5	1	DAY
50	t_DRYD	Running time of reduce the water outlet temp	4~15	5	1	DAY
51	T_DRYPEAK	Water outlet Setting temp of floor drying mode	30~55	45	1	°C

9. BOILER CONTROLLER - USER MENU

9.1 Control panel boiler

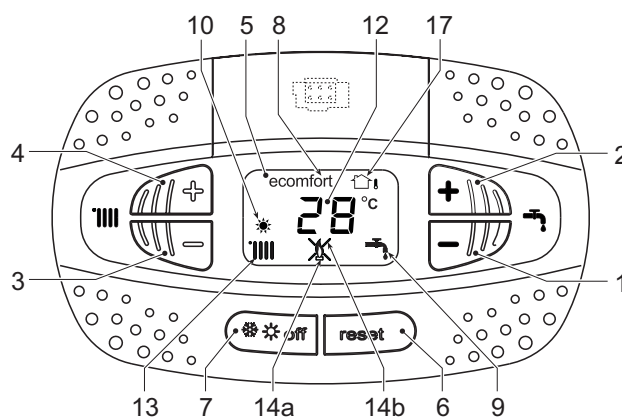


fig. 151 - Control panel

Panel legend fig. 151

- | | |
|---|---|
| 1 DHW temperature setting decrease button | 9 DHW mode |
| 2 DHW temperature setting increase button | 10 Summer mode |
| 3 Heating system temperature setting decrease button | 12 Multifunction (flashing during exchanger protection function) |
| 4 Heating system temperature setting increase button | 13 Heating |
| 5 Display | 14a Burner lit (flashing during calibration function and self-diagnosis phases) |
| 6 "Sliding Temperature" Menu - Reset button | 14b Appears when a fault has occurred causing the unit to shut down. To restore unit operation, press the RESET button (detail 6) |
| 7 Mode selection button: "Winter", "Summer", "Unit OFF", "ECO", "COMFORT" | 17 External sensor detected (with optional external probe) |
| 8 Eco (Economy) or Comfort mode | |

Indication during operation

Heating

A heating demand (generated by the Room Thermostat or Remote Timer Control) is indicated by activation of the radiator.

The display (detail 12 - fig. 151) shows the actual heating delivery temperature and, during heating standby time, the message "d2".

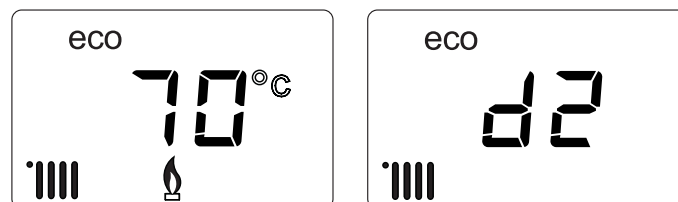


fig. 152 -

Domestic hot water (DHW)

A DHW demand (generated by drawing hot water) is indicated by activation of the faucet.

The display (detail 12 - fig. 151) shows the actual DHW outlet temperature and, during DHW standby time, the message "d1".

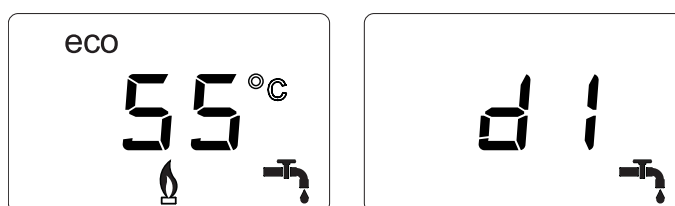


fig. 153 -

Comfort

A Comfort demand (reinstatement of temperature inside the boiler) is indicated by flashing of the Comfort symbol. The display (detail 12 - fig. 151) shows the actual temperature of the water in the boiler.

Fault

In case of a fault (see "11.2 Boiler faults") the display shows the fault code (detail 12 - fig. 151) and during safety pause times the messages "d3" and "d4".

9.2 Connection to the power supply, switching on and off

Boiler not electrically powered



To avoid damage caused by freezing during long idle periods in winter, it is advisable to drain all the water from the boiler.



fig. 154 - Boiler not electrically powered

Boiler electrically powered

Switch on the power to the boiler.

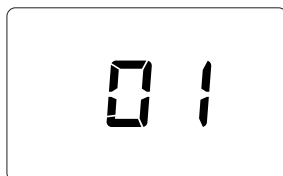


fig. 155 - Switching on / Software version

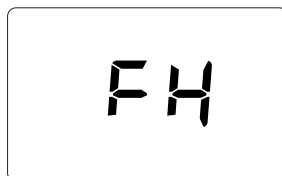


fig. 156 - Vent with fan on

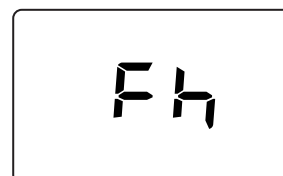


fig. 157 - Vent with fan off

During the first 5 seconds the display shows the card software version (fig. 155).

For the following 20 seconds the display will show FH which identifies the heating system air venting cycle with the fan running (fig. 156).

In the next 280 seconds, the venting cycle continues with the fan off (fig. 157).

Open the gas valve ahead of the boiler

When the message Fh disappears, the boiler is ready to operate automatically whenever domestic hot water is drawn or in case of a room thermostat demand

Turning the boiler off and on

To switch modes, press the winter/summer/off button, for about 1 second, in the order indicated in fig. 158.

A = Winter Mode

B = Summer Mode

C = Off Mode

To turn the boiler off, press the winter/summer/off button (detail 7 - fig. 151) repeatedly until the display shows dashes.

Spegnimento e accensione caldaia

È possibile passare da una modalità all'altra premendo il tasto **inverno/estate/off**, per circa un secondo, seguendo la successione riportata in fig. 158.

A = Modalità **Inverno**

B = Modalità **Estate**

C = Modalità **Off**

Per spegnere la caldaia, premere ripetutamente il tasto **inverno/estate/off** (part. 7 - fig. 151) fino a visualizzare i trattini sul display.

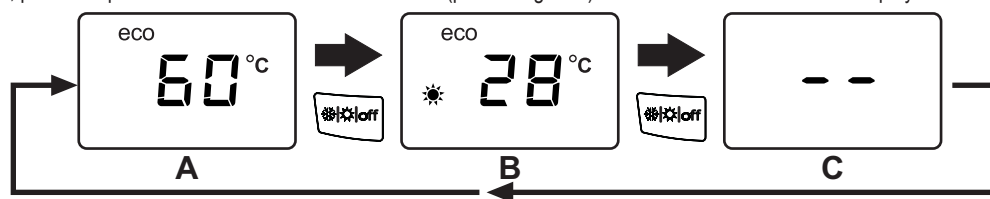


fig. 158 - Turning the boiler off

When the boiler is turned off, the circuit board is still powered. Domestic hot water and heating are disabled. The frost protection system remains activated. To relight the boiler, press the winter/summer/off button (detail 7 - fig. 151) twice.

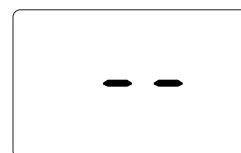


fig. 159 -

The boiler will be immediately ready in Winter and DHW mode.



The frost protection system does not work when the power and/or gas to the unit are turned off. To avoid damage caused by freezing during long shutdowns in winter, it is advisable to drain all water from the boiler, the DHW circuit and the heating system water; or drain just the DHW circuit and add a suitable antifreeze to the heating system, as prescribed "6.12 Indoor unit hydraulic connections" on page 20.

NOTE - If the sun symbol does not appear on the display but the multifunction numbers are present, the boiler is in "Winter" mode.

9.3 Adjustments

Winter/summer switchover

Press the winter/Summer/off button (detail 7 - fig. 151) until the display shows the Summer symbol (detail 10 - fig. 151): the boiler will only deliver domestic hot water. The frost protection system remains activated.



fig. 160 -

To reactivate the Winter mode, press the winter/Summer/off button (detail 7 - fig. 151) twice.



fig. 161 -

Heating temperature adjustment

Use the heating buttons (details 3 and 4 - fig. 151) to adjust the temperature from a min. of 20°C to a max. of 80°C.

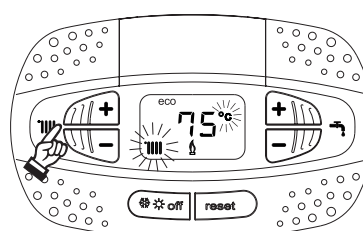


fig. 162 -

DHW temperature adjustment

Use the DHW buttons (detail 1 and 2 - fig. 151) to adjust the temperature from a min. of 40°C to a max. of 55°C.

! If little water is drawn and/or with a high water inlet temperature, the DHW outlet temperature may differ from the set temperature.

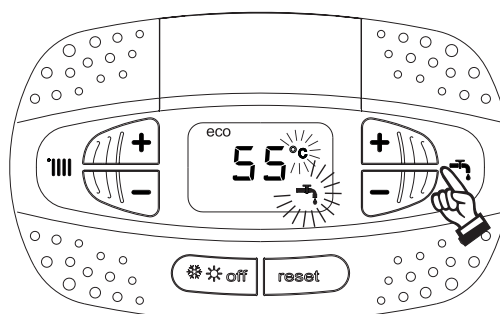


fig. 163 -

10. BOILER CONTROLLER - SERVICE MENU

! ALL ADJUSTMENTS DESCRIBED IN THIS SECTION CAN ONLY BE CARRIED OUT BY QUALIFIED PERSONNEL.

10.1 Adjustments

Gas conversion

The unit can work with 2nd or 3rd family gases, and this is clearly indicated on the packaging and on the data plate of the unit. If the unit has to be used with a gas other than the factory-set one, proceed as follows:

Disconnect the power supply and turn off the gas.

Remove the front panel (see "15.7 Extraordinary maintenance and replacement of heat pump components" on page 91).

Turn the Throttle ("fig. 165 -" on page 67) according to the position indicated in "Table. 7 - THROTTLE position and parameter setting".

Apply the label, contained in the conversion kit, near the data plate.

Refit the front panel and turn on the power to the boiler.

Modify the parameter for the type of gas:

Put the boiler in standby mode and press the Reset button (detail 6 - fig. 151) for 10 seconds.

The display shows 100 and the text "co" flashing; press the "Heating +" button (detail 4 - fig. 151) to set and view 120.

Then press the "DHW +" button (detail 2 - fig. 151) to set 123.

Press the Reset button once (detail 6 - fig. 151).

The display shows tS flashing; press the "Heating +" button once (detail 4 - fig. 151).

The display shows Sc flashing; press the Reset button once (detail 6 - fig. 151).

The display shows Sc alternating with 01 flashing;

Press the DHW buttons to set the parameter as per "THROTTLE position and parameter setting" on page 67.

press the "Heating +" button (detail 4 - fig. 151).

The display shows Sc alternating with 02 flashing;

Press the Reset button (detail 6 - fig. 151) for 10 seconds; the boiler will return to standby.

The fan will be activated for about 20 seconds.

Turn on the gas.

MAKE SURE THE FRONT CASING IS CLOSED AND THE INTAKE/FUME EXHAUST DUCTS ARE COMPLETELY ASSEMBLED

Put the boiler in heating or DHW mode for at least 2 minutes. During this period the boiler performs a calibration and the flame symbol flashes on the display. The end of calibration is indicated by the flame symbol steady on the display.

Check the combustion values (see following par.).

Table. 7 - THROTTLE position and parameter setting

Gas family	Gas type	Throttle position	Parameter setting
2 nd	G20 - G25 - G27 - G25.1 - G25.3	1	nA
2 nd	G230	1	LP
3 rd	G30 - G31	2	LP

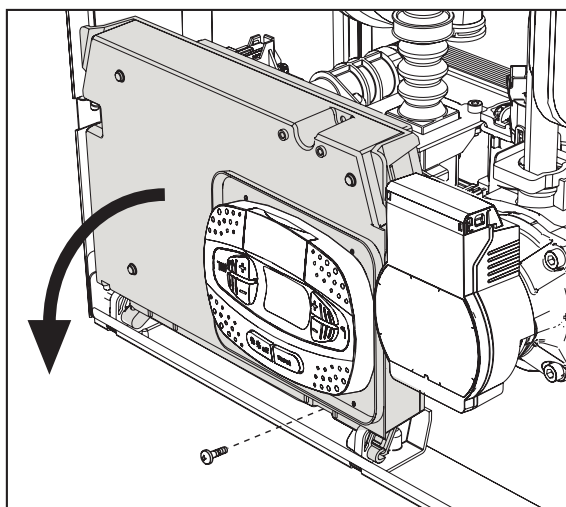


fig. 164 -

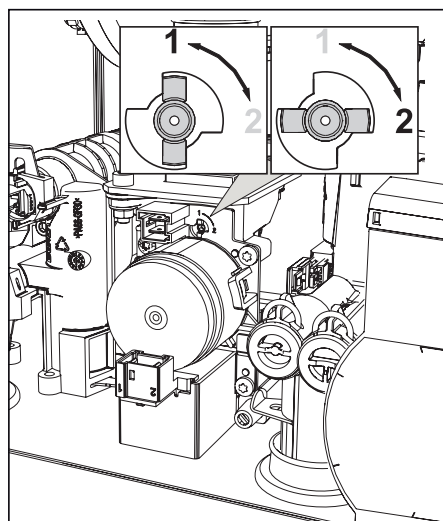


fig. 165 -

BOILER CONTROLLER - SERVICE MENU

Checking the combustion values

MAKE SURE THE FRONT CASING IS CLOSED AND THE INTAKE/FUME EXHAUST DUCTS ARE COMPLETELY ASSEMBLED.

1. Put the boiler in heating or DHW mode for at least 2 minutes. During this period if the flame symbol flashes on the display, it means that the boiler is performing a calibration. Wait until the flame becomes steady (end of calibration).
2. Activate the TEST mode (see "TEST mode activation" on page 68).
3. By means of a combustion analyzer, connected to the points located on the starting accessories above the boiler, check that the CO₂ content in the fumes, with boiler working at maximum and minimum output, matches that given in the following table.

Case studies		G20	G30/G31	G230
A	New boiler (first ignition/conversion or electrode replacement)	7,5%-9,9%	9%-11,5%	9%-11,5%
B	Boiler with at least 500 hours of operation	9%+/-0,8	10%+/-0,8	10%+/-0,8

4. If the combustion values do not match, perform the 100% calibration as described in the following paragraph.
5. Case A: if the values still do not match, do not activate other calibrations, as the system needs to work longer to be able to self-adapt.
6. Case B: if the values still do not match yet, proceed with activation of the parameter SC12 or SC13, depending on the type of adjustment necessary (see "SC" - Combustion Control Parameters Menu" on page 72)

100% calibration

IMPORTANT: DURING THE AUTOMATIC CALIBRATION PROCEDURE AND CHECK OF THE CO₂ VALUE, THE FRONT CASING OF THE BOILER MUST BE CLOSED AND THE INTAKE/FUME EXHAUST DUCTS COMPLETELY ASSEMBLED.

100% calibration, manual

Calibration procedure.

- 100% calibration, manual
- Calibration procedure.
- Put the boiler (preferably) in heating mode or else in DHW mode. Press the Reset button (detail 6 - fig. 151) for 10 seconds.
- The display shows 100 and the text "Co" flashing; press the "Heating +" button (ref. 4 fig. 151) to set and view 120.
- Then press the "DHW +" button (ref. 2 fig. 151) to set 123.
- Press the Reset button (ref. 6 fig. 151) once.
- The display shows Ts flashing; press the "heating +" button (ref. 4 fig. 151) once.
- The display shows Sc flashing; press the reset button once.
- The display shows Sc alternating with 01 flashing;
- Press the "heating +" button (ref. 4 fig. 151) until displaying Sc alternately with 15 flashing;
- Press the "DHW +" button and the display shows "00";
- Press the "DHW +" button and the display shows "01";
- Press the "heating +" button (ref. 4 fig. 151) and the 100% calibration mode will activate, displaying the message "CA" and "LI" alternating.
- After calibration, the display will show Sc alternating with 15 flashing.
- Press Reset (ref. 6 fig. 151) for 10 seconds to exit the Sc menu.

100% calibration, automatic

Automatic calibration can take place in some cases in the absence of a DHW or heating demand or after a reset due to a fault and is indicated on the display by the flashing flame symbol.

Loading parameters with "BCC KEY"

The "BCC KEY" device allows the updating of combustion parameters for boiler type.

It is used in case of replacement of the PCB of some boiler models.

To use the "BCC KEY", refer to the instructions contained in the kit code 3980H730.

TEST mode activation

Perform a heating or DHW demand.

Press the heating buttons (detail 3 and 4 - fig. 151) together for 5 seconds to activate TEST mode. The boiler lights at the maximum heating power set as described in the following section.

The heating and DHW symbols (fig. 166) flash on the display; the heating power will appear alongside.

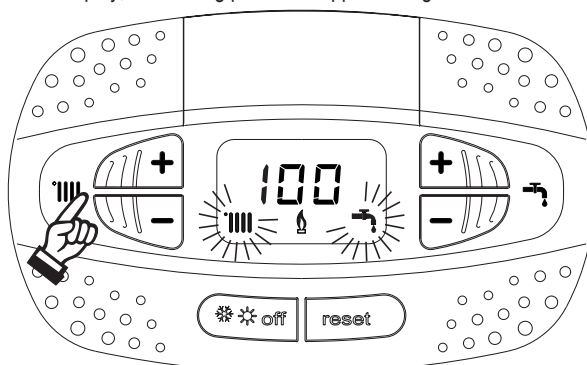


fig. 166 - TEST mode (heating power = 100%)

BOILER CONTROLLER - SERVICE MENU

Press the heating buttons (details 3 and 4 - fig. 151) to increase or decrease the power (Minimum=0%, Maximum=100%).

By pressing the DHW "-" button (detail 1 - fig. 151), boiler output is immediately adjusted to minimum (0%).

Wait about 1 minute for stabilisation.

By pressing the DHW "+" button (detail 2 - fig. 151), boiler output is immediately adjusted to maximum (100%).

If the TEST mode is activated and enough hot water is drawn to activate the DHW mode, the boiler remains in TEST mode but the 3-way valve goes to DHW.

To deactivate the TEST mode, press the heating buttons simultaneously (details 3 and 4 - fig. 151) for 5 seconds.

The TEST mode is automatically disabled in any case after 15 minutes or on stopping of hot water drawing (if enough hot water is drawn to activate DHW mode).

Heating power adjustment

To adjust the heating power, switch the boiler to TEST mode (see "10.1 Adjustments" on page 67). Press the heating buttons detail 3 - fig. 151 to increase or decrease the power (min. = 00 - max. = 100). Press the reset button within 5 seconds and the max. power will remain that just set. Exit TEST mode (see "10.1 Adjustments" on page 67).

Service menu

ONLY QUALIFIED PERSONNEL CAN ACCESS THE SERVICE MENU AND MODIFY PARAMETERS..

The card Service Menu is accessed by pressing the Reset button for 10 seconds.

The display will show: "100" and the message "co" flashing.

Then set "103" with the DHW buttons, with the heating buttons set "123" and confirm by pressing the Reset button.

Five submenus are available: press the Heating buttons to select, in increasing or decreasing order, "tS", "sC", "In", "Hi" or "rE".

To enter the selected menu, press the reset button once.

"tS" - Transparent Parameters Menu

Press the Heating buttons to scroll the list of parameters in increasing or decreasing order. Press the DHW buttons to view or modify the value of a parameter: the change will be automatically saved.

0=Disattivato	Descrizione	Range	Default
b01	Boiler type selection	1 = BITHERMAL INSTANTANEOUS 2 = MONOTHERMAL HEATING only (also with OPTIONAL STORAGE TANK) 3 = MONOTHERMAL COMBI 4 = MONOTHERMAL with STORAGE TANK	3=RRT
b02	Exchanger type	1 ÷ 4	1
b03	Absolute Maximum Heating Power (b02=1)	0 ÷ 100% (Do not modify the value)	83%
	Absolute Maximum Heating Power (b02=2)	0 ÷ 100% (Do not modify the value)	85%
	Absolute Maximum Heating Power (b02=3)	0 ÷ 100% (Do not modify the value)	85%
	Absolute Maximum Heating Power (b02=4)	0 ÷ 100% (Do not modify the value)	90%
b04	System water pressure protection selection	0=Pressure switch, 1=Pressure transducer	0=Pressure switch
b05	Summer / Winter function	0 = WINTER - SUMMER - OFF 1 = WINTER - OFF	0 = Enabled
b06	Variable input contact operation selection (b01=1)	0=Flowmeter off, 1=System thermostat, 2=Second room thermostat, 3=Warning/Notification, 4=Safety thermostat	2=Second room therm.
	Variable input contact operation selection (b01=2)	0=Continuous Comfort, 1=System thermostat, 2=Second room thermostat, 3=Warning/Notification, 4=Safety thermostat	2=Second room therm.
	Variable input contact operation selection (b01=3)	0=Flowmeter off, 1=System thermostat, 2=Second room thermostat, 3=Warning/Notification, 4=Safety thermostat	2=Second room therm.
	Variable input contact operation selection (b01=4)	0=Continuous Comfort, 1=System thermostat, 2=Second room thermostat, 3=Warning/Notification, 4=Safety thermostat	2=Second room therm.
b07	Relay card LC32 operation selection (b01=1)	0=External gas valve, 1=Alarm, 2=System loading solenoid valve, 3=solar 3-way valve, 4=Second heating pump, 5=Alarm2, 6=Burner On, 7=Frost protection active.	0=External gas valve
	Relay card LC32 operation selection (b01=2)	0=External gas valve, 1=Alarm, 2=System loading solenoid valve, 3=Legionella pump, 4=Second heating pump, 5=Alarm2, 6=Burner On, 7=Frost protection active.	0=External gas valve
	Relay card LC32 operation selection (b01=3)	0=External gas valve, 1=Alarm, 2=System loading solenoid valve, 3=solar 3-way valve, 4=Second heating pump, 5=Alarm2, 6=Burner On, 7=Frost protection active.	0=External gas valve
	Relay card LC32 operation selection (b01=4)	0=External gas valve, 1=Alarm, 2=System loading solenoid valve, 3=solar 3-way valve, 4=Second heating pump, 5=Alarm2, 6=Burner On, 7=Frost protection active.	0=External gas valve
b08	Hours without DHW drawn (b01=1)	0-24 hours (time for temporary deactivation of comfort mode without drawing)	24 hours
	No effect on adjustment (b01=2)	0-24 hours (time for temporary deactivation of comfort mode without drawing)	24 hours
	Hours without DHW drawn (b01=3)	0-24 hours (time for temporary deactivation of comfort mode without drawing)	24 hours
	No effect on adjustment (b01=4)	0-24 hours (time for temporary deactivation of comfort mode without drawing)	24 hours
b09	Fault 20 status selection	0=Deactivated, 1=Enabled (Only for versions with pressure transducer)	0=Deactivated
b10	Comfort burner on time (b01=1)	0-40 seconds	15 seconds
	Not implemented (b01=2)	--	--
	Not implemented (b01=3)	--	--
	Not implemented (b01=4)	--	--
b11	Flowmeter timing (b01=1)	0=Deactivated, 1-10=seconds	0=Deactivated
	Storage tank preparation mode (b01=2)	0=Fixed primary, 1=Linked to setpoint, 2=Ramp	0=Fixed primary
	Flowmeter timing (b01=3)	0=Deactivated, 1-10=seconds	0=Deactivated
	Storage tank preparation mode (b01=4)	0=Fixed primary, 1=Linked to setpoint, 2=Ramp	0=Fixed primary

BOILER CONTROLLER - SERVICE MENU

0=Disattivato	Descrizione	Range	Default
b12	Modulation delta (b01=1)	0-30°C/10	0°C/10
	Priority override - Activation (b01=2)	0-255 minutes	30 minutes
	Modulation delta (b01=3)	0-30°C/10	0°C/10
	Priority override - Activation (b01=4)	0-255 minutes	30 minutes
b13	Not implemented (b01=1)	--	--
	Priority override - Deactivation (b01=2)	0-255 minutes	15 minutes
	Not implemented (b01=3)	--	--
	Priority override - Deactivation (b01=4)	0-255 minutes	15 minutes
b14	Pump antiblock operation time	0-20 seconds	5 seconds
b15	Flowmeter type selection (b01=1)	0=Flow. (450 imp/l), 1=Flow. (700 imp/l), 2= Flow. (190 imp/l)	2= Flowmeter (190 imp/l)
	No effect on adjustment (b01=2)	0=Flow. (450 imp/l), 1=Flow. (700 imp/l), 2= Flow. (190 imp/l)	2= Flowmeter (190 imp/l)
	Flowmeter type selection (b01=3)	0=Flow. (450 imp/l), 1=Flow. (700 imp/l), 2= Flow. (190 imp/l)	2= Flowmeter (190 imp/l)
	No effect on adjustment (b01=4)	0=Flow. (450 imp/l), 1=Flow. (700 imp/l), 2= Flow. (190 imp/l)	2= Flowmeter (190 imp/l)
b16	Fan frequency in standby mode	0-100%	0%
b17	Summer/Winter symbol	0 = Disabled, 1 = Enabled	0 = Disabled
b18	DHW mode activation flow rate (b01=1)	0-100L/min/10	25
	No effect on adjustment (b01=2)	0-100L/min/10	25
	DHW mode activation flow rate (b01=3)	0-100L/min/10	25
	No effect on adjustment (b01=4)	0-100L/min/10	25
b19	DHW mode deactivation flow rate (b01=1)	0-100L/min/10	20
	No effect on adjustment (b01=2)	0-100L/min/10	20
	DHW mode deactivation flow rate (b01=3)	0-100L/min/10	20
	No effect on adjustment (b01=4)	0-100L/min/10	20
b20	Flue material selection	0=Standard, 1=PVC, 2=CPVC	0=Standard
b21	PVC flue maximum temperature	60-110°C	88°C
b22	CPVC flue maximum temperature	60-110°C	93°C
b23	Standard flue shutdown maximum temperature	60-110°C	100°C
b24	PVC flue shutdown maximum temperature	60-110°C	93°C
b25	CPVC flue shutdown maximum temperature	60-110°C	98°C
b26	Flow temperature limit in automatic calibration	25°C + 55°C	30°C
b27	Maximum temperature during calibration in DHW mode	75°C + 95°C	80°C
b28	Flowmeter sensitivity factor	0 + 60 (0 = disabled)	20
b29	Restoring Factory Values	Change the value from 0 to 10 by pressing the "DHW +" button. Confirm by pressing the "heating +" button.	-
P30	Heating ramp	1-20°C/minute	4°C/minute
P31	Virtual setpoint min. temperature (b01=1)	0=Deactivated, 1-80°C	0=Deactivated
	Virtual setpoint min. temperature (b01=2)	0=Deactivated, 1-80°C	0=Deactivated
	Virtual setpoint min. temperature (b01=3)	0=Deactivated, 1-80°C	0=Deactivated
	Virtual setpoint min. temperature (b01=4)	0=Deactivated, 1-80°C	0=Deactivated
P32	Heating standby time	0-10 minutes	4 minutes
P33	Heating Post-Circulation	0-255 minutes	15 minutes
P34	Pump operation	0-3 = Operation strategy	2
P35	Modulating pump min. speed	30-100%	30%
P36	Modulating pump start speed	90-100%	90%
P37	Modulating pump max. speed	90-100%	100%
P38	Pump deactivation temperature during Post-Circulation (b01=1)	0-100°C	50°C
	Pump deactivation temperature during Post-Circulation (b01=2)	0-100°C	55°C
	Pump deactivation temperature during Post-Circulation (b01=3)	0-100°C	55°C
	Pump deactivation temperature during Post-Circulation (b01=4)	0-100°C	55°C
P39	Pump activation hysteresis temperature during Post-Circulation (b01=1)	0-100°C	10°C
	Pump activation hysteresis temperature during Post-Circulation (b01=2)	0-100°C	25°C
	Pump activation hysteresis temperature during Post-Circulation (b01=3)	0-100°C	25°C
	Pump activation hysteresis temperature during Post-Circulation (b01=4)	0-100°C	25°C
P40	Heating user max. setpoint	20-90°C	80°C
P41	Max. output in heating	0-100%	80%
P42	Burner shutdown in DHW (b01=1)	0=Fixed, 1=Linked to setpoint, 2=Solar	0=Fixed
	Legionella protection (b01=2)	0-7=Days of activation (1 = Once every 24 hours / 7= Once every 168 hours)	0=No protection
	Burner shutdown in DHW (b01=3)	0=Fixed, 1=Linked to setpoint, 2=Solar	0=Fixed
	Legionella protection (b01=4)	0-7=Activation days	0=No protection
P43	Comfort activation temperature (b01=1)	0-50°C	40°C
	Storage tank hysteresis (b01=2)	0-60°C	2°C
	Comfort activation temperature (b01=3)	0-80°C	40°C
	Storage tank hysteresis (b01=4)	0-60°C	2°C
P44	Not used (b01=1)	Do not modify	0
	Primary setpoint (b01=2)	70-85°C (Primary circuit temperature adjustment in DHW)	80°C
	Comfort deactivation hysteresis (b01=3)	0-20°C	20°C
	Primary setpoint (b01=4)	70-85°C (Primary circuit temperature adjustment in DHW)	80°C
P45	DHW standby time (b01=1)	30-255 seconds	60 seconds
	DHW standby time (b01=2)	30-255 seconds	120 seconds
	DHW standby time (b01=3)	30-255 seconds	120 seconds
	DHW standby time (b01=4)	30-255 seconds	120 seconds
P46	DHW user max. setpoint (b01=1)	40-70°C	55°C
	DHW user max. setpoint (b01=2)	40-70°C	65°C
	DHW user max. setpoint (b01=3)	40-70°C	55°C
	DHW user max. setpoint (b01=4)	40-70°C	65°C
P47	DHW pump Post-Circulation (b01=1)	0-255 seconds	50 seconds
	DHW pump Post-Circulation (b01=2)	0-255 seconds	30 seconds
	DHW pump Post-Circulation (b01=3)	0-255 seconds	30 seconds
	DHW pump Post-Circulation (b01=4)	0-255 seconds	30 seconds

BOILER CONTROLLER - SERVICE MENU

0=Disattivato	Descrizione	Range	Default
P48	DHW maximum power (b02=1)	0-100%	100%
	DHW maximum power (b02=2)	0-100%	100%
	DHW maximum power (b02=3)	0-100%	94%
	DHW maximum power (b02=4)	0-100%	100%
P49	Comfort1 standby time (b01=1)	0-100minutes	20 minutes
	Not implemented (b01=2)	--	--
	Not implemented (b01=3)	--	--
	Not implemented (b01=4)	--	--
P50	Comfort2 standby time (b01=1)	0-100 minutes	42 minutes
	Not implemented (b01=2)	--	--
	Not implemented (b01=3)	--	--
	Not implemented (b01=4)	--	--
P51	Solar deactivation temperature (b01=1)	0-100°C	10°C
	Setpoint deltaT (b01=2)	0-20°C	0°C
	Solar deactivation temperature (b01=3)	0-100°C	10°C
	Setpoint deltaT (b01=4)	0-20°C	0°C
P52	Solar ignition temperature (b01=1)	0-100°C	10°C
	DHW ramp (b01=2)	1-20°C/minute	5°C/minute
	Solar ignition temperature (b01=3)	0-100°C	10°C
	DHW ramp (b01=4)	1-20°C/minute	5°C/minute
P53	Solar standby time (b01=1)	0-255 seconds	10 seconds
	No effect on adjustment (b01=2)	0-255 seconds	0 seconds
	Solar standby time (b01=3)	0-255 seconds	10 seconds
	No effect on adjustment (b01=4)	0-255 seconds	0 seconds
P54	Heating deltaT temperature adjustment (b01=1)	0-60°C	18°C
	Heating deltaT temperature adjustment (b01=2)	0-60°C	18°C
	Heating deltaT temperature adjustment (b01=3)	0-60°C	18°C
	Heating deltaT temperature adjustment (b01=4)	0-60°C	18°C
P55	Primary exchanger protection temperature (b01=1)	0-150°C	43°C
	Primary exchanger protection temperature (b01=2)	0-150°C	43°C
	Primary exchanger protection temperature (b01=3)	0-150°C	43°C
	Primary exchanger protection temperature (b01=4)	0-150°C	43°C
P56	System min. pressure value	0-8bar/10 (Only for boilers with water pressure sensor)	4 bar/10
P57	System nominal pressure value	5-20bar/10 (Only for boilers with water pressure sensor)	7 bar/10
P58	Exchanger protection intervention (b01=1)	0=No F43, 1-15=1-15°C/second	10°C/second
	Exchanger protection intervention (b01=2)	0=No F43, 1-15=1-15°C/second	10°C/second
	Exchanger protection intervention (b01=3)	0=No F43, 1-15=1-15°C/second	10°C/second
	Exchanger protection intervention (b01=4)	0=No F43, 1-15=1-15°C/second	10°C/second
P59	Heating hysteresis after ignition	6-30°C	30°C
P60	Timer for heating hysteresis after ignition	60-180 seconds	60 seconds
P61	Pump deactivation with OpenTherm (ACTIVE ONLY WITH FW 3)	0-1	0

Note:

- Parameters with more than one description vary their function and/or range in relation to the setting of the parameter given in brackets.
- Parameters with more than one description are reset to the default value if the parameter given in brackets is modified.
- The Maximum Heating Power parameter can also be modified in Test Mode.

Press the Reset button to return to the Service Menu. Press the Reset button for 20 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes.

BOILER CONTROLLER - SERVICE MENU

“Sc” - Combustion Control Parameters Menu

ONLY QUALIFIED PERSONNEL CAN ACCESS THE “SC” MENU AND MODIFY THE RELEVANT PARAMETERS.

Press the Heating buttons to scroll the list of parameters in increasing or decreasing order. Press the DHW buttons to view or modify the value of a parameter. To save the edited parameter press either the heating “+” or “-” button (details 3 and 4 - fig. 151) .

Contents	Description	Functional description	Range	Default
Sc01	Gas type selection	Allows the change of gas type. See “Gas conversion” on page 67	na / LP	na
Sc02	Ignition gas calibration	Allows the amount of gas to be increased or decreased in the ignition phase in case of difficult starting.	-9 ÷ 20	0
Sc03	Ignition power	Allows the fan speed to be increased or decreased in the ignition phase in case of difficult starting.	-16 ÷ 14	0
Sc04	Flue length	Allows the boiler to be arranged according to the width and length of the flue used. To be used only with Ø50 or Ø60 flues. See fig. 31.	-2 ÷ 13	0
Sc05	Minimum power calibration	Allows the minimum power to be increased, if necessary.	0 ÷ 25	0
Sc06	Minimum gas valve calibration	Self-adaptive parameter. DO NOT MODIFY.		
Sc07	Flame ionization signal	Displays the actual ionization current signal.	Read only	
Sc08	Current power ref. DHW	Displays the actual power referred to maximum power in DHW.	Read only	
Sc09	MAX ionization value	Displays the maximum ionization value reached.	Read only	
Sc10	Minimum ionization value during ignition	Displays the minimum ionization value reached during the ignition phase.	Read only	
Sc11	Ignition time	Displays the time from fan activation to ionization.	Read only	
Sc12*	Ionization reduction value (BASE)	Allows the adjustment of CO ₂ at the same time as maximum and minimum power, translating the entire value curve.	-5 ÷ 10	0
Sc13**	Ionization reduction value (min.)	Allows the adjustment of CO ₂ at minimum power.	-5 ÷ 10	0
Sc14	Internal error K1	Displays the SCOT system error code.	Read only	
Sc15	100% CALIBRATION	Allows 100% Calibration (see “100% calibration” on page 68) when replacing some components (see “15.9 Boiler - Extraordinary maintenance and replacement of components” on page 92)	0 - CAL	0
Sc16	DO NOT MODIFY.			

PARAMETERS “SC12” AND “SC13” MUST BE MODIFIED, IF STRICTLY NECESSARY, BY QUALIFIED PERSONNEL AND ONLY WHEN THE CO₂ VALUES ARE OUTSIDE THE RANGE INDICATED IN “Table. 1 - Boiler technical data” on page 9. CARRY OUT THE PROCEDURE AFTER AT LEAST 500 HOURS OF BOILER OPERATION.

SC12 regulates the CO₂ at the same time at maximum and minimum power. By increasing the parameter value the CO₂ decreases; by decreasing the parameter value the CO₂ increases.

** SC13 regulates the CO₂ at minimum power. By increasing the parameter value the CO₂ decreases; by decreasing the parameter value the CO₂ increases.

Procedure for modifying parameter SC12::

- Put the boiler in heating or DHW mode and press the reset button (ref. 6 fig. 151) for 10 seconds.
- The display shows 100 and the text “Co” flashing; press the “Heating +” button (ref. 4 fig. 151) to set and view 120.
- Then press the “DHW +” button (ref. 2 fig. 151) to set 123.
- Press the reset button (ref. 6 fig. 151) once.
- The display shows Ts flashing; press the “heating +” button (ref. 4 fig. 151) once.
- The display shows Sc flashing; press the reset button once.
- The display shows Sc alternating with 01 flashing;
- Press the “heating +” button (ref. 4 fig. 151) until displaying Sc alternately with 15 flashing;
- Press the “DHW +” button and the display shows “00”;
- Press the “DHW +” button until the display shows “02”;
- Press the “heating +” button (ref. 4 fig. 151) to confirm and the 100% calibration mode will activate displaying the message “CA” and “LI” alternating.
- after just over a minute the calibration mode will end and the display will show “C” alternating with “12” with the continuous flame symbol.
- press the “DHW +” or “DHW -” button to set the “SC12” parameter value to the value that allows CO₂ optimization.
- press the “heating +” button to confirm the value. The display shows “Sc” alternating with “15”.
- Press the Reset button to return to the Service Menu. Press the Reset button for 10 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes
- put the boiler in TEST mode and check the CO₂ value at maximum and minimum power with an analysis instrument.

BOILER CONTROLLER - SERVICE MENU

Procedure for modifying parameters SC12 and SC13:

- Put the boiler in heating or DHW mode and press the Reset button (ref. 6 fig. 151) for 10 seconds.
- The display shows 100 and the text "Co" flashing; press the "Heating +" button (ref. 4 fig. 151) to set and view 120.
- Then press the "DHW +" button (ref. 2 fig. 151) to set 123.
- Press the Reset button (ref. 6 fig. 151) once.
- The display shows Ts flashing; press the "heating +" button (ref. 4 fig. 151) once.
- The display shows Sc flashing; press the reset button once.
- The display shows Sc alternating with 01 flashing;
- Press the "heating +" button (ref. 4 fig. 151) until displaying Sc alternately with 15 flashing;
- Press the "DHW +" button and the display shows "00";
- Press the "DHW +" button until the display shows "03";
- Press the "heating +" button (ref. 4 fig. 1) to confirm and the 100% calibration mode will activate displaying the message "CA" and "LI" alternating.
- after just over a minute the calibration mode will end and the display will show "C" alternating with "12" with the continuous flame symbol.
- press the "DHW +" or "DHW -" button to set the "SC12" parameter value to the value that allows CO2 optimisation.
- press the "heating +" button to confirm the value. The display shows "CA" and "LI" alternately to indicate that a further calibration is being performed.
- after just over a minute the calibration mode will end and the display will show "C" alternating with "15" with the continuous flame symbol.
- press the "DHW +" or "DHW -" button to set the "SC13" parameter value to the value that allows CO2 optimization.
- press the "heating +" button to confirm the value. The display "SC" appears alternately to "15".
- Press the Reset button to return to the Service Menu. Press the Reset button for 10 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes
- put the boiler in TEST mode and check the CO2 value at maximum and minimum power with an analysis instrument.

"In" - Information Menu

12 pieces of information are available.

Press the Heating buttons to scroll the list of information in increasing or decreasing order. Press the DHW buttons to display the value.

Contents	Description	Range
t01	NTC hot water outlet sensor (°C)	0÷125 °C
t02	NTC hot water inlet sensor (°C)	0÷125 °C
t03	NTC DHW sensor (°C)	0÷125 °C
t04 (not used)	NTC External sensor (°C)	+70 ÷ -30°C (negative values flash)
t05	NTC Fume sensor (°C)	0÷125 °C
F06	Actual fan rpm	00÷120 x100RPM
L07	Actual burner power (%)	00%=Min., 100%=Max.
F08	Actual DHW drawing (l/min/10)	00÷99 l/min/10
P09	Actual system water pressure (bar/10)	00=With Pressure switch open, 14=With Pressure switch open, 00-99 bar/10 with Pressure transducer
P10	Actual modulating pump speed (%)	00÷100%
P11	Burner operating hours	00÷99 x 100 hours
F12	Flame status	00÷255

Notes:

In case of damaged sensor, the card displays hyphens.

Press the Reset button to return to the Service Menu. Press the Reset button for 10 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes.

"Hi" - History Menu

The card can store the last 8 faults: the History datum item H1 represents the most recent fault that occurred, whereas the History datum item H08 represents the least recent.

The codes of the faults saved are also displayed in the relevant menu of the Remote Timer Control.

Press the Heating buttons to scroll the list of faults in increasing or decreasing order. Press the DHW buttons to display the value.

Press the Reset button to return to the Service Menu. Press the Reset button for 10 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes.

"rE" - History Reset

Press the Winter/Summer/Off-On button for 3 seconds to delete all faults stored in the History Menu: the card automatically exits the Service Menu, in order to confirm the operation.

Press the Reset button for 10 seconds to exit the card Service Menu, or exiting occurs automatically after 15 minutes.

11. ALARMS

11.1 Heat pump alarms

This section provides useful information for diagnosing and correcting some problems that may occur in the unit.

Troubleshooting and related corrective actions can only be performed by the technical assistance service.

Before starting the troubleshooting procedure, carry out a complete visual inspection of the unit and look for obvious defects, such as loose connections or faulty wiring.

 **If you need to access and control the electrical panel of the unit, always remove the power supply to the unit and to the various loads managed by it.**

When a safety device intervenes, stop the unit and after understanding and removing the cause of the problem it will be possible to reset the device itself and restart the unit. In no case is the operation of the unit allowed with safety devices bypassed or modified to a intervention value different from the factory setting. If you cannot find the cause of the problem, contact the technical assistance service.

Possible malfunctioning

The unit is turned on but the unit is not heating or cooling as expected

POSSIBLE CAUSES	CORRECTIVE ACTION
The temperature setting is not correct.	Check the controller set point. T4HMAX, T4HMIN in heat mode. T4CMAX, T4CMIN in cool mode. T4DHWMAX, T4DHWMIN in DHW mode.
The water flow is too low.	<ul style="list-style-type: none"> Check that all shut off valves of the water circuit are completely open. Check if the water filter needs cleaning. Make sure there is no air in the system (purge air). Check on the manometer that there is sufficient water pressure. The water pressure must be >1 bar (water is cold). Make sure that the expansion vessel is not broken. Check that the resistance in the water circuit is not too high for the pump
The water volume in the installation is too low.	Make sure that the water volume in the installation is above the minimum required value (refer to "9.3 water pipework/Checking the water volume and expansion vessel pre-pressure").

Pump is making noise (cavitation)

POSSIBLE CAUSES	CORRECTIVE ACTION
There is air in the system.	Purge air.
Water pressure at pump inlet is too low.	<ul style="list-style-type: none"> Check on the manometer that there is sufficient water pressure. The water pressure must be > 1 bar (water is cold). Check that the manometer is not broken. Check that the expansion vessel is not broken. Check that the setting of the pre- pressure of the expansion vessel is correct (refer to "9.3 water pipework/Checking the water volume and expansion vessel pre-pressure").

The water pressure relief valve opens

POSSIBLE CAUSES	CORRECTIVE ACTION
The expansion vessel is broken.	Replace the expansion vessel.
The filling water pressure in the installation is higher than 0.3MPa.	Make sure that the filling water pressure in the installation is about 0.15~0.20MPa (refer to "9.3 water pipework/Checking the water volume and expansion vessel pre-pressure").

The water pressure relief valve leaks

POSSIBLE CAUSES	CORRECTIVE ACTION
Dirt is blocking the water pressure relief valve outlet.	<p>Check for correct operation of the pressure relief valve by turning the red knob on the valve counter clockWise:</p> <ul style="list-style-type: none"> If you do not hear a clacking sound, contact your local dealer. In case the water keeps running out of the unit, close both the water inlet and outlet shut-off valves first and then contact your local dealer.

ALARMS

Space heating capacity shortage at low outdoor temperatures

POSSIBLE CAUSES	CORRECTIVE ACTION
Backup heater operation is not activated.	Check that the "OTHER HEATING SOURCE/ BACKUP HEATER" is enabled, see "10.7 Field settings" Check whether or not the thermal protector of the backup heater has been activated (refer to 9.2.3 Switch box main components (door 2), "Backup heater thermal protector" for location of the reset button). Check if booster heater is running, the backup heater and booster heater can't operate simultaneously.
Too much heat pump capacity is used for heating domestic hot water (applies only to installations with a domestic hot water tank).	Check that the "t_DHWHP_MAX" and "t_DHWHP_RESTRICT" are configured appropriately: <ul style="list-style-type: none"> • Make sure that the 'DHW PRIORITY' in the user interface is disabled. • Enable the "T4_TBH_ON" in the user interface/FOR SERVICEMAN to activate the booster heater for domestic water heating.

When a safety device is activated, an error code will be displayed on the user interface.

A list of all errors and corrective actions can be found in the table below.

Reset the safety by turning the unit OFF and back ON.

In case this procedure for resetting the safety is not successful, contact your local dealer.

Table. 8 - ALARM TABLE - REMOTE CONTROL

Error code	Malfunction or protection	Failure cause and Corrective action
E0	Flow switch error(E8 displayed 3 times)	<ol style="list-style-type: none"> 1.The wire circuit is short connected or open. Reconnect the wire correctly. 2.Water flow rate is too low. 3. Water flow switch is failed, switch is open or close continuously, change the water flow switch.
E1	Phase sequence fault (only for three-phase unit)	<ol style="list-style-type: none"> 1.Check the power supply cables should be connected stable, to avoid phase loss. 2.Check the power supply cables sequence, change any two cables sequence of the three power supply cables.
E2	Communication error between wired controller and unit	<ol style="list-style-type: none"> 1.wire doesn't connect between wired controller and unit. Connect the wire. 2.Communication wire sequence is not right. Reconnect the wire in the right sequence. 3. Whether there is a high magnetic field or high power interfere, such as lifts, large power transformers, etc.. <p>To add a barrier to protect the unit or to move the unit to the other place.</p>
E3	The backup heater exchanger outlet water temperature sensor (T1) error	<ol style="list-style-type: none"> 1. The T1 sensor connector is loosen. Reconnect it. 2.The T1 sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3.The T1 sensor failure, change a new sensor.
E4	The domestic hot water temperature sensor (T5) error	<ol style="list-style-type: none"> 1.The T5 sensor connector is loosen. Reconnect it. 2.The T5 sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3.The T5 sensor failure, change a new sensor.
E5	The condenser outlet refrigerant temperature sensor (T3)error.	<ol style="list-style-type: none"> 1. The T3 sensor connector is loosen. Reconnect it. 2.The T3 sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3. The T3 sensor failure, change a new sensor.
E6	The outdoor air temperature sensor (T4) error.	<ol style="list-style-type: none"> 1. The T4 sensor connector is loosen. Reconnect it. 2.The T4 sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3. The T4 sensor failure, change a new sensor.
E8	Water flow failure	<p>Check that all shut off valves of the water circuit are completely open.</p> <ol style="list-style-type: none"> 1 Check if the water filter needs cleaning. 2 Refer to "9.4 Charging water" 3 Make sure there is no air in the system (purge air). 4 Check on the manometer that there is sufficient water pressure. The water pressure must be >1 bar. 5 Check that the pump speed setting is on the highest speed. 6 Make sure that the expansion vessel is not broken. 7 Check that the resistance in the water circuit is not too high for the pump (refer to "Setting the pump speed"). 8 If this error occurs at defrost operation (during space heating or domestic water heating), make sure that the backup heater power supply is wired correctly and that fuses are not blown. 9 Check that the pump fuse and PCB fuse are not blown.
E9	Suction pipe sensor (Th) error	<ol style="list-style-type: none"> 1. The Th sensor connector is loosen. Re connect it. 2.The Th sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3. The Th sensor failure, change a new sensor. <p>Th intervention <15 ° C for 15 min, automatic reset Th> 27 ° C</p>

ALARMS

Error code	Malfunction or protection	Failure cause and Corrective action
EA	Probe error Tp (compressor discharge)	<ol style="list-style-type: none"> 1. The Th sensor connector is loosen. Re connect it. 2. The Th sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive. 3. The Th sensor failure, change a new sensor. <p>Tp intervention <15 ° C for 5 min, automatic reset Th> 27 ° C</p>
ED	Tw_in probe error (evaporator water inlet)	<ol style="list-style-type: none"> 1. Check the electrical connection (reset if incorrect). 2. The probe is faulty, replace the probe. 3. Replace the hydronic module control board. <p>Th intervention <15 ° C for 15 min, automatic reset Th> 27 ° C</p>
EE	Eprom error hydronic module control board	<ol style="list-style-type: none"> 1. Replace the faulty card.
H0	Communication error between PCB board and idronic control board	<ol style="list-style-type: none"> 1.wire doesn't connect between indoor unit and outdoor unit. connect the wire. 2.Communication wire sequence is not right. Reconnect the wire in the right sequence. 3. Whether there is a high magnetic field or high power interfere, such as lifts, large power transformers, etc.. To add a barrier to protect the unit or to move the unit to the other place.
H1	Communication error between PCB A and PCB B	<ol style="list-style-type: none"> 1. Whether there is power connected to the PCB and driven board. Check the PCB indicator light is on or off. If Light is off, reconnect the power supply wire. 2.if light is on, check the wire connection between the main PCB and driven PCB, if the wire loosen or broken, reconnect the wire or change a new wire. 3. Replace a new main PCB and driven board in turn.
H2	The plate heat exchanger refrigerant inlet (liquid pipe) temperature sensor(T2) error.	<ol style="list-style-type: none"> 1.The T2 sensor connector is loosen. Re connect it. 2.The T2 sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive 3. The T2 sensor failure, change a new sensor.
H3	The plate heat exchanger refrigerant outlet (gas pipe) temperature sensor (T2B) error.	<ol style="list-style-type: none"> 1. The T2B sensor connector is loosen. Re connect it. 2.The T2B sensor connector is wet or there is water in. Remove the water, make the connector dry. Add waterproof adhesive 3. The T2B sensor failure, change a new sensor.
H4	Three times P6 protect	Same to P6
H5	The indoor temperature sensor(Ta) error	<ol style="list-style-type: none"> 1. The Ta sensor is in the interface; 2. The Ta sensor failure change a new sensor or change a new interface.
H6	The DC fan failure	<ol style="list-style-type: none"> 1. Strong wind or typhoon below toward to the fan, to make the fan running in the opposite direction. Change the unit direction or make shelter to avoid typhoon below to the fan. 2.fan motor is broken, change a new fan motor.
H7	Main supply voltage circuit voltage out of limits	<ol style="list-style-type: none"> 1. Whether the power supply input is in the available range. 2. Power off and power on for several times rapidly in short time. Remain the unit power off for more than 3 minutes than power on. 3. the circuit defect part of Main control board is defective. Replace a new Main PCB.
H8	Pressure sensor failure Pe	<ol style="list-style-type: none"> 1. Pressure sensor connector is loosen, reconnect it. 2. Pressure sensor failure. change a new sensor.
H9	The system outlet water temperature sensor T1B failure.	<ol style="list-style-type: none"> 1. The T1B sensor connector is loosen. Reconnect it. 2.The T1B sensor connector is wet or there is water in. remove the water, make the connector dry. add waterproof adhesive 3. The T1B sensor failure, change a new sensor.
HA	The plate heat exchanger water outlet temperature sensor (Twout) error	<ol style="list-style-type: none"> 1. The Twout sensor connector is loosen. Reconnect it. 2.The Twout sensor connector is wet or there is water in. remove the water, make the connector dry. add waterproof adhesive 3. The Twout sensor failure, change a new sensor.
HE	The condenser refrigerant outlet temperature is too high in heating mode for more than 10 minutes.	The outside outdoor air temperature is too high(higher than 30°C , the unit still operate heat mode. close the heat mode when the outdoor air temperature is higher than 30°C
HF	PCB B EEPROM failure	<ol style="list-style-type: none"> 1. The EEPROM parameter is error, rewrite the EEPROM data. 2. EEPROM chip part is broken, change a new EEPROM chip part. 3. Main PCB is broken, change a new PCB.
HH	H6 displayed 10 times in 2 hours	Refer to H6
P3	Compressor overcurrent protection	<ol style="list-style-type: none"> 1.The same reason to P1. 2. Power supply voltage of the unit is low, increase the power voltage to the required range. <p> I> 20A for mod. 5-7-9 kW (single phase) I> 31A for mod. 10-12-14-16 kW (single phase) I> 15A for mod. 12T-14T-16T kW (three phase) </p>

ALARMS

Error code	Malfunction or protection	Failure cause and Corrective action
P4	High discharge temperature protection Tp > 115°C, Tp < 90°C)	<ol style="list-style-type: none"> 1. The same reason to P1. 2. System is lack of refrigerant volume. Charge the refrigerant in right volume. 3. Twout temp sensor is loosen Reconnect it.. 4. T1 temp sensor is loosen. Reconnect it. 5. T5 temp sensor is loosen. Reconnect it.
P5	High Temperature difference protection between water inlet and water outlet of the plate heat exchanger $\Delta T > 30^{\circ}\text{C}$	<ol style="list-style-type: none"> 1. Check that all shut off valves of the water circuit are completely open. Check if the water filter needs cleaning. Refer to "9.4 Charging water" Make sure there is no air in the system (purge air). Check on the manometer that there is sufficient water pressure. The water pressure must be >1 bar (water is cold). Check that the pump speed setting is on he highest speed. Make sure that the expansion vessel is not broken. Check that the resistance in the water circuit is not too high for the pump (refer to "10.6 Setting the pump speed").
P6	Compressor module protection	<ol style="list-style-type: none"> 1. Power supply voltage of the unit is low, increase the power voltage to the required range. 2. The space between the units is too narrow for heat exchange. Increase the space between the units. 3. Heat exchanger is dirty or something is block on the surface. Clean the heat exchanger or remove the obstruction 4. Fan is not running. Fan motor or fan is broken, Change a new fan or fan motor. 5. Over charge the refrigerant volume. Recharge the refrigerant in night volume. 6. Water flow rate is low, there is air in system, or pump head is not enough. Release the air and reselect the pump. 7. Water outlet temp sensor is loosen or broken, reconnect it or change a new one. 8. Water tank heat exchanger is smaller than the required 1.7m².(10-16kW unit)or 1.4m²(5-7kW unit) 9. Module wires or screws are loosen. Reconnect wires and screws. The Thermal Conductive Adhesive is dry or drop. Add some thermal conductive adhesive. 10. The wire connection is loosen or drop. Reconnect the wire. 11. Drive board is defective, replace a new one. 12. if already confirm the control system has no problem, then compressor is defective, replace a new compressor.
L0	Inverter module error	Contact your local dealer
L1	Inverter module low voltage protection	Contact your local dealer
L2	Inverter module high voltage protection	Contact your local dealer
L4	MEC error	Contact your local dealer
L5	Compressor 0 speed protection	Contact your local dealer
L7	Power phase error	Contact your local dealer
L8	Compressor frequency change is larger than 15Hz between this moment and last moment	Contact your local dealer
L9	The difference between target frequency and compressor operating frequency is larger than 15Hz.	Contact your local dealer
Pb	Anti-freeze mode protection.	Unit will return to the normal operation automatically.
Pd	High temperature protection of refrigerant outlet temp of condenser. T3 > 62°C, T3 < 52°C)	<ol style="list-style-type: none"> 1. Heat exchanger cover is not removed. Remove it. 2. Heat exchanger is dirty or something is block on the surface. Clean the heat exchanger or remove the obstruction. 3. There is no enough space around the unit for heat exchanging. 4. fan motor is broken, replace a new one.
PP	Water inlet temperature is higher than water outlet in heating mode	<ol style="list-style-type: none"> 1. The water inlet/outlet sensor wire connector is loosen. Reconnect it. 2. The water inlet/outlet (Tw_in /Tw_out) sensor is broken, Change a new sensor. 3. Four-way valve is blocked. Restart the unit again to let the valve change the direction. Four-way valve is broken, change a new valve.

11.2 Boiler faults

LCD Off

Make sure that the card is powered: using a digital multimeter, check for the presence of supply voltage.

In case of no voltage, check the wiring.

If the voltage is sufficient (Range 195–253 Vac), check the fuse (3.15AL@230VAC).

The fuse is on the card. To reach it, see fig. 205 and fig. 167.

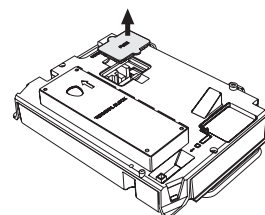


fig. 167 -

LCD On

In case of operating problems or trouble, the display flashes and the fault identification code appears

There are faults that cause permanent shutdowns (marked with the letter "A"): to restore operation it is sufficient to press the reset button (detail 6 - fig. 1) for 1 second or use the RESET on the remote timer control (optional) if installed; if the boiler does not restart, it is necessary to, firstly, eliminate the fault.

Other faults cause temporary shutdowns (marked with the letter "F") which are automatically reset as soon as the value returns within the boiler's normal working range.

Table. 9 - Boiler list of faults

Fault code	Fault	Possible cause	Cure
A01	No burner ignition	No gas	Check the regular gas flow to the boiler and that the air has been eliminated from the pipes
		Ignition/detection electrode fault	Check the wiring of the electrode and that it is correctly positioned and free of any deposits; replace the electrode if necessary.
		Faulty gas valve	Check the gas valve and replace it if necessary
		Insufficient gas supply pressure	Check the gas supply pressure
		Trap blocked	Check the trap and clean it if necessary
		Air/fume ducts obstructed	Remove the obstruction from the flue, fume extraction ducts, air inlet and terminals.
A02	Flame present signal with burner off	Electrode fault	Check the ionization electrode wiring
			Check the condition of the electrode
			Electrode to earth
			Cable to earth
			Check the trap and clean it if necessary
		Card fault	Check the card
A05	Fan fault	No 230V power supply	Check the 5-pin connector wiring
		Tachometric signal interrupted	
		Fan damaged	Check the fan
A06	No flame after the ignition phase	Ionization electrode fault	Check the position of the ionization electrode and replace it if necessary
		Flame unstable	Check the burner
		air/fume ducts obstructed	Remove the obstruction from the flue, fume extraction ducts, air inlet and terminals
		Trap blocked	Check the trap and clean it if necessary
F07 - F14 F15 - A07	High fume temperature	The fume probe detects an excessive temperature	Check the exchanger
			Check the flue gas probe
			Check the flue material parameter
F08 A08	Overtemperature protection intervention	Heating sensor damaged	Check the correct positioning and operation of the heating sensor and replace it if necessary
		No water circulation in the system	Check the circulating pump
		Air in the system	Vent the system

ALARMS

Fault code	Fault	Possible cause	Cure
F09 A09	Overtemperature protection intervention	Return sensor damaged	Check the correct positioning and operation of the return sensor and replace it if necessary
		No water circulation in the system	Check the circulating pump
		Air in the system	Vent the system
F10 A10	Delivery sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F11 A11	Return sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F12	DHW sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F13 A13	Fume probe fault	Probe damaged	Check the wiring or replace the fume probe
		Wiring shorted	
		Wiring disconnected	
A14	Fume extraction duct safety device intervention	Fault F07 generated 3 times in the last 24 hours	See fault F07
F34	Supply voltage under 170V	Electric mains trouble	Check the electrical system
F37	Incorrect system water pressure	Pressure too low	Fill the system
		Water pressure switch damaged or disconnected	Check the water pressure switch
F39	External probe fault	Probe damaged or wiring shorted	Check the wiring or replace the sensor
		Probe disconnected after activating the sliding temperature	Reconnect the external probe or disable the sliding temperature
F41	Activation of maximum DELTA T protection	Heating sensor damaged	Check the correct positioning and operation of the heating sensor
		Return sensor damaged	Check the correct positioning and operation of the return sensor
		No water circulation in the system	Check the circulating pump
		Air in the system	Vent the system
F42 A42	Sensor control protection activation	Return and/or delivery sensor damaged or disconnected	Check the correct positioning and operation of the return and/or delivery sensor and/or replace it
		Return sensor damaged or disconnected	Check the correct positioning and operation of the return sensor
F43	Exchanger protection intervention.	No system H2O circulation	Check the circulating pump
		Air in the system	Vent the system
A23 - A24 - A26 F20 - F21 - F40 F47 - F51	Card parameter fault	Wrong card parameter setting	Check the card parameters and modify if necessary
F50 - F53	Limit thermostat fault with parameter b06 = 1 o 4	No/poor water circulation in the system	Check the circulating pump
		Air in the system	Vent the system
		Incorrect parameter	Check the correct parameter setting

ALARMS

Fault code	Fault	Possible cause	Cure
F56 - A56	Calibration fault	Incorrect parameters	Check parameters and carry out a 100% calibration
		Electrode damaged or not correctly positioned.	Check the position of the electrode, replace it if necessary. After replacement, repeat the 100% calibration
		Recirculation of fumes inside the boiler	Check the tightness of the flue pipe and the seal of gaskets
	Calibration procedure not completed	Poor primary circuit circulation or poor dissipation during calibration	Reset the fault. Turn on the hot water faucet and wait for the flame to stop flashing (about 2 minutes)
F61 - A61	Controller fault AGC01	Controller AGC01 internal error	Check the ground connection. Check the electrode. Repeat the 100% calibration procedure. If necessary replace the control unit.
A63	Controller fault AGC01	Unstable power supply	Check the power supply
		Controller AGC01 internal error	If necessary replace the control unit
A54 - A55 F62 - F63	Combustion fault	Insufficient system gas pressure	Check the gas supply pressure
		Unstable grid voltage	Check the supply voltage
		Electrode damaged or not correctly positioned	Check ignition electrode and ground
			Turn off power supply for 10 seconds, reset the fault and perform a 100% calibration (Sc15=1).
F67		BCC Service key connected	Load the parameters
F68 - A68	BCC Service key error	Error loading BCC Service key file	Repeat the loading procedure within 5 minutes from the boiler power supply and replace the BCC Service key if necessary
A62	No communication between controller and gas valve	Controller not connected	Connect the controller to the valve
		Valve damaged Replace valve	Check the wiring or replace the valve
A64	Maximum number of consecutive Resets exceeded	Maximum number of consecutive Resets exceeded	Disconnect the power supply to the boiler for 60 seconds and then reinstate the boiler
F66		Firmware not loaded successfully	Reload the firmware or replace the card

12. COMMISSIONING

12.1 Heat pump commissioning

Before starting for the first time, after a long pause it is necessary to carry out the following preliminary checks concerning the electrical part and the refrigerating part..

Preliminary heat pump checks

Refrigerating part

- Check that the unit is charged with refrigerant. The control can be carried out with portable freon pressure gauges fitted with a 1/4 "SAE revolving coupling with a depressor connected to the tap service outlet. The pressure read must correspond to the saturation pressure corresponding to the ambient temperature (~ 7 bar) .
- Perform a visual check on the refrigeration circuit making sure it is not damaged.
- Check that the pipes are not dirty with oil (oil stains allow the refrigeration circuit to break).



WARNING

Disconnect the power supply before carrying out any operation on the electrical panel of the unit.

After installing the indoor and outdoor units, check the following before powering them up:

- Wiring. Make sure that the electrical connections of the various parts of the system such as boiler, temperature probes, 2 and 3-way valves, pumps have been carried out in accordance with the instructions in this manual, the wiring diagram supplied with the unit and in compliance with the laws and local regulations.
- Fuses, switches, or protection devices. Check that the fuses or protection devices installed locally are adequately sized based on the maximum current absorbed by the unit as reported in this manual. Check that these protection devices are not bypassed.
- Grounding. Make sure that the earth wires have been connected correctly and that the earth terminals are tightened.
- Visually check the electrical panel to check for loose connections or damaged electrical components.
- Mounting. Check that the unit is mounted correctly to avoid abnormal noise and vibration when starting up the unit.
- Damaged components. Check the inside of the unit to check for damaged components or crushed pipes.
- Refrigerant leakage. Check the inside of the unit to check for refrigerant leaks. If there is a loss of refrigerant, contact the technical assistance service.
- Supply voltage. Check that the supply voltage to the unit corresponds to the power supply voltage indicated on the nameplate of the unit.
- Make sure the water shut-off valves are completely open

12.2 Boiler commissioning

Preliminary boiler checks

- Check the tightness of the gas system.
- Check correct prefilling of the expansion vessel.
- Fill the hydraulic system and make sure that all air contained in the boiler and the system has been vented.
- Make sure there are no water leaks in the system, DHW circuits, connections or boiler.
- Make sure there are no flammable liquids or materials near the boiler.
- Check correct connection of the electrical system and efficiency of the grounding system.
- Make sure the gas valve is adjusted for the gas to be used (see "Table. 7 - THROTTLE position and parameter setting" and fig. 165).
- Fill the trap (see "6.15 Condensate drain connection boiler" on page 28).



IF THE ABOVE INSTRUCTIONS ARE NOT OBSERVED THERE MAY BE RISK OF SUFFOCATION OR POISONING DUE TO GAS OR FUMES ESCAPING; DANGER OF FIRE OR EXPLOSION. ALSO, THERE MAY BE A RISK OF ELECTRIC SHOCK OR FLOODING THE ROOM.

First boiler ignition

- Make sure there is no drawing of hot water and room thermostat requests.
- Turn on the gas and check that the gas supply pressure ahead of the unit complies with the technical data table or in any case the tolerance provided for by the regulations.
- Electrically power the boiler; the display will show the software version number and then Fh and FH air venting cycle (see "9.2 Connection to the power supply, switching on and off" on page 65).
- At the end of the FH cycle, the winter mode screen (fig. 158) will appear on the display; make the temperature adjustments: heating delivery and DHW outlet (fig. 162 and fig. 163).
- Check if the flue parameter value ("Sc" - Combustion Control Parameters Menu" on page 72) is suitable for the length of flue installed.
- In case of gas change (G20 - G30 - G31), check if the relevant parameter is suitable for the type of gas present in the supply system ("Sc" - Combustion Control Parameters Menu" on page 72 and see "11.1 Heat pump alarms" on page 74).
- Set the boiler to DHW or heating mode (see "9.2 Connection to the power supply, switching on and off" on page 65).
- In Heating mode, carry out a demand: the display shows the radiator symbol and the actual heating system temperature; when the flashing flame symbol appears, the burner is lit and the system is performing the calibration. Wait for the end of calibration, indicated by the steady flame symbol.
- DHW mode with hot water drawing: the display shows the faucet symbol and the actual DHW temperature; when the flashing flame symbol appears, the burner is lit and the system is performing the calibration; wait for the end of the calibration, indicated by the steady flame symbol.
- Carry out the fuel check as described in par. "Checking the combustion values" on page 68.

12.3 Final check before turning on the unit

When the installation is complete and all the necessary settings have been made, reassemble and close all the panels of the unit.

12.4 Turn on the unit

When power is supplied to the unit, the remote controller display shows "1% ~ 99%" (initialization phase). During this process (which lasts a few seconds) the user interface cannot be used.

To activate the system, refer to the section "REMOTE CONTROLLER - USER MENU" on page 32.

12.5 System water flow set point setting in heating mode

The heating set point can be modified by the user within some limits defined by the T1S RANGE settings in the HOT MODE SETTING menu of the remote controller (see "fig. 171 - Heating with heat pump" on page 85)

T1S RANGE set to LOW (factory setting)	25~55°C
T1S RANGE set to HIGH	35~60°C



NOTE:

To optimize the energy efficiency of the boiler it is suggested to set the boiler heating setpoint to the same value as the heat pump setpoint.

12.6 Setting of system water delivery set point in cooling mode

The cooling set point can be modified by the user within some limits defined by the T1S RANGE settings in the COOL MODE SETTING menu of the remote controller (see "fig. 173 - Heating with heat pump and boiler" on page 85)

T1S RANGE set to LOW (factory settin)	5~25°C
T1S RANGE set to HIGH	18~25°C

12.7 Domestic hot water production temperature setting

To set the domestic hot water temperature (default 55 ° C) act on the boiler controller (see "DHW temperature adjustment" on page 66).

MANAGEMENT PARAMETERS HEAT PUMP AND BOILER IN HEATING MODE

13. MANAGEMENT PARAMETERS HEAT PUMP AND BOILER IN HEATING MODE

For heating mode it is possible to have two different heat pump and boiler activation logics depending on the parameters indicated in the following table and available under the "8.2 REMOTE CONTROLLER - SERVICE menu" on page 50.

Parameter	DESCRIPTION Parameter	Factory setting	Reference paragraph
T4HMIN	Minimum external air temperature for heat pump heat mode	-5°C	"8.5 HEAT mode setting" on page 55
T4HMAX	Maximum outside air temperature for heat pump heat mode	25°C	"8.5 HEAT mode setting" on page 55
T4_AHS_ON	External air temperature for boiler activation	2°C	"8.10 AHS (boiler)" on page 57
t_ASH_DELAY	Boiler activation delay	30 min	"8.10 AHS (boiler)" on page 57

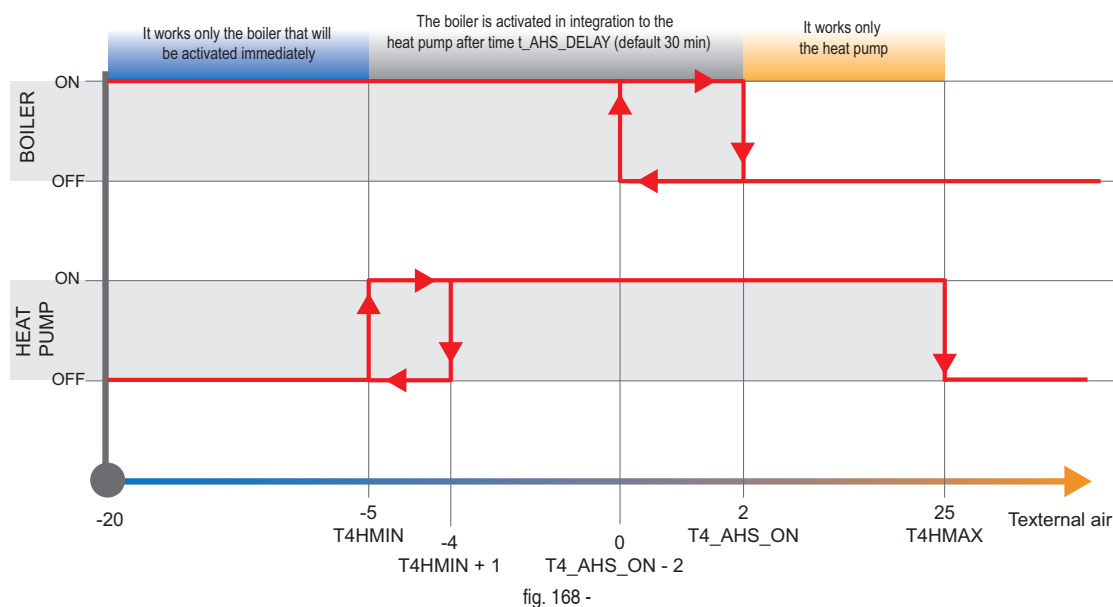
13.1 Boiler in integration to the heat pump (factory setting)

With external air temperature greater than (T4_AHS_ON - 2) the system heating is guaranteed by the heat pump only
See "fig. 171 - Heating with heat pump" on page 85

With external air temperature between (T4HMIN) and (T4_AHS_ON - 2) the system heating is guaranteed by the heat pump and the boiler: the boiler will be activated if after the time (t_ASH_DELAY) the heat pump does not satisfy the setpoint.
See "fig. 173 - Heating with heat pump and boiler" on page 85

With external air temperature lower than T4HMIN the heating system is guaranteed only by the boiler.

Functional diagram with factory settings



NOTE:

To optimize the energy efficiency of the boiler it is suggested to set the boiler heating setpoint to the same value as the heat pump set point.

13.2 Boiler in substitution of the heat pump

Set $T4_H_MIN$ = external air temperature at which you want to deactivate the heat pump and activate the boiler.

Set $T4_AHS_ON$ to a lower value than $T4HMIN$.

With external air temperature greater than $T4HMIN$, the heating of the system is guaranteed by the heat pump only, with temperature lower than $T4HMIN$ the heating of the system is guaranteed by the boiler only.

See "fig. 171 - Heating with heat pump" on page 85

With external air temperature lower than $T4HMIN$ the heating system is satisfied only by the boiler fig. 172.

Example:

$T4HMIN = -5^{\circ}C$

$T4HMAX = 25^{\circ}C$

$T4_AHS_ON \leq -5^{\circ}C$ (for convenience it is suggested to set this value to $-15^{\circ}C$).

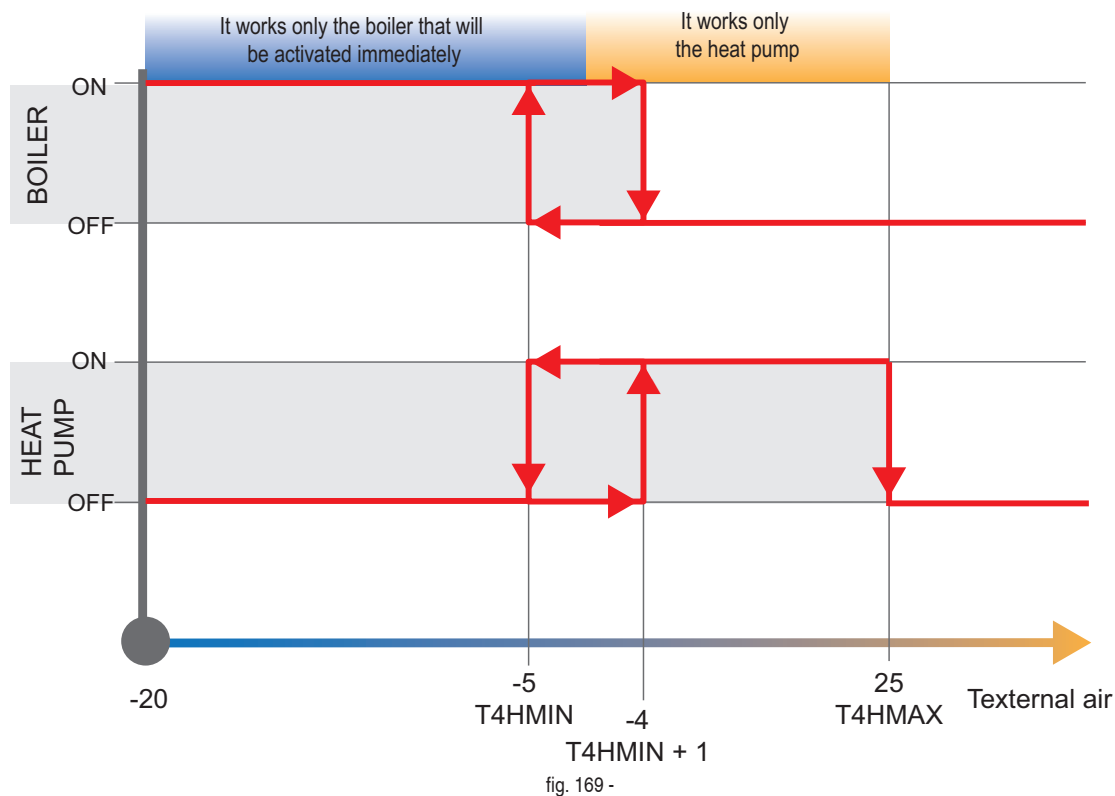


fig. 169 -



NOTE:

To optimize the energy efficiency of the boiler it is suggested to set the boiler heating setpoint to the same value as the heat pump set point.

14. WORKING MODES OF THE SYSTEM

14.1 Plant operating modes

Cooling mode with heat pump

The plant cooling is satisfied by the heat pump only.

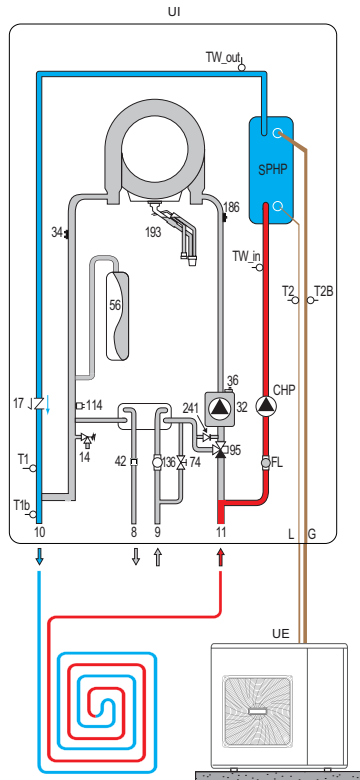


fig. 170 - Cooling with heat pump

Heating mode with heat pump

The plant heating is satisfied by the heat pump only.

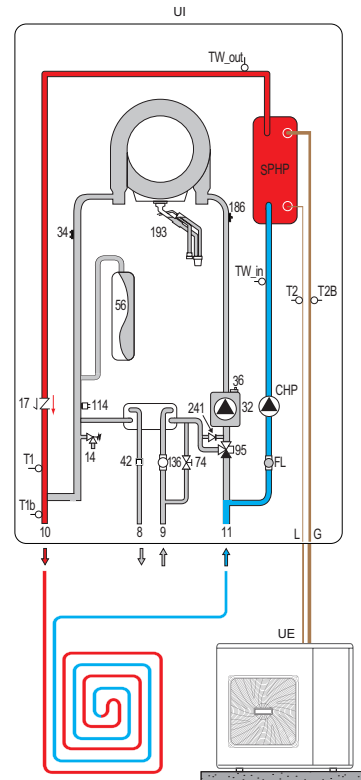


fig. 171 - Heating with heat pump

Heating mode with boiler

The plant heating is satisfied by the boiler only.

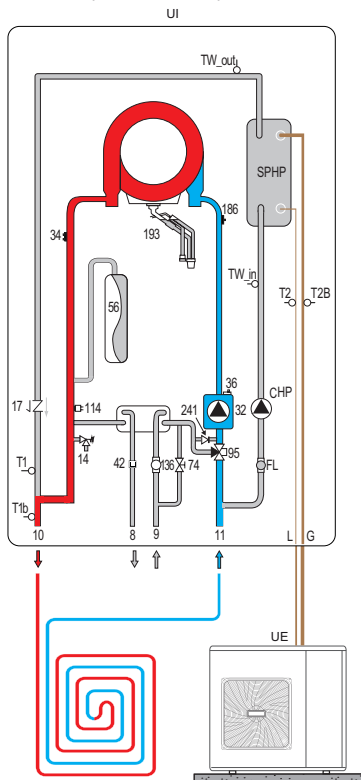


fig. 172 - Heating with boiler

Heating mode with heat pump and boiler

The plant heating is satisfied by the heat pump with the boiler in integration.

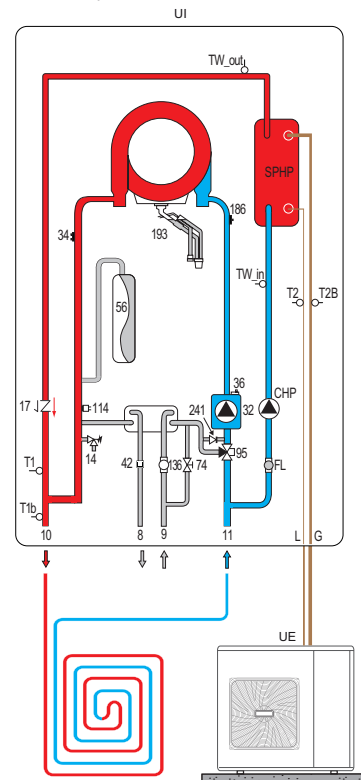


fig. 173 - Heating with heat pump and boiler

14.2 DHW operating mode

DHW mode

The demand for domestic hot water is satisfied by the boiler.

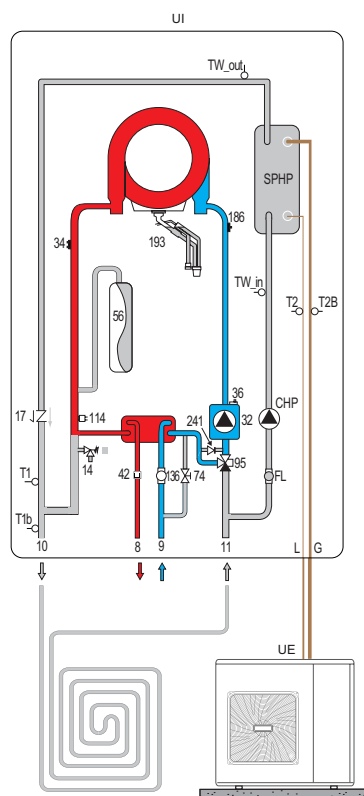


fig. 174 - DHW production with boiler

14.3 Plant operating modes + DHW

Cooling mode and DHW production

The plant cooling is satisfied by the heat pump. The demand for domestic hot water is satisfied by the boiler.

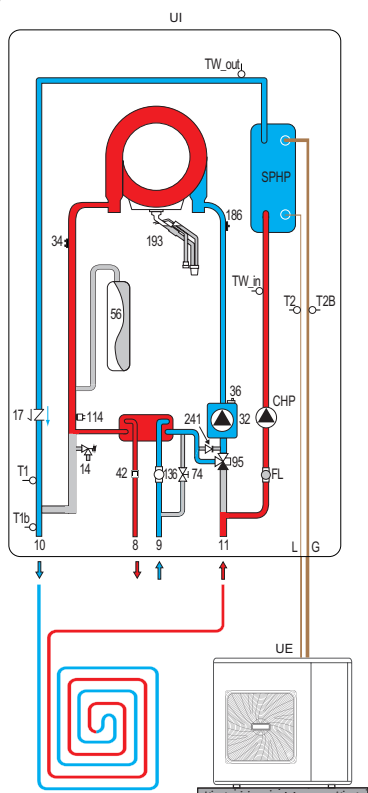


fig. 175 - Cooling with heat pump and DHW with boiler

Heating mode and DHW production

The plant heating is satisfied by the heat pump. The demand for domestic hot water is satisfied by the boiler.

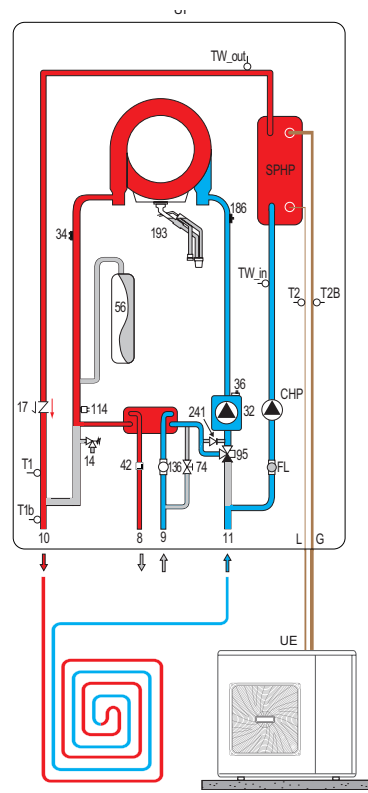


fig. 176 - Heating with heat pump and DHW with boiler

15. MAINTENANCE

15.1 General notes

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals.

IMPORTANT

⚠ ALL MAINTENANCE WORK AND REPLACEMENTS MUST BE CARRIED OUT BY SKILLED QUALIFIED PERSONNEL.

Before carrying out any operation inside the indoor unit, disconnect the power and close the gas cock upstream. Otherwise there may be a danger of explosion, electric shock, suffocation or poisoning.

Do not touch the refrigerant circuit pipes and the internal parts (pump, safety valve, etc.) during and immediately after switching off the unit as they can be very hot or very cold, causing scucking or burning or freezing. To avoid injury, allow sufficient time for the temperature of the pipes to drop to normal values and wear protective gloves.

Before carrying out any maintenance or repair work, always disconnect the power supply to the unit and to all electrical loads (pumps, valves, electric boosters, electrical resistors, etc.).

Some electrical components may be very hot.

Due to the risk of high residual voltage, after having disconnected the power supply to the outdoor unit, wait at least 10 minutes before touching live parts.

The compressor oil heater can work even if the compressor is stopped.

Make sure not to touch powered electrical cables.

Do not wash the unit. This may cause electric shock or fire.

When the service panels are removed, live parts could easily be touched by mistake.

Never leave the unit unattended during installation or maintenance when the service panel has been removed.

It is not allowed to tamper with or modify any component, nor the settings of the intervention values of the protection devices installed in the unit.

Do not pull, disconnect, twist the electric cables coming from the unit even if disconnected from the power supply.

It is forbidden to leave containers of inflammable substances near the unit.

Do not touch the appliance with bare feet or with wet or moist parts of the body.

The checks described must be performed at least once a year by qualified personnel.

Electrical cabinet

Carry out a thorough visual inspection of the components of the electrical panel to check for damaged or incorrectly connected components or cables (check the tightness of the terminal screws).

Residual Risks

The machines has been designed with a view to reducing the risks to persons and the environment in which it is installed, to the minimum. To eliminate residual risks, it is therefore advisable to become as familiar as possible with the machine in order to avoid accidents that could cause injuries to persons and/or damage to property.

a. Access to the unit

Only qualified persons who are familiar with this type of machine and who are equipped with the necessary safety protections (footwear, gloves, helmet, etc.) may be allowed to access the machine. Moreover, in order to operate, these persons must have been authorized by the owner of the machine and be recognized by the actual Manufacturer.

b. Elements of risk

The machine has been designed and built so as not to create any condition of risk. However, residual risks are impossible to eliminate during the designing phase and are therefore listed in the following table along with the instructions about how to neutralize them.

Indoor unit residual risks

Part in question	Residue hazard	Mode	Precautions
Refrigerant and hydraulic pipes	Burns	Contact with the pipes	Avoid contact by wearing protective gloves
Refrigerant pipes, plate heat exchanger.	Explosion	Excessive pressure	Turn off the machine, check the high pressure switch and safety valve, the fans and condenser
Refrigerant pipes	Ice burns	Leaking refrigerant	Do not pull on the pipes
Electrical cables, metal parts	Electrocution, serious burns	Defective cable insulation, live metal parts	Adequate electrical protection (correctly ground the unit)

Outdoor unit residual risks

Part in question	Residue hazard	Mode	Precautions
Compressor and delivery pipe	Burns	Contact with the pipes and/or compressor	Avoid contact by wearing protective gloves
Discharg pipes and coil	Explosion	Excessive pressure	Turn off the machine, check the high pressure switch and safety valve, the fans and condenser
Refrigerant pipes	Ice burns	Leaking refrigerant	Do not pull on the pipes
Electrical cables, metal parts	Electrocution, serious burns	Defective cable insulation, live metal parts	Adequate electrical protection (correctly ground the unit)
Heat exchange coils	Cuts	Contact	Wear protective gloves
Fans	Cuts	Contact with the skin	Do not push the hands or objects through the fan grille

General Rules for Maintenance

The maintenance is extremely important for the functioning of the system and the regular working of the unit over time.

In accordance with the European Regulation EC 303/2008, it should be noted that companies and engineers in maintenance, repair, leak testing and recovery / recycle refrigerant gases should be CERTIFIED in accordance with local regulations.

Maintenance must be performed in compliance with the safety rules and tips given in the manual supplied with the unit.

Routine maintenance helps maintain unit efficiency, reduce the rate of deterioration which each device is subject in time and gather information and data to understand the efficiency of the unit and prevent failures.

For extraordinary maintenance or in case you need service, contact only to a specialized service center approved by the manufacturer and use original spare parts.

In accordance with the European Regulation EC 1516/2007 it is necessary to prepare a "equipment record".

Provide anyway a databook (not supplied) that allows you to keep track of interventions made on the unit; in this way it will be easier to properly program the various interventions and will facilitate a possible troubleshooting.

Bring on the databook : date, type of intervention made, description of the intervention, measurements, reported anomalies, alarms recorded in the alarm history, etc. ...

15.2 Apertura del pannello frontale

⚠ Some internal components of the boiler can reach temperatures high enough to cause severe burns. Before carrying out any operation, wait for these components to cool or else wear suitable gloves.

To open the boiler casing:

1. Partially undo the screws A (see fig. 177).
2. Pull the panel B towards you and release it from the upper fastenings.

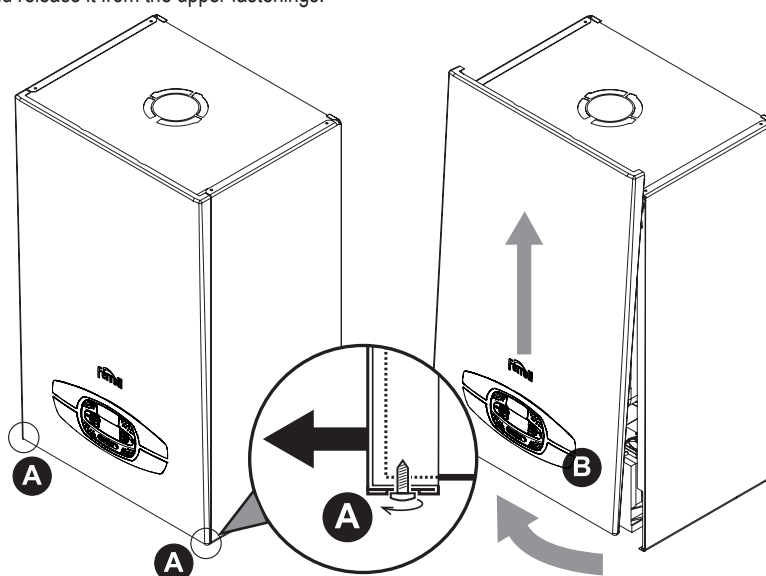


fig. 177 - Front panel opening

⚠ On this unit, the casing also acts as a sealed chamber. After any operation involving opening the boiler, carefully check the correct refitting of the front panel and its seal.

Proceed in reverse order to refit the front panel. Make sure it is correctly hooked to the upper fastenings and is correctly positioned at the sides. When tightened, the head of screw "A" must not be below the lower fold (see fig. 178).

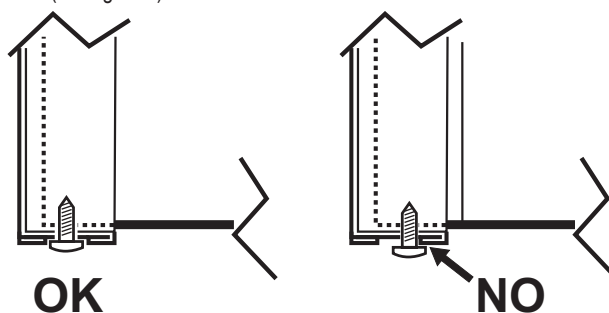


fig. 178 - Correct position of front panel

15.3 Access to internal components

To access the internal components after having dismantled the front panel (details 1 and 2 fig. 179) it is necessary to rotate the assembly of the heat pump electric panel and expansion vessel (detail 3 fig. 179).

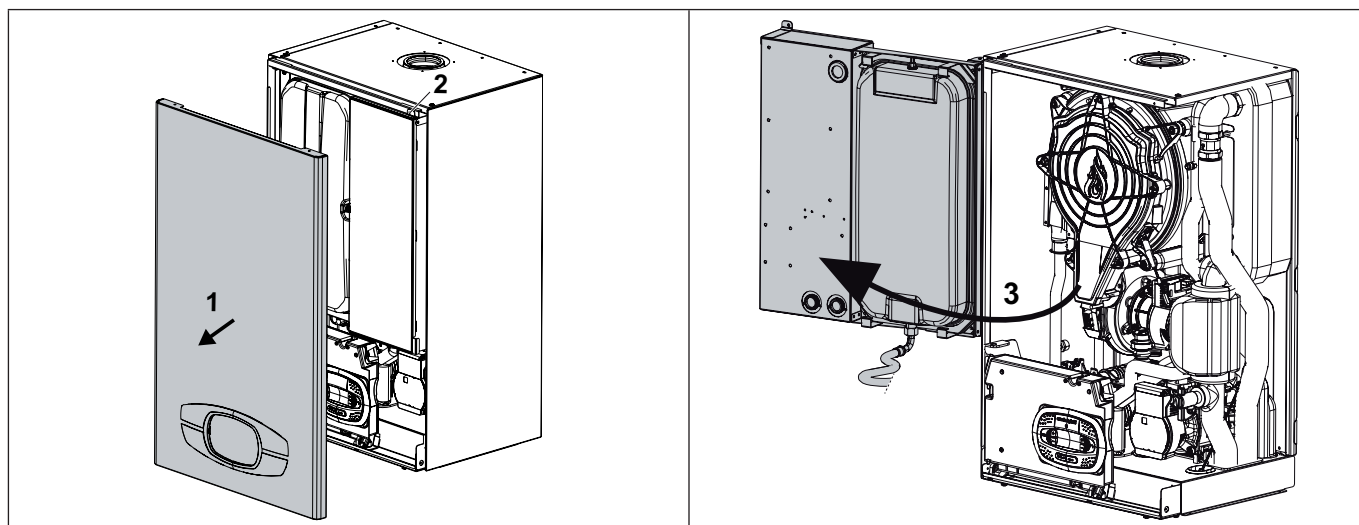


fig. 179 - access to internal components

15.4 Water load and system water pressure adjustment

The filling pressure read on the boiler water gauge (detail 2 - fig. 180) with system cold must be approx 1.0 bar. If the system pressure falls below minimum values, the boiler stops and fault F37 is displayed. Pull out the filling knob (detail 1 - fig. 180) and turn it anticlockwise to return it to the initial value. Always close it afterwards.

Once the system pressure is restored, the boiler will activate the 300-second air venting cycle indicated on the display by Fh.

To prevent boiler shutdown, it is advisable to periodically check the pressure on the gauge with system cold. In case of a pressure below 0.8 bar, it is advisable to restore it.

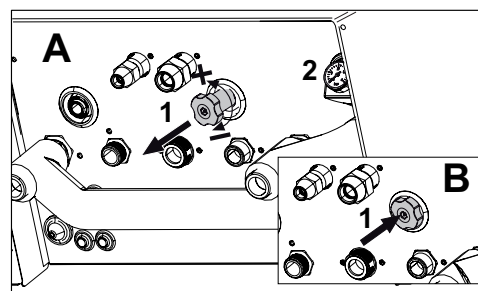


fig. 180 - Filling knob

15.5 System draining

The drain faucet ring nut is located under the safety valve inside the boiler.

To drain the system, turn the ring (ref. 1 - fig. 181) counter-clockwise to open the faucet. Do not use any tools; use hands only.

To drain only the water in the indoor unit, first close the shut-off valves between the system and indoor unit before turning the ring.

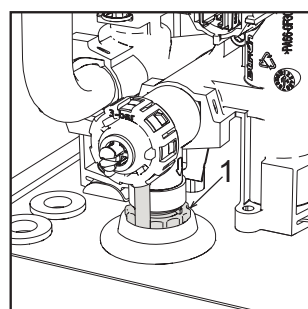


fig. 181 - Safety valve with drain faucet

15.6 Heat pump routine maintenance

The inspections described below, to which the unit must be subjected, do not require specific technical know-how. They merely include a few simple inspections involving certain parts of the unit. The table below gives a recommended list of inspections which should be carried out at the indicated intervals. Provide controls and interventions more frequently in case of heavy (continuous or intermittent high, close to operating limits, etc ...) or critical (essential service such as data centres, hospital etc ...) use.

Maintenance	Frequency
Visual inspection of the unit	Annual
Inspection of hydraulic circuit	Annual
Inspection of electrical system	Annual
Inspection of condensing and fans system	Annual
Heat pump - Inspection of the water heat exchanger	Annual
Inspection of the water filter	Annual
Heat pump - Inspection of the water pumps (if present)	Annual

• Visual inspection of the structure of the unit

When checking the condition of the parts that form the structure of the unit, pay particular attention to the parts liable to rust.

If traces of rust are noted, they must be treated with rust-inhibitor paint in order to eliminate or reduce the problem.

Check to make sure that the external panels of the unit are well fixed.

MAINTENANCE

Bad fixing gives rise to noise and abnormal vibrations.

• Inspection of hydraulic circuit

Check visually to make sure that there are no leaks in the hydraulic circuit. Check that water filters are clean.

• Inspection of electrical system

Make sure that power cables that supply the unit are not torn, cracked or damaged in a way that could impair its insulation.

Perform a thorough visual inspection of the components of the electrical panel to check for the presence of damaged or not well connected components or cables (check the tightening of the terminal screws).

• Inspection of the ventilated condensing/evaporating section

WARNING: The finned pack exchanger has fins made of aluminium or some other thin material, thus even accidental contact could cause cuts.

Condensing/Evaporating coils

In view of the function of this component, it is very important for the surface of the exchanger to be as free as possible from clogging caused by items that could reduce the fan's air flow rate and, thus, the performances of the unit itself.

The following operations may be required:

- Remove all impurities (such as paper scraps, leaves, etc.) that could be clogging the surface of the bank either by hand or using a brush (comply with the above mentioned safety prescriptions).
- If the dirt has deposited on the fins and is difficult to remove by hand, use a flow of compressed air or pressurized water on the aluminium surface of the coils, remembering to direct the flow in a vertical and opposite to the standard flow direction to prevent the fins from being damaged.
- "Comb" the coils with the relative tool, using the appropriate comb spacing for the fins if some parts of them are bent or squashed.

Axial fans

Visually inspect these parts to make sure that the fans are well fixed to the bearing grille and that this latter is fixed to the structure of the unit. Check the fan bearings, and close the terminal box and cable glands. Bearings damaged and bad fixing are the source of abnormal noise and vibrations,

• Heat pump - Inspection of the water heat exchangers

The exchangers must ensure the maximum heat transfer possible so keep them clean and free from dirt that may reduce efficiency; make sure that the temperature difference between water outlet temperature and evaporation/condensation does not increase over time, if the difference exceeds 8 -10 ° C it is necessary to proceed cleaning the water side of the exchanger, keeping in mind the following: water circulation must be in the opposite direction than normal, the fluid velocity does not exceed 1.5 times the nominal velocity and use just water or moderately acid products but only water for final washing.

• Inspection of the water filters

Make sure to clean the filter and remove any impurities that block the proper flow of water, contributing to increase pressure drop and therefore energy consumption of the pumps. Refer to the section "Hydraulic Connections" too.

• Heat pump - Inspection of the water pumps

Check water leakages, the state of the bearings, the closing of the terminal box and integrity of the cable. Bearings damaged and bad fixing are the source of abnormal noise and vibrations,




CAUTION

As a result of extraordinary maintenance on the cooling circuit with component replacement, before restarting the machine, perform the following steps:

- Pay attention to restore the refrigerant charge indicated on the name plate of the machine.
- Open all the ball valves in the refrigerant circuit.
- Correctly connect the power supply and grounding.
- Check the hydraulic connections.
- Check that the water pump is working properly.
- Clean water filters.
- Check that the finned coils are not dirty or clogged.
- Check the proper rotation of fans.
- Check correct operation of safety devices with particular attention to differential water pressure switch and / or water flow switch.

15.7 Extraordinary maintenance and replacement of heat pump components

Heat pump circulator

 Before starting with the following instructions, we recommend organizing yourself with protections in order to protect the internal environment and the electrical system of the indoor unit from any accidental leakage of water.

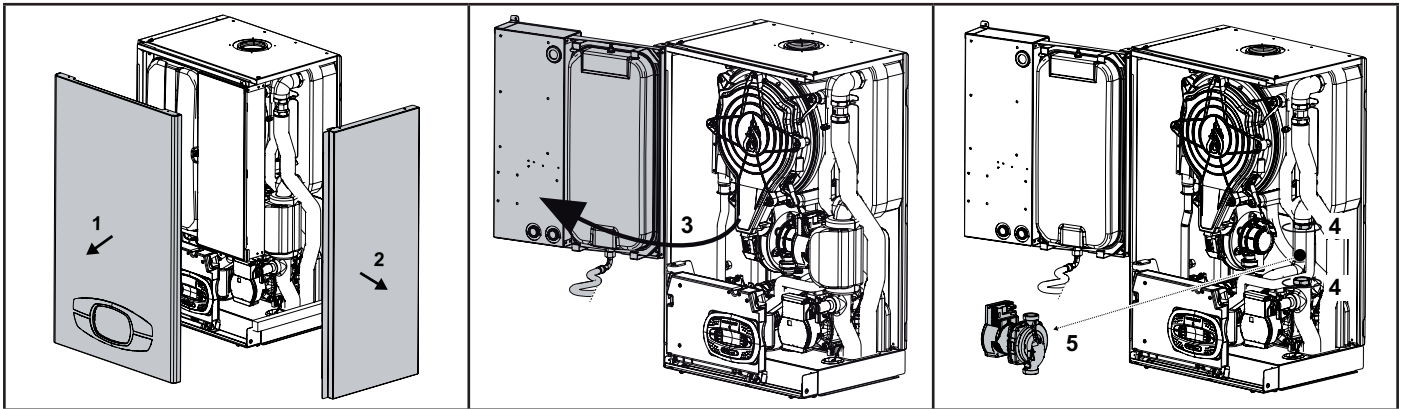


fig. 182 - Circulator pump replacement / maintenance of the heat pump

- Disconnect the power supply and close the gas cock upstream of the valve.
- Disconnect the circulator electrically.
- Drain the water from the indoor unit (see "15.5 System draining" on page 89).
- Unscrew the fillers ("4" di fig. 184.) and remove the circulator ("5" di fig. 184.)

15.8 Boiler periodical check

To ensure proper operation of the unit over time, have qualified personnel carry out a yearly inspection, providing for the following checks:

- The control and safety devices (gas valve, flow meter, thermostats, etc.) must function correctly.
- The fume exhaust circuit must be perfectly efficient.
- The sealed chamber must be tight.
- The air-fume end piece and ducts must be free of obstructions and leaks
- The burner and exchanger must be clean and free of deposits. Use suitable brushes for cleaning. Never use chemical products.
- The electrode must be properly positioned and free of scale.
- The electrode can be cleaned of incrustations only with a non-metallic brush, and must NOT be sanded.
- The gas and water systems must be tight.
- The water pressure in the system when cold must be approx. 1 bar; otherwise bring it to that value.
- The circulating pump must not be blocked.
- The expansion tank must be filled.
- The gas flow and pressure must match that given in the respective tables.
- The condensate evacuation system must be efficient with no leakage or obstructions.
- The trap must be full of water.
- Check the quality of the water in the system.
- Check the condition of the insulation of the exchanger.
- Check the gas connection between the valve and Venturi.
- Replace the burner gasket if damaged.
- At the end of the check, always check the combustion parameters (see "100% calibration" on page 68).

15.9 Boiler - Extraordinary maintenance and replacement of components

After replacing the gas valve, burner, electrode and circuit board, it is necessary to carry out the 100% calibration (see "100% calibration" on page 68). Then follow the instructions in par. "Checking the combustion values" on page 68.

Gas valve

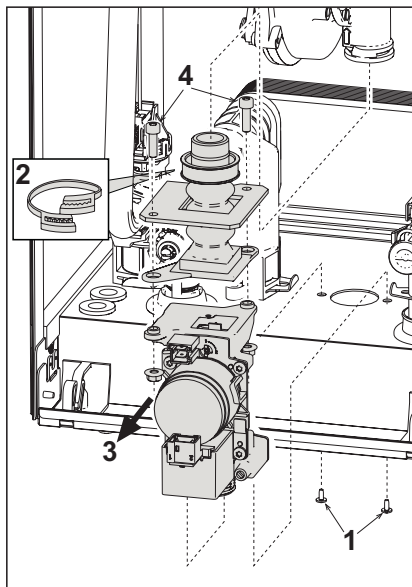


fig. 183 - Sostituzione valvola a gas

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Disconnect the connectors
- Disconnect the gas supply pipe
- Undo the screws "1"
- Remove the clamp "2"
- Remove the gas valve
- Then undo the screws "4"
- Fit the new valve, carrying out the above steps in reverse order

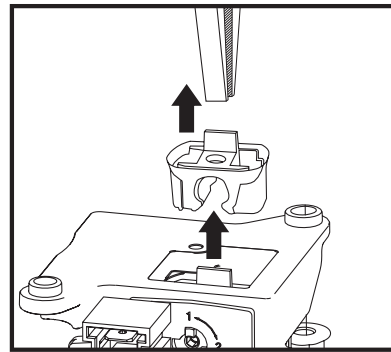


fig. 184 - Gas diaphragm replacement

Boiler - Plate heat exchanger

Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage

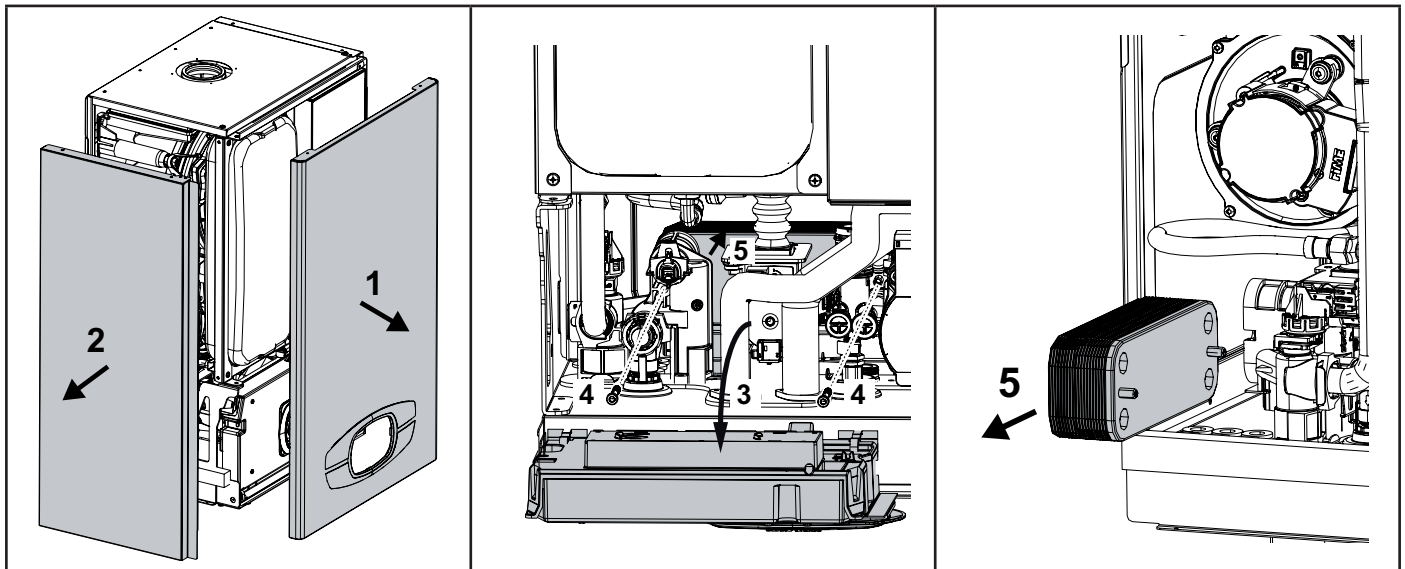


fig. 185 - Sostituzione/manutenzione scambiatore a piastre

- Isolate the boiler by operating the DHW inlet and system shut-off valves.
- Open a faucet to drain the domestic hot water.
- Rotate the box on the panel "3" fig. 185
- Drain the water in the boiler through the drain faucet (see "15.5 System draining" on page 89).
- Undo the screws "4" fig. 185
- Move the plate heat exchanger "5" fig. 185 back and slide it to the left.
- Remove the heat exchanger as shown in the figure
- When refitting the plate heat exchanger, make sure the arrows (indicating: HEATING) are pointing downwards.

MAINTENANCE

Boiler - Circulating pump



Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage.

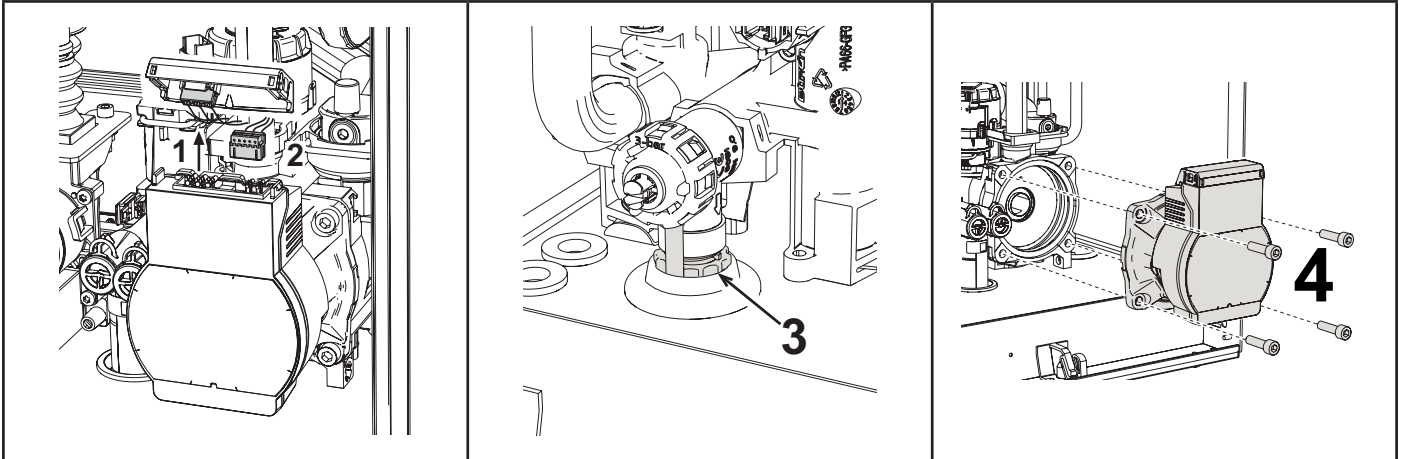


fig. 186 - Circulator replacement / maintenance

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Electrically disconnect the circulating pump, releasing the connections by raising the detail "1" of fig. 186.
- Drain the water in the boiler (see "15.5 System draining" on page 89)).
- Unscrew and remove the circulating pump motor assembly ("4" di fig. 186).

Boiler - Replacing the main exchanger



Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage.

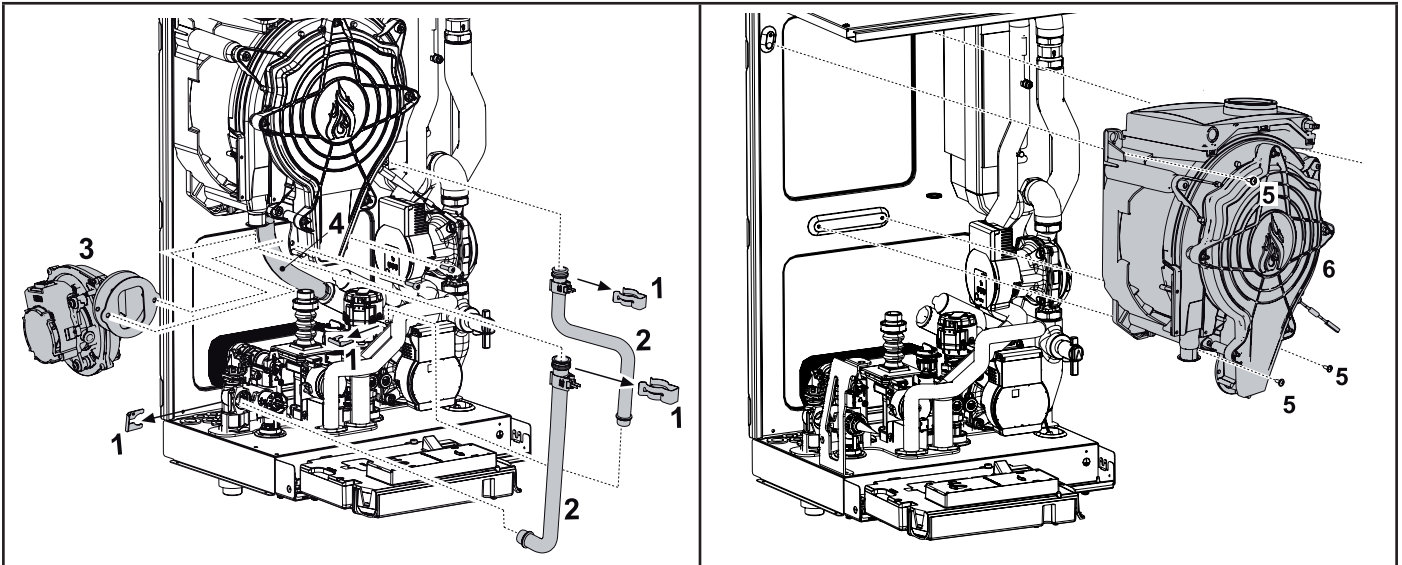
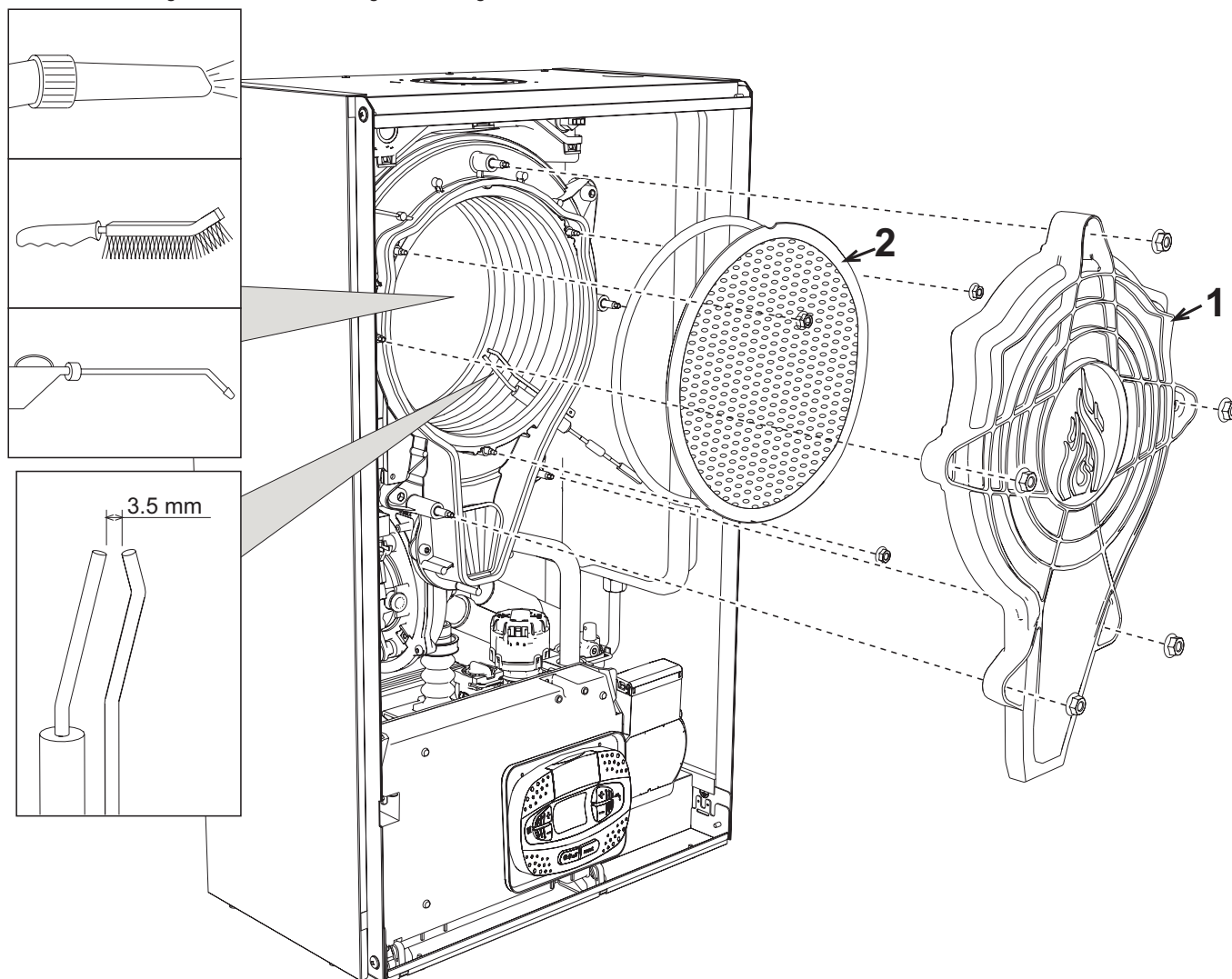


fig. 187 - Main exchange

- Disconnect the power supply and close the gas cock ahead of the valve
- Disconnect the fume sensor connector
- Disconnect the fan connector
- Disconnect the connector of the ignition electrode connected to the board.
- Drain the water from the indoor unit. (see "15.5 System draining" on page 89).
- Extract the flue connection (concentric or accessory for separate ducts)
- Remove the fan
- Remove the clips of the two pipes on the exchanger, pump and hydraulic unit
- Remove the 2 top screws "5" securing the exchanger to the frame (fig. 187)
- Loosen the 2 bottom screws "5" securing the exchanger to the frame (fig. 187)
- Remove the exchanger
- Fit the new exchanger on the bottom screws "5"
- For assembly, proceed in reverse order

Boiler - Disassembling the burner and cleaning the exchanger



- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Undo the 5 screws securing the exchanger cover.
- Undo the 3 screws securing the burner.
- Check the correct distance of the electrodes.
- To clean the exchanger, it is advisable to remove the electrode (see fig. 191)
- Clean the inside of the exchanger with the accessories indicated in fig. 188.
- Do not use metal brushes which could damage the exchanger.

Boiler - Exchanger insulation replacement

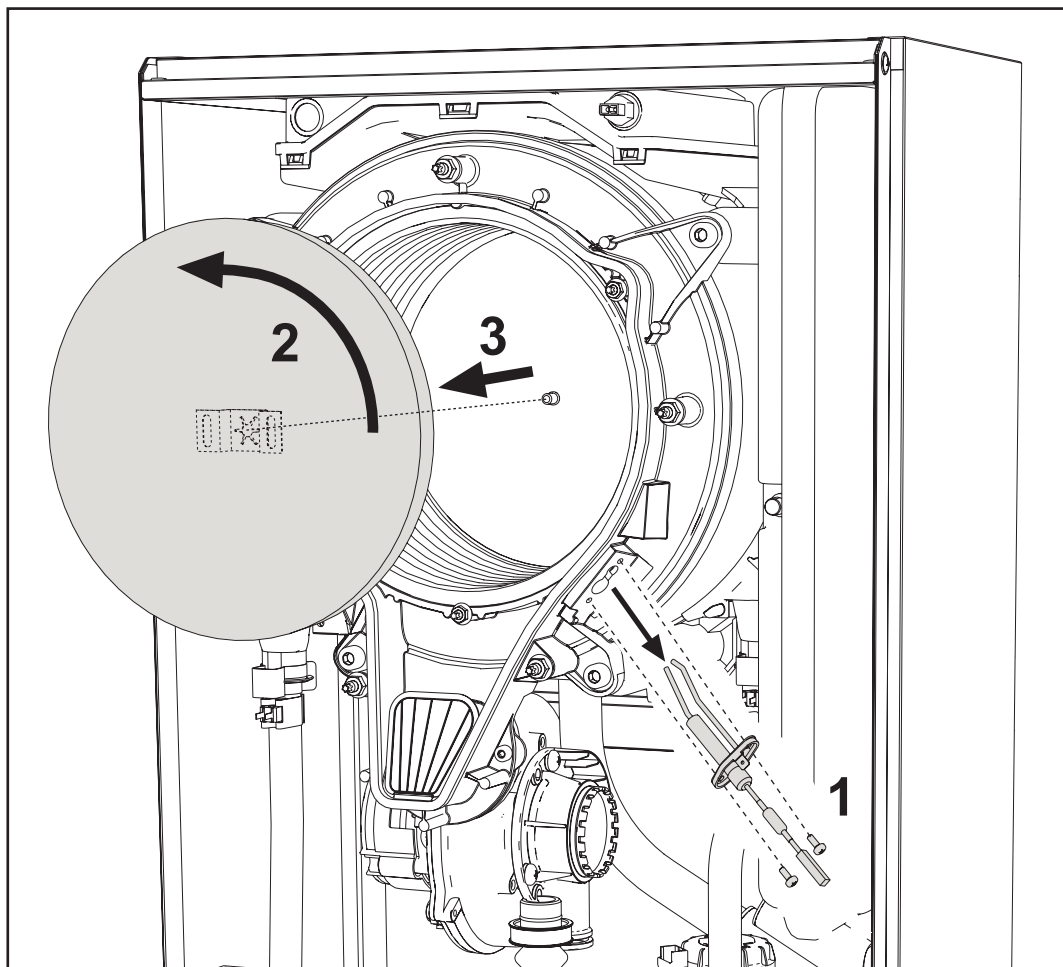


fig. 188 -

- Disconnect the power supply and close the gas tap upstream of the valve.
- Remove the cover of the heat exchanger and the burner (see fig. 188).
- Pull out the electrode "1".
- Rotate the insulating disc "2" and remove it.

Boiler - Fan

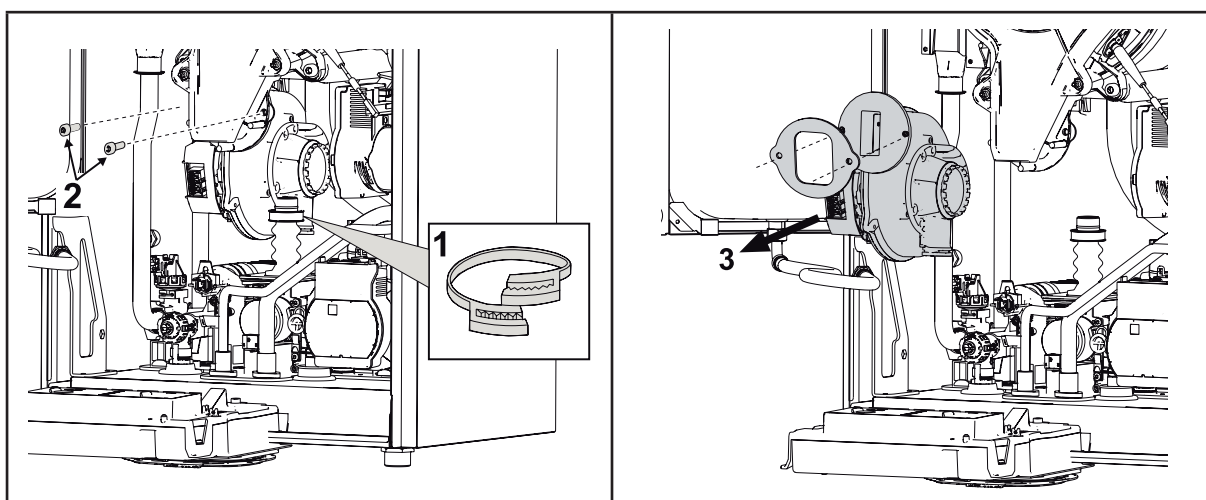


fig. 189 -

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Remove the connector from the fan
- Remove the clamp "1" and undo the screws "2".
- Remove the fan electrical connections and then the fan.

Boiler - Replacing the circuit board

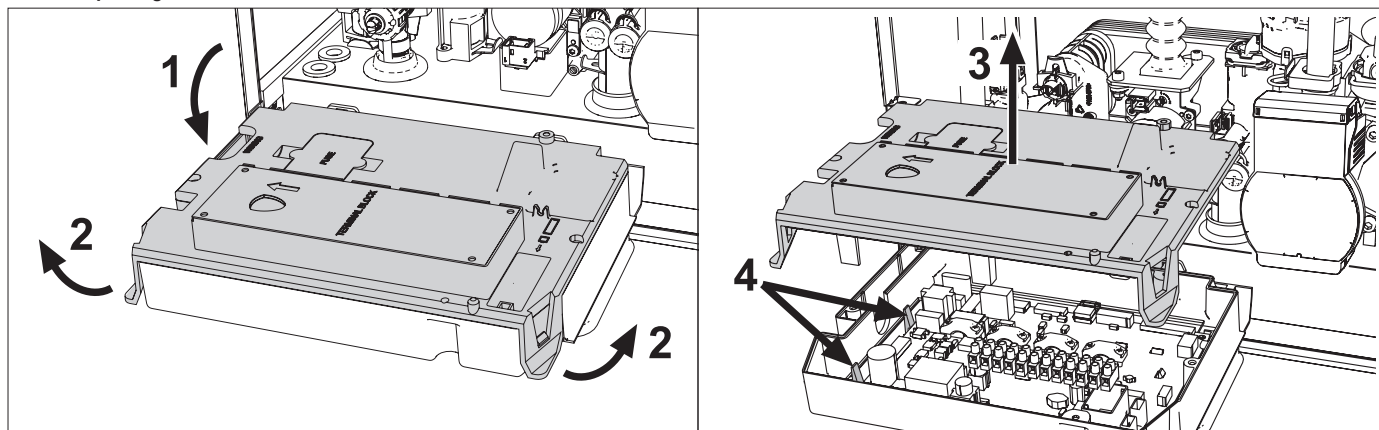


fig. 190 -

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- After rotating the panel, lift the cover by operating on the tabs "2".
- Remove all the electrical connectors
- Raise the board by operating on the side tabs "4".
- Insert the new board and reconnect the electrical connections.

To update the circuit board data, use the "KEY" device, following the instructions attached to the kit.

Replacing the electrode and maintenance

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Electrically disconnect the electrode and remove it by undoing the screws "1".
- Remove the exchanger cover and remove the burner (see fig. 188).
- Clean the electrode (see fig. 188).
- Refit the clean or new electrode and secure it, interposing the gasket "2".
- After fastening, carefully check the distance between the electrodes (see fig. 188).
- Refit and secure the burner (see fig. 188)
- Refit and secure the burner cover (see fig. 188)

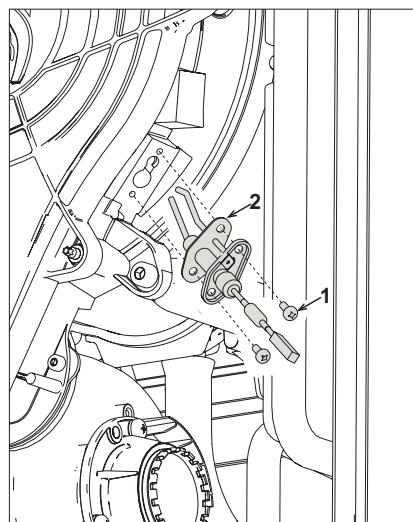



fig. 191 -

Removing the diverter valve

 Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage.

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Remove the diverter valve connector.
- Remove the clip "1" and remove the diverter valve "2".

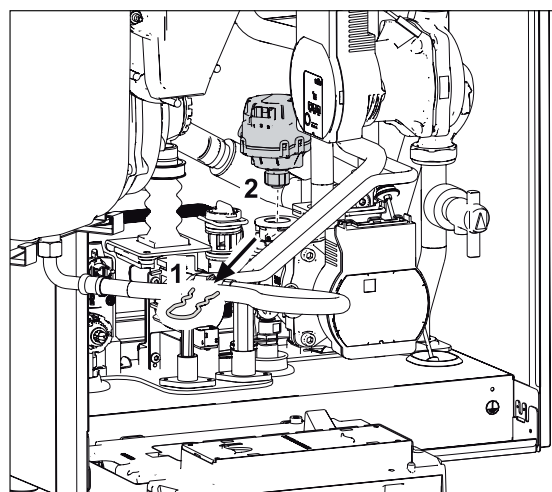



fig. 192 -

Replacing the water pressure switch

MAINTENANCE

 Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage.

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Remove the connector "1" and fastening clip "2".
- Remove the water pressure switch "3".

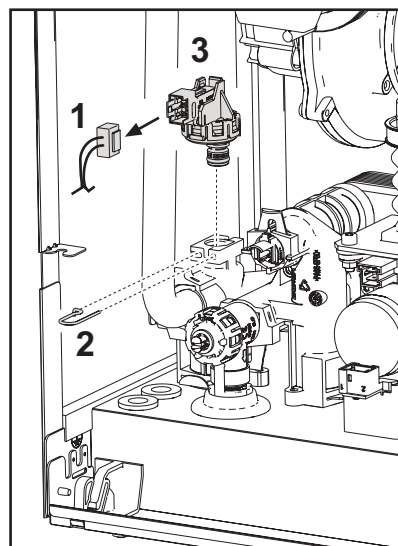


fig. 193 -

Cleaning or replacing the flowmeter

 Before carrying out the following instructions it is advisable to protect the room and the boiler's electrical box against accidental water spillage.

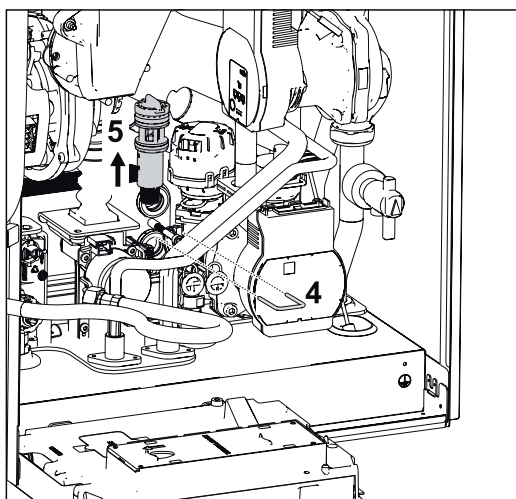


fig. 194 - Flowmeter



1. Flow-rate restrictor
2. Fan
3. Filter
4. Clip
5. Flowmeter

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Remove the diverter valve connector
- Close the cold water inlet and turn on the DHW system faucets
- Release the fork "4" and remove the flowmeter assembly "5".
- The flowmeter components can thus be cleaned (see fig. 197 and fig. 198) or replaced.

Wash the filter with clean water.

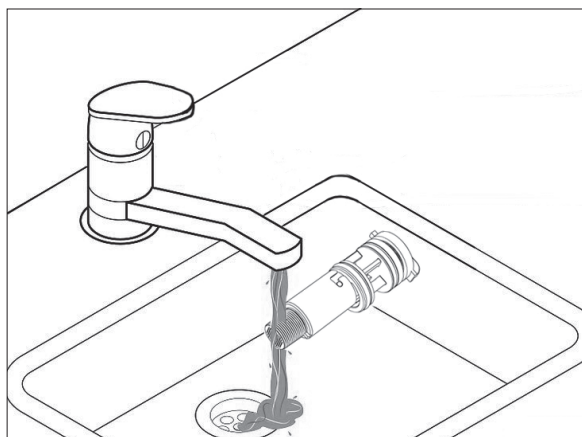


fig. 195 -

Lubricate the flowmeter gaskets with silicone grease.

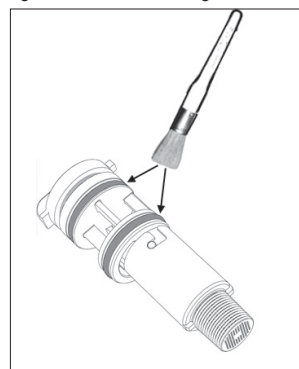


fig. 196 -

Water inlet filter cleaning

- Disconnect the power supply and turn off the gas cock ahead of the valve.
- Isolate the boiler by operating the DHW inlet and system shut-off valves.
- Clean the water inlet filter.

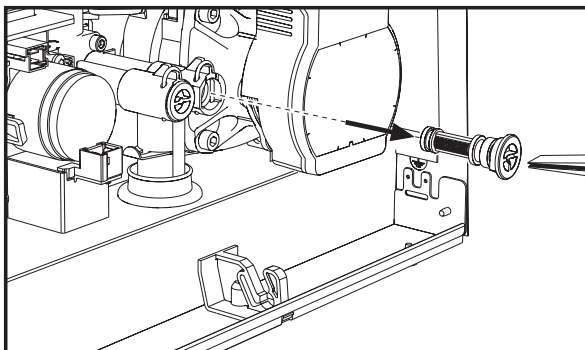


fig. 197 -

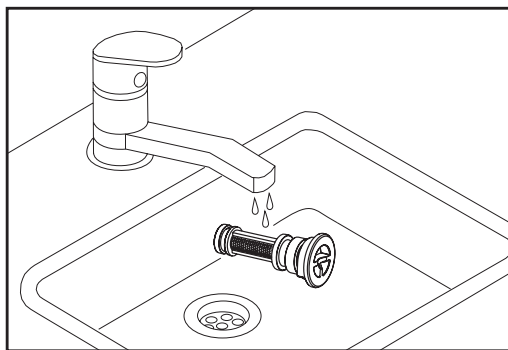


fig. 198 -

15.10 Disconnection and disposal

The system contains lubricating oil and refrigerant gas for which, during the destruction of the units, these fluids will be recovered and disposed of in accordance with the rules in force in the country where it is installed.

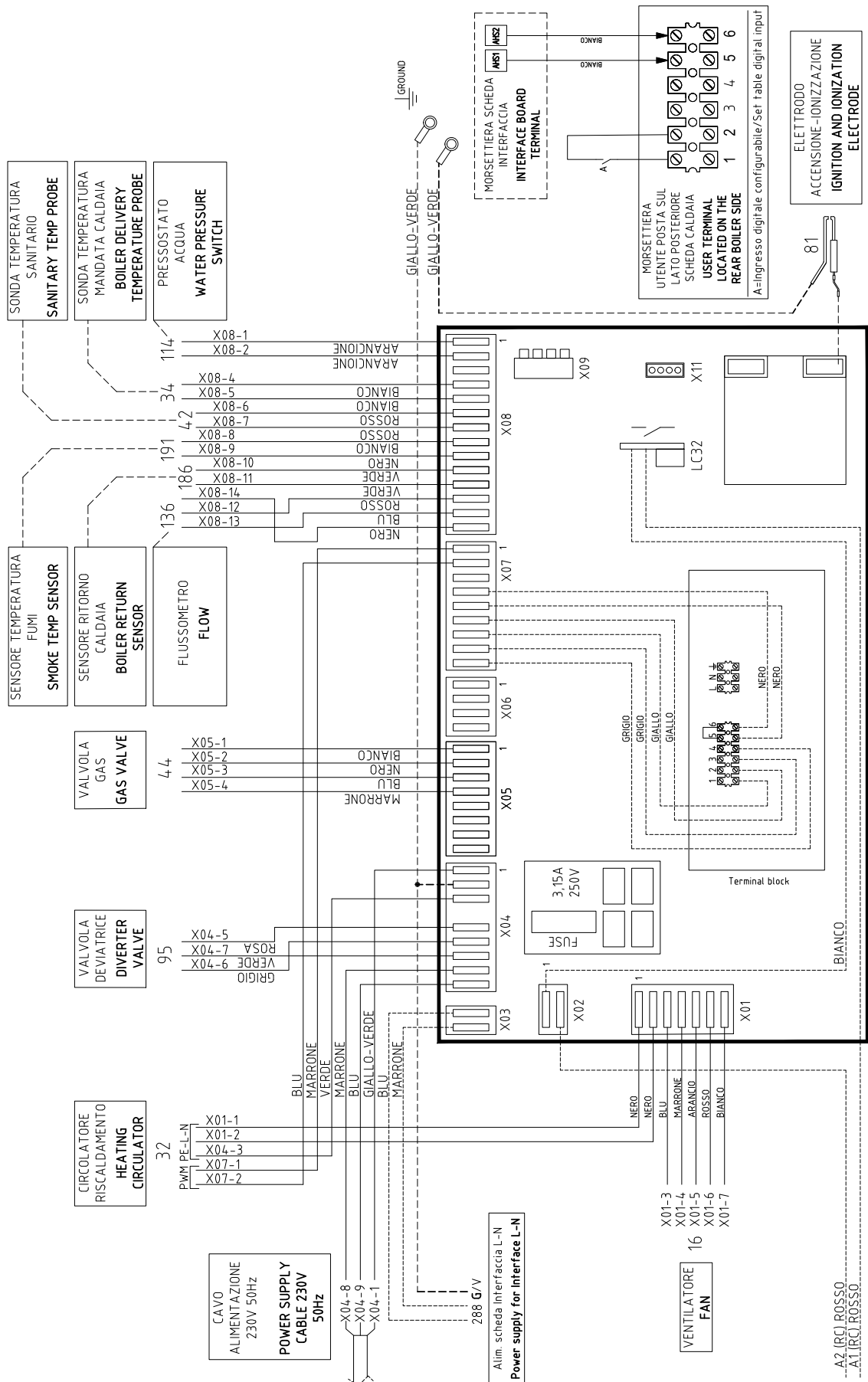
During the disconnection thus avoid spills or leaks of refrigerant gas and of the plant water if treated with additives or antifreeze substances.

The indoor and outdoor units must not be abandoned when scrapped, but they can also be placed outdoors with the gas, water and electric circuits intact and closed. For dismantling and disposal, deliver the units to specialized and authorized centers that will comply with the national regulations in force.

ELECTRICAL DIAGRAM INDOOR UNIT

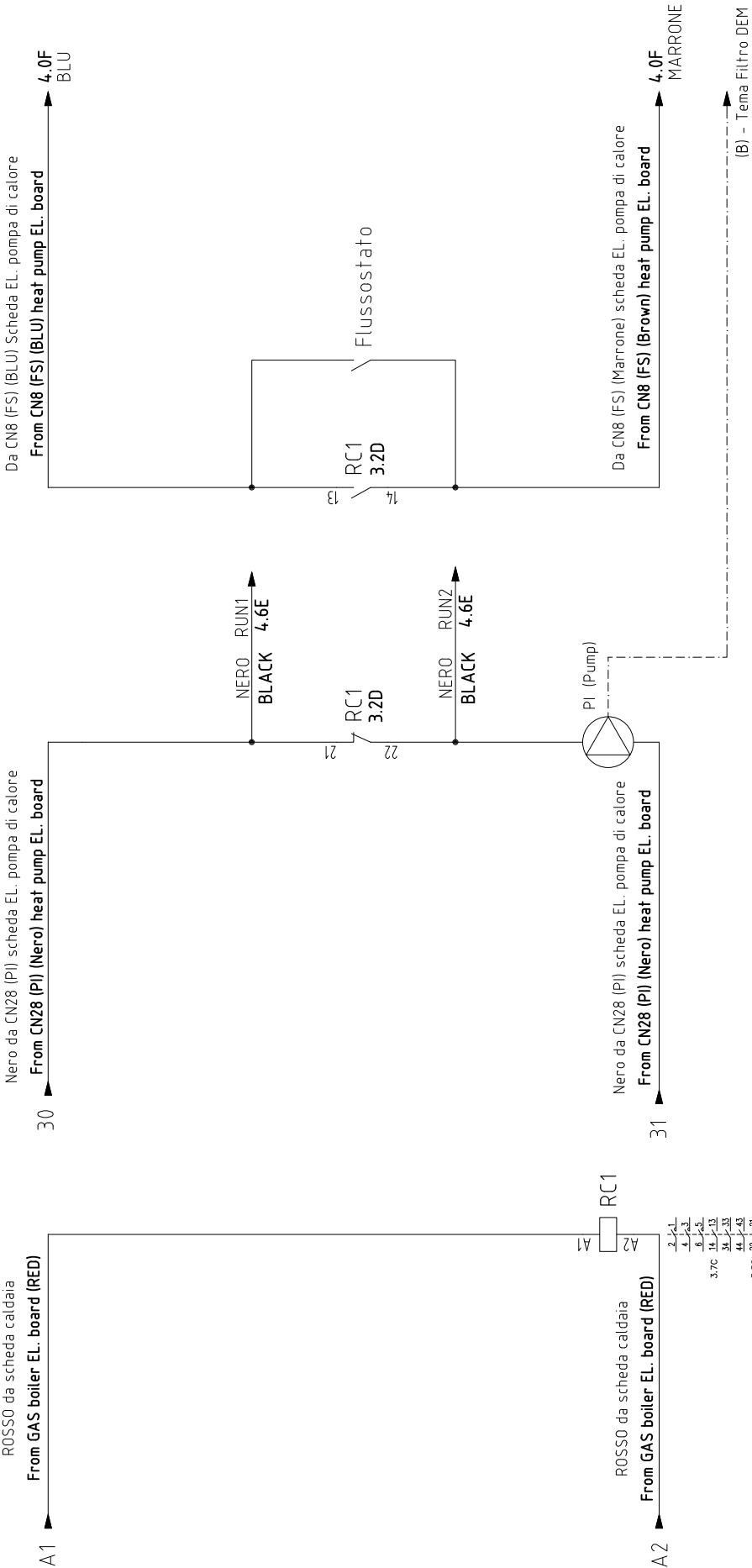
16. ELECTRICAL DIAGRAM INDOOR UNIT

Electronic boiler board



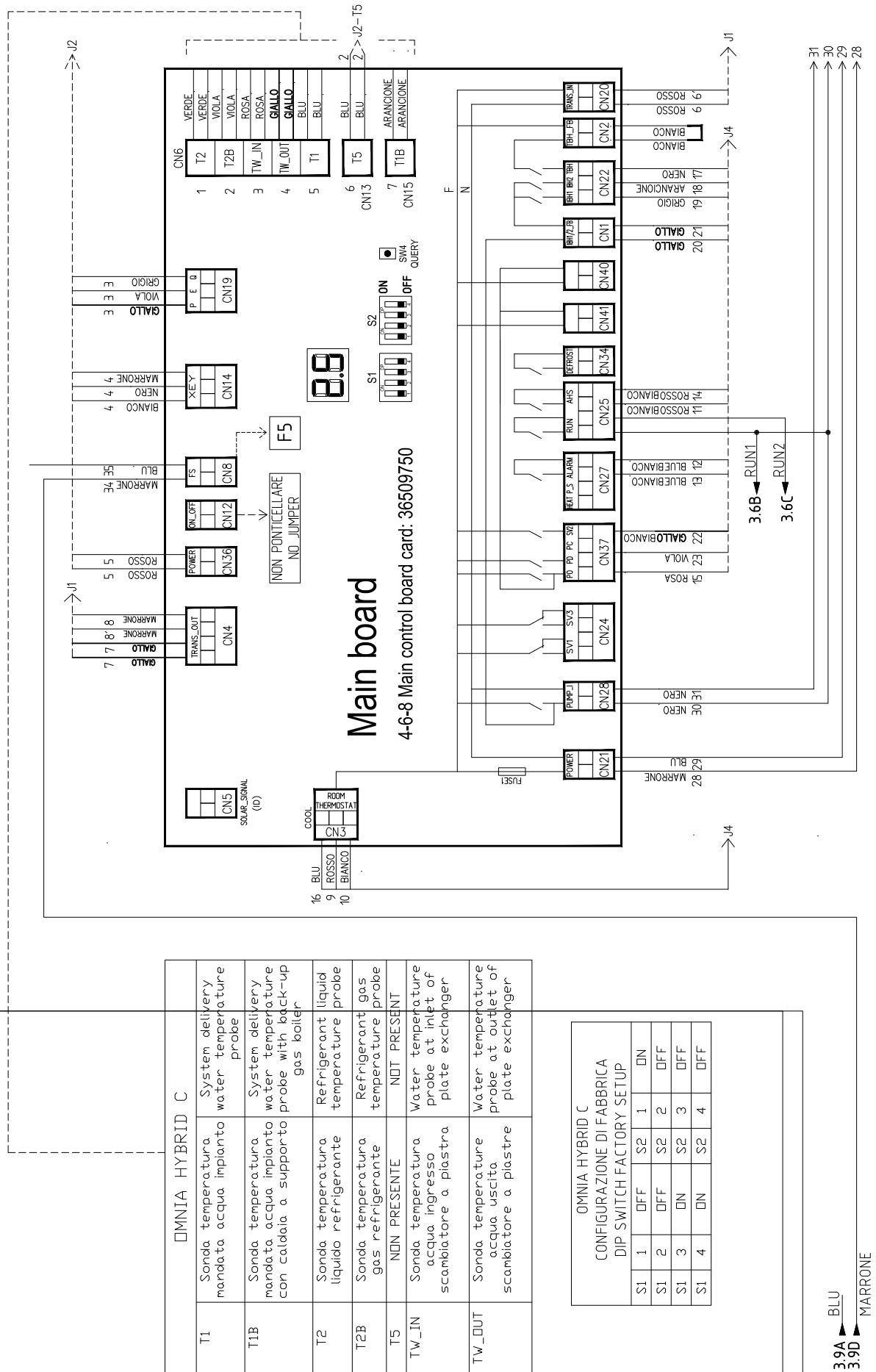
ELECTRICAL DIAGRAM INDOOR UNIT

Principle scheme



ELECTRICAL DIAGRAM INDOOR UNIT

Electronic heat pump board



Wiring board



REFRIGERANT DIAGRAM

17. REFRIGERANT DIAGRAM

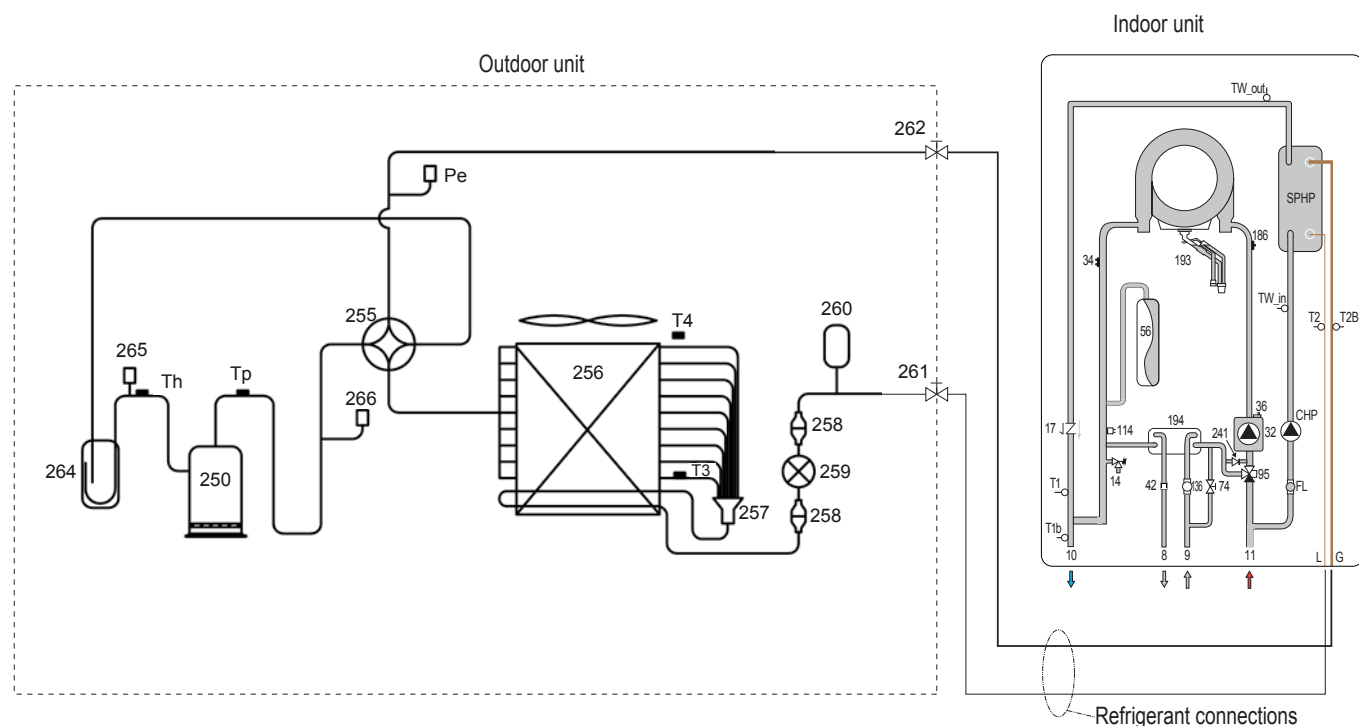


fig. 199 -

-	Description
8	Sanitary water outlet
9	Domestic water inlet
10	Plant delivery
11	System return
14	Safety valve
27	Electric booster (available as an option)
32	Circulator
36	Automatic air vent
56	Expansion vessel
95	3-way diverter valve
250	Compressor
255	Cycle inversion valve
256	Coil
257	Distributor
258	Filter
259	Electronic expansion valve
260	Liquid receiver
261	Liquid tap
262	Gas tap
264	Liquid separator
265	Low pressure switch
266	High pressure switch
267	Solenoid valve
268	Capillary
G	Gas line
L	Liquid line
PDW	Water differential pressure switch
Pe	Pressure sensor
T1	System delivery water temperature probe (installed as standard on the unit)
T1B	Indoor unit outlet water temperature probe
T2	Liquid coolant temperature probe
T2B	Gas coolant temperature probe
T3	Liquid / battery temperature probe
T4	Outdoor air temperature probe
Th	Compressor suction temperature probe
Tp	Compressor flow temperature probe
TW_in	Plate heat exchanger inlet water temperature probe
TW_out	Plate exchanger outlet water temperature probe

18. OUTDOOR UNIT ELECTRONIC BOARDS

PCB-3 - Inverter board for 1-phase Mod. 4-6-8 (outdoor unit)

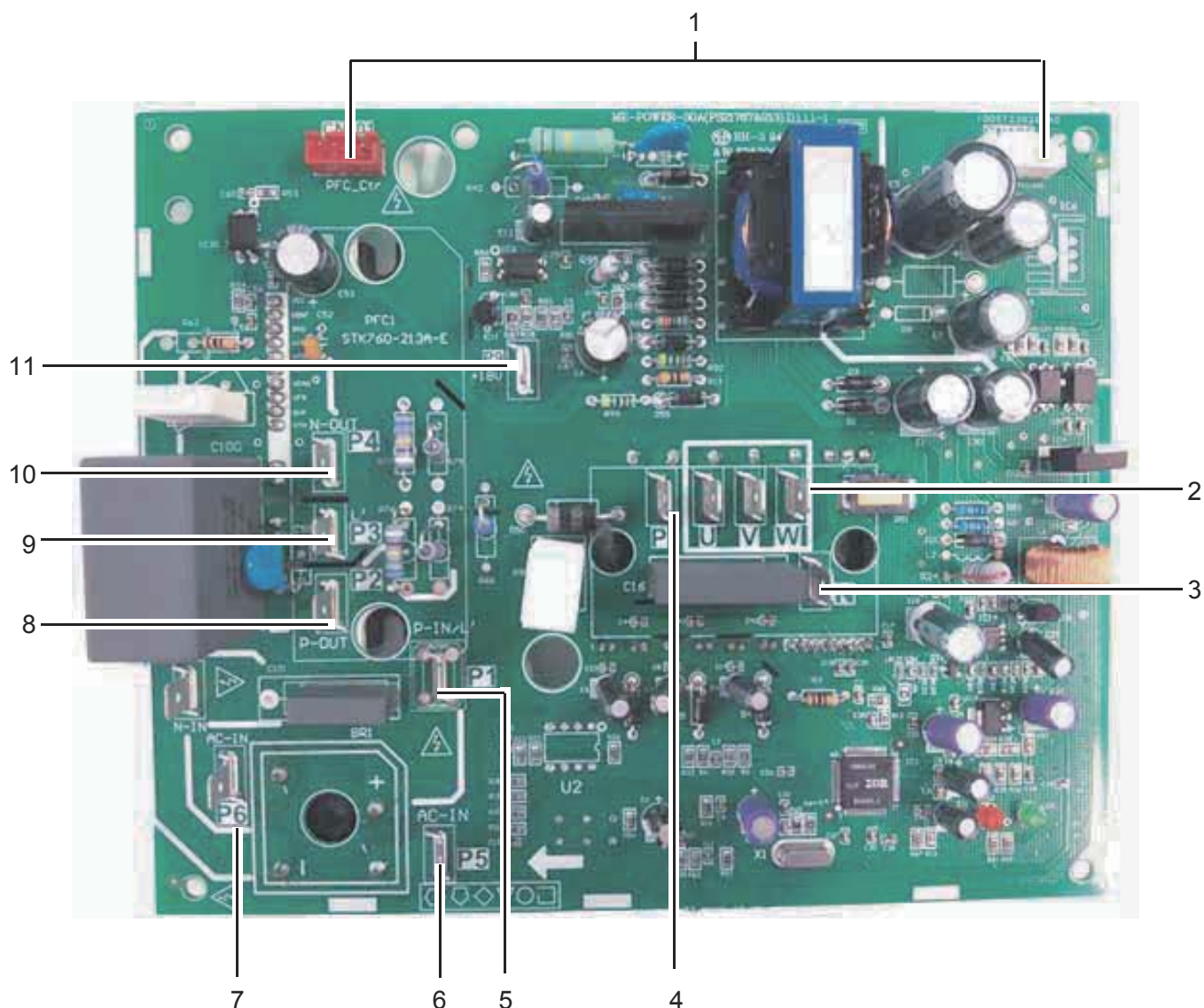


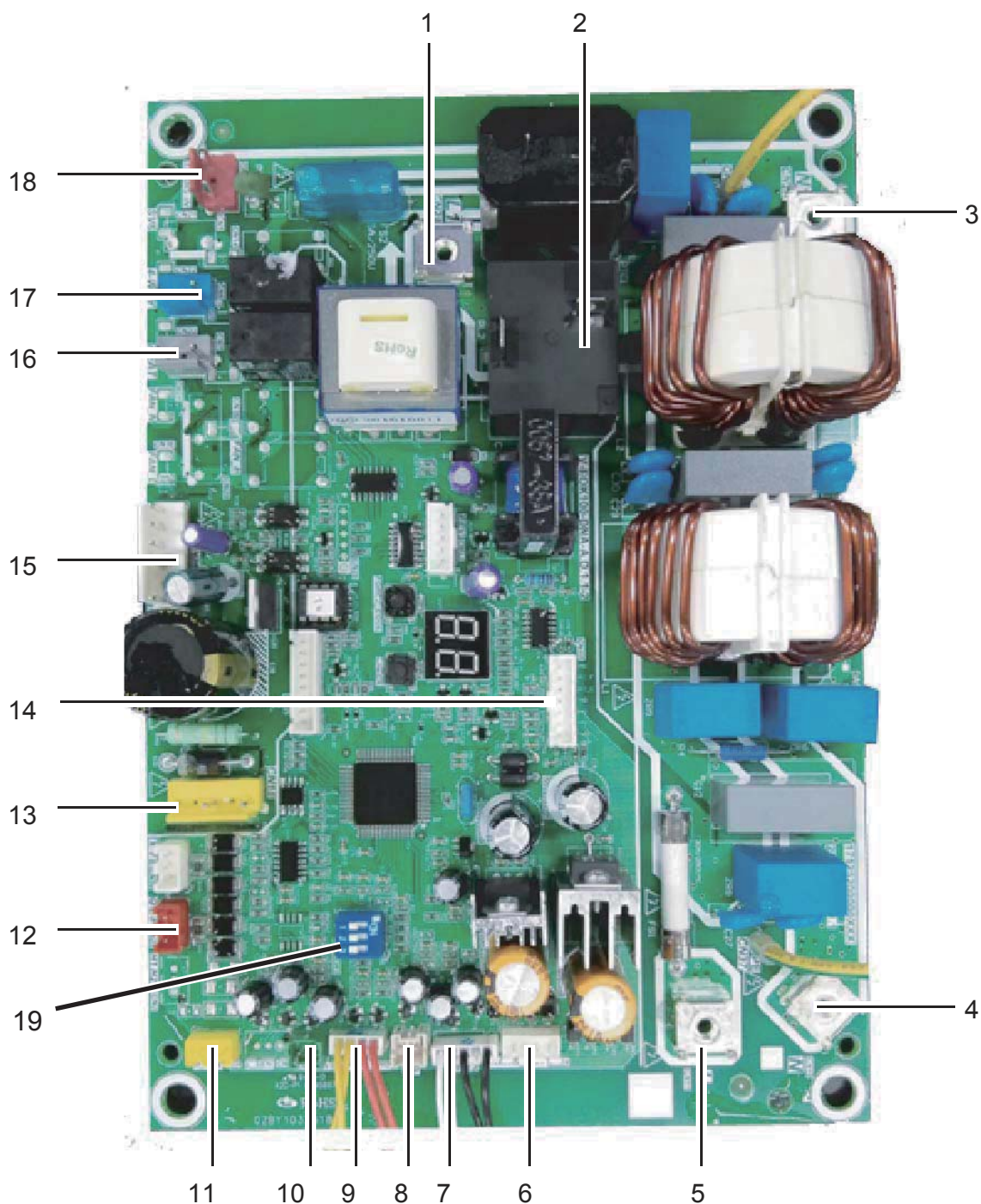
fig. 200 -

- 1 To main board (CN101,CN105)
- 2 Compressor connection port U V W (U,V,W)
- 3 Input port N for IPM module(N)
- 4 Input port P for IPM module(P)
- 5 Input port for PFC inductance P1(P1)
- 6 Input port for bridge Rectifiers(P5)

- 7 Input port for Bridge Rectifiers(P6)
- 8 Output port P of PFC(P2)
- 9 Input port for PFC inductance 3(P3)
- 10 Output port N of PFC(P4)
- 11 +18V(P9)

OUTDOOR UNIT ELECTRONIC BOARDS

PCB-2 - Main control board for 1-phase Mod. 4-6-8 (outdoor unit)



- | | |
|-------------------------------------|---|
| 1 Rectifier bridge input port L | 15 DC fan port |
| 2 Hydraulic compartment input port2 | 16 Compression electromechanical heating belt |
| 3 Rectifier bridge input port N | 17 4-way valve port |
| 4 Power supply N | 18 Transformer input port |
| 5 Power supply L | |
| 6 Transformer output port | |
| 7 BLACK: T3 temperature sensor port | |
| WHITE:T4 temperature sensor port | |
| 8 TP temperature sensor port | |
| 9 YELLOW: High pressure switch | |
| RED: Low pressure switch | |
| 10 Th temperature sensor port | |
| 11 Pressure sensor port | |
| 12 Wire controller port | |
| 13 P/N/+18V port | |
| 14 To IPDU/PFC | |

OUTDOOR UNIT ELECTRONIC BOARDS

To check the parameters on the refrigerant side (PCB-2 board). The digital display will show the present compressor frequency ('0' will display if the unit is off or error code will display if error occurs). Long press the check button and the digital display will show the operating mode, and then press the check button in sequence. The digital display will show the value, the implication of the value is shown in the diagram below:

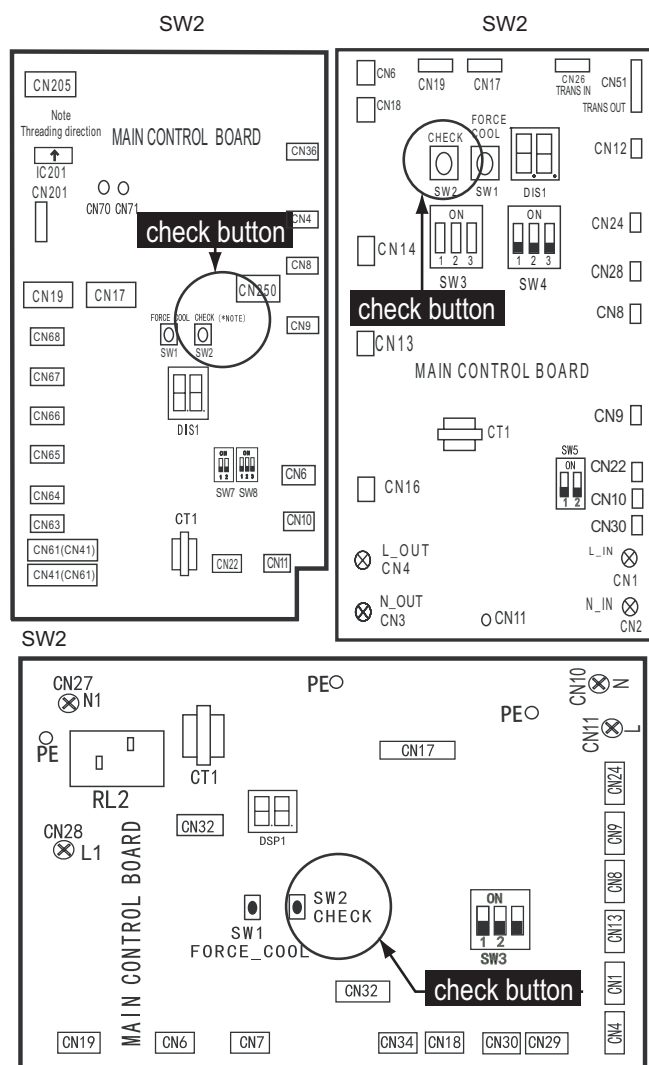


fig. 201 -

Number	Implication
0	Frequency of compressor at present
1	Operation mode (0—Standby, 2—COOL, 3—HEAT, 5—refrigerant recovery)
2	Fan speed
3	Frequency from hydraulic module
4	Frequency after restriction by the outdoor unit
5	Temperature of tube at outlet/inlet of condenser when in cool/heat mode
6	Outdoor air temperature
7	Discharge temperature
8	Suction temperature (when the temperature lower than -9°C". Will stand for negative sign)
9	The opening of EEV (the value display multiply 8 will be the actual opening)
10	Actual current
11	Actual voltage
12	Pressure of refrigerant (evaporate/condense pressure when in cool /heat mode)
13	Version of software (outdoor unit)
14	Error/protection code for the last time, "nn"will display if no error/protection occurs
15	--

HEAT PUMP ELECTRONIC BOARD

19. HEAT PUMP ELECTRONIC BOARD

19.1 Electronic board's DIP switch settings of the of the heat pump

The DIP switch are located on the electronic board inside the unit's electrical panel.

⚠ WARNING -Switch off the power supply before opening the switch box service panel and making any changes to the DIP switch settings..

DIP SWITCH	Description	ON	OFF
S1 (1)	Set always OFF	50m	5m
S1 (2)	Set always OFF	Installed	Installed
S1 (3)	Electrical booster (IBH1-first stage) (OFF if installed)	Not installed	Installed
S1 (4)	Electrical booster (IBH2-second stage) (OFF if installed)	Not installed	Installed
S2 (1)	Temperature probe (necessary if AHS-gas boiler is installed, in this case set ON)	Installed	Not installed
S2 (2)	Set always OFF	/	/
S2 (3)	Set always OFF	/	/
S2 (4)	Set always OFF	/	/

Table. 10 - Dip switch configuration (see part 13 "fig. 203 -").

DIP SWITCH	ID	FACTORY DIP SWITCH SETTING*
S1	1	OFF
	2	OFF
	3	ON
	4	ON
S2	1	ON
	2	OFF
	3	OFF
	4	OFF



fig. 202 -

*: Do not change the dip-switch settings.

PCB-1 - Hydraulic module control board heat pump

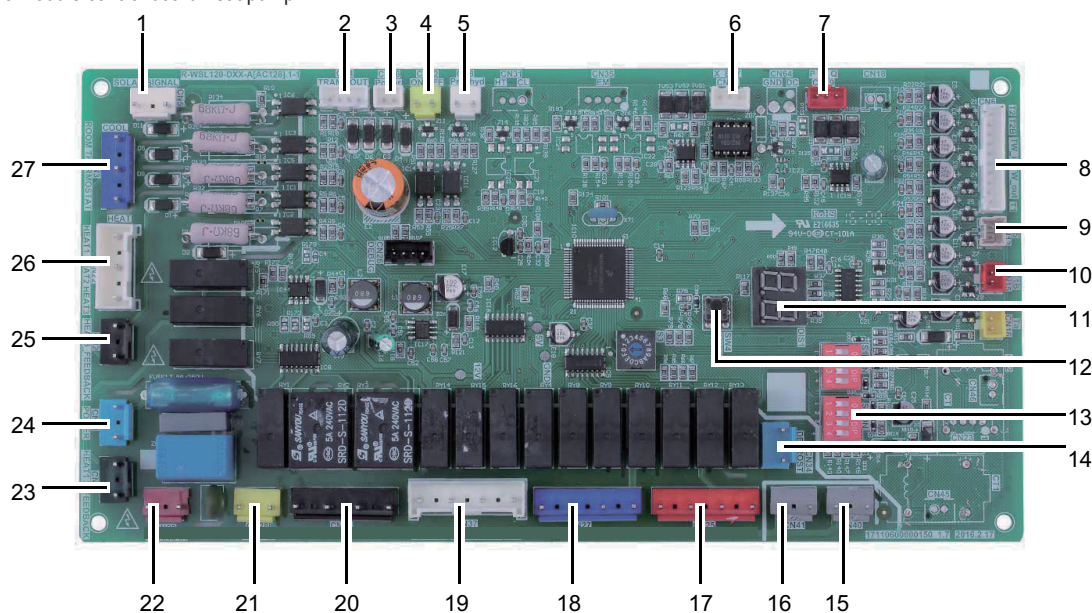


fig. 203 -

- | | |
|---|---|
| <p>1 Input port for solar energy(CN5)</p> <p>2 Output port for transformer(CN4)</p> <p>3 Power supply port for user interface(CN36)</p> <p>4 Port for remote switch(CN12)</p> <p>5 Port for flow switch(CN8)</p> <p>6 Communicate port between door PCB B and door PCB(CN14)</p> <p>7 Communicate port between door PCB and user interface(CN19)</p> <p>8 Port for temperature sensors(TW_out, TW_in, T1, T2, T2B)(CN6)</p> <p>9 Port for temperature sensor(CN13)</p> <p>10 Port for temperature sensor(T1B, the final outlet temp.)(CN15)</p> <p>11 Digital displays(DIS1)</p> <p>12 Check button(SW4)</p> <p>13 DIP switch(S1,S2)</p> <p>14 output port for deforst(CN34)</p> <p>15 Port for anti-freeze eletric heating tape (internal)(CN40)</p> <p>16 Port for anti-freeze eletric heating tape (internal)(CN41)</p> | <p>17 Output port for external heating source / operation output port(CN25)</p> <p>18 Port for anti-freeze eletric heating tape(external) /port for solar energy pump/output port for remote alarm(CN27)</p> <p>19 Port for external circulted pump/pipe pump/mix pump/2-way valve SV2(CN37)</p> <p>20 Port for SV1(3-way valve) and SV3(CN24)</p> <p>21 Port for internal pump(CN28)</p> <p>22 Input port for transformer(CN20)</p> <p>23 Feedback port for temperature switch(CN1)</p> <p>24 Port for power supply(CN21)</p> <p>25 Feedback port for external temp. switch(shorted in default)(CN2)</p> <p>26 Control port backup heater/booster heater(CN22)</p> <p>27 Control port for room thermostat(CN3)</p> |
|---|---|

HEAT PUMP ELECTRONIC BOARD

19.2 Parameters check in the electrical board

To check the parameters of hydraulic box (PCB-1), open door 2 and you'll see the PCB like following, the digital display will show the temperature of outlet water in normal condition ('0' will display if the unit is off or error code will display if error occurs). Long press the check button and the digital display will show the operating mode. Then press the check button in sequence. The digital display will show the value, the implication of the value illustrated in the diagram below:

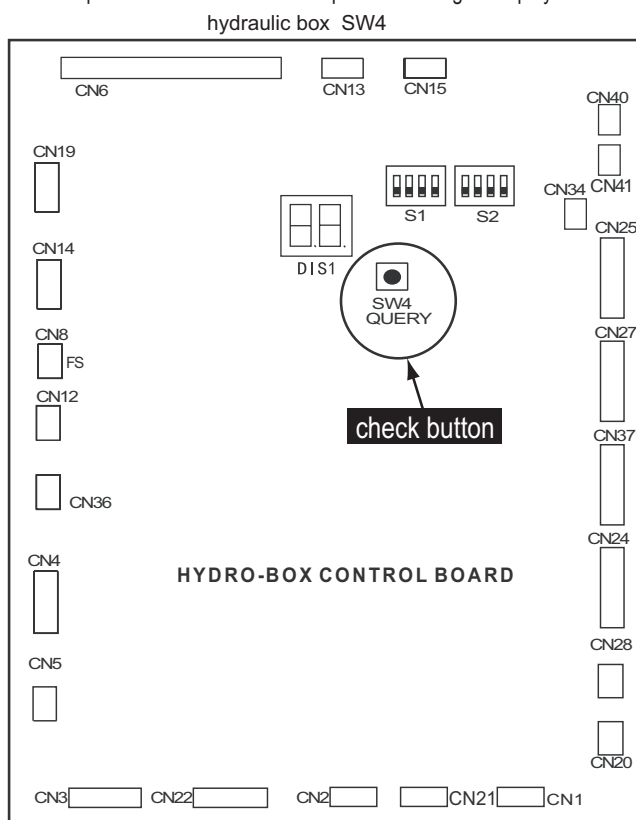


fig. 204 -

Number	Implication
0	Temperature of outlet water when unit is on, when the unit is off, '0' will display
1	Operation mode(0—OFF, 2—COOL, 3—HEAT, 5—Water heating)
2	Capacity requirement before correction
3	Capacity requirement after correction
4	Outlet water temperature of backup heater
5	Outlet water temperature of additional heating source
6	Target outlet water temperature calculated from climate-related curves
7	Room temperature
8	Temperature of domestic hot water
9	Temperature of refrigerant at outlet /inlet of plate heat exchanger when in heat mode/cool mode
10	Temperature of refrigerant at inlet /outlet of plate heat exchanger when in heat mode/cool mode
11	Temperature of water at outlet of plate heat exchanger
12	Temperature of water at inlet of plate heat exchanger
13	Outdoor air temperature
14	Current of backup heater 1
15	Current of backup heater 2
16	Error/protection code for the last time, "—" will display if no error/protection occur
17	Error/protection code for the second last time, "—" will display if no error/protection occur
18	Error/protection code for the third last time, "—" will display if no error/protection occur
19	Version of software (hydraulic module)

20. BOILER TERMINAL BLOCK

20.1 Accessing to the electrical terminal board and to the fuse of the boiler electrical box

Remove the front panel (see “15.7 Extraordinary maintenance and replacement of heat pump components” on page 91) to access the terminal block (M) and fuse (F) by proceeding as follows (fig. 205 and fig. 206). The terminals indicated in fig. 206 must be with voltage-free contacts (not 230V). The arrangement of the terminals for the various connections is also given in the wiring diagram in “ELECTRICAL DIAGRAM INDOOR UNIT” on page 99.

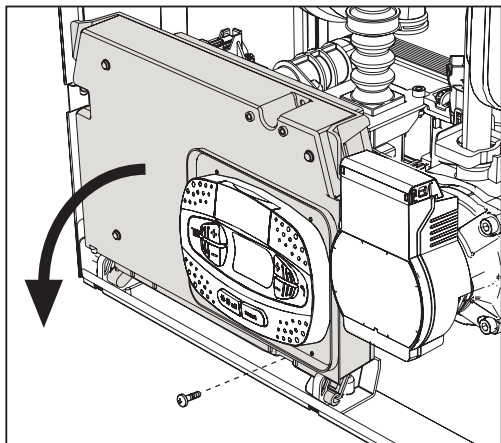


fig. 205 -

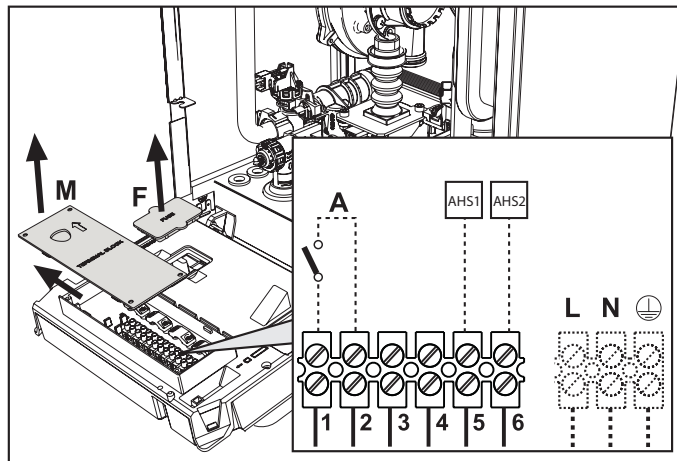


fig. 206 -

20.2 Variable output relay LC32 card (factory installed)

The LC32 variable output relay consists of a small coupon with an exchange of free contacts (closed means contact between C and NA) installed as standard in the boiler electrical box, the functionality is managed by the boiler controller software.

Refer to “Table. 11 - Settings LC32”.

Table. 11 - Settings LC32

Parameter b07	Function LC32	Action LC32
0	Manages a secondary gas valve (default)	The contacts are closed when the gas valve (in the boiler) is powered
1	Use as an alarm output (warning light comes on)	The contacts are closed when there is an error condition (generic)
2	Manages a water loading valve	The contacts are closed until the water pressure in the heating circuit is restored to the normal level (after manual or automatic topping up)
3	Manages a solar 3-way valve	The contacts are closed when the DHW mode is active
	Manages a Legionella pump (only with b01=2)	The contacts are closed when the Legionella protection is running
4*	Manages a second heating pump	The contacts are closed when the heating mode is active
5	Use as an alarm output (warning light goes off)	The contacts are opened when there is an error condition (generic)
6	Indicates ignition of the burner	The contacts are closed when the flame is present
7	Manages the trap heater	The contacts are closed when the frost protection mode is active

NOTE

* : factory set value. For a correct functioning of the system do not modify the parameter.

BOILER TERMINAL BLOCK

20.3 ON/OFF (A fig. 206) configuration

Table. 12 - Switch A setting

DHW configuration	Parameter b06	
b01 = 1 o 3	b06=0	Contact open disables DHW and re-enables it if closed.
	b06=1	Contact open disables heating and displays F50. Contact closed enables heating.
	b06=2	The contact acts as a room thermostat.
	b06=3	Contact open displays F51 and the boiler continues to operate. It is used as an alarm.
	b06=4	The contact acts as a limit thermostat, if open it displays F53 and turns off the request.
b01 = 2 o 4	b06=0	Contact open puts the boiler in ECO mode. Contact closed puts the boiler in COMFORT mode.
	b06=1	Contact open disables heating and displays F50. Contact closed enables heating.
	b06=2	The contact acts as a room thermostat
	b06=3	Contact open displays F51 and the boiler continues to operate. It is used as an alarm.
	b06=4	The contact acts as a limit thermostat, if open it displays F53 and turns off the request.

- Wiring must be carried out in accordance with the wiring diagram supplied with the unit and the instructions given in this paragraph.
- All wiring and electrical components must be installed by a qualified electrician.
- Provide a main switch or other disconnection devices in the system in accordance with local laws and regulations.
- Use a dedicated power line.
- Install fuses (or circuit breakers) and power cables that match the maximum electrical current of the unit.
- Install a differential switch according to local laws and regulations. Failure to install a differential switch can result in electric shock and fire.
- Install a differential switch with the following characteristics:
 - intervention value equal to 30 mA
 - trip time less than 0.1 s
- Make sure all electrical connections are carried out properly. Use the specified cables and ensure that the terminal connections and cables are protected from water and other external forces to avoid the risk of fire.
- Accommodate the power supply and control cables so that the front panel can be mounted correctly and therefore do not force the cables themselves to avoid the risk of fire or electric shock.
- Do not compress the cables and make sure that they do not come into contact with the pipes and sharp edges. Ensure that no external pressure is applied to the cables.

1. Opening the front panel

Some components inside the boiler can reach high temperatures that could cause serious problems burns. Before carrying out any operation, wait for these components to cool or alternatively wear suitable gloves.

To dismount the front panel of the indoor unit “15.7 Extraordinary maintenance and replacement of heat pump components” on page 91.

2. Make the connections referring to the functional electrical diagram present in this manual.

3. Proceed in reverse order to reassemble the front panel. Make sure that it is correctly attached to the upper fixing and completely resting on the side panels. The head of the screw “A”, once tightened, must not be underneath the lower bending stop.

GENERAL RECOMMENDATIONS ABOUT THE R410A REFRIGERANT USED

21. GENERAL RECOMMENDATIONS ABOUT THE R410A REFRIGERANT USED

1 SUPPLIER COMPANY AND PRODUCT IDENTIFICATION

Product R-410A

2 COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Preparation Preparation
 Components / Impurities Contains the following components :
 Difluoromethane (R32) 50 % in weight
 Pentafluoroethane (R125) 50 % in weight
 EEC No. Non-applicable for mixtures
 Trade-name / /

3 IDENTIFICATION OF HAZARDS

Identification of hazards Liquefied gas.
 The vapours are heavier than air and can cause suffocation, reducing the oxygen available for breathing.
 Rapid evaporation of the fluid can cause freezing.
 Can cause cardiac arrhythmia.

4 FIRST-AID MEASURES

Inhalation Do not administer anything if the person has fainted.
 Take the person outdoors. Use oxygen or artificial respiration if necessary.
 Do not administer adrenaline or similar substances.
 Contact with eyes Rinse thoroughly with plenty of water for at least 15 minutes and see a doctor.
 Contact with skin Wash immediately with plenty of water. Immediately remove all contaminated garments.
 Swallowing

5 FIRE-PREVENTION MEASURES

Specific hazards Increase in pressure.
 Dangerous fumes Halogen acids, traces of carbonyl halides.
 Fire-extinguishing means usable All the known fire-extinguishing means can be used.
 Specific methods Cool the containers/tanks with water sprays.
 Special protection equipment Use self-contained breathing apparatus in confined spaces.

6 MEASURES AGAINST ACCIDENTAL SPILLING OF THE PRODUCT

Personal protection Evacuate personnel to safe areas. Provide for adequate ventilation. Use personal protection equipment.
 Protection for the environment It evaporates.
 Product removal methods It evaporates.

7 HANDLING AND STORAGE

Handling and storage Ensure an adequate air change and/or extraction in the workplaces. Only use well-ventilated rooms.
 Do not breathe vapours or aerosols. Carefully close the containers and keep them in a cool, dry and well-ventilated place. Keep in the original containers.
 Incompatible products Explosives, flammable materials, organic peroxides.

8 CONTROL OF EXPOSURE / PERSONAL PROTECTION

Personal protection Ensure adequate ventilation, especially in closed areas.
 Control parameters Difluoromethane (R32): Recommended exposure limits: AEL (8h and 12h TWA) = 1000 ml/m³
 Pentafluoroethane (R125): Recommended exposure limits: AEL (8h and 12h TWA) = 1000 ml/m³
 Respiratory tract protection For rescue and for maintenance works in tanks, use self-contained breathing apparatus. The vapours are heavier than air and can cause suffocation, reducing the oxygen available for breathing.
 Eye protection Total protection glasses.
 Hand protection Rubber gloves.
 Hygiene measures Do not smoke.

9 CHEMICAL-PHYSICAL PROPERTIES

Relative density, gas (air=1) Heavier than air.
 Solubility in water (mg/l) Not known, but deemed very low.
 Appearance Colourless liquefied gas.
 Odour Similar to ether.
 Fire point Does not ignite.

10 STABILITY AND REACTIVITY

Stability and reactivity No decomposition if used according to the special instructions.
 Materials to be avoided Alkali metals, alkali-earth metals, granulated metal salts, Al, Zn, Be, etc. in powder.
 Hazardous products of decomposition Halogen acids, traces of carbonyl halides.

11 TOXICOLOGICAL INFORMATION

Local effects Concentrations substantially above the value TLV (1000 ppm) can cause narcotic effects. Inhalation of highly concentrated products of decomposition can cause respiratory insufficiency (pulmonary oedema).
 Long-term toxicity No carcinogenic, teratogenic or mutagenic effects have been recorded in experiments on animals.
 Specific effects Rapid evaporation of the fluid can cause freezing. Can cause cardiac arrhythmia.

12 ECOLOGICAL INFORMATION

Effects linked to ecotoxicity Pentafluoroethane (R125)
 Potential global warming with halocarbitides; HGWP (R-11 = 1) = 0.84
 Potential impoverishment of the ozone; ODP (R-11 = 1) = 0.13 **CONSIDERATIONS ON DISPOSAL**
 General Do not dispose of where accumulation can be hazardous.
 Usable with reconditioning.
 The depressurised containers must be returned to the supplier.
 Contact the supplier if instructions for use are deemed necessary.

GENERAL RECOMMENDATIONS ABOUT THE R410A REFRIGERANT USED

14 INFORMATION FOR TRANSPORT

Designation for transport	LIQUEFIED GAS N.A.S. (DIFLUOROMETHANE, PENTAFLUOROETHANE)
UN No.	3163
Class/Div	2.2
ADR /RID No.	2, 2nd A
ADR/RID hazard no.	20
ADR label	Label 2 : non-toxic non-flammable gas.
CEPIC Groupcard	20g39 - A
Other information for transport	Avoid transport on vehicles where the loading zone is not separate from the cab. Make sure the driver is informed about the potential risk of the load and knows what to do in case of
accident or emergency.	Before starting transport, make sure the load is properly secured and : make sure the valve of the container is closed and does not leak; make sure the blind cap of the valve (when provided) is correctly fitted; make sure the cap (when provided) is correctly fitted and that there is an adequate ventilation passage; ensure compliance with the current provisions.

15 INFORMATION ON REGULATIONS

The product must not be labelled according to Directive 1999/45/EC.

Comply with the regulations given below, and the relevant applicable updates and amendments.

Circulars no. 46/79 and 61/81 of the Ministry of Labour : Risks related to the use of products containing aromatic amines

Leg. Decree no. 133/92 : Regulations on the discharge of hazardous substances in waters

Leg. Decree no. 277/91 : Protection of workers against noise, lead and asbestos

Law 256/74, Decree 28/1/92, Leg. Decree no. 52 dated 3/2/97, Decree dated 28/4/97 as amended : Classification, packing and labelling of hazardous substances and preparations

Decree no. 175/88, as amended : Activities with significant accident risks (Seveso Law)

Decree no. 203/88 : Emissions into the atmosphere

Decree no. 303/56 : Work hygiene

Decree no. 547/55 : Regulations on accident prevention

Leg. Decree no.152 dated 11/5/99 : Protection of waters

16 OTHER INFORMATION

Recommended uses	Refrigerant
Can cause suffocation in high concentration.	
Keep in a well-ventilated place.	
Do not breathe the gas.	
The risk of suffocation is often underestimated and must be clearly explained during the training of operators.	
Ensure compliance with all the national and regional regulations.	
Before using this product in any new process or trial, an in-depth study on safety and compatibility of the product with the materials must be carried out.	
The above information is based on our current know-how and describes the product according to the safety requirements. It does not however represent a guarantee and assurance of the qualities in a legal sense. Each person responds personally for compliance with such regulations..	

First aid

- Move the victim away from the toxic source, keep him warm and allow him to rest.
- Administer oxygen if necessary.
- Proceed with artificial respiration if necessary.
- Give heart massage in the case of heart failure.
- Immediately seek medical help.

Contact with the skin:

- Immediately thaw the affected parts under running lukewarm water.
- Remove contaminated clothing (garments may stick to the skin in the case of ice burns) if they have not adhered to the skin.
- Seek medical assistance if necessary.

Contact with the eves:

- Immediately rinse the eyes with physiologic eyewash or clean water for at least 10 minutes with the eyelids pulled open.
- Seek medical assistance if necessary.

Swallowing:

- Do not make the victim vomit. If the victim is conscious, have him rinse his mouth out with clean water and then drink 200, 300 ml of water.
- Immediately seek medical help.
- Do not administer adrenaline or sympathomimetic drugs after exposure owing to the risk of cardiac arrhythmia.

For further information about the characteristics of the refrigerant, consult the technical briefs that can be obtained from manufacturers of refrigerant products.

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