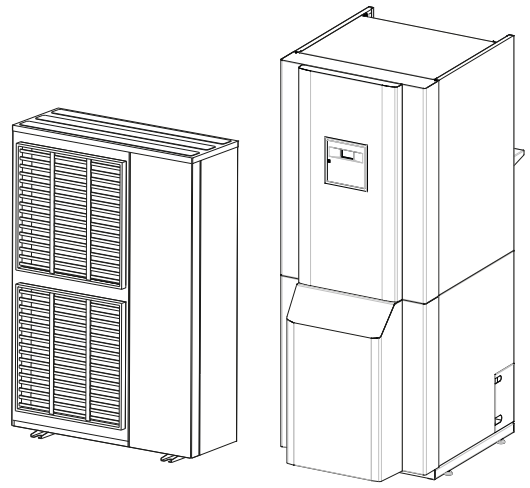
alféa hybrid duo oil low NOx

Water/air heat pump with integrated fuel oil burner, single phase or three phase split, 2 services

Outdoor unit		Hydraulic module	
☐	WOYG112LCT	☒	024208
☐	WOYG140LCT		
☐	WOYK112LCT		
☐	WOYK140LCT		
☐	WOYK160LCT		



Document n° 1605-3 ~ 17/09/2013

FR | EN

Installation and commissioning instructions

for professionals

To be kept by the user for future reference

atlantic

atlantic-comfort.com

Contents

☞ **The following are required for the installation of this appliance:**
- work must only be carried out by qualified personnel with a certificate of aptitude for handling refrigerating fluids (in compliance with article R543.106 of the Environmental code),
- a heating technician must be involved.

1 Presentation of the equipment

1.1 Packaging

• 1 box: Outdoor unit.

• 1 box: Hydraulic module with NOx low burner and outdoor temperature probe.

Pairing table

Heat pump		Outdoor unit		Hybrid duo hydraulic module	
Model	ref. export	ref.	Code	ref.	Code
alféa hybrid duo 11 single phase	522 694	WOYG112LCT	700117	MH-HD	024208
alféa hybrid duo 14 + single phase	522 695	WOYG140LCT	700142		
alféa hybrid duo 11 three phase	522 696	WOYK112LCT	700118		
alféa hybrid duo 14 three phase	522 697	WOYK140LCT	700143		
alféa hybrid duo 16 three phase	522 698	WOYK160LCT	700163		

1.2 Optional equipment

• **2nd circuit kit** (ref. 073953).
- to connect 2 heating circuits.

• **Ambient probe T55** (ref. 073951) or **Ambient probe radio T58** (ref. 075313).
- to correct the ambient temperature.

• **Central ambient unit T75** (ref. 073954) or **Central radio ambient unit T78** (ref. 074061).
- to correct the ambient temperature and programme the PAC.

• Anti-vibration pins (ref. 523574).

• Floor **support in white PVC** (ref. 809532).

• **Duo pool kit** (ref. 074064).

• High flow **circulator kit** (ref. 073959).
- for a 1 circuit heated floor installation with a PAC model 13 and 16.

1.3 Scope

This heat pump permits:
- heating in winter,
- the production of sanitary hot water,
- controlling two heating circuits *,
- heating the pool*.

*: These options require the use of additional kits (see § "optional equipment").

1.4 Definitions

- Split: the heat pump is composed of two parts (an outdoor unit to be located outdoors and a Hydraulic module to be installed inside the home).
- Air/water: the outdoor air is the energy source . This energy is transmitted to the heating water by the heat pump.
- Inverter: the fan and compressor speeds are modulated to suit the heat requirements. This technology economises energy and permits operation with single phase power supply, regardless of the power rating of the heat pump, by avoiding high current demands when started.
- COP (coefficient of performance: this is the ratio between the energy transferred to the heating circuit and the electrical energy consumed.
- hybrid: the Hydraulic module operates with dual energy (air/water heat pump and integrated oil boiler).
- low NOx: Burner designed to minimise the emission of Nitrogen oxides NOx in the fumes. Generally low NOx burners are considered to be burners whose emission rate is below the most severe regulations at that time. This limit chnages regularly according to the regulations and technical progress.

1.5 General characteristics

Denomination : alféa hybrid duo oil low NOx flue model		**11**	**14 +**	**11 3 ph.**	**14 3 ph.**	**16 3 ph.**
Nominal heating performances (Outdoor T° / initial T°) - Heating power						
+7 °C/+35°C - under-floor heating	kW	10.30	13.50	10.60	13.25	14.89
-7 °C/+35°C - under-floor heating	kW	10.10	11.22	9.75	13.00	13.50
+7 °C/+45°C - LT radiators	kW	9.05	11.32	10.10	12.60	13.00
-7 °C/+45°C - LT radiators	kW	8.33	10.41	8.66	12.50	13.00
Nominal heating performances (Outdoor T° / initial T°) - Absorbed power						
+7 °C/+35°C - under-floor heating	kW	2.57	3.50	2.68	3.20	3.70
-7 °C/+35°C - under-floor heating	kW	3.94	4.68	3.69	5.18	5.40
+7 °C/+45°C - LT radiators	kW	2.82	3.69	3.01	3.81	4.00
-7 °C/+45°C - LT radiators	kW	4.05	5.24	4.04	6.00	6.37
Coefficient of performance (COP)	**(+7 °C / + 35 °C)**	**4.00**	**3.86**	**3.95**	**4.14**	**4.02**

Denomination : alféa hybrid duo oil low NOx flue model		11	14 +	11 3 ph.	14 3 ph.	16 3 ph.
Electrical characteristics						
Voltage (50 HZ)	V	230		400		
Maximum current of the appliance	A	22	25	8.5	9.5	10.5
Nominal current	A	11.4	14.2	3.7	4.8	5.5
Real absorbed power by the fan	W	2x100		2x104		
Real absorbed power by the circulator	W	151				
Real absorbed power by the outdoor unit	W	5060	5750	5865	6555	7245
Burner (low NOx), Combustion chamber, flue						
Fuel flow rate	kg/h	2.3				
Nominal calorific flow rate	kW	28.0				
Jet	Danfoss	0.55 gph - 80°S				
Pump	Suntec	AS 47				
Factory set pressure	bar	15				
Combustion chamber (diameter / Length)	mm	270 / 400				
Combustion chamber (Volume)	dm^3	22.9				
Volume on smoke side	dm^3	31.1				
Number of turbulators in the exchanger	-	7				
Temperature of the smoke	°C	190				
Mass flow rate of the smoke	kg/h	44.4				
Boiler pressure	Pa	3 to 5				
Optimum low pressure in the chimney	Pa	15				
Hydraulic circuit						
Maximum heating operating pressure	bar	3				
Hydraulic circuit flow rate (min./max.) for 4°C<Δt<8°C (nominal conditions)	l/h	1170 / 2340	1460 / 2920	1170 / 2340	1460 / 2920	1650 / 3290
Domestic hot water tank						
Capacity of domestic hot water tank	litre	125				
Max. operating pressure	bar	7				
Specific flow rate (in boiler mode only)	l/mn	19				
Miscellaneous						
Weight of the outdoor unit	kg	92		99		
Weight of the hydraulic module (empty/with water)	kg	215 / 482				
Capacity in water of the heating body	litre	142				
Expansion vessel	litre	18				
Noise level at 1 m [1] (hydr. mod. in thermodynamic oper.)	dB	35.5		35.5		
Acoustic power as per EN 12102 [2] (hyd. module)	dB	43.3		43.3		
Noise level at 5 m [1] (outdoor unit)	dB	42	43	39	41	42
Acoustic power as per EN 12102 [2] (outdoor unit)	dB	69	70	66	68	69
Heating system operating limits						
Min./max. outdoor temperature	°C	-25 / +35				
Max. water temperature thermodynamic mode	°C	60				
Max. water temperature for start of heating	°C	80				
Refrigerating circuit						
Diameters of the gas pipes	inches	5/8				
Diameters of the liquid pipes	inches	3/8				
Factory volume added of refrigerating fluid R410A [3]	g	2500				
Max. operating pressure	bar	41.5				
Min. length of pipes	m	5				
Max. length of pipes [4]	m	15				
Max. length of pipes [5] / Max. height diff. [5]	m	20 / 20				

[1] Sound pressure level at (x) m from the appliance, 1.5m from the ground, free field directivity 2.

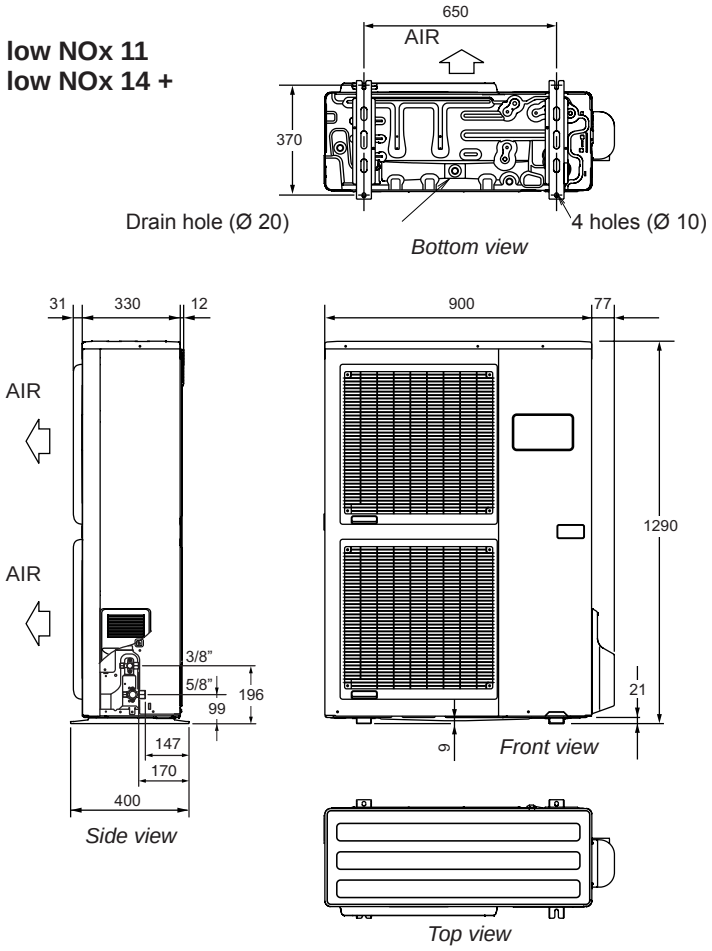
[2] the acoustic power is a laboratory measurement of the power of the sound emitted but contrary to the sound level, it does not correspond to the measurement of what is felt.

[3] refrigerating fluid R410A in compliance with standard NF EN 378.1.

[4] factory volume of refrigerating fluid R410A.

[5] Taking into account the possible extra volume of refrigerating fluid R410A (see § 2.8.3, page 22).

☞ **outdoor unit,**
model hybrid duo oil low NOx 11
model hybrid duo oil low NOx 14 +



☞ **outdoor unit,**
model hybrid duo oil low NOx 11 3 phase,
model hybrid duo oil low NOx 14 3 phase,
model hybrid duo oil low NOx 16 3 phase

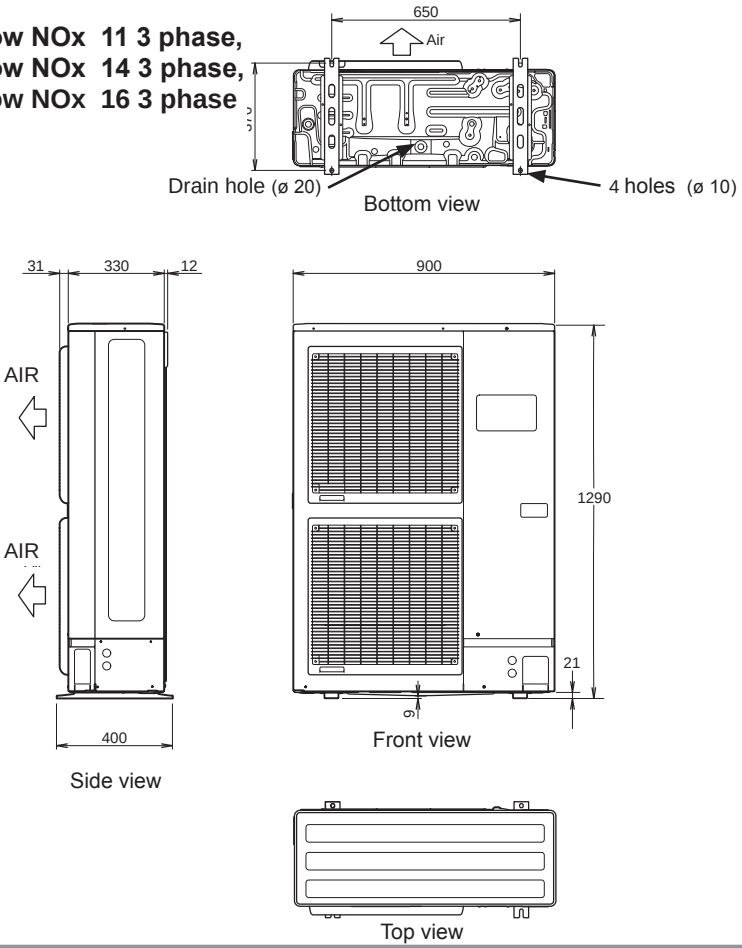


figure 1 - Dimensions in mm

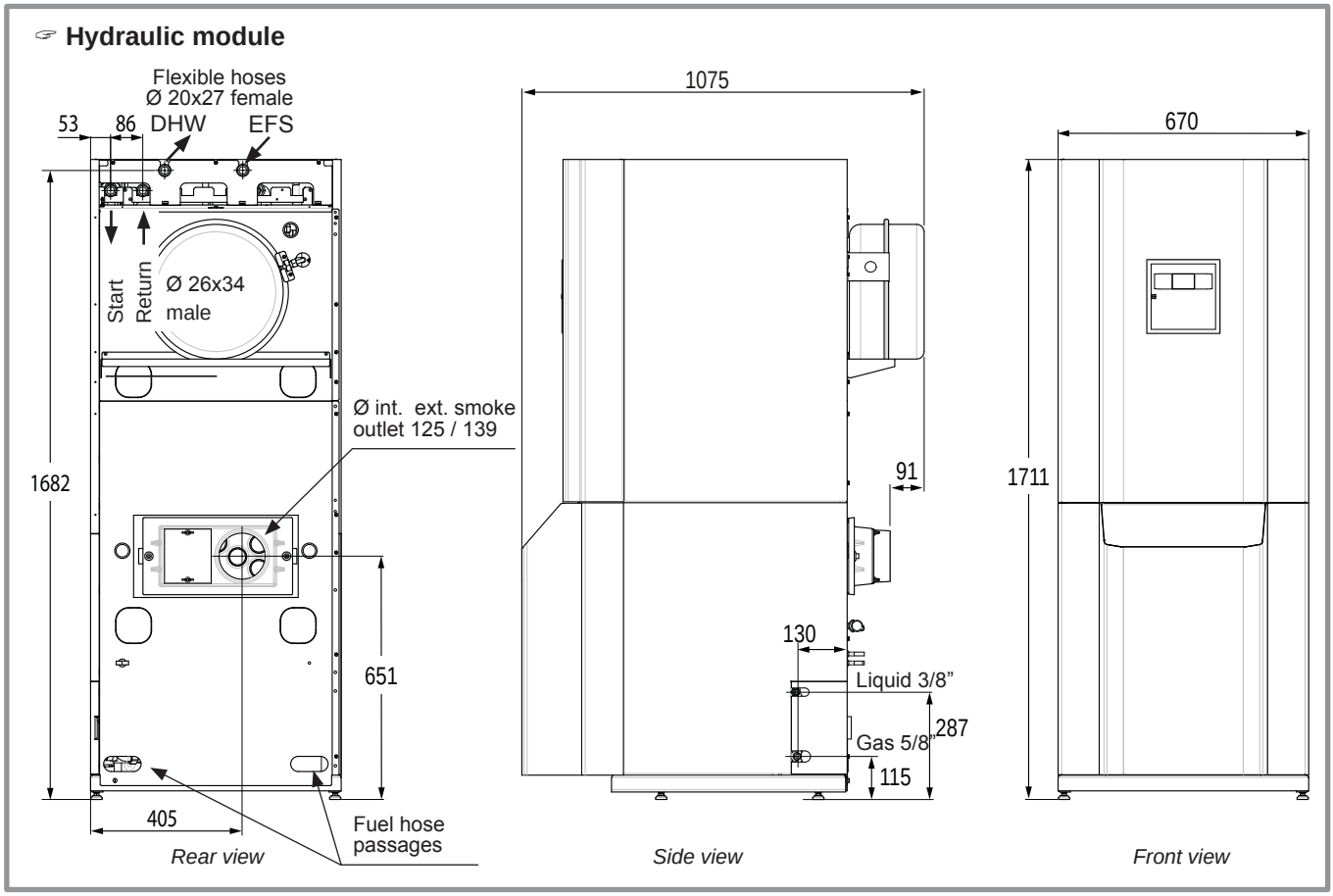


figure 2 - Dimensions in mm

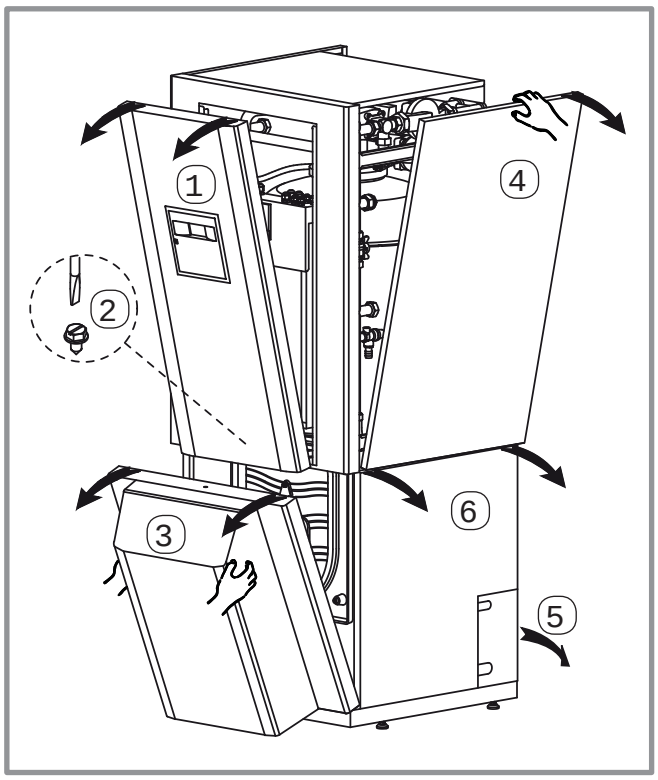


figure 3 - Remove the panel

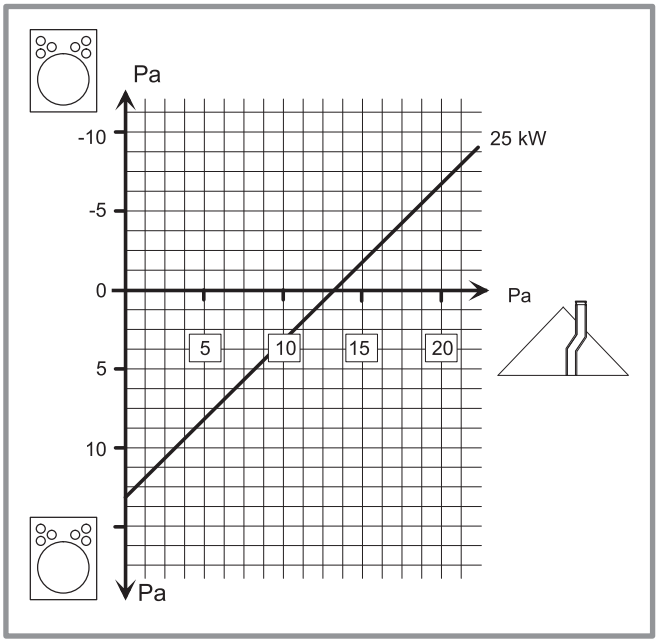


figure 7 - Head losses of the combustion circuit

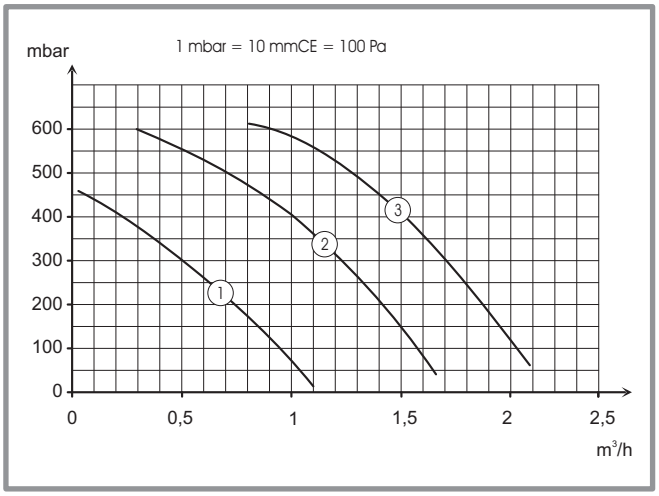


figure 4 - Hydraulic pressures and flow rates available

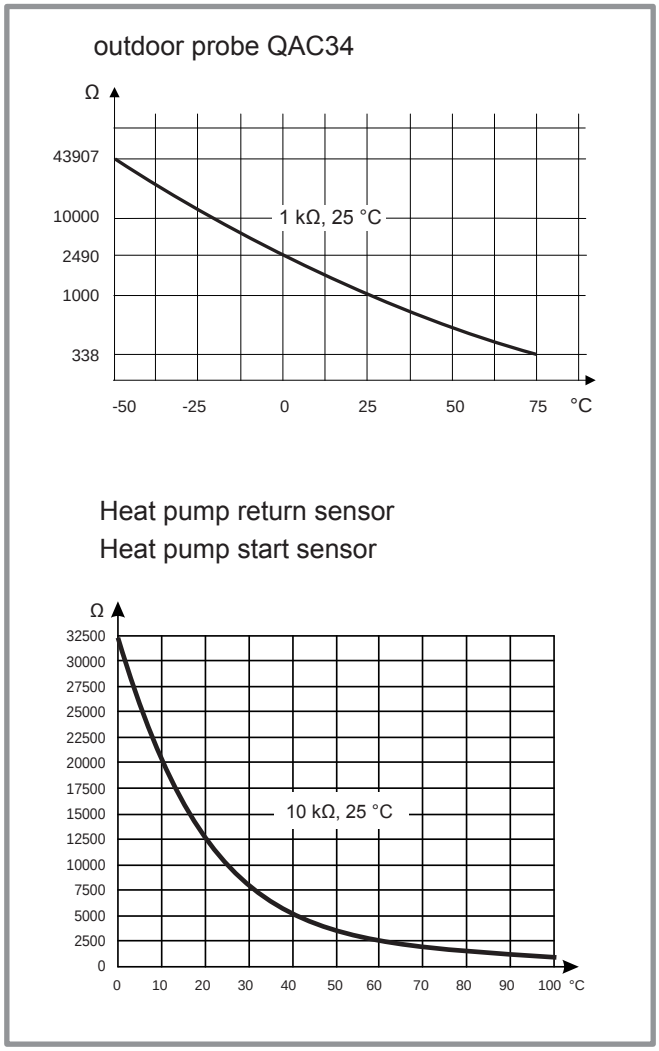


figure 5 - Ohmic value of the probes (Hydraulic module)

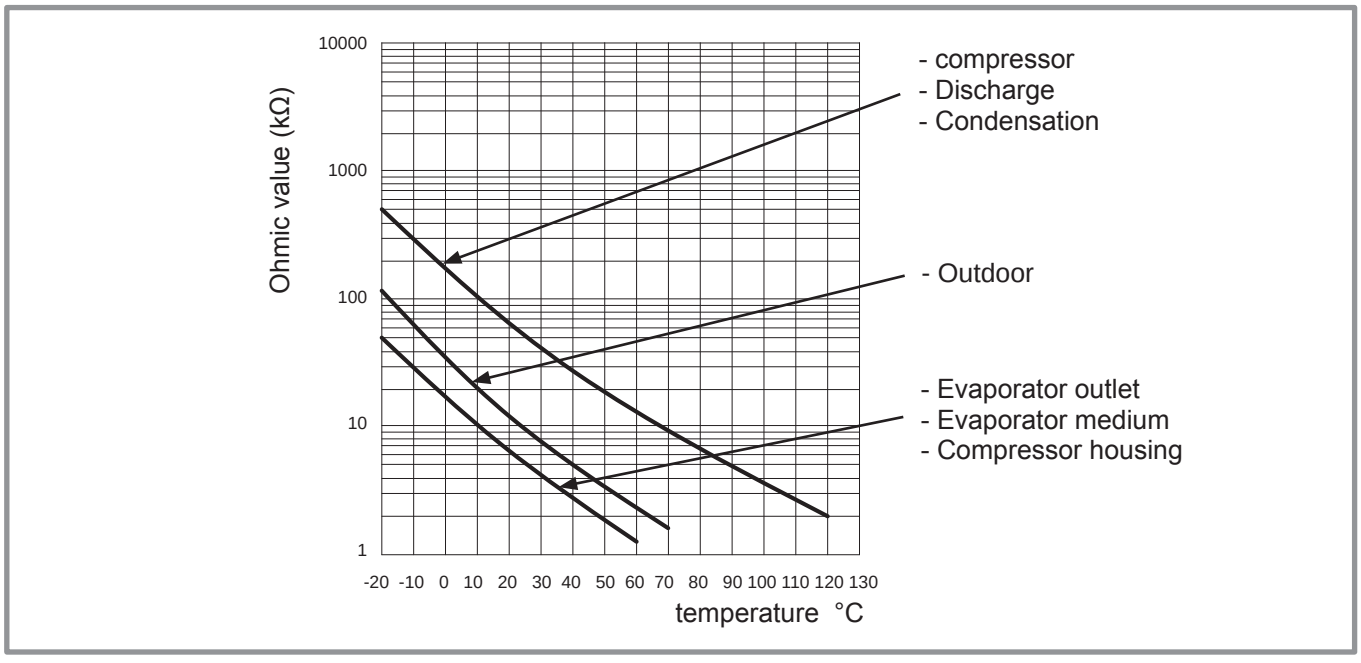
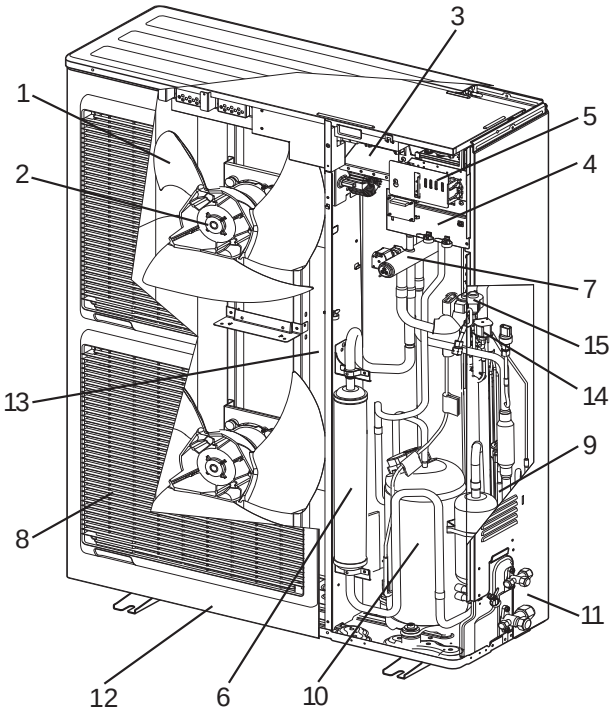


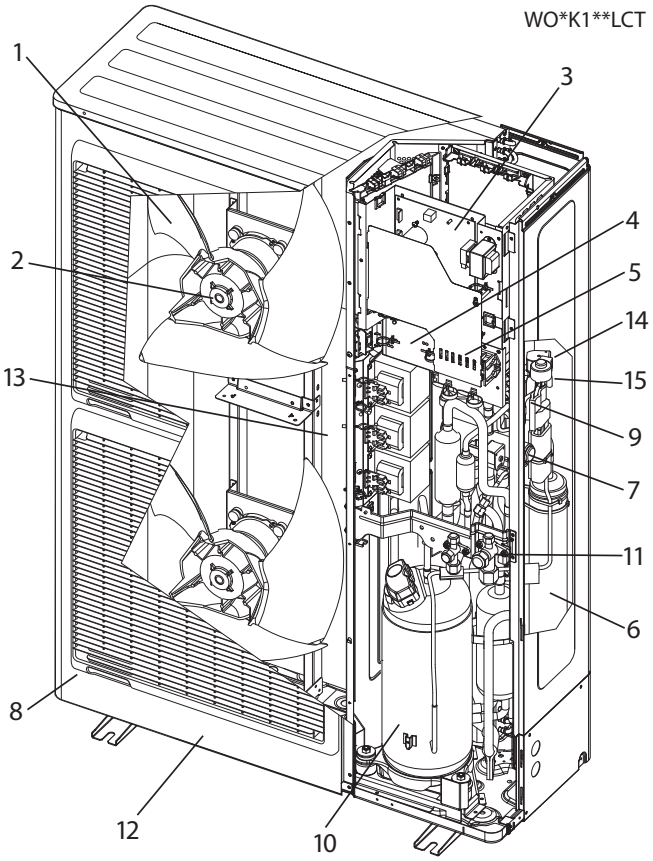
figure 6 - Ohmic value of the sensors (outdoor unit)

1.6 Description

☞ **Model**
hybrid duo oil low NOx 11 and 14 + single phase



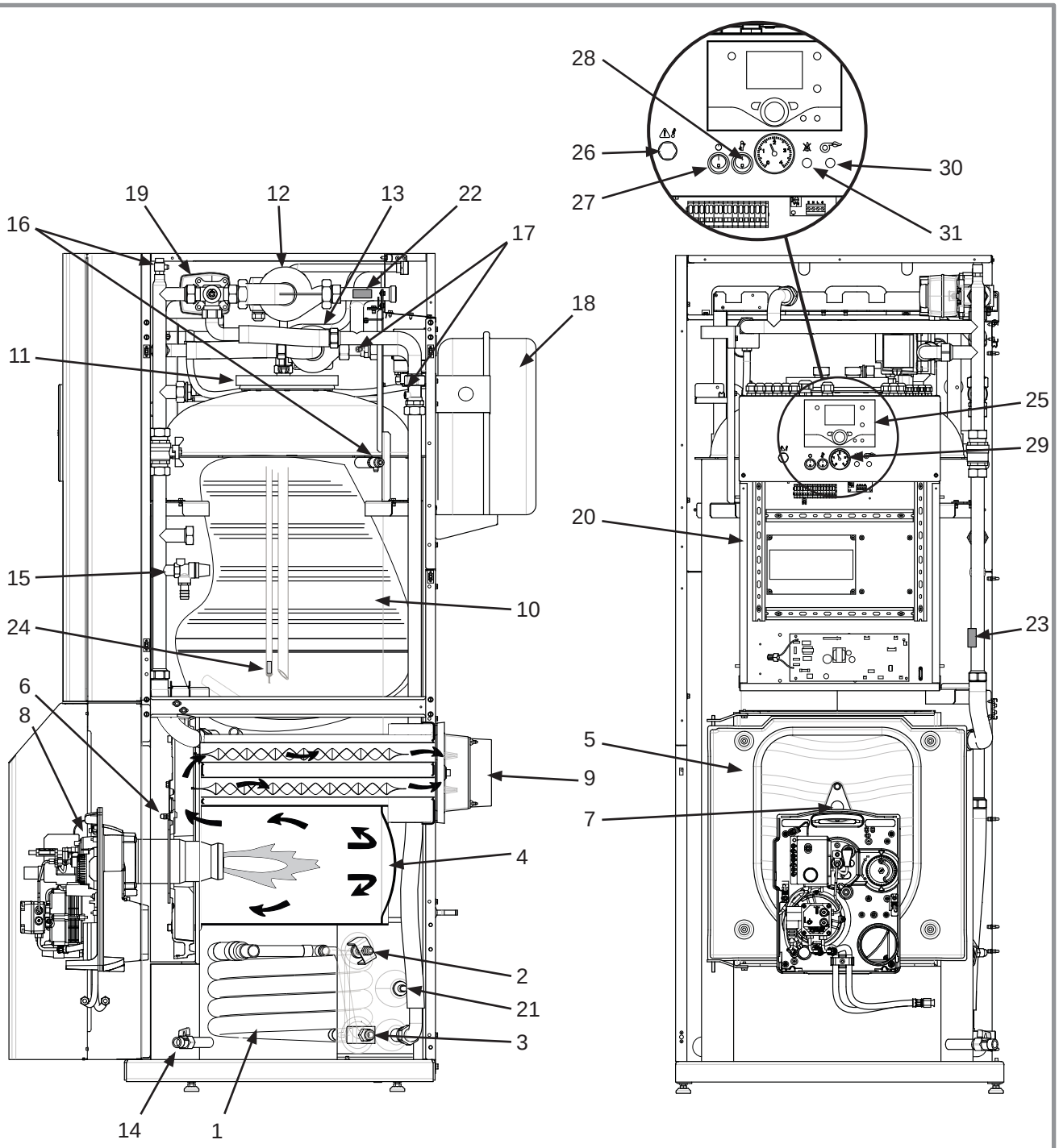
☞ **Model**
hybrid duo oil low NOx 11, 14 and 16 3 phase



Legend:

1. High performance impeller and low noise level.
2. Electrical motor with variable "inverter" operation.
3. "Inverter" command module.
4. Control LEDs and buttons.
5. Connector terminals (power supply and interconnection).
6. Storage bottle for refrigerating fluid.
7. Four way valve.
8. Panels treated against corrosion.
9. Electronic pressure regulator of the main circuit.
10. "Inverter" compressor acoustically and thermally insulated with liquid injection port.
11. Refrigerating connection taps (flare connector) with protective cover.
12. Retention tank with drain hole of the condensates.
13. Evaporator with high performance exchange surfaces; aluminium fins with anti-corrosion and hydrophilic treatments, grooved copper tubes.
14. Solenoid valve for injection of liquid.
15. Electronic pressure regulator for injection of liquid.

figure 8 - Parts of the outdoor unit



Legend

1. Condenser
2. Liquid refrigeration connection
3. Gas refrigeration connection
4. Combustion chamber
5. Reversible chamber door
6. Chamber pressure socket
7. Flame viewer
8. Burner low NOx
9. Evacuation of smoke (flue)
10. Domestic hot water tank
11. Inspection trap of the domestic hot water tank
12. Heating circulation pump
13. Domestic circulation pump
14. Drain valve
15. Safety valve
16. Manual drain tap
17. Non-return valve
18. Expansion vessel
19. Mixer valve CC1
20. Electrical housing

Sensors

21. Condensation sensor
22. heating circuit1 start sensor
23. Heater start sensor
24. Domestic sensor

Control panel

25. User interface
26. Reset button (overheating safety device)
27. Start/Stop switch
28. "Sweeping" button
29. Pressure gauge
30. Burner on LED (green)
31. Burner safety LED (red)

figure 9 - Parts of the hydraulic module

1.7 Operating principle

The heat pump transmits the energy in the outdoor air to the home to be heated.

The heat pump is formed of four main elements inside which a refrigerating fluid circulates (R410A).

- In the the evaporator (item. **13**, figure 8, page 9): The calories are taken from the outdoor air and transmitted to the refrigerating fluid. As its boiling point is low, it changes from the liquid state to the vapour state, even when the weather is cold.
- --In the compressor (item **10** or **16**, figure 8, page 9): The vaporised refrigerating fluid is pressurised and thus carries more calories.
- In the condensor (item **1**, figure 9): The energy in the refrigerant is transmitted to the heating circuit. The refrigerating fluid returns to its liquid state.
- In the pressure regulator (item **9** or **15**, figure 8, page 9): The liquefied refrigerating fluid is taken to low pressure and returns to its initial temperature and pressure.

The heat pump has a regulator that controls the indoor temperature based on the measurement of the outdoor temperature, regulation by water logic. The ambient sensor (optional) provides a corrective action to the water logic.

The Hydraulic module is fitted with a burner that has an AON operation, on demand from the regulator:

- to provide additional heating during the colder periods,
- to provide support for the domestic (DHW) or
- to take over on "Peak Tariff" days (load shedding function or EJP, see page 30).

Priority is given to the operation of the heat pump. When the heat pump is not sufficient for the heating, the burner automatically takes over.

• Regulation functions

- The initial temperature of the heating circuit is controlled by water logic.
- In function of an initial heating temperature, the power of the outdoor unit is modulated via the "inverter" compressor.
- Management of the supplementary heating.
- The daily timer programme allows comfort or reduced ambient temperature periods.
- Switching between summer/winter operation is automatic.
- Domestic hot water: Timer heating programme, management of operation of the DHW circulation pump.
- Ambient sensor*: The ambient sensor provides a corrective action to the water logic.
- Management of a 2nd heating circuit*.
- Management of the heating of the swimming pool*.

*When the PAC (heat pump) is fitted with associated options and kits

• Protection functions

- Anti-legionella cycle for the domestic hot water.
- A pressure switch monitors the hydraulic pressure. If the pressure is below 0.5 bar, an error message is displayed (369) and the heat pump is stopped.

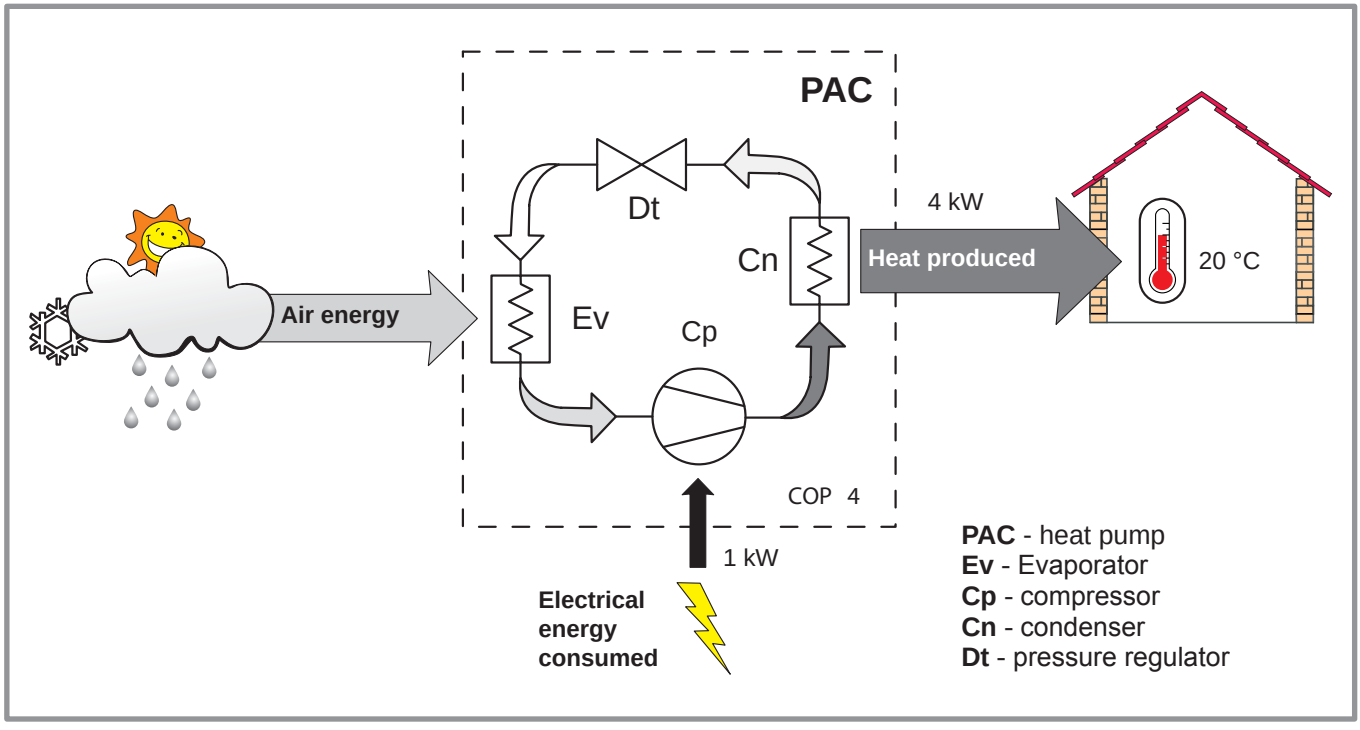


figure 10 - Operating principle of a heat pump

• Operating principle of the domestic hot water (DHW)

Two sanitary hot water temperatures (SHW) can be programmed: comfort temperature (line 1610 at 65 °C) and reduced temperature (line 1612 àat40 °C).

The default DHW programme (line 560, 561, 562, 563 and 564) is set for a comfort temperature from 0h00 to 5h00 and from 15h00 to 18h00 and a reduced temperature for the rest of the day.

The reduced temperature value may be useful to avoid restarting the DHW too many times and for too long through the day.

The production of domestic hot water (DHW) is started when the temperature in the tank is 7°C below (setting of line 5024) the reference value temperature.

The domestic hot water (DHW) is produced by the heat pump then completed if required by the burner. To ensure there is an DHW value higher than 45°C, the burner must be operated.

Depending on the setting of the parameter (1620), the comfort temperature may be reached either

- 24 h / day,
- in line with the timer programme of the heating circuit,
- in line with the DHW timer programme,
- during the off peak periods,
- during off-peak periods and depending on the SHW time programme.

The production of SHW has priority over heating, but the production of SHW is managed by cycles that regulate the time spent heating and the production of SHW when simultaneous demands occur.

A function for switching from "reduced" to "comfort" is available on the front panel of the user interface (see item 1, figure 43, page 36).

Anti-legionella cycles may be programmed (lines 1640to 1647).

• Fan coil units with integrated regulation

Do not use an ambient sensor in the zone concerned.

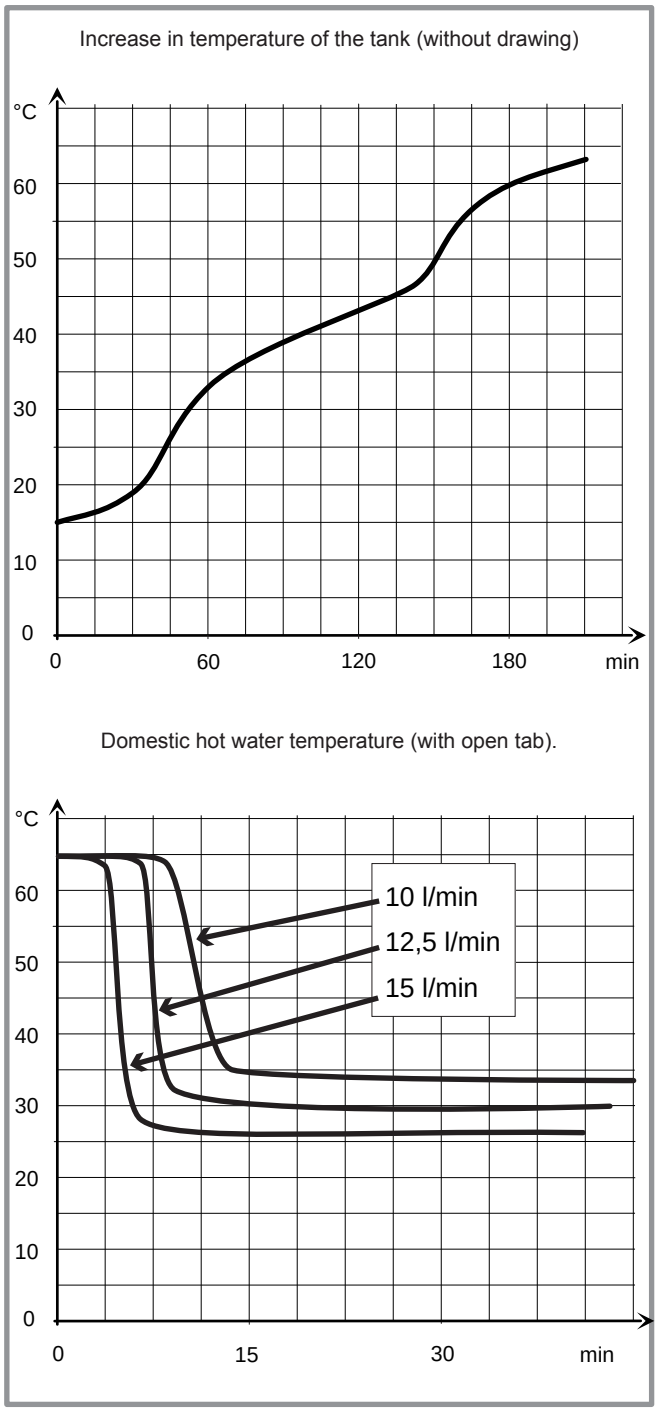


figure 11 - Domestic Hot Water performance

2 Installation

2.1 Statutory conditions for installation and servicing

The appliance must be installed and the maintained by an approved professional in accordance with the prevailing regulations and code of practice, in particular:

- The legislation on the handling of refrigerants:
- Heating installation with floor heating system. carrying out water floor heating systems.
- Low voltage electrical installations - Rules.
- Central heating installations for buildings.
- Sanitary plumbing for homes.
- Calculations for sanitary plumbing installations and evacuation of rain water.
- Copper pipes. Distribution of cold water and sanitary hot water, evacuation of dirty water, rain water, climatic installations.
- Chimney and flue work.
- Rules and processes for calculating chimneys with natural draft and appendices.
- Chimney for homes.
- Ventilation of homes.

2.2 Use of new fuel oil types

This boiler and its burner are compatible with the new domestic oil containing FAME (Fatty Acid Methyl Ester) and with non-road diesel (NRD*) on the condition they respect the rules for the use and storage of this fuel (refer to document n°1474 supplied with the appliance and the user instructions, § Rules for using and storing domestic fuel containing FAME).

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2.3 Unpacking and reserves

2.3.1 Receipt

When the courier is present, carefully check the general appearance of the appliances, check that the outdoor unit has not been in horizontal position.

In the event of disagreement, write to the courier within 48 hours mentioning all reserves and send a copy of this letter to the After Sales Department.

2.3.2 Handling

The outdoor unit must not be in horizontal position during transport.

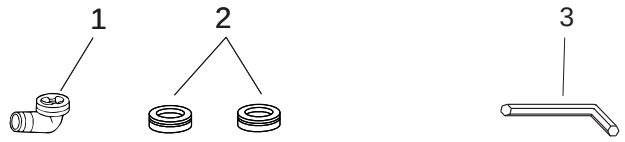
Transport in horizontal position creates a risk of damage to the inner tubes and the compressor suspensions.

Damage caused by transport transport in horizontal position is not covered by the warranty.

If required, the outdoor unit may be tilted only when being moved by hand (to get it through a doorway, or up stairs...).

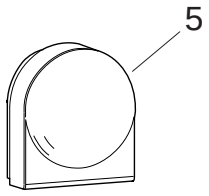
This operation must be carried out carefully and the appliance must be immediately returned to the vertical position.

2.3.3 Accessories supplied



1	Elbow	for the evacuation of the condensates
2	Plugs (x2) (depending on model)	
3	Allen key	to open the valves

figure 12 - Accessories supplied with the external unit



5	Outdoor sensor	To monitor the outdoor temp

figure 13 - Accessories supplied with the hydraulic module

2.3.4 Containment of refrigerant circuits

All refrigerant circuits fear contamination from dust and moisture. If such pollutants introduced into refrigeration circuit, they can contribute to degrade the reliability of the heat pump.

☞ **It's necessary to ensure correct containment connections and refrigerant circuits (hydraulic unit, outdoor unit).**

☞ **In case of subsequent failure and expertise, the finding of the presence of moisture or foreign objects into the compressor oil would lead to systematic exclusion of warranty.**

- Check upon receipt that the fittings and the refrigeration circuit caps mounted on hydraulic unit and outdoor unit are properly seated and locked (impossible to loosen bare hands). If this's not the case, tighten them using an against wrench.
- Check also that the refrigerant connections are sealed (plastic caps or tubes crushed at the ends and soldered). If the caps must be removed during installation (tubes cut by example), put back them as soon as possible.

2.4 Positioning

The choice of the position is particularly important as having to move it later is a delicate operation that requires a qualified person.

Choose the position of the outdoor unit and the hydraulic module after discussion with the client.

Respect the max. and min. distances between the Hydraulic module and the outdoor unit (figure 21, page 20), the performances and life of the system depend on this.

2.5 Installation the outdoor unit

2.5.1 Installation precautions

☞ **The outdoor unit must only be installed outdoors. If a shelter is requried, it must have large openings on all 4 sides and respect the installation clearances (figure 14).**

- Prefer a sunny position sheltered from strong and cold dominant winds (mistral, tramontane, etc...).
- the appliance must be fully accessible for the installation and later maintenance work (figure 14).
- Ensure that the connections can be made easily with the hydraulic module.
- The outdoor unit can be exposed to the weather, however avoid installing it in places where it will become dirty or have excessive water dripping onto it (under a leaky drainpipe for example).
- When operating water may escape from the outdoor unit. Do not install the appliance on a terrace, prefer a drained spot (bed of gravel or sand). If the installation is in an area where the temperature can be lower than 0°C for a long period, check that the presence of ice does not present any danger. It is also possible to connect a drain pipe to the outdoor unit (see figure 15, page 16).
- No obstacles must block the air circulation through the evaporator and from the fan.
- Keep the outdoor unit away from sources of heat or inflammable products.
- Ensure that the appliance does not disturb neighbours or users (sound levels, draughts caused, low temperature of the air blown out with the risk of freezing plants in its path).
- The surface on which the outdoor unit is fitted must:

- be permeable (earth, gravel bed...),
- be easily capable of supporting its weight,
- allow solid attachment,
- not transmit any vibrations to the home (anti-vibration pins are available among the accessories).

- The wall bracket can not be used in conditions likely to transmit vibrations, ground position is preferred.

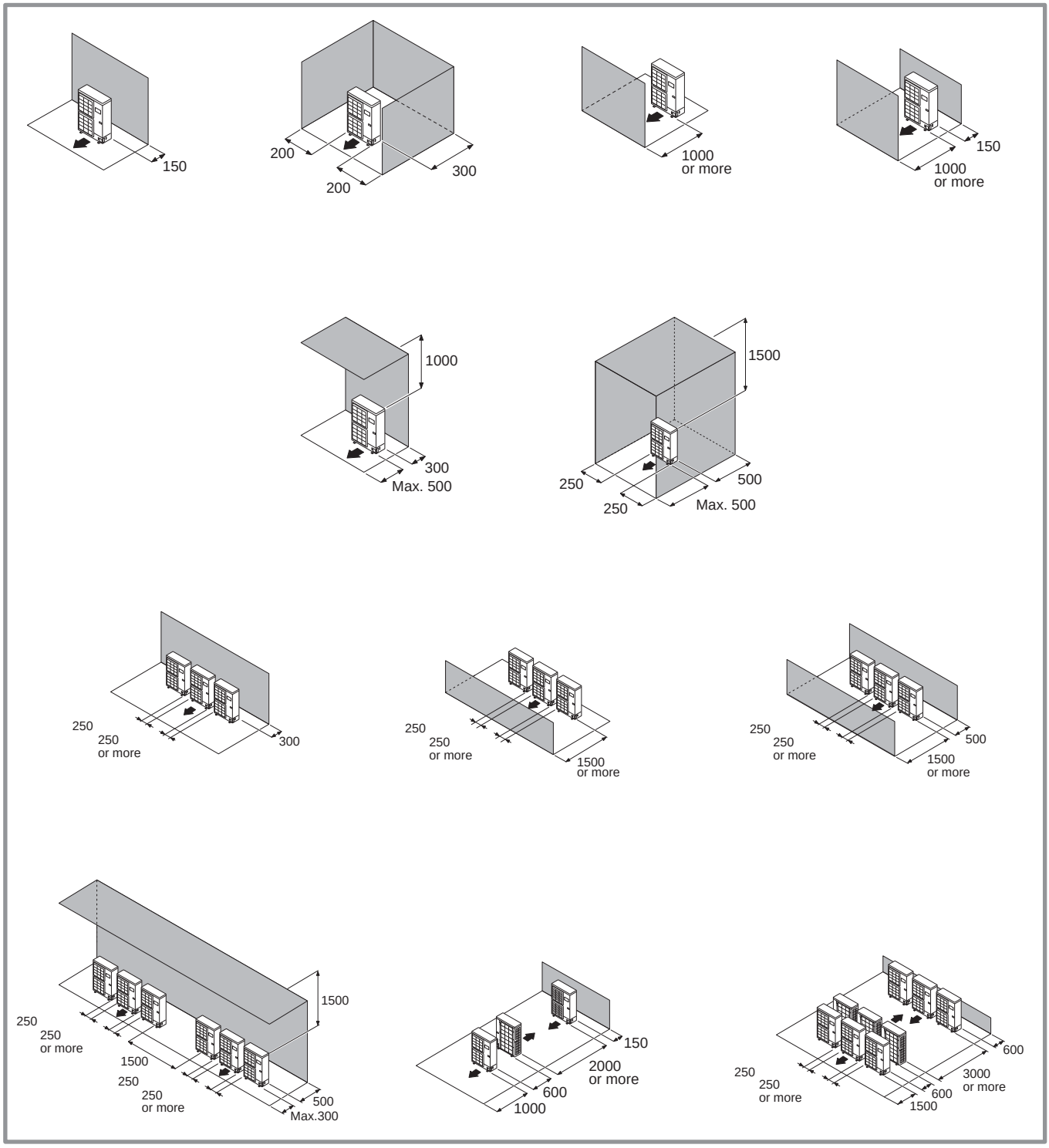
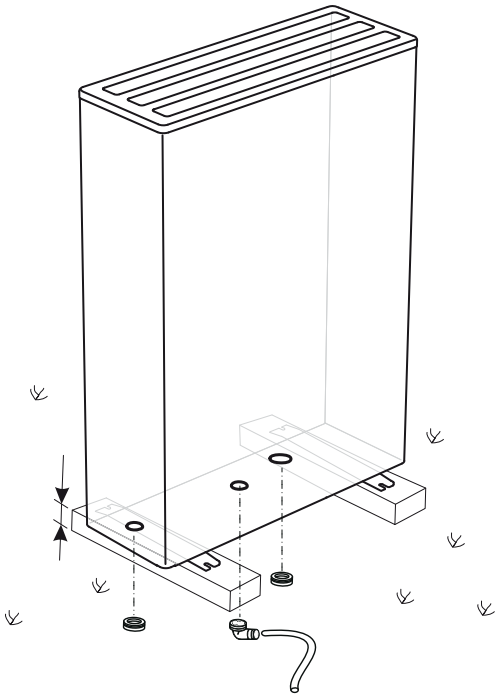


figure 14 - Minimum clearances for the installation around the outdoor unit (all models)



* In regions where there is often snow,
(H) must be higher than the average thickness of snow.

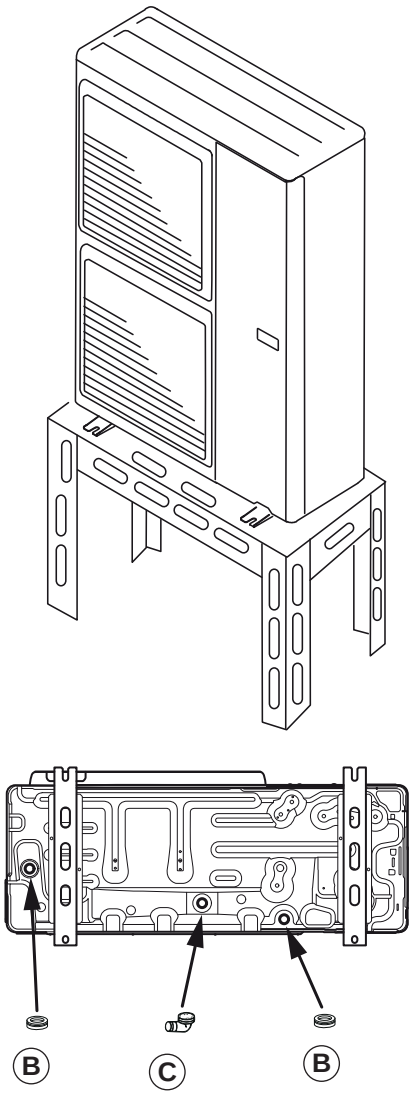


figure 15 - Fit the outdoor unit, evacuation of the condensates

2.5.2 Fitting the outdoor unit

The outdoor unit must be raised by at least 50 mm from the ground. In snowy regions, this height must be increased but must not exceed 1.5 m.

- Attach the outdoor unit using screw and spring or split washers to ensure they do not come loose.

2.5.3 Connecting the condensates drain

If an evacuation pipe must be used:

- Use the elbow provided (**C**) and connect a flexible hose diameter 16 mm to drain off the condensates.
- Use the Plug(s) provided (**B**) to block the condensate tray orifice.

Fit so that gravity flow of the condensates is ensured (waste water, rainwater, gravel bed).

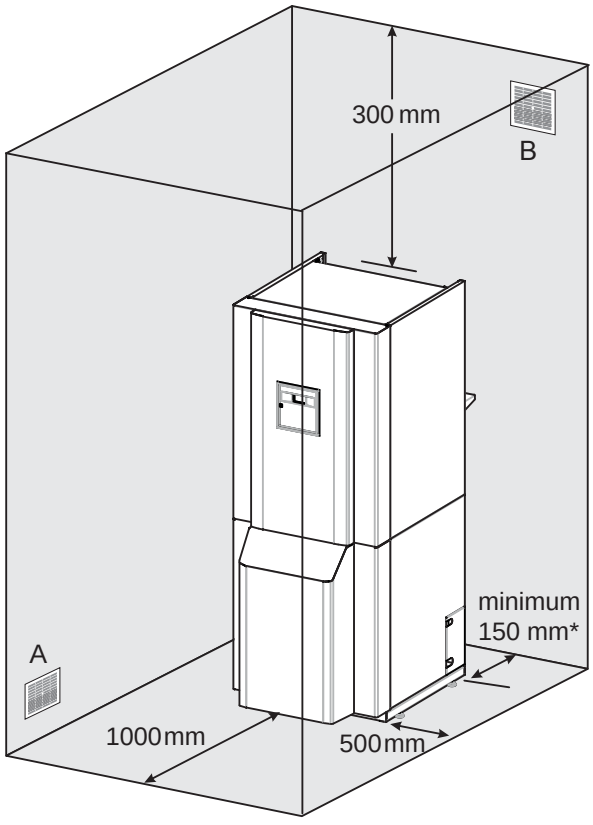
☞ **If it is installed in a region where the temperature can drop below 0 °C for long periods, fit a tracing resistor to the drain pipe to avoid it freezing up. The resistance trace must heat not just the evacuation pipe but also the bottom of the condensate drip tray of the appliance.**

2.6 Installation of the Hydraulic module

2.6.1 Requirements to installation space

The room where the appliance operates must respect the regulations in force.

The appliance must be installed in a suitable and well ventilated room. The room must have a new air inlet (A)



*If the refrigerating connections need to be passed behind the appliance.

figure 16 - Minimum clearances for the installation around the Hydraulic module

with a free cross section that cannot be obstructed of at least 50 cm² that opens onto the lower part and a used air outlet (B) with a free cross section that cannot be obstructed of at least 100 cm² positioned on the upper part and opening directly outdoors (see figure 16). Refer to ***Departmental sanitary Regulations Type*** (RSD), article 53.4 .

The atmospheric conditions in the room must not be humid; humidity is damaging for electrical appliances. If the ground is humid or soft, use a base of sufficient height.

To facilitate the servicing operations and permit access to the various parts, it is recommended that sufficient space be left all around the hydraulic module.

☞ **The warranty on the heater will not cover any installation of the appliance in a chlorine rich atmosphere (hairdressers, launderette, etc.) or any other corrosive vapours.**

This equipment may not be installed in a bathroom or a shower room.

Be careful of the presence of inflammable gas close to the heat pump when it is installed, especially when brazing is required. The appliances are not antiexplosion and must therefore not be installed in an explosive atmosphere.

- To avoid any condensation inside the condensor only remove the refrigerating circuit plugs **when making refrigerating connections**.
- If the refrigerant connection only occurs at the end of the installation, be sure that the refrigerant circuit caps* remain in place and tight throughout the installation duration.
  * (Hydraulic module side and outdoor unit side)
- After the work is carried out each time on the refrigerating circuit, and before final connection, refit the Plugs to avoid any pollution of the refrigerating circuit (sealing with adhesive is not allowed).

2.6.2 Reversible chamber door

The chamber door is fitted with the hinges on the left as standard. For it to open in the opposite direction, change over the side on which the hinges and pins are fitted.

- Remove the burner.
- Remove the chamber door.

  Remove the 4 door attachment screws.

  ❶ Remove the upper pin.

  ❷-❸ Raise and tilt the door.

☞ **Do not hold the door by its thermal protection.**

- ❹ Remove the hinges and fix them on the other side.
- Remove the lower pin and position it on the RH side of the door.
- Refit the chamber door and attach the upper pin.

☞ **Lightly tighten the screws of the closing door.**

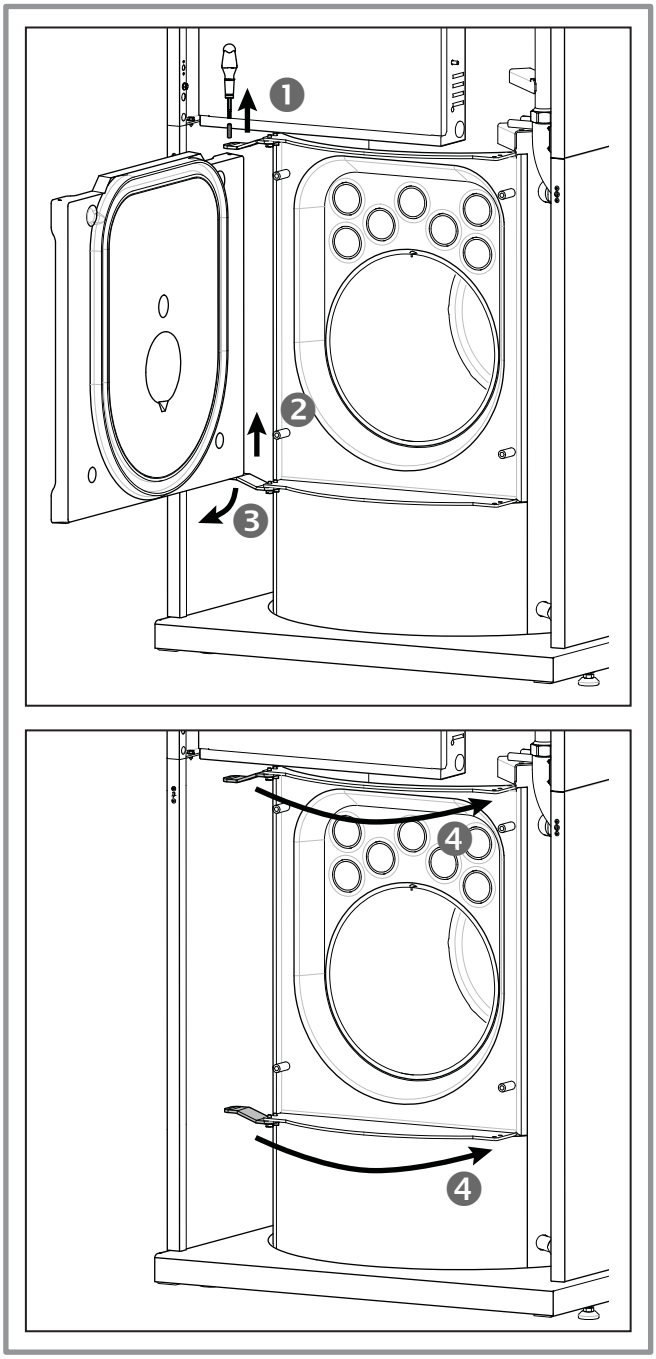


figure 17 - Reversible chamber door

2.6.3 Evacuation pipe

(see figure 18, page 18)

The evacuation pipe must comply with the regulations in force.

The evacuation pipe must have suitable dimensions.

Minimum cross section required = 2.5 dm² for a chimney of between 5 and 20 m in height, or a ball valve of 16 cm or Ø 18 cm.

The pipe must only be connected to a single appliance.

The pipe must be waterproof.

The pipe must be correctly thermally insulated in order to avoid any problems of condensation; otherwise the pipe must have a tube fitted with a system for collecting the condensates.

Use a good quality watertight tube that is compatible with the fuel used, possibly with a system for collecting the condensates.

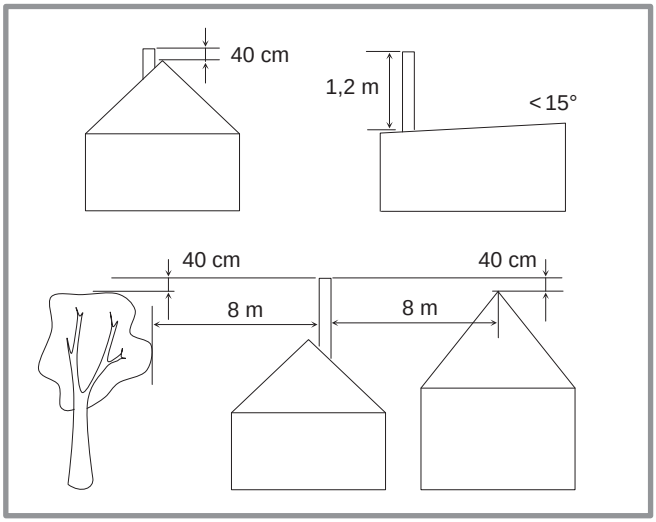


figure 18 - Height of the base of the evacuation flue (B23)

2.6.4 Connection pipe

The evacuation pipe must comply with the regulations in force.

The cross section of the connection pipe must not be smaller than the outlet nozzle of the appliance.

The connection pipe must be removable.

It is strongly recommended to fit a flue regulator to the pipe when the low pressure of the chimney is greater than 30 Pa. The flue gas case is reversible (2 screws) and the smoke outlet axis may be offset with respect to the axis of the boiler to the right or to the left.

The evacuation nozzle is to be connected to the pipe so that there are no leaks.

2.7 Refrigerating connections

☞ **This appliance uses the refrigerating fluid R410A.**

Respect the legislation for handling refrigerating fluids.

2.7.1 Rules and precautions

• After each operation on the refrigerating circuit, and before the final connection, ensure that the plugs are fitted so as to avoid any pollution of the refrigerating circuit.

• **Minimum tooling required**

- Set of pressure gauges (*Manifold*) with flexible hoses for HFC (Hydrofluorocarbons).
- Vacuum gauge with isolation valves.
- Special vacuum pump for HFC (use of a classic vacuum pump only allowed if fitted with a non return valve for the suction).
- Disengageable flaring tool, tube cutter, deburrer, wrenches,
- Approved refrigerating fluid detector (sensitivity 5g/an).

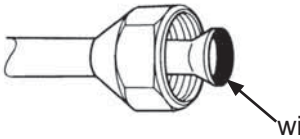
☞ **Tooling that has been in contact with HCFC (R22 for example) or CFC may not be used.**

• **The manufacturer refuses all responsibility for warranty if the above values are not respected.**

• **Tube expanders (flared connectors)**

☞ **Lubrication with mineral oil (for R12, R22) is prohibited.**

- Only lubricate with polyolester refrigerating oil (POE). If POE oil is not available, fit without oil.



Cover the flared surface with **POE refrigerating oil**.
Do not use mineral oil.

• **Brazing on the refrigerating circuit (if required)**

- Silver brazing (40% minimum recommended).
- Brazing with a dry Nitrogen stream only.

• To eliminate the swarf from the pipes, use dryNitrogen to avoid introducing humidity that can harm the operation of the appliance. In general, take every precaution to avoid humidity penetrating into the appliance.

• Thermally insulate the gas and liquid pipe to avoid all condensation. Use insulating sleeves that resist temperatures of over 90°C. In addition, if the level of humidity where the refrigerating pipes risks exceeding 70%, protect them with insulating sleeves. Use a 15 mm thicker sleeve if the humidity reaches 80%, and a 20 mm thicker sleeve if the humidity exceeds 80%. If the recommended thicknesses are not respected in the conditions described above, condensation will form on the surface of the insulation. Finally, ensure that insulating sleeves are used that have a thermal conductivity equal to 0.045 W/mK or lower when the temperature is equal to 20°C. The insulation must be impermeable to resist the steam passing during the defrosting cycles (glass wool is prohibited).

2.7.2 Refrigerating connections

The connection between the outdoor unit and the Hydraulic module must **only** be made with new copper connectors (refrigerating quality) and individually insulated.

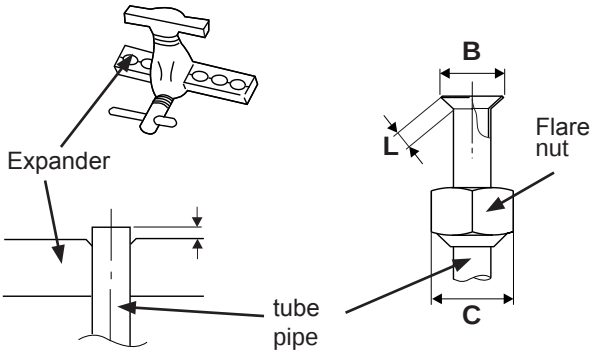
Respect the diameters of the pipes and the authorised lengths(figure 21, page 20).

If the refrigeration connections are exposed to weathering or UV- and the insulation is not strong, it is necessary to provide protection.

Handle the pipes and pass them through the walls with the protection plugs in place.

If the distance between the outdoor unit and the hydraulic unit exceeds the length of the maximum conduits indicated in the table, an additional charge of R410A must be loaded.

The quantity of R410A added must be suited to the length of the refrigerating circuit so as to maintain the performances of the heat pump and not damage the compressor (figure 21, page 20).



	Dimensions in mm		
ø pipe	L	B $^{0}/_{-0,4}$	C
9.52 (3/8")	2.5 to 2.7	13.2	22
15.88 (5/8")	2.9 to 3.1	19.7	29

figure 19 - Flared section for flare connectors

2.7.3 Flaring

- Cut the tube with a tube cutter to the required length without deforming it.
- Carefully deburr while holding the tube downwards to avoid introducing swarf into the tube.
- Remove the flare nut from the connector on the valve to be connected and fit the tube into the nut.
- Flare it leaving the tube protruding fro the expandable flaring tool.
- After flaring, check the condition of the journal (**L**). It must not be scratched or signs of splitting. Also check the side (**B**).

2.7.4 Forming the refrigerant tubes

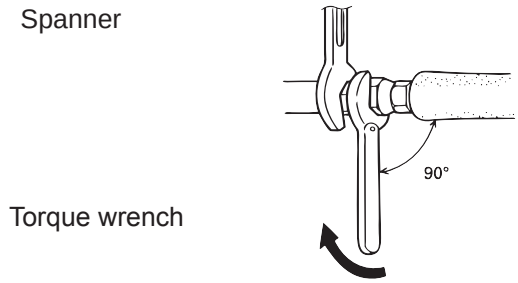
The refrigerating tubes must only be formed using a bending machine or a bending spring in order to avoid any risks of crushing or splitting.

☞ **Warning!**

• Remove the insulation locally to bend the tubes.

• Do not bend the copper to an angle of more than 90°.

• Do not bend the tubes more than 3 times at the same position otherwise this can cause the pipe to split (hardening of the metal).



Designation	Tightening torque
Flare nut 9,52 mm (3/8")	33 to 42 Nm
Flare nut 15,88 mm (5/8")	63 to 77 Nm
Plug (A) 5/8"	30 to 35 Nm
Plug (B) 3/8", 5/8"	10 to 12 Nm

figure 20 - Tightening torques

2.7.5 Connecting the flare connections

☞ **The connections must be made the day the gas is connected to the installation (see § 2.8, page 21).**

☞ **Pay special attention to the position of the tube aligned with its connector to avoid damaging the thread. A correctly aligned connector can be fitted easily by hand without much force being required.**

☞ **The refrigerating circuit is very sensitive to dust and humidity, check that the zone around the connection is dry and clean before removing the plugs that protect the refrigerating connectors.**

- Remove the plugs from the pipes and refrigerating connections
- Place the tube in front of the flare connector and screw on the nut by hand, holding the connector with a spanner, until contact is made.
- Respect the tightening torques stated (see figure 20, page 19).

PAC Model		*alféa hybrid duo oil single phase and three phase*	
		Gas	*Liquid*
Outdoor unit connectors		5/8"	3/8"
Refrigerating connections	*Diameter*	(D1) 5/8"	(D2) 3/8"
	Minimum length (L)	5	
	*Maximum * length (L)*	15	
	*Maximum * length (L)*	20	
	*Maximum ** height difference (D)*	20	
Hydraulic module connectors		5/8"	3/8"

*: without additional volume of R410A

**: take into account any additional volume (see § 2.8.3, page 22)

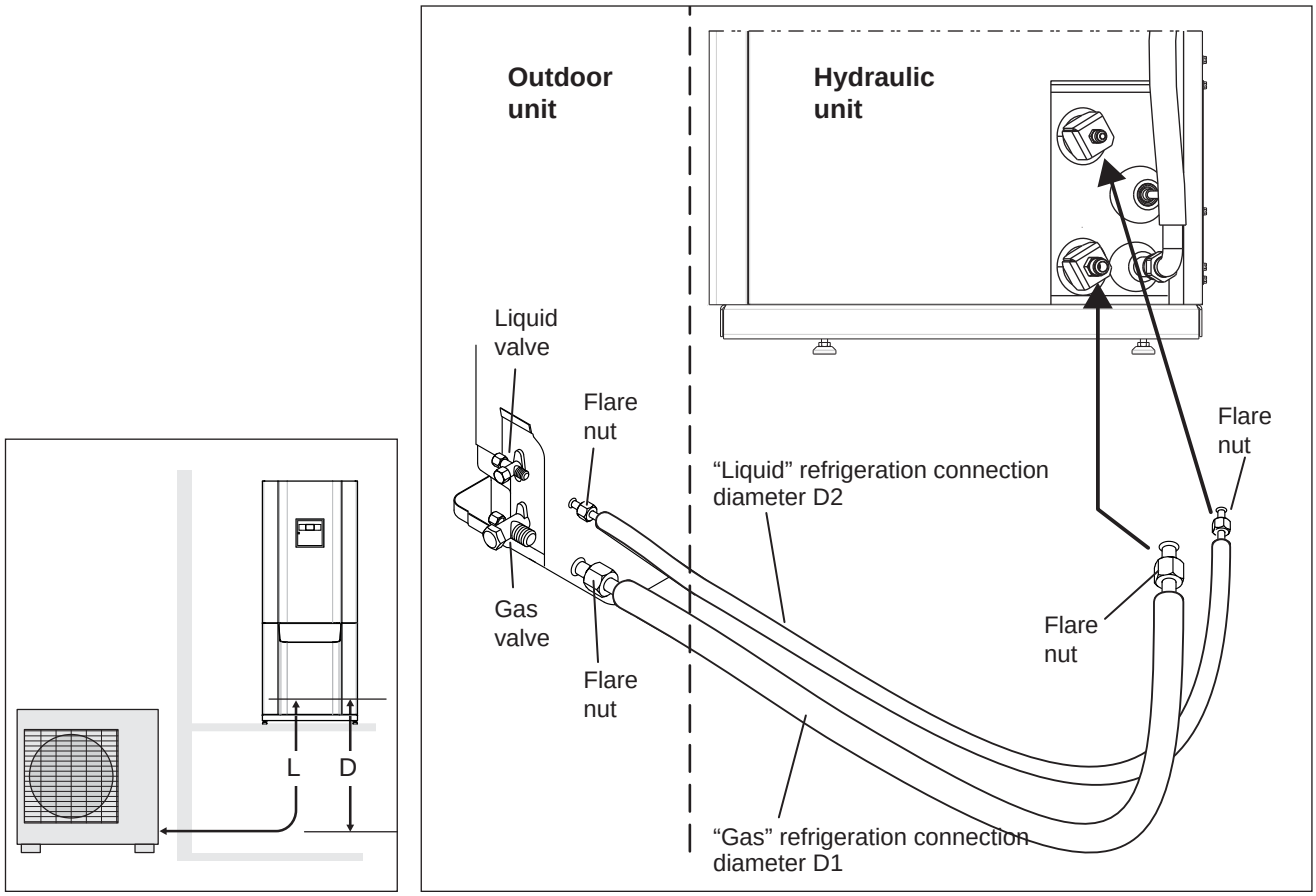


figure 21 - connection of thre refrigerating connectors (authorised diameters and lengths - in metres)

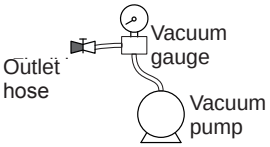
2.8 Commissioning the refrigerating gas installation

- ☞ **This operation is only to be carried out by qualified fitters in compliance with the legislation for the handling of refrigerating fluids.**
- ☞ **Evacuation with a calibrated vacuum pump is essential (see appendix 1).**
- ☞ **Do not use equipment that has previously been used with a refrigerating fluid other than a HFC.**
- ☞ **Remove the refrigerant circuit caps only when building the refrigerant connections.**
- ☞ **Unfavourable conditions:**
  - If the temperature outdoors is between +5 and +10°C, a vacuum gauge must be used to check the evacuation and use the 3 vacuum method. (**see appendix 2**).
  - If the temperature outdoors is below +5°C, it is strongly recommended to connect the gas.

APPENDIX 1

Method for calibration and control of a vacuum pump

- Check the oil level of the vacuum pump.
- Connect the vacuum pump with the vacuum gauge according to the scheme.



- Empty for 3 minutes
- After 3 minutes, the pump reaches its threshold value and the vacuum gauge needle does not move.
- Compare the obtained pressure with the value of the table. Depending on the temperature, this pressure must be less than the value indicated in the table.

  => If this is not the case, change the seal, the flexible hose or the pump.

T °C	5°C<T<10°C	10°C<T<15°C	15°C < T
Pmax			
- bar . .	. . . 0.009 . . .	. . . 0.015 . . .	. . . 0.020 . . .
- mbar	. . . . . 9	. . . . 15	. . . .20 . . . . .

2.8.1 Start procedure

• Checks before connection:

<u>Checking the gas connection (large diameter)</u>.

- Connect the "Gas" connection to the outdoor unit.
- Blow dry nitrogen into the "Gas" connection and observe this end:

  · If water or impurities come out, use a new refrigerating connection.

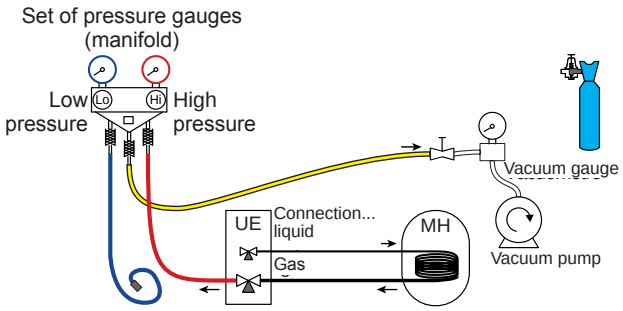
  · Otherwise expand and immediately connect to the Hydraulic module.

<u>APPENDIX 2</u>

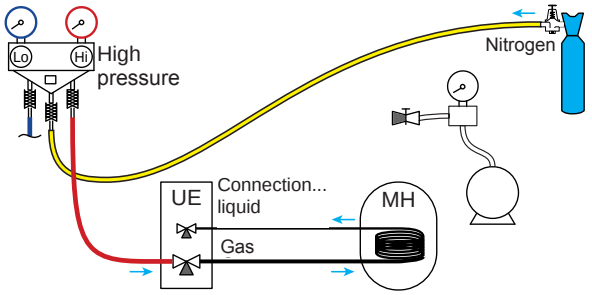
Method 3 empty

- Connect the high pressure flexible of the manifold on the load orifice (gas connection). A valve must be mounted on the flexible hose from the vacuum pump in order to isolate it.

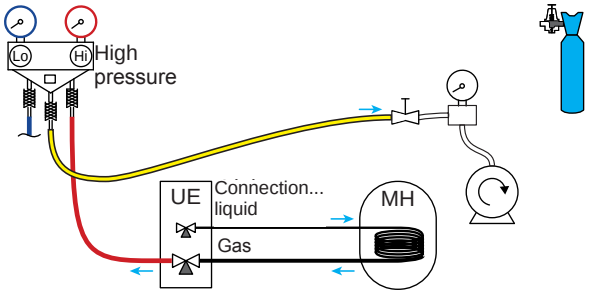
a) Empty up to the desired value (see table APPENDIX 1),



b) Switch off the vacuum pump, close the valve at the end of the service hose (yellow), Connect this hose to the pressure regulator of the Nitrogen bottle, inject 2 bars, close the hose valve,



c) Connect the flexible hose again to the vacuum pump, switch it on and progressively open the flexible valve hose.



d) Repeat this operation at least three times.

☞ **<u>Reminder</u>: it is strictly prohibited to carry out these operations with refrigerating fluid.**

<u>Checking the liquid connection (small diameter)</u>.

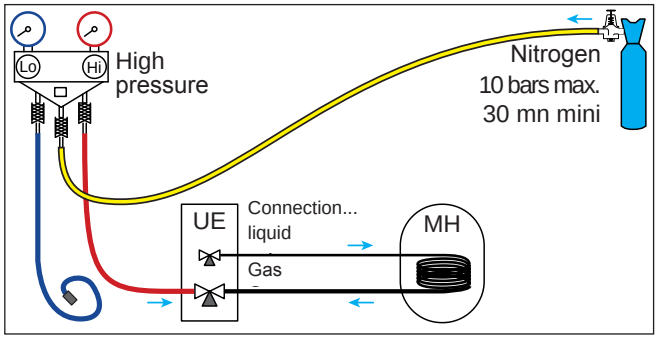
- Connect the "Liquid" connection to the hydraulic unit.
- Blast with Nitrogen the entire **gas-condensor-liquid connection** and observe the end (outdoor unit side).

  · If water or impurities come out, use a new refrigerating connection.

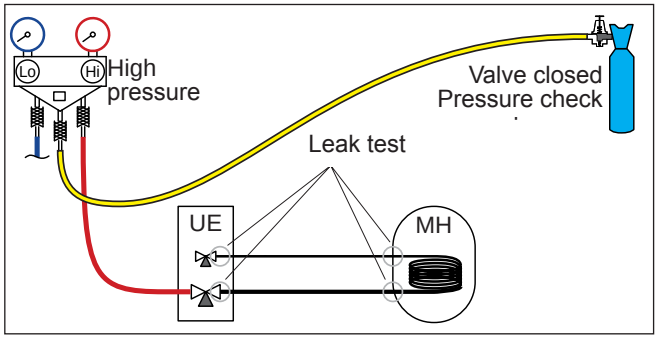
  · Otherwise expand and immediately connect to the outdoor unit.

• First leak test

- Remove the protection plug (**B**) from the filling orifice (*Schrader*) on the gas valve (large diameter).
- Connect the high pressure flexible hose of the *Manifold* to the filling orifice (figure 22).
- Connect the Nitrogen bottle to the *Manifold* (only use dehydrated Nitrogen type U).
- Pressurise the Nitrogen (10 bar maximum) in the refrigerating circuit (**gas-condensor-liquid connection assembly**).
- Let the circuit under pressure for 30 minutes.



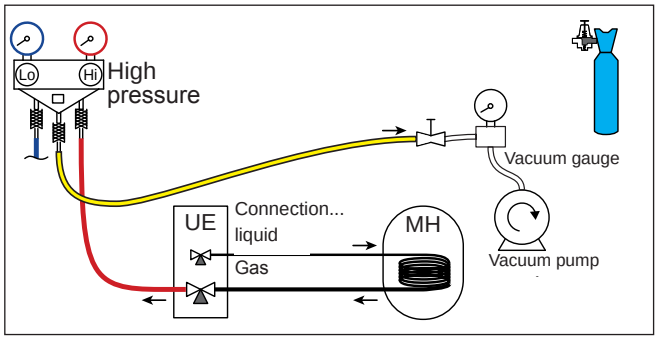
- Search for leaks with a leak detector product, repair and repeat the test.



- When the pressure is stable and any leakage is excluded, leaving empty nitrogen to a pressure greater than atmospheric pressure (0,2 to 0,4 bar).

• Evacuation and connection of gas to refrigerating connections

- If required, calibrate the pressure gauge(s) of the *Manifold* at 0 bar. Adjust the vacuum gauge to the atmospheric pressure (≈ 1013 mbar).
- Connect the vacuum pump to the *Manifold*. Connect a vacuum gauge if the vacuum pump is not equipped.



- Create a vacuum until the residual pressure* in the circuit falls below the value given in the following table. (* measured with the vacuum gauge).

T °C	5°C<T<10°C	10°C<T<15°C	15°C < T
Pmax - bar . . - mbar	. . . 0.009 . . . . 9	. . . 0.015 . . . . 15	. . . 0.020 . . . . . . .20 . . . . .

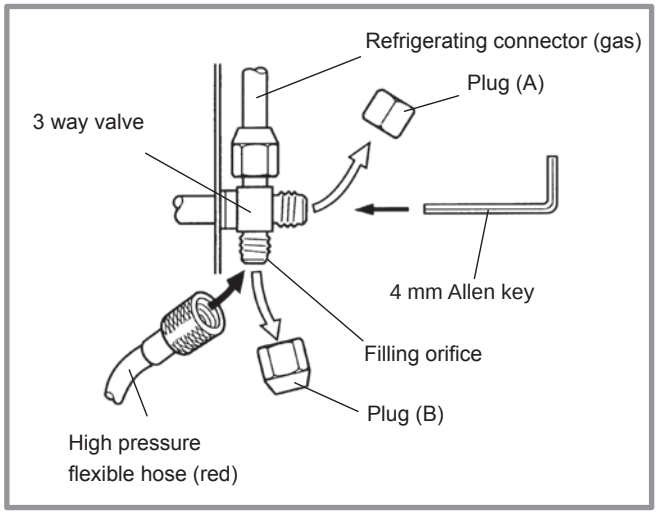


figure 22 - connection of the flexible hose to the gas valve

- Let the pump continue to operate for another (30) minutes after reaching the vacuum.
- Close the *Manifold* tap then switch off the vacuum pump **without disconnecting any flexible hoses**.

☞ **If the outdoor temperature is between +5 and +10 °C, use method 3 empty (cf. APPENDIX 2).**

- Remove the access plugs (A) from the valve controls.

☞ If an additional charge is requires, add the additional charge before filling the hydraulic unit with gas. Refer to paragraph **Page22**.

- First open the liquid valve (small) then the gas valve (large) to maximum with an Allen key (anticlockwise direction) without forcing it too far.
- Quickly disconnect the *Manifold hose*.
- Refit the 2 original plugs (ensure they are clean) and tighten to the recommended torque from the table figure 20, page 19. The sealing is performed in the caps only metal to metal.

The outdoor unit does not contain any additional refrigerating fluid to allow the installation to be drained.

Drain by flushing is strictly forbidden.

2.8.2 Final leak test

The sealing test must be performed with a certified gas detector (sensitivity 5g/year).

Once the refrigerating circuit has been filled with gas as described previously, check all of the refrigerating connectors of the installation for leaks (4 connectors). If the tube expanders have been correctly used, there should be no leaks. If required check the refrigerating tap plugs for leaks.

☞ **In case of leaks:**

- Feed gas into the outdoor unit (pump down). The pressure must not drop below atmospheric pressure (0 bar relative read on *Manifold*) to avoid polluting the gas collected with air or humidity.
- Make the connection again,
- Re-start the commissioning procedure.

2.8.3 Additional volume added

	50 g of R410A per additional metre	
Length of the connections	15 m	20 m max.
Additional volume added	none	250 g

The volumes on the outdoor units correspond to maximum distances between the outdoor unit and Hydraulic module defined in figure 21, page 20. If the distances are greater, an additional volume of R410A is required. The additional volume added depends, for each type of appliance, on the distance between the outdoor unit and the hydraulic module. The additional volume added of R410A must only be added by a qualified specialist.

• ***Example of additional volume added:***

An outdoor unit at a distance of 17 m from the hydraulic requires an additional charge of:

Additional volume = *(17 – 15) x 50 = 100 g*

The volume must be added after evacuation and before connecting the gas to the Hydraulic module, as follows:

- Disconnect the vacuum pump (yellow hose) and connect in place a bottle place of R410A **in the position of liquid drawing**.
- Open the tap of the bottle.
- Drain the yellow flexible hose by loosening it slightly on the manifold side.
- Place the bottle on precision scales with a minimum of 10g. Note the weight.
- Carefully open the blue tap slightly and monitor the value displayed on the scales.
- As soon as the value displayed has dropped by the value of the calculated additional charge, close the bottle and disconnect it.
- Sharply disconnect the flexible hose from the appliance.
- Add the gas to the hydraulic module.

☞ **Warning!**

• Only use R410A!

• Only use tools adapted to R410A (set of pressure gauges).

• Always add charge in liquid phase.

• Do not exceed the maximum length or difference in height.

2.8.4 Collecting the refrigerating fluid

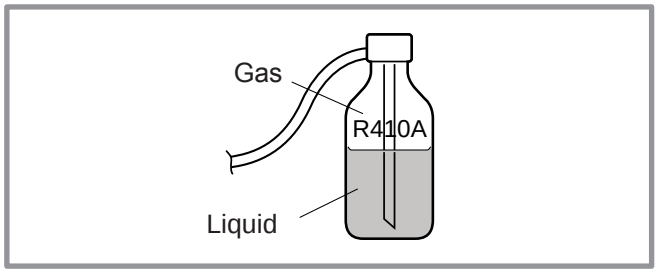


figure 23 - Gaz bottle R410A

in the outdoor unit

☞ **Only for the 3 phase models**

Carry out the following procedures to collect the refrigerating fluid.

1. Place the ON/OFF switch in the position **0** (item **27**, figure 9, page 10).
2. Remove the front panel of the hydraulic module. Place the **DIP SW1** of the interface board to **ON**.
3. Turn the ON/OFF switch to position **1**. (the green and red LED sstart to flash; 1s lit / 1s extinguished).
4. The outdoor unit starts in the cold mode for approximately 3 minutes after it is switched on. Close the liquid valve on the outdoor unit 1 minute after the outdoor unit is started.
5. Close the gas valve on the outdoor unit 1 to 2 minutes after closing the liquid valve, while the outdoor unit continues to turn.
6. Disconnect the electrical power supply.

Remarks:

- Check that the ON/OFF switch is in the position **0** before pressing **DIP SW1**.
- When the heat pump is operating, the collection cannot be activated even if the **DIP SW 1** is at **ON**.
- Do not forget to place the **DIP SW 1** to OFF once collection is complete.
- If the collection operation fails, try the procedure again by turning off the machine and opening the "gas" and "liquid" valves. Then 2 to 3 minutes repeat the collection.

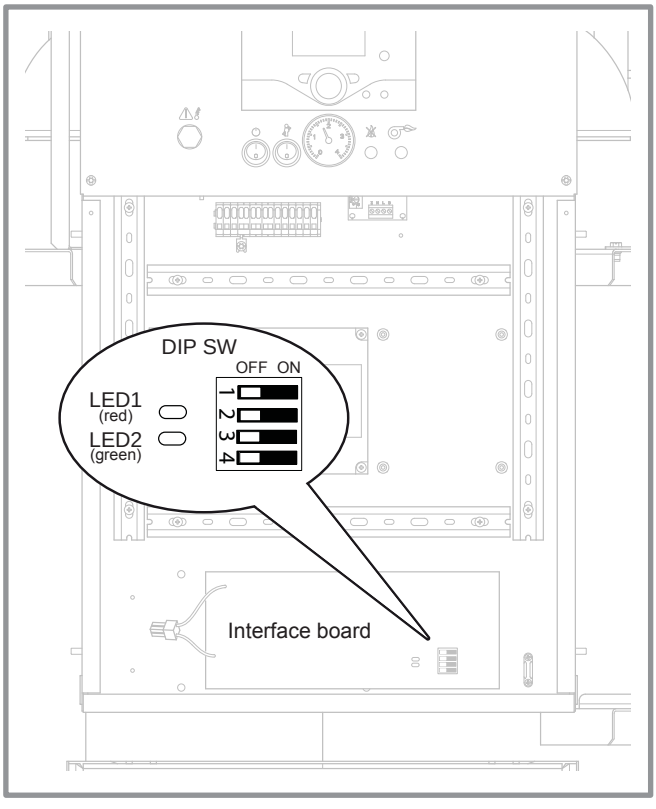


figure 24 - Position of the DIP switches and the LEDs on hydraulic module interface board

2.9 Hydraulic connection

2.9.1 General

The connection must comply with trade practices according to the regulations in force.

The heating circulation pump is integrated into the hydraulic module.

Connect the pipe of the central heating to the hydraulic module respecting the direction of the circulation.

The diameter of the pipes, between the Hydraulic module and the heating manifold must be at least equal to 1 inch (26x34 mm).

Calculate the diameter of the pipes in function of the flow rates and lengths of the hydraulic systems.

Tightening torque: 15 to 35 Nm.

Use union connectors to facilitate the removal of the hydraulic module.

Prefer the use of flexible connector hoses to avoid transmitting noise and vibrations to the building.

Connect the evacuations of the drain tap and the safety valve to the drain.

Verify the correct functioning of the expansion system.

Control the vessel pressure (precharge 1 bar) and the safety valve setting.

Reminder: Make the assembly impervious respecting trade practices in force for the plumbing work:

- Use suitable seals (fibre seals, O rings).
- Use Teflon or hemp tape.
- Use sealant (synthetic as required).

There is no need for glycol. If water containing glycol is used, carry out an annual check of the quality of the glycol. **The use of glycol monoethylene is prohibited.**

- **In certain installations, the presence of different metals may cause corrosion problems; in which case the formation of metal particles and sludge may be observed in the hydraulic circuit.**
- **In this case, it is preferable to use a corrosion inhibitor in the proportions recommended by its manufacturer.**
- **It is also necessary to ensure that the water treated does not become aggressive.**

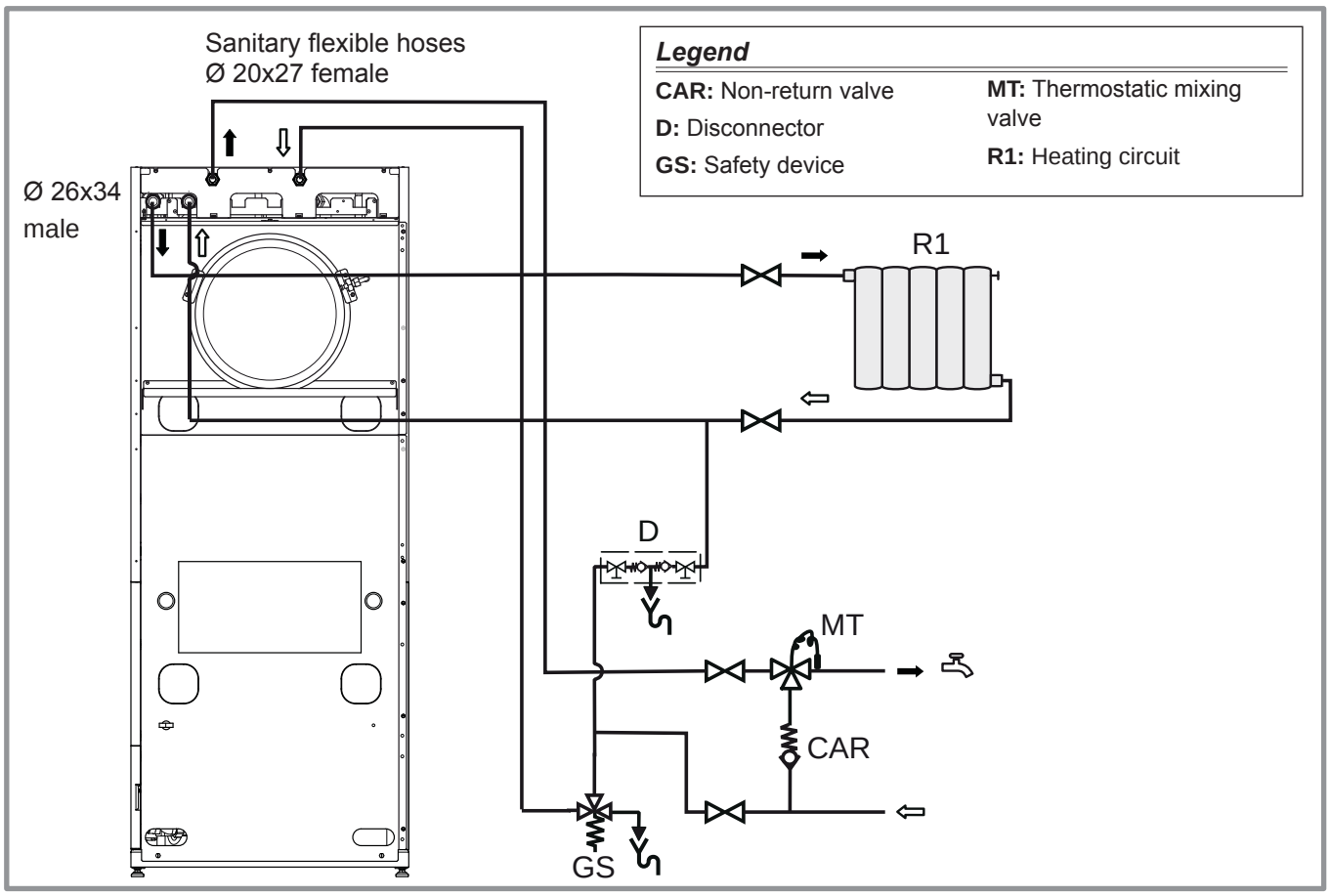


figure 25 - Overall view of the electrical connections

2.9.2 Connection to the domestic circuit

Place a safety group with a valve calibrated to 7 bar on the cold water inlet, and connect an evacuation pipe leading to the drain. Operate the safety unit according to manufacturer's specifications. Connect the safety valve evacuation to the drain

To allow the tank to be emptied by siphoning, the safety unit must be placed at a lower level than the cold water inlet.

It is recommended that the hot water outlet is fitted witha thermostatic mixing valve.

2.9.3 Rinsing the installation

Before connecting the hydraulic module to the installation, rinse the heating system correctly to eliminate the particles that could compromise the correct operation of the appliance.

Do not use solvents or aromatic hydrocarbons (petrol, oil, etc.).

For older installations, fit a decanting pot of adequate capacity on the boiler return circuit and at the lowest point equipped with a drain, in order to collect and evacuate the impurities.

Add to the water an alkaline product and a dispersant.

Rinse the installation several times before final filling.

2.9.4 Filling and draining the installation

☞ **Imperative! Fill and pressurise the domestic tank before filling the heater with water. The warranty of the appliance will not apply if this procedure is not respected.**

- Check the attachment of the pipes, that the connectors are tight and that the hydraulic module is stable.
- Check the direction of circulation of the water and that all of the valves are open.
- Disconnect the non return valves (figure 26).
- Fill the installation.
- During filling, do not operate the circulator, open all drains on the installation and the Hydraulic module (figure 27) to evacuate the air in the pipes.
- Close the drains and add water until the pressure of the hydraulic circuit reaches 1 bar.
- Check that the hydraulic circuit is drained correctly. Close the non-return valves.
- Check that there are no leaks and that the circulating pumps are not seized (if need be, release them).

After step § 2.15, page 34, once the machine is running, drain the Hydraulic module again (2 litres of water). If the pressure is below 0,5 bar, the PAC stops and displays error 369.

☞ **Precise filling pressure is determined by the manometric height of the installation.**

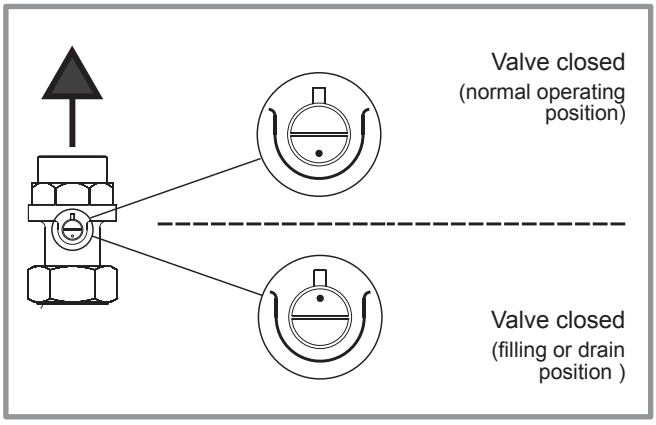


figure 26 - Non return valve

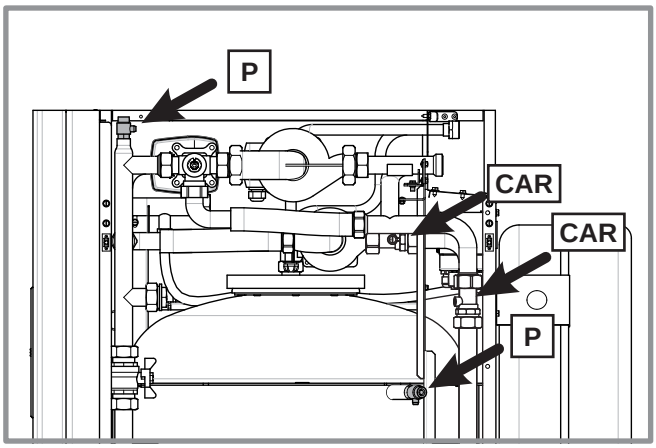


figure 27 - Drains (P) and non return valves (CAR)

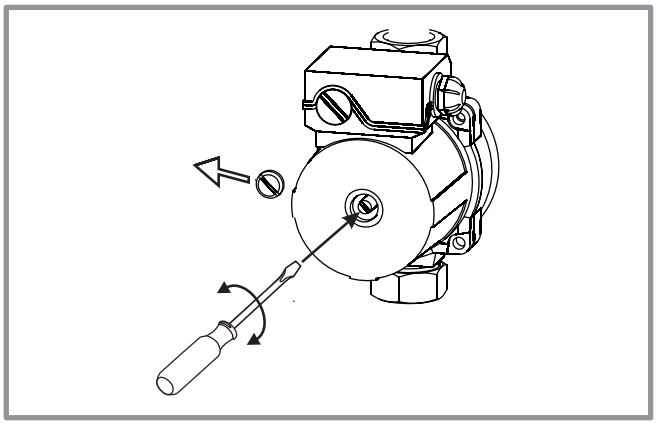


figure 28 - Freeing the circulation pump

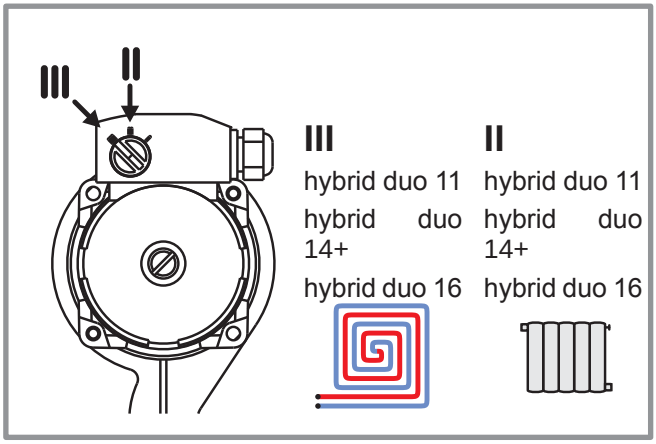


figure 29 - recommended speed for the radiator circuit

2.10 Connection of the fuel supply

Refer to the instructions supplied with the burner.

In order for the burner to operate correctly, a filter (60 µm) must be installed on the fuel supply pipe.

✍ **Recommendation: The use of a deaerator air filter is recommended.**

Pass the fuel hoses in the passage (either on the right or left) at the rear of the appliance.

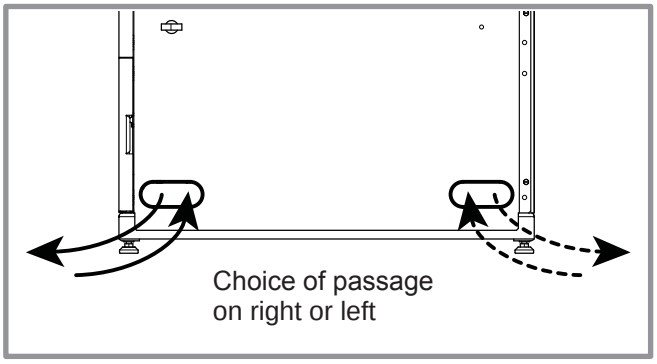


figure 30 - Passages of the oil flexible hoses

2.11 Electrical connections

Before carrying out any work, ensure that the general electrical power supply is switched off.

2.11.1 Characteristics of the electrical power supply

the electrical installation must comply with the regulations in force.

The electrical connections will only be made when all of the other assembly operations (attachment, assembly,...) have been carried out.

☞ **Warning!**

The contract taken out with the energy supplier must be sufficient to cover the power of the heat pump as well as the sum of the power requirements of all of the appliances likely to be operated at the same time. If the power supply is insufficient, check with your energy supplier the value of the power supply defined in your contract.

Never use electrical sockets for the power supply.

The PAC must be powered by special lines protected from the electrical panel by bipolar circuit breakers dedicated to the PAC, surve D for the outdoor unit

The electrical installation must be equipped with a differential protection of 30 mA.

This appliance is designed to operate at a nominal voltage of 230V, +/- 10%, 50 Hz for the single phase model and at a nominal voltage of 400V, +/- 10%, 50 Hz for the 3 phase model.

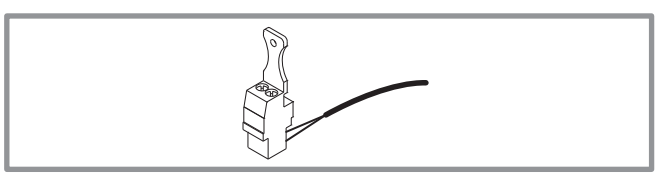
2.11.2 General remarks on the electrical connections

It is essential that the phase-neutral polarity is respected for the electrical connection.

Clamp the cables with stuffing glands to avoid any accidental disconnection of the conductive wires.

• Connection on the connectors:

- Remove the corresponding connector and make the connection.
- Tighten the screws of the terminal blocks correctly. Failure to tighten sufficiently may cause overheating, faults or even fires.

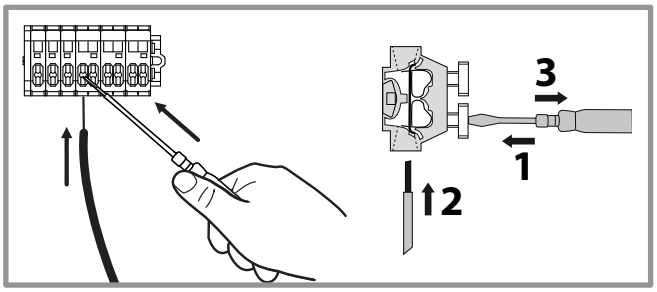


• Connection on the spring terminals:

The earth connection and its continuity must be ensured.

Rigid wire:

- Bare the end of the wire over a length of around 10 mm.
- Slide the wire into the orifice provided.
- Push the spring with a screwdriver so that the wire enters the cage.
- Remove the screwdriver and check that the wire remains blocked in the cage, and pull it to check.



2.11.3 Overall view of the electrical connections

The electrical wiring diagram of the hydraulic module is detailed on figure 51, page 56.

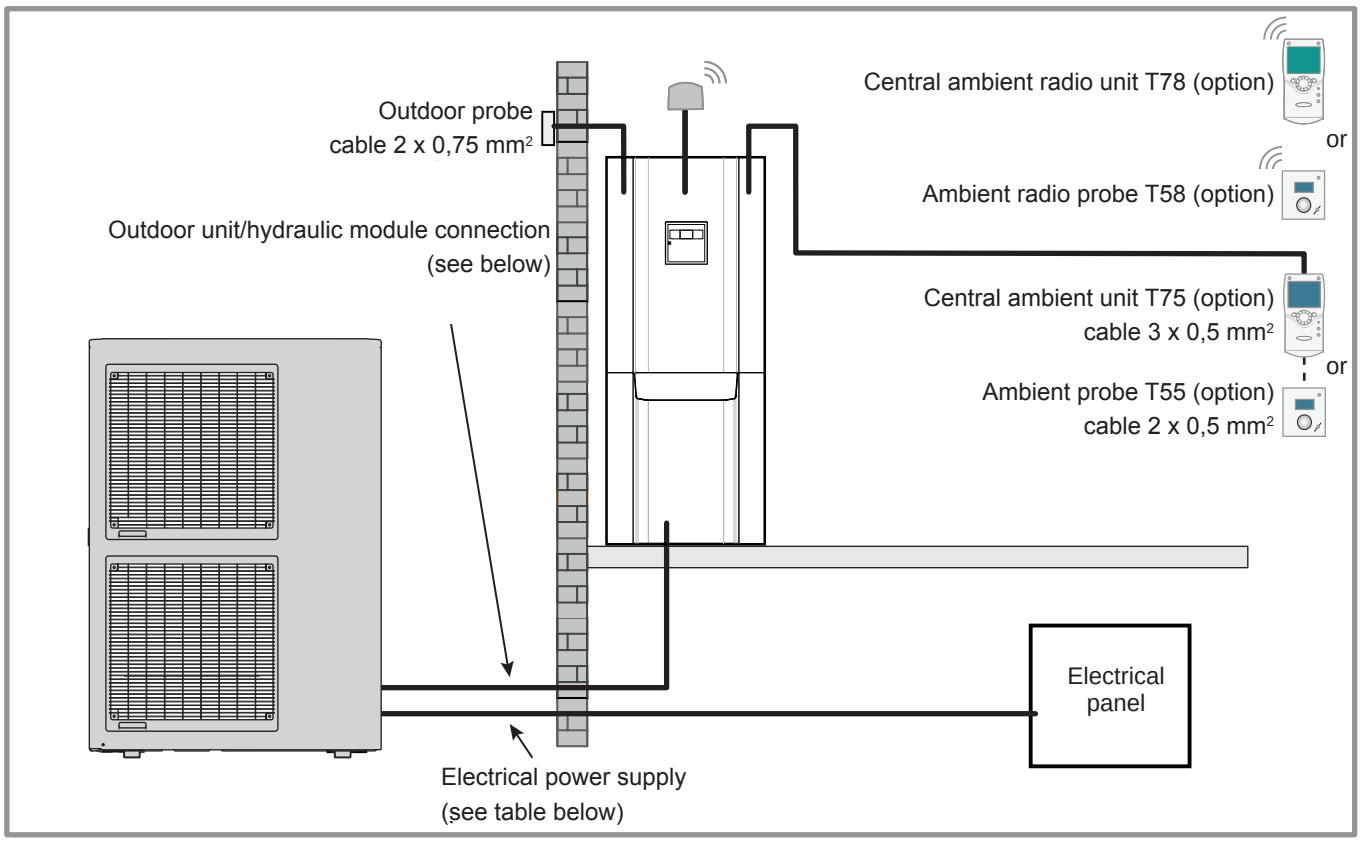


figure 31 - General diagram of the electrical connections for a simple installation (1 heating circuit)

2.11.4 Cross section of the cable and protection rating

The cross sections of the cables are provided for information only and do not dispense the electrician from checking that these cross sections correspond to the requirements and satisfy the standards in force.

• **Power supply of the outdoor unit:**

Single phase heat pump		***Electrical power supply 230 V - 50 Hz***	
Model	***Max. absorbed power***	***Connector cable (phase, neutral, earth)***	***Circuit breaker rating curve D***
hybrid duo oil low NOx 11	5060 W	3 x 6 mm²	32 A
hybrid duo oil low NOx 14 +	5750 W		
heat pump 3 phase		***Electrical power supply 400 V - 50 Hz***	
Model	***Max. absorbed power***	***Connector cable (3 phases, neutral, earth)***	***Circuit breaker rating curve D***
hybrid duo oil low NOx 11	5865 W	5 x 2.5 mm²	20 A
hybrid duo oil low NOx 14	6555 W		
hybrid duo oil low NOx 16	7245 W		

• **Inter-connection between the outdoor unit and the hydraulic module:** The hydraulic module is powered by the outdoor unit, via a cable 4 x 1.5 mm² (phase, neutral, earth, communication bus).

☞ **Before carrying out any work, ensure that the general electrical power supply is switched off.**

2.11.5 Electrical connections on the outdoor unit side for single phase model

Access to the connector terminals

- Remove the front panel. Remove the screws and the cover of the front panel.

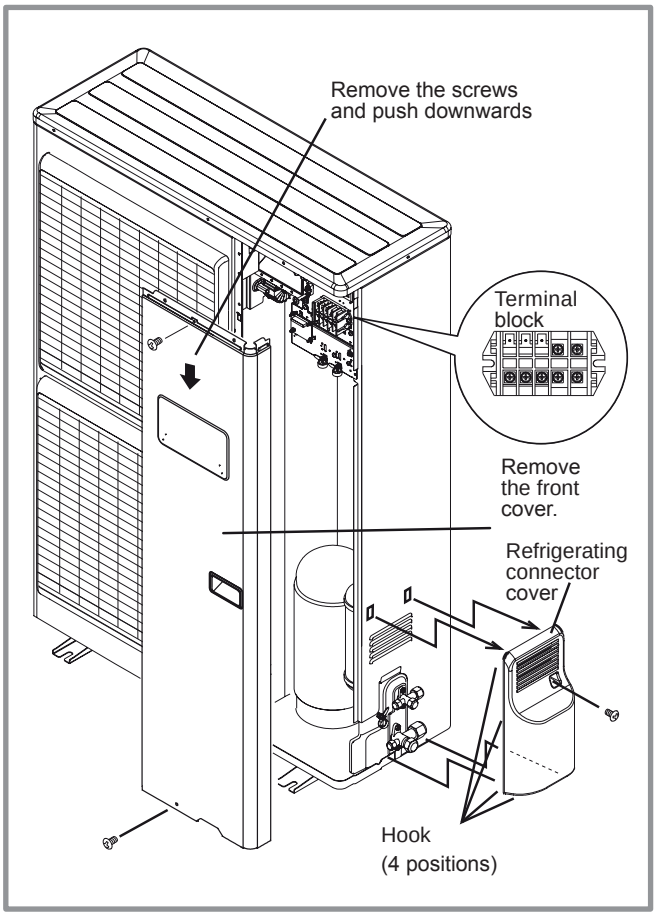


figure 33 - Access to the terminal block of the single phase outdoor unit

- Make the connections as per diagram (figure 34 and figure 40, page 31).

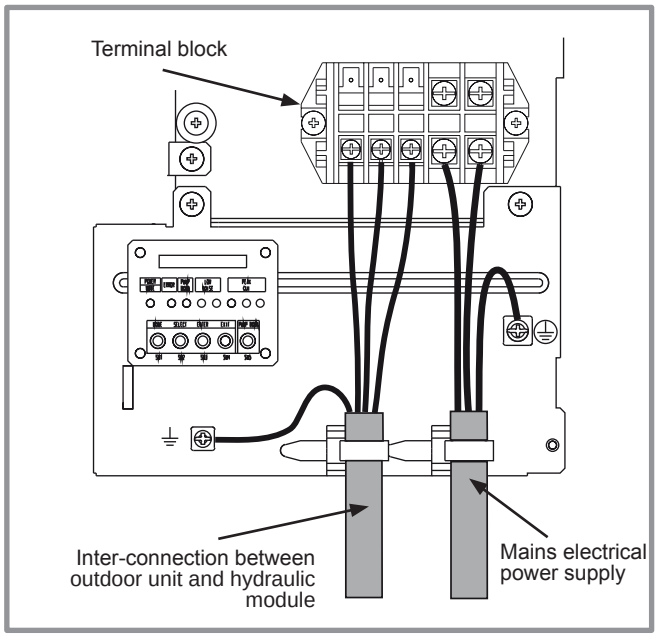


figure 34 - Terminal block connections of the single phase outdoor unit

- Use the cable clamps to avoid any accidental disconnection of the conductor wires.
- Use the attachment plate to hold the cables against the insulating plate (figure 32).

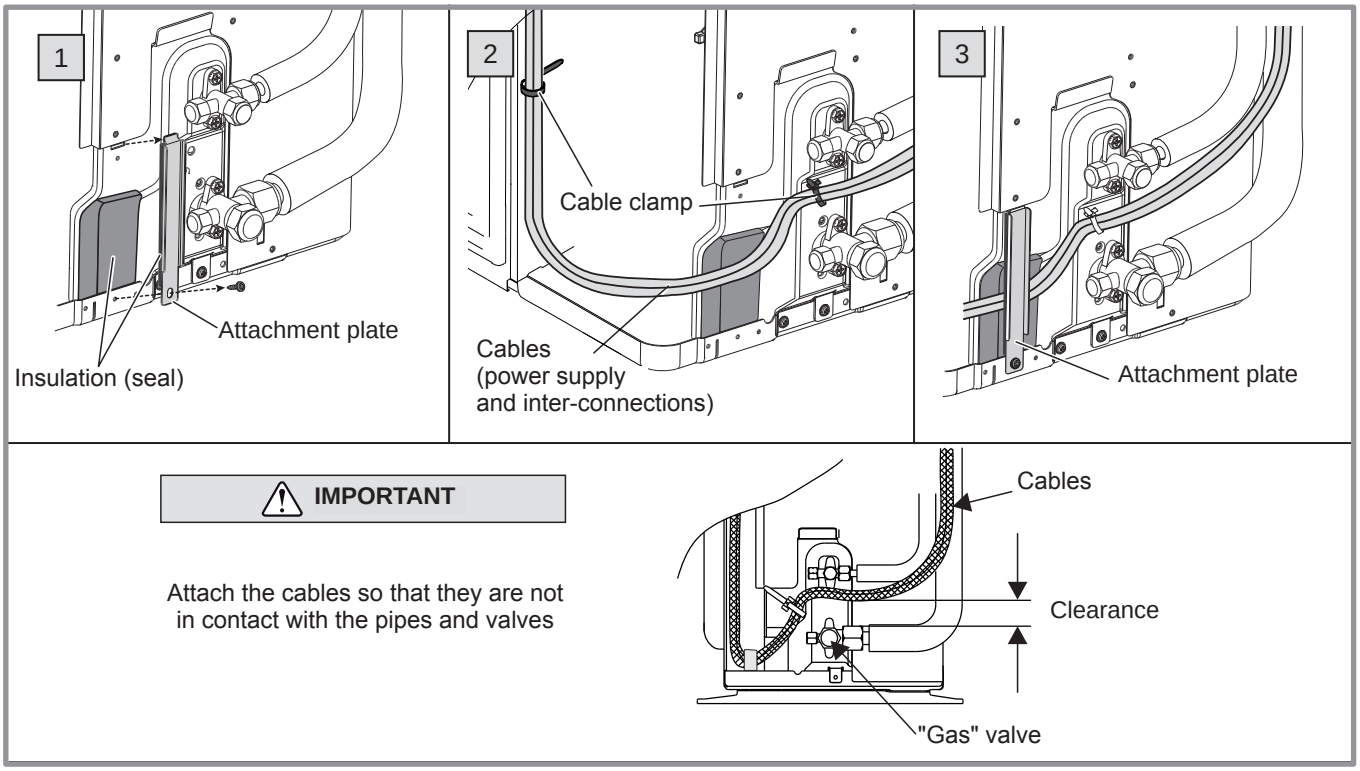


figure 32 - Finalise the connection of the outdoor unit

2.11.6 Electrical connections on the outdoor unit side for 3 phase model

Access to the connector terminals

- Remove the front panel. Remove the screws and the cover of the front panel.

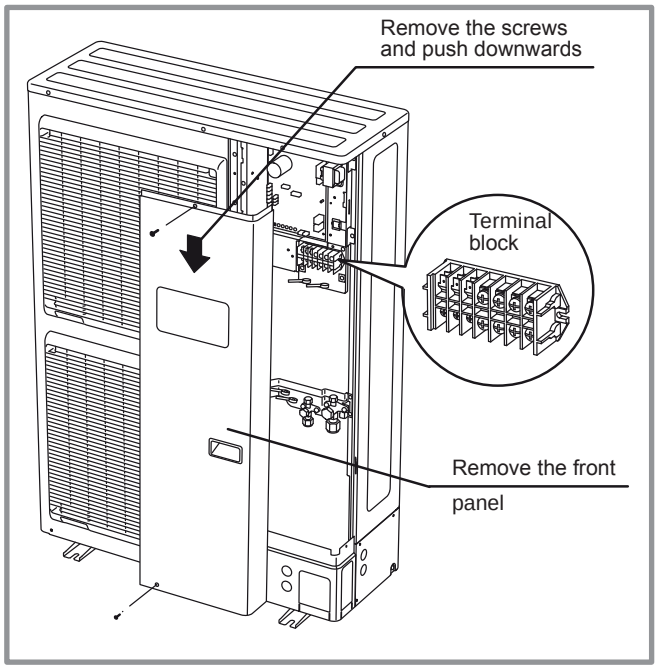


figure 35 - Access to the terminal block of the three phase outdoor unit

- Make the connections as per the diagram(s) (figure 36 and figure 40, page 31).

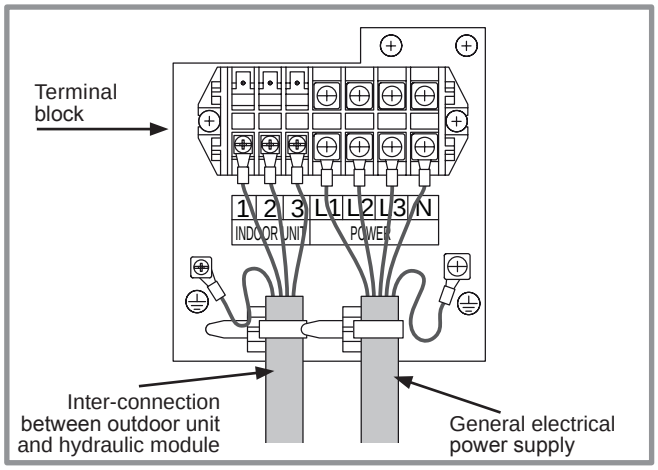


figure 36 - Terminal block connections of the three phase outdoor unit

- Use the cable clamps to avoid any accidental disconnection of the conductive wires.
- Obstruct the space at the cable inlet in the outdoor unit with the insulating plate.

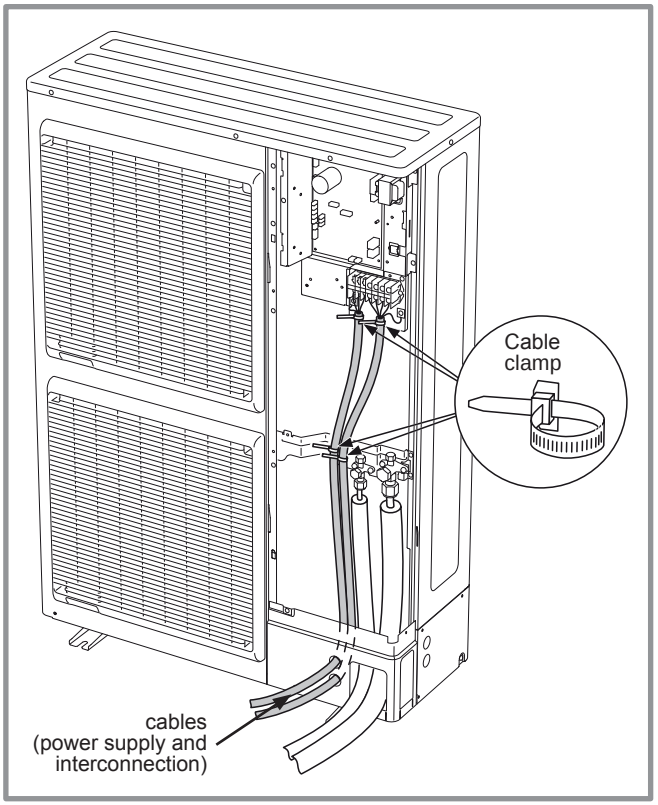


figure 37 - Finalise the connection of the three phase outdoor unit

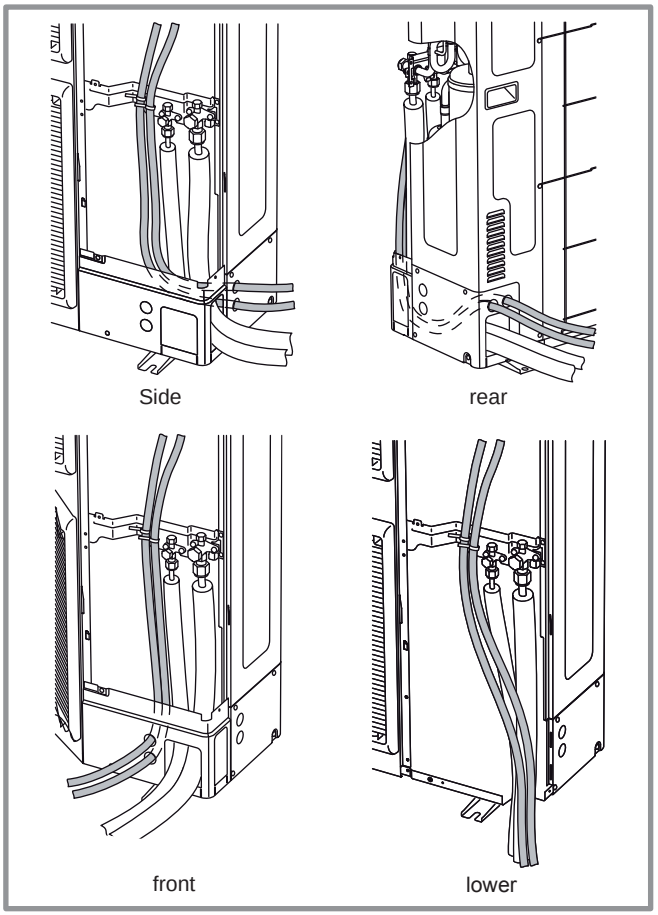


figure 38 - Passages of the cables and refrigerating connectors of the three phase outdoor unit

2.11.7 Electrical connections on Hydraulic module side

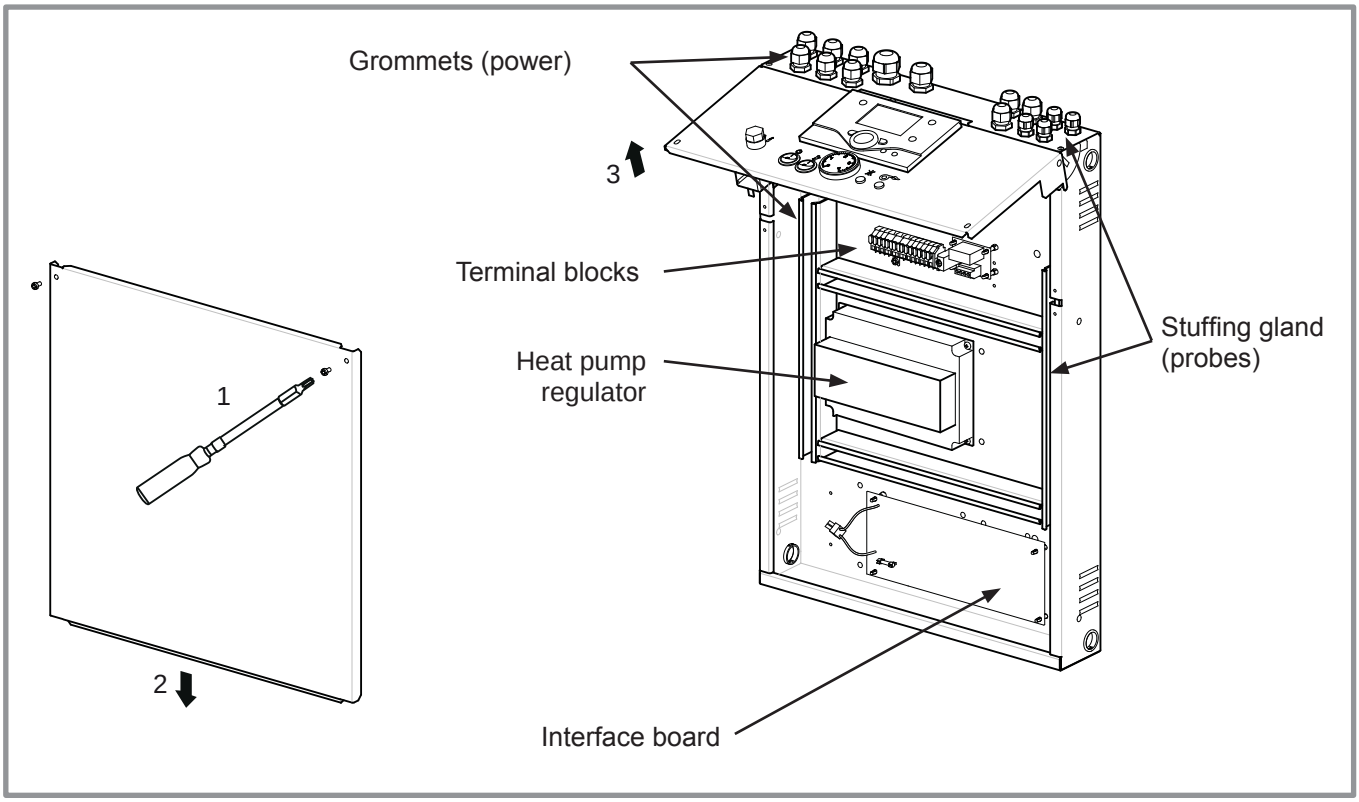


figure 39 - Access to hydraulic unit electric box and description

Access to the connector terminals

Use the tip provided with the appliance (Torx T^{20}).

- Remove the front panel.
- (**1, 2**) Remove the cover from the electrical housing (2 screws).
- (**3**) Tilt the control panel (2 screws).

Make the connections as per diagram (figure 40 andfigure 41).

Do not place in the same stuffing gland the probe lines and the mains lines to avoid interferences due toi voltage peaks of the mains supply.

Ensure that all of the electrical cables are housed in the spaces provided.

• Inter-connection between the outdoor unit and the hydraulic module:

Respect the correspondence between the terminal blocks references of the hydraulic module and those of the outdoor unit when connecting the inter-connection cables.

An incorrect connection can cause the destruction of one of the units.

• Second heating circuit

- Refer to the instructions provided with the hydraulic kit of the 2nd circuit.

• Contract subscribed with the energy supplier

It is possible to control the DHW operation of the heat

- Connect the "energy supplier" contact to input **EX5**.
- Set the parameter (**1620**) to "Off peak Tariff".

• 230 V on input **EX5** = "peak rate" information activated (basic setting / modification possible line **5989**, Configuration menu).

During peak hours, the SHW rate is reduced, during off peak hours the SHW rate depends on the setting of parameter **1620**.

• Load shedding or EJP (Delete peak rate day)

The purpose of load shedding is to reduce the electrical consumption when it is too high compared to the contract with the energy supplier.

- Connect the contact of the electricity meter to terminals **7** and **8**.
- Check that parameter **2920** is set to "locked".
- Check that parameter **5987** is set to "Work Contact".

• Closed contact = HP stopped, Boiler authorized

During "Peak rate" days the PAC will stop and the burner alone will provide the heating.

• In the case of a heated floor

- Connect the heated floor thermal safety device to the heated floor circulator connector (**QX3**: circuit 1, **QX23**: circuit 2).

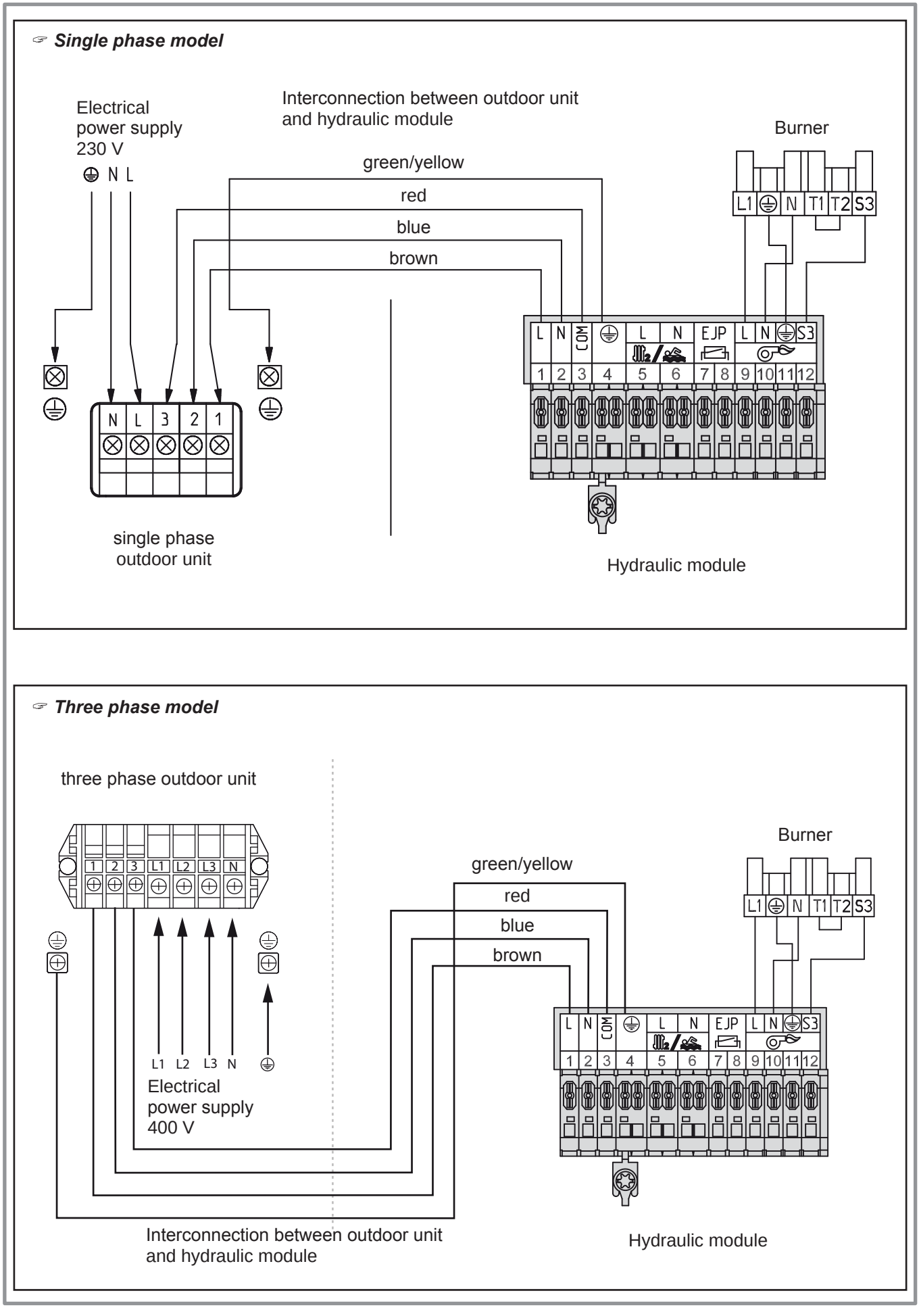


figure 40 - connection to terminal blocks and power relays

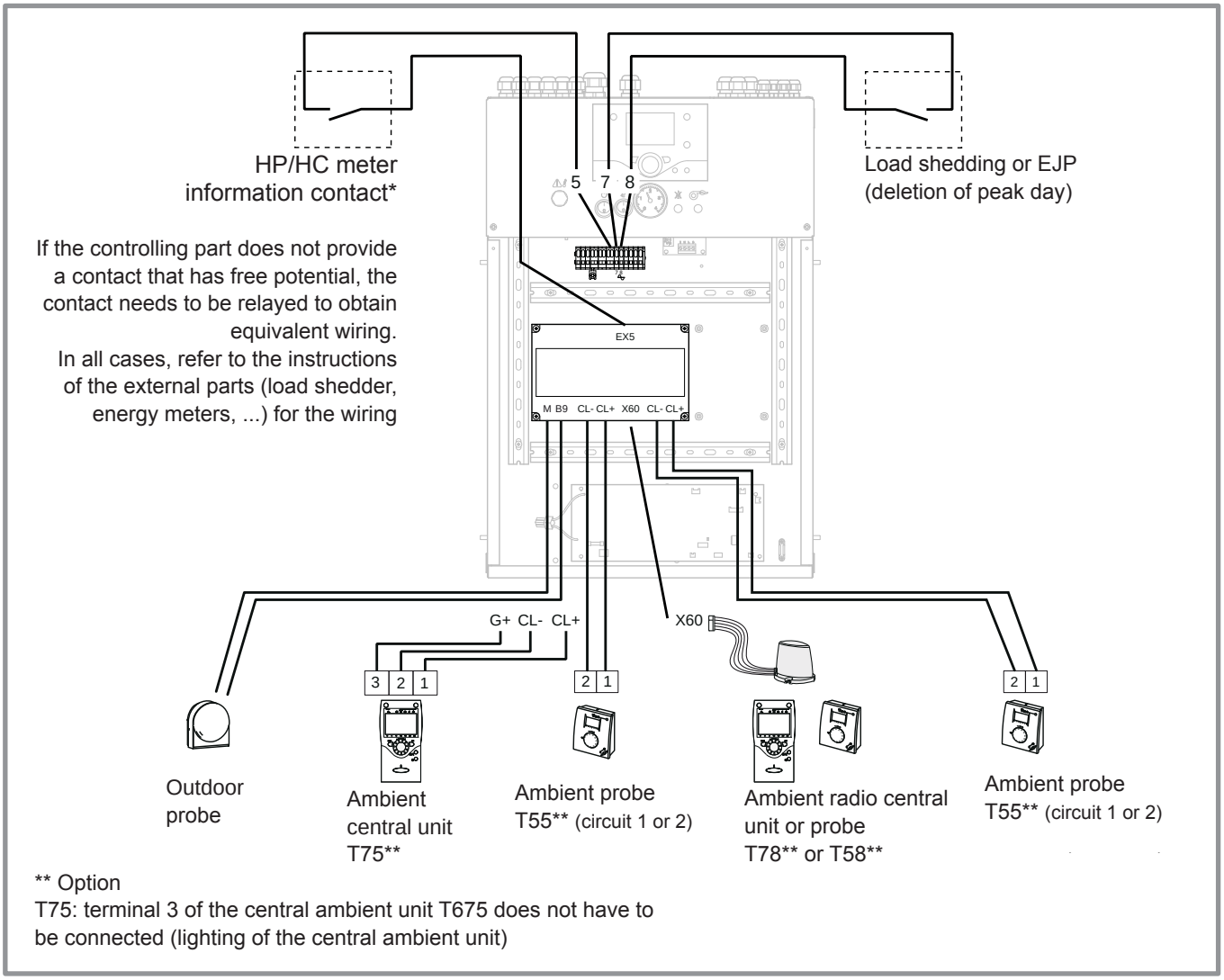


figure 41 - connections to the PAC regulator (accessories and options)

2.12 Outdoor sensor

The Outdoor sensor is required for the correct operation of the heat pump.

Consult the assembly instructions on the packaging of the sensor.

Place the sensor on the front panel that is the worst exposed, in general the North or North west front panel.

Under no circumstances must it be exposed to the sun in the morning.

It is to be installed so that it is easily accessible but at least 2.5 m from the ground.

Avoid sources of heat such as chimneys, the tops of doors or windows, nearby extraction ducts, underneath balconies and porches, that would insulate the sensor from the variations in the temperature of the air outdoors.

- Connect the outdoor probe to terminals **M** and **B9** on the regulation board of the PAC (figure 41).

2.13 Ambient sensor and/or central ambient unit (radio)

The ambient sensor (or the central ambient unit) is optional.

Consult the assembly instructions on the packaging of the sensor.

The sensor must be installed in the living room area on a very uncluttered wall. It must be installed so as to be easily accessible.

Avoid sources of direct heat (chimney, television, cooker, sunlight) and areas exposed to draughts (ventilation, doors). Draughts due to the building usually cause cold air to enter via the electrical ducts. Seal the electrical ducts if there is a cold draught at the back of the ambient sensor.

• Installation fitted with two ambient sensors (T55)

- Connect each of the sensors to one of the terminals **CL+** and **CL-** on the PAC regulation board (figure 41) using the connector supplied.

• Installation fitted with one ambient sensor (T55) and a central ambient unit (T75)

- Connect the probe to one of the terminals **CL+** and **CL-** of the PAC regulation board (figure 41).
- Connect the central ambient unit to the other terminals **CL+**, **CL-** and the terminal **G+**.

• Installation fitted with a radio central ambient unit (T78)

Refer to the instructions supplied with the radio central ambient unit.

• Installation fitted with a radio ambient sensor (T58)

Refer to the instructions supplied with the radio ambient sensor.

2.14 Verifications and commissioning

- Carry out the usual verifications on the burner and its power supply circuit.
- Check the turbulators are fitted correctly.
- Check correct assembly of electrical connections on the terminals.Check draught.
- Connect the appliance to the mains supply and start up:

- Engage the main isolator switch of the installation.

  When first commissioning (or in winter), to preheat the compressor, engage the main circuit breaker of the installation (outdoor unit power supply) a few hours before carrying out the tests.

- Switch on the Start/Stop button of the heat pump.

  To ensure the appliance operates correctly: Check that the phase-neutral polarity of the electrical power supply is respected.

When put into service and every time that the Start/Stop switch is switched off and then back on, the outdoor unit requires approximately 4 min. to start up even if the regulation has demanded heating.

The display may show error 370 when starting. This error code will disappear when the communication between the refrigerating unit and the hydraulic module is established (again).

During the initialisation phase of the regulator, all of the symbols are displayed, then the "Data, update", then"Heat pump status" is displayed.

- Make all of the specific settings for the regulation (configuration of the installation in particular):

- Press the OK button.

- Press in the button for 3s and select the "Commissioning" access level using the knob .

- Validate with the OK button.
- Set the PAC regulation parameters (consult the list of settingspage 40).

☞ **If the installation is fitted with a heated floor: It is essential that parameters 741 and/or 1041 be set (page 42 and/or page 44).**

When commissioning (or in the event of an error 10) the burner may start even if the instantaneous outdoor temperature is higher than the trip temperature of the burner (parameter 3700 by default).

The regulating system uses an average initial outdoor temperature of 0°C and requires some time to update this temperature.

To resolve this situation, with the outdoor probe connected correctly, re-initialiser parameter **8703** (Commissioning level, consumer diagnosis menu).

Once the machine is running, drain the hydraulic module again (2 litres of water).

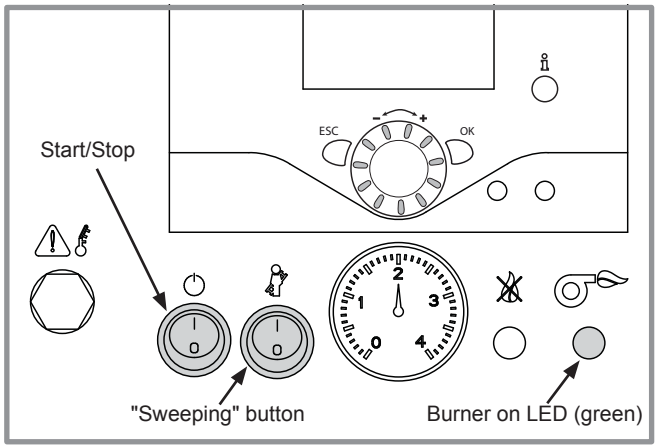


figure 42 - Control panel

2.15 Setting the burner

Refer to the instructions supplied with the burner.

Low NOx burner (ATL F10E2)

Jet	*Pump pressure*	*Oil flow, burner hot*
GPH & angle	bar	kg/h
0.55 gph - 80°S	15	2.30

2.15.1 Setting the electrodes

Refer to the instructions supplied with the burner.

2.15.2 Setting the combustion air

The "sweeping" push buttonfigure 42

- authorises the operation of the burner for an hour.
- Create a heating demand to start the burner.

To get optimum operation from the boiler, the aiur burner should be adapted to the conditions of the installation

Refer to the instructions supplied with the burner.

2.16 Configuration of the Ambient probe

T55 or T58 - To set the ambient probe and link it to the correct heating zone:

- Press for more than 3s the presence button (item**11**, figure 43, page 36). The ambient sensor displays RU and a figure flashes.
- Turn the knob to select the zone (1, 2).

If the installation is fitted with 2 ambient probes, first connect one probe and parameter it to zone 2 then connect the other probe which is set by default to zone 1.

- Press the presence button, the ambient probe will display **P1** and a flashing number. **1**: Automatic storage; correction of the reference value with the button is adopted without any special validation (timeout) or by pressing the operating level button. **2**: Save with confirmation; a correction of the value with the knob is only adopted after pressing the operation button.
- Press the presence button, the ambient probe will display **P2** and a flashing number.

0: OFF; all operating parts are triggered.

1: ON; the operating parts are locked:

- Switching the operation mode of the heating circuit
- Adjusting the comfort value
- Changing the operating level

The ambient probe displays **OFF** for 3s when a locked button is pressed.

2.17 Configuration of the central ambient unit (radio)

T75 - During commissioning, after initialising for around 3 minutes, the user language must be set:

- Press the OK button.
- Select the "user Interface" menu.
- Select the language. Selection the language (English, Deutsch, **Français**, Italiano, Nederlands, Español, Português, Dansk).

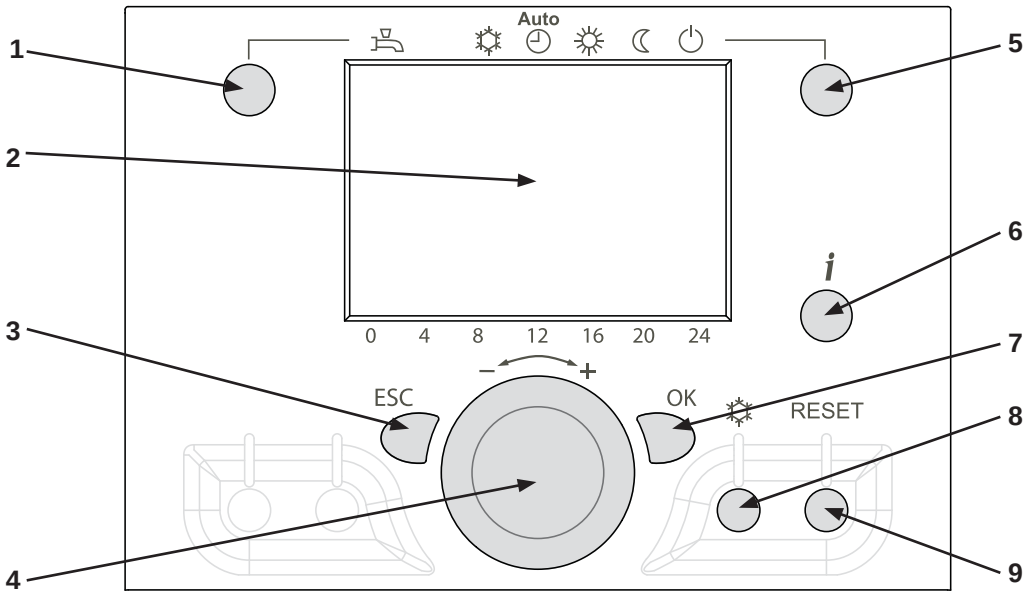
T78 - refer to the instructions provided with the central ambient unit radio.

☞ **When there are 2 heating circuits**

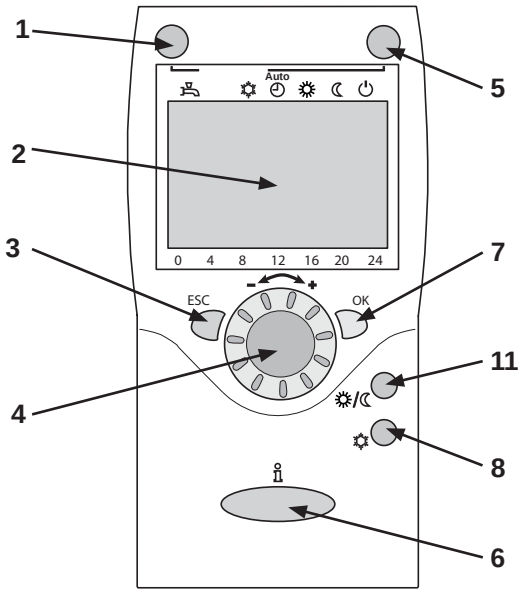
-refer to the instructions provided with the central ambient unit

3 Regulation

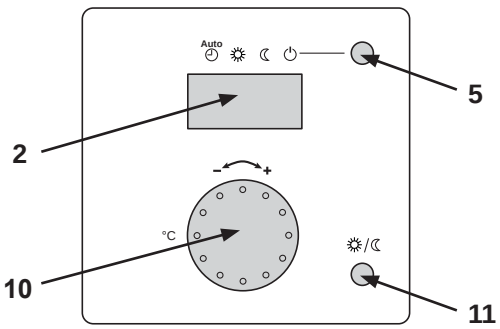
3.1 The user interface, the ambient sensor (option) and the central ambient unit (option)



User interface



central ambient unit T75 / T78



ambient probe T55 / T58

figure 43 -

item	Functions	- Definitions of the functions
1	Selecting the DHW operating mode  Marche  Arrêt	- **Operation**: Production of DHW in function of the timer programme. - **Stopping**: Production of the DHW stopped with antifreeze function of the domestic water active. - **Manual trip button**: Press the SHW button for 3 s (switches from "reduced" to "comfort" until the next switch of the SHW timer programme).
2	Digital display	- Check of the operation, reading the current temperature, of the heating level, of any faults. - View the settings.
3	"ESC" to quit	- Quit the menu
4	Navigation and setting	- Selecting the menu - Setting the parameters - Setting the comfort temperature value.
5	Selecting the heating mode	- Auto Heating service as per the heating programme (automatic switching between summer/winter). - permanent comfort temperature. - permanent reduced temperature - “Stand by” setting with frost protection (provided that the electrical power supply of the PAC is not switched off).
6	Display information	- Various information (see page 57). - Reading the error codes (see page 57). - Information on maintenance, special operations.
7	Confirm "OK"	- Enter the menu selected. - Validate the parameter settings. - Validate the comfort temperature value setting.
8	Selecting cooling mode	- (Not available with model SHW)
9	Reset (press for 3 seconds)	- Re-initialising the parameters and clearing the error messages. **Do not use during normal operation.**
10	Control knob	- Setting the comfort temperature value.
11	Presence key	- Comfort / Reduced switchover.

3.2 Description of the display

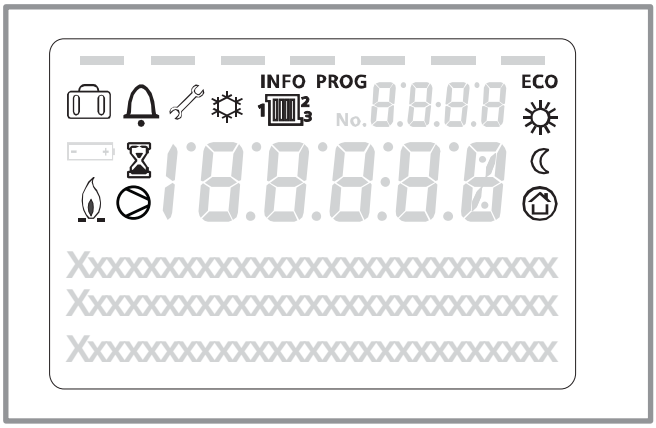


figure 44 - User interface display

Symbols	Definitions
	- Heating mode active with reference to the heating circuit.
	- Heating in comfort mode.
	- Heating in reduced mode.
	- Heating in "stand by" mode (frost protection).
	- Cooling mode active.
	- Holiday mode activated.
	- Process in progress.
	- Compressor operation.
	- operation of burner.
	- Default message.
	- Maintenance, special operation.
INFO	- Information level activated.
PROG	- Program activated.
ECO	- ECO function activated (heating temporarily stopped).
	- Time / parameter number / reference value.
	- ambient temperature / reference value.
	- Reference value Information / parameter information .

3.3 Water logic

The operation of the heat pump is controlled by the water logic.

The reference temperature of the heating circuit water is adjusted in function of the outdoor temperature.

If there are thermostatic valves fitted to the installation, they must be opened fully or set higher than the normal value of the ambient temperature.

3.3.1 Manual setting

During the installation, the water logic must be set in function of the heating transmitters and the insulation of the building.

The water law curves (figure 45) refer to an ambient reference value equal to 20 °C.

The slope of the water law (parameter 720) determines the impact of the outdoor temperature variations on the initial heating temperature variations.

Specific case: When the slope is equal to or greater than 2 and the outdoor temperature is greater than 2 °C, it is possible there is a little discomfort in the home. In this case, it is possible to increase the value of parameter 3700.

The water law offset (parameter 721) modifies the initial temperature of all the curves, without modifying the slope (figure 46) .

The corrective actions in case of discomfort are listed in the table (figure 47).

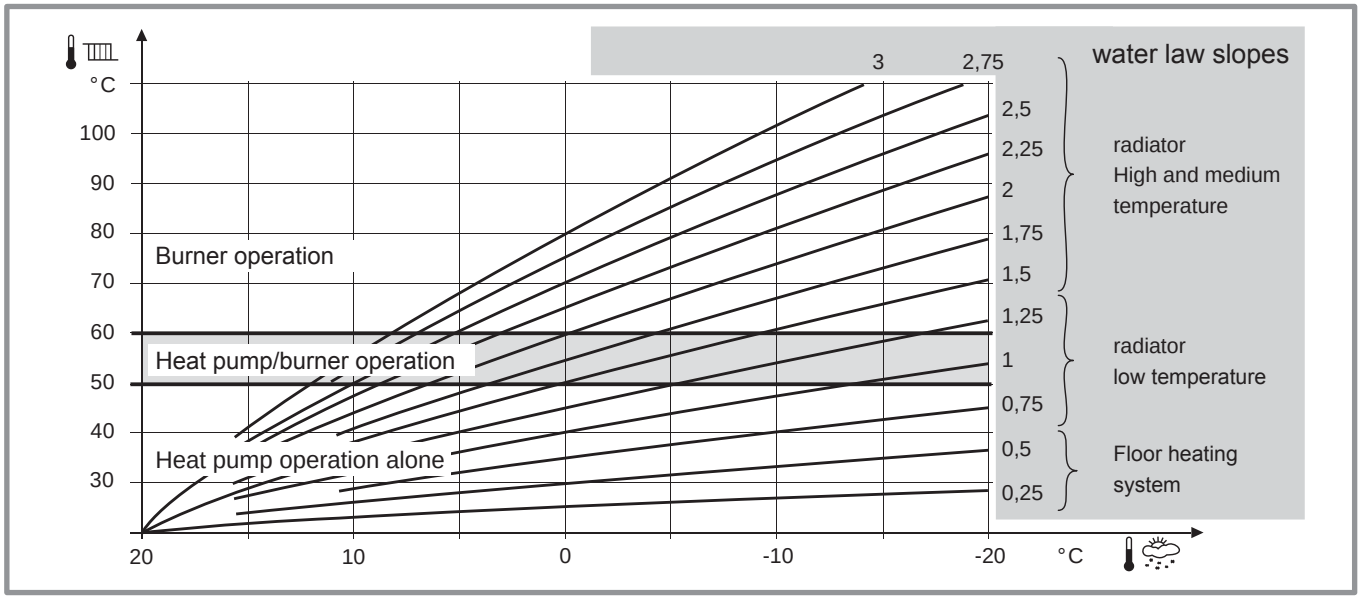


figure 45 - heating curve slope (line 720)

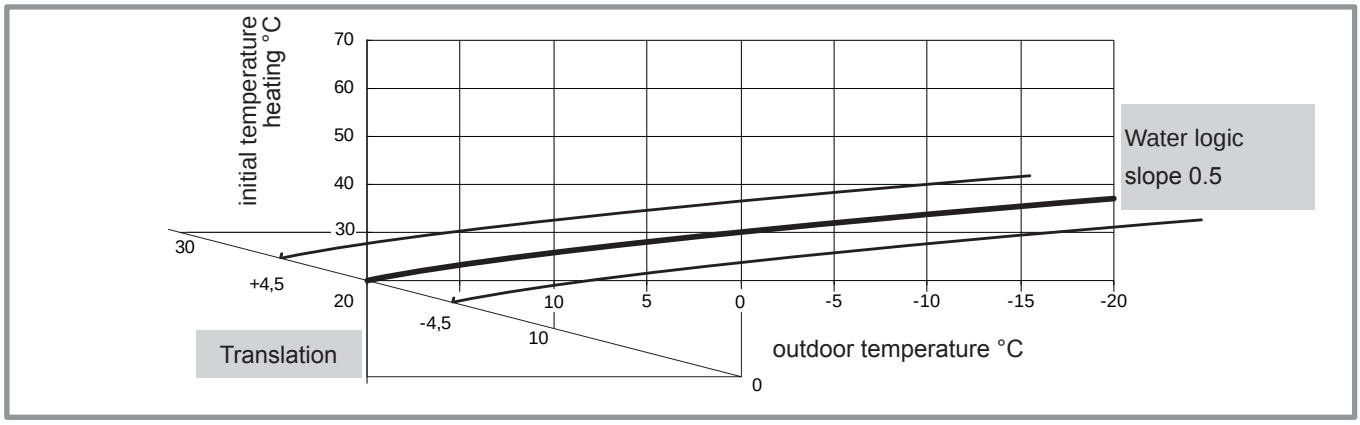


figure 46 - Translation of the heating curve (line 721)

Feelings...				Corrective actions on the water logic:	
...in mild weather		...in cold weather		slope (line **720**)	offset (line **721**)
Good	&	Good	→	No correction	No correction
Cold	&	Hot	→	−	+
Cold	&	Good	→	−	+
Cold	&	Cold	→	No correction	+
Good	&	Hot	→	−	No correction
Good	&	Cold	→	+	No correction
Hot	&	Hot	→	No correction	−
Hot	&	Good	→	+	−
Hot	&	Cold	→	+	−

figure 47 - Corrective actions in case of discomfort

3.4 Regulation parameters

3.4.1 General

Only the parameters accessible at the levels:

U - Final user.

I - Commissioning.

S - Specialist.

are described in this document.

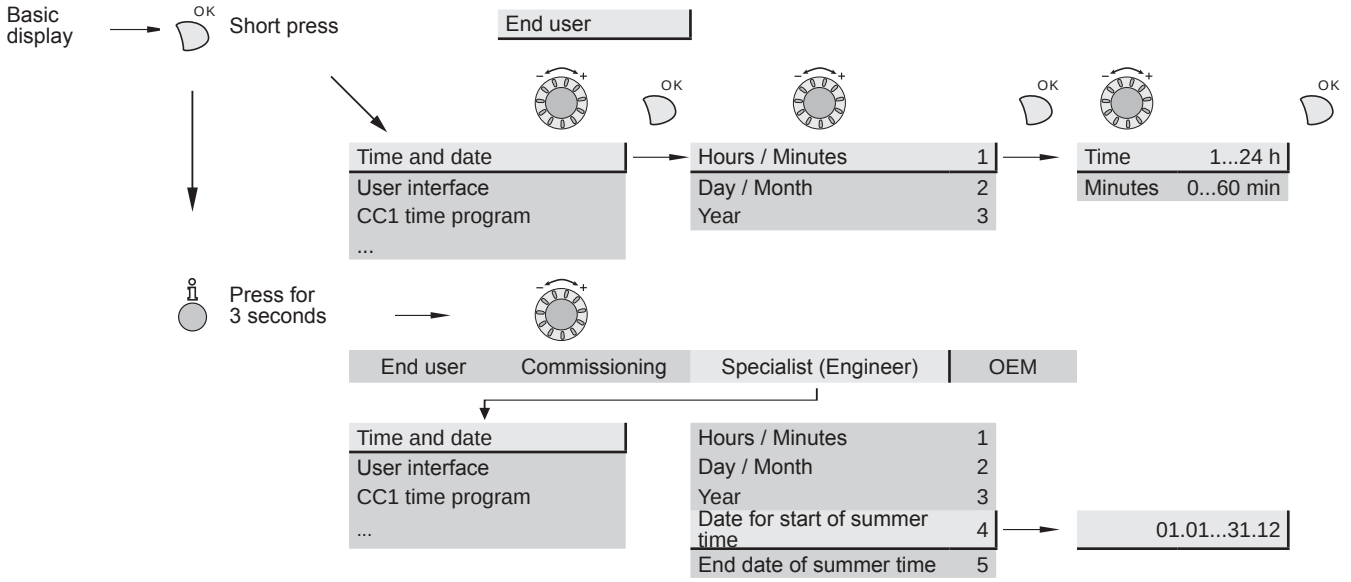
The access levels are listed in the 2nd column of the table by the lettres **U**, **I** and **S**.

The OEM parameters are not described and require a manufacturer access code.

3.4.2 Setting the parameters

- Selecting the desired level.
- Scroll the list of menus.
- Selecting the desired menu.
- Scroll the function lines.
- Selecting the desired line.
- Adjusting the parameter.
- Validate the setting by pressing **OK**.
- To return to the menu, press **ESC**.

If no settings have been made for 8 minutes, the screen automatically returns to the basic display.



3.4.3 List of function lines (settings, diagnosis, state)

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
Time and date					
1	**U**	Hours / minutes	00:00... 23:59	1	
2	**U**	Day / month	01:01... 31.12	1	
3	**U**	Year	1900... 2099	1	
5	**S**	Summer start time (day/ month)	01:01... 31.12	1	**25.03**
6	**S**	Summer end time (day/ month)	01:01... 31.12	1	**25.10**
		The time change appears at 03h00 on the first Sunday after the date set.			
User interface					
20	**U**	Language	English, Français, Italiano, Nederlands...		**French**
22	**S**	Info	Temporary | Permanent		**Temporary**
26	**S**	Operation locking	Stop| Start		**Stop**
27	**S**	Programming locking	Stop| Start		**Stop**
28	**S**	Direct setting Storing...	...automatic |...with confirmation		**...with confirmation**

Line		Function	Setting range or display	Setting increment	Basic setting
44	I	Operation HC2 (command HC2)	Common to CC1, independent		**Common with heating circuit 1**
		Common to CC1 or independent This function permits the choice to be made if the ambient sensor (in option) has an action on the two zones or on a single zone.			
46	I	CCP operation (command of sanitary circuit circulator, output QX2) Common to CC1 or independent (Not concerned)			**Common with heating circuit 1**
70	S	Software version of the display			
Timer programme for heating, circuit 1					
500	U	Pre-selection (day / week)	Mon-Sun Monn-Fri Sat-Sun Monday Tuesday…		**Mon-Sun**
501	U	1st phase (in service)	00:00... --:--	10 min	**06:00**
502	U	1st phase (not in service)	00:00... --:--	10 min	**22:00**
503	U	2nd phase (in service)	00:00... --:--	10 min	**--:--**
504	U	2nd phase (not in service)	00:00... --:--	10 min	**--:--**
505	U	3rd phase (in service)	00:00... --:--	10 min	**--:--**
506	U	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
516	U	Retrieval of the standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			
Timer programme for heating, circuit 2					
		If the installation is composed of 2 heating circuits (only displayed with 2nd circuit kit option)			
520	U	Pre-selection (day / week)	Mon-Sun Monn-Fri Sat-Sun Monday Tuesday…		**Mon-Sun**
521	U	1st phase (in service)	00:00... --:--	10 min	**06:00**
522	U	1st phase (not in service)	00:00... --:--	10 min	**22:00**
523	U	2nd phase (in service)	00:00... --:--	10 min	**--:--**
524	U	2nd phase (not in service)	00:00... --:--	10 min	**--:--**
525	U	3rd phase (in service)	00:00... --:--	10 min	**--:--**
526	U	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
536	U	Retrieval of the standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			
Heating time program 4 / DHW					
560	U	Pre-selection (day / week)	Mon-Sun Monn-Fri Sat-Sun Monday Tuesday…		**Mon-Sun**
561	U	1st phase (in service)	00:00... --:--	10 min	**00:00**
562	U	1st phase (not in service)	00:00... --:--	10 min	**05:00**
563	U	2nd phase (in service)	00:00... --:--	10 min	**15:00**
564	U	2nd phase (not in service)	00:00... --:--	10 min	**18:00**
565	U	3rd phase (in service)	00:00... --:--	10 min	**--:--**
566	U	3rd phase (not in service)	00:00... --:--	10 min	**--:--**
576	U	Retrieval of the standard settings	No, Yes		**No**
		Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost.			

Line		Function	Setting range or display	Setting increment	Basic setting
Time program 5 / Cooling					
		(Not available with DHW model).			
Holidays, circuit 1					
641	**U**	Pre-selection of the holiday period	Period 1 to 8		**Period 1**
642	**U**	Date of start of holidays (day/month).	01:01... 31.12	1	
643	**U**	Date of end of holidays (day/month).	01:01... 31.12	1	
648	**U**	Operating level (during the holidays)	Frost protection, reduced		**Frost protection**
Holidays, circuit 2					
		If the installation is composed of 2 heating circuits (only displayed with 2nd circuit kit option)			
651	**U**	Pre-selection of the holiday period	Period 1 to 8		**Period 1**
652	**U**	Date of start of holidays (day/month).	01:01... 31.12	1	
653	**U**	Date of end of holidays (day/month).	01:01... 31.12	1	
658	**U**	Operating level (during the holidays)	Frost protection, reduced		**Frost protection**
Setting the heating, circuit 1					
710	**U**	Ambient comfort temperature value	Reduced temperature … max. comfort reference value .	0.5 °C	**20 °C**
712	**U**	Reduced setpoint	frost protection temperature … comfort temperature	0.5 °C	**18 °C**
714	**U**	Ambient "antifreeze" temperature value	4 °C… reduced temperature	0.5 °C	**8 °C**
716	**S**	Maximum comfort value	20 °C... 35 °C	1 °C	**28 °C**
720	**I**	slope of the heating curve (see figure 45)	0.1... 4	0.02	**0.5**
721	**I**	Translation of the heating curve	-4.5 °C... 4.5 °C	0.5 °C	**0**
726	**I**	Translation of the heating curve	Stop| Start		**Stop**
		Warning! Do not modify, leave on Stop.			
730	**I**	Summer/winter heating limit	8 °C... 30 °C	0.5 °C	**18 °C**
		When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy). In summer operation, the display shows "Eco". This function is only active in automatic operation.			
732	**S**	Daily heating limit	-10 °C... 10 °C	1 °C	**-3 °C**
		This function permits, between seasons, to deviate partially from the automatic switching between summer/winter. If the value is increased, the switch to summer operation is delayed. If the value is reduced, the switch to summer operation is brought forward. This function is only active in automatic operation.			
740	**S**	min. initial reference value . (for fan-convector)	8... 95 °C	1 °C	**8 °C**
741	**S**	Max. start value	8... 95 °C	1 °C	**80 °C**
.		Heated floor= 50 °C **Important remark**: The maximum limit is not a safety function as that required for under-floor heating.			
750	**S**	Influence of the ambient temperature	1%... 100%	1%	**20%**
		If the installation is equipped with an ambient sensor: This function allows the influence of the ambient temperature on the regulation to be chosen. If no value is entered, the regulation is via the water logic. If the parameter is set to 100%, the regulation is only made using the ambient temperature.			
790	**S**	Maximum optimisation when started	0... 360 min	10 min	**120 min**
		(anticipation of start to reach the comfort reference value).			

Line		Function	Setting range or display	Setting increment	Basic setting
791	S	Max. optimisation when switching off	0... 360 min	10 min	**120 min**
		(anticipation of stoppage to switch from comfort to reduced)			
800	S	Start increasing the reduced operation	-30... 10 °C	1 °C	**--**
801	S	End of increase in reduced operation	-30... 10 °C	1 °C	**-5 °C**
830	S	Raising of mixing valve	0... 50 °C	1 °C	**0**
834	S	Servomotor travel time	30... 873 s	1 s	**240 s**
850	I	Floor slab drying check (figure 48)			**Stop**
		- Stop= early interruption of the current programme, programme inactive - Functional heating - Curing heating - Functional heating + Curing heating - Curing heating + functional heating - Manual The manual mode ca be used to programme the slab drying . The function ends automatically after 25 days.			
851	I	manual slab drying reference value (if line 850 = manual)	0... 95 °C	1 °C	**25 °C**
		This function allows the customised floor drying temperature to be set. This temperature remains fixed. The floor drying programme stops automatically after 25 days of operation.			
856	I	Current drying day	0... 32		
857	I	Drying days completed	0... 32		
900	S	Operating mode changeover	None, protection mode, reduced, comfort, Automatic	1	**Protection mode**
		Operating mode at the end of floor drying.			

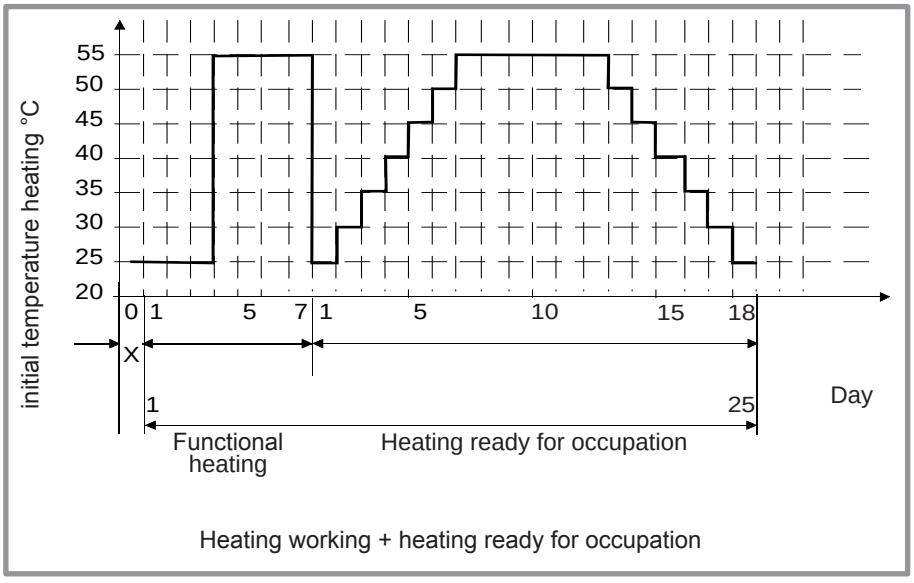


figure 48 - Diagram of the floor slab drying programmes

☞ **Respect the standards and reference values of the builder! Correct operation of this function is only possible with a correct installation (hydraulic, electricity and settings)! The function may be interrupted earlier by setting to "Stop".**

Line		Function	Setting range or display	Setting increment	Basic setting
Setting the heating, circuit 2					
		If the installation is composed of 2 heating circuits (only displayed with 2nd circuit kit option)			
1010	**U**	Ambient comfort temperature value	Reduced temperature … max. comfort reference value .	0.5 °C	**20 °C**
1012	**U**	Reduced setpoint	frost protection temperature … comfort temperature	0.5 °C	**18 °C**
1014	**U**	Frost protection setpoint	4 °C… reduced temperature	0.5 °C	**8 °C**
1016	**S**	Maximum comfort value	20... 35 °C	1 °C	**28 °C**
1020	**I**	slope of the heating curve (see figure 45)	0.1... 4	0.02	**0.5**
1021	**I**	Translation of the heating curve	-4.5... 4.5 °C	0.5 °C	**0**
1026	**S**	Translation of the heating curve	Stop, Start		**Stop**
		Warning! Do not modify, leave on Stop.			
1030	**I**	Summer/winter heating limit	8... 30 °C	0.5 °C	**18 °C**
		When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy). In summer operation, the display shows "Eco". This function is only active in automatic operation.			
1032	**S**	Daily heating limit	-10... 10 °C	1 °C	**-3 °C**
		This function permits, between seasons, to deviate partially from the automatic switching between summer/winter. If the value is increased, the switch to summer operation is delayed. If the value is reduced, the switch to summer operation is brought forward. This function is only active in automatic operation.			
1040	**S**	min. initial reference value . (for fan-convector)	8... 95 °C	1 °C	**8 °C**
1041	**S**	Max. start value	8... 95 °C	1 °C	**80 °C**
.		Heated floor= 50 °C **Important remark**: The maximum limit is not a safety function as that required for under-floor heating.			
1050	**S**	Ambient influence	1 %... 100 %	1 %	**20 %**
		If the installation is equipped with an ambient sensor: This function allows the influence of the ambient temperature on the regulation to be chosen. If no value is entered, the regulation is via the water logic. If the parameter is set to 100%, the regulation is only made using the ambient temperature.			
1090	**S**	Maximum optimisation when started	0... 360 min	10 min	**0**
1091	**S**	Maximum optimisation when stopped	0... 360 min	10 min	**0**
1100	**S**	Start increasing the reduced operation	-30... 10 °C, --°C	1 °C	**--**
1101	**S**	End of increase in reduced operation	-30... 10 °C, --°C	1 °C	**-5 °C**
1130	**S**	Raising of mixing valve	0... 50 °C	1 °C	**0**
1134	**S**	Servomotor travel time	30... 873 s	1 s	**240 s**
1150	**I**	Floor slab drying check (figure 48) - Stop= early interruption of the current programme, programme inactive - Heating working. - Heating ready for occupation. - Heating working + heating ready. - Heating ready for occupation + heating working - Manual - The manual mode ca be used to programme the slab drying . The function ends automatically after 25 days.			**Stop**
1151	**I**	Floor slab drying reference value (if line1150 = Manual)	0... 95 °C	1 °C	**25 °C**
		This function allows the customised floor drying temperature to be set. This temperature remains fixed. The floor drying programme stops automatically after 25 days of operation.			
1156	**I**	Current drying day	0... 32		
1157	**I**	Drying days completed	0... 32		

Line		Function	Setting range or display	Setting increment	Basic setting
1200	S	Operating mode changeover	None, protection mode, reduced, comfort, Automatic		**Protection mode**
		Operating mode at the end of floor drying.			
Setting the DHW (domestic hot water)					
1610	U	DHW nominal set point	reduced reference value (defined in line 1612) 65 °C	1	**65 °C**
		To reach this value, the boiler is used.			
1612	U	Lower DHW temperature setting	8 °C... comfort ref. value (defined in line 1610)	1	**40 °C**
1620	I	Liberation of the DHW load	24h/day Heat. circ. timer prog. Timer programme 4/SHW Off peak tariff (THC) 4/SHW and THC timer prog.		**Timer programme 4/ DHW**
		24h/day: The DHW temperature is maintained permanently at the DHW comfort value.			
		Heat. circuits timer prog. .: The production of SHW follows the timer programme of the ambient temperature (with 1 hour's anticipation of the start).			
		4/SHW timer programme : The DHW programme is independent from the heating circuit programme.			
		Off peak tariff (THC*): The SHW reference value follows the electricity tariff signal (HP = reduced ; HC = comfort).			
		4/SHW and THC*timer prog.: The SHW reference value follows the SHW timer programme and the electricity tariff signal (programme SHW reduced + HP = reduced ; the rest of the time = comfort).			
		***** - Connect the "energy supplier" contact to input EX5. (see § figure 41, page 32). In the case of a HP/HC contract (day/night), the DHW value is controlled by the energy supplier tariff.			
1640	I	Anti-legionnella function	Stop Periodic (as per line 1641) Fixed week day (as per line 1642)		**Stop**
1641	I	Frequency of anti-legionella cycle	1 to 7	1 day	**7**
1642	I	Day of Anti-legionnella cycle operation	Mon, Tues,.. Sun		**Saturday**
1644	I	Time of anti-legionella cycle operation	--:--, 00:00... 23:50		**--:--**
		If no value has been entered, no anti-legionella cycle will be run.			
1645	I	Anti-legionella cycle temperature value	55 °C... 95 °C		**65 °C**
1646	I	Duration of anti-legionella cycle	--:--, 10 min... 360 min		**30 min**
1647	I	operation of Anti-legionnella circulator	Start... Stop		**Start**
1660	I	Liberation of sanitary circulator **	Timer programme 3/ CCP Liberation of SHW Timer programme 4/SHW		**Liberation of DHW**
		**** Not available with hybrid duo models .**			
Swimming pool (only displayed with the swimming pool kit option)					
2056	U	Generator ref. heating value	8... 35 °C		**22 °C**
Heat pump					
2843	S	Duration of compr min. stop.	0... 60 min	1 min	**20 min**
2844	S	Max. temp. of thermodynamic operation	8... 100 °C	1 °C	**80 °C**
2862	S	Locking time stage2/mod	0... 40 min	1 min	**5 min**
2873	S	Compress. modul. operation time	10... 240 s	1 s	**240 s**
2882	S	Complete liberation of electrical top ups No electrical top up so not used with hybrid model	0... 500 °Cmin	1 °Cmin	**100 °Cmin**
2884	S	Electrical liberation - start under outdoor temperature No electrical top up so not used with hybrid model	-30... 30 °C		**2 °C**
2886	S	Heat deficit compensation	Stop, Start, Only for drying function		**Stop**

Line		*Function*	*Setting range or display*	*Setting increment*	*Basic setting*
2910	**S**	Liberation dependent on outdoor T°	-30... 30 °C	1 °C	**--**
2920	**S**	In case of EJP blocking signal (EX4)	Locked (locked waiting)... Liberated		**Blocked while waiting**
		Liberated: PAC = running _ boiler = running. Locked (locked waiting)... PAC = stopped _ boiler = running.			
Additional generator (relieves boiler)					
3700	**S**	Liberation below outdoor T° (outdoor temperature)	--, -50... 50 °C	0.5 °C	**2 °C**
3705	**S**	Timer stopped	0... 120 min	1 min	**20 min**
3720	**S**	Complete liberation to relieve boiler	0... 120 °C . min	1 °C . min	**50 °C . min**
3723	**S**	Generator blockage time	1... 120 min	1 min	**10 min**
DHW tank					
5020	**S**	Raising of initial ref. value	0... 30 °C	1 °C	**18 °C**
5024	**S**	Switching differential	0... 20 °C	1 °C	**7 °C**
5030	**S**	Limiting load duration	10... 600 min	10 min	**90 min**
5060	**S**	Electrical resistance mode	Replacement, Summer, Always, Cooling level		**Replacement**
5061	**S**	Electric immersion heater release	24h/day, Liberation SHW, Timer programme 4/SHW		**liberation SHW**
Configuration of installation					
5700	**I**	Pre-settings	1,2,3,... 14	1	**13**
		This command permits one of the 2 pre-selected installation configurations to be chosen (the hydraulic diagrams of the various configurations are detailed in the paragraph "'installation configurations"). - Pre-setting 1 to 12: Do not use with alféa hybrid duo heat pump. Reserved for alféa S or alféa duo heat pumps. - Pre-setting 13: 1 heating circuit. - Pre-setting 14: 2 heating circuits.			
5711	**S**	Cooling circuit 1 (not available with model SHW).	Stop, 4 tubes system, 2 tubes system		**Stop**
5870	**S**	Combi storage tank	No, Yes		**No**
5987	**S**	Action direction input EX4	Rest contact Work contact		**Operation contact**
		☞ **it is essential that this parameter be set to "Work contact".**			
5989	**S**	Action direction input EX5	Rest contact Work contact		**Rest contact**
6046	**I**	H2 input function 1: Switching of heating circuit + DHW operation. 2: Switching of heating circuit operation. 3: Switching of heating circuit1 operation. 4: Switching of heating circuit2 operation. 6: Error/alarm message. 9: Monitoring of dew point. 16: Liberation of swimming pool.	1... 16	1	**9**
6047	**I**	Action direction contact H2	Rest contact Work contact		**Work Contact**
6048	**S**	function value contact H2	0... 130 °C		**45** °C
6100	**S**	Correction of outdoor temperature sensor	-3... 3 °C	0.1 °C	**0 °C**
6120	**S**	Frost protection of the installation	Start, Stop		**Start**
6205	**S**	Reset to default parameters	No, Yes		**No**
6220	**S**	Software version (RVS)	0... 99		

Line		Function	Setting range or display	Setting increment	Basic setting
Error					
6711	**U**	Reset HP	No, Yes		**No**
6740	**S**	Initial alarm T° heating circuit1 --, 10...	--, 10... 240 min	10 min	**--**
6741	**S**	Initial alarm T° heating circuit2 --, 10...	--, 10... 240 min	10 min	**--**
6745	**S**	DHW load alarm	--, 1... 48 h	1 h	**--**
6746	**S**	Alarm T° cold start 1	--, 10... 240 min	10 min	**--**
6800	**S**	History 1	Date, time, error code		
6802	**S**	History 2	Date, time, error code		
6804	**S**	History 3	Date, time, error code		
6806	**S**	History 4	Date, time, error code		
6808	**S**	History 5	Date, time, error code		
6810	**S**	History 6	Date, time, error code		
6812	**S**	History 7	Date, time, error code		
6814	**S**	History 8	Date, time, error code		
6816	**S**	History 9	Date, time, error code		
6818	**S**	History 10	Date, time, error code		
Maintenance/Special operation					
7070	**S**	Time interval for the maintenance of the heat pump	--, 1... 240	1 month	**--**
7071	**S**	Operating time of the heat pump since last maintenance. Reset? no, yes	0... 240	1 month	**0**
7072	**S**	Max. number of start up operations of the compressor authorised per hour of operation.	--, 0.1... 12	0.1	**--**
7073	**S**	Mean number of starts of the compressor per hour of operation, over the last 6 weeks. Reset? no, yes	0... 12		**0**
7076	**S**	Diff condens max/week	--, 1... 250	1	**--**
7077	**S**	Current maximum difference condens / week. Reset? no, yes	0... 250		**0**
7078	**S**	Diff condens min/week	--, 1... 250	1	**---**
7079	**S**	Current minimum difference condens / week. Reset? no, yes	0... 250		**0**
7090	**S**	DHW tank period	--, 1... 240	1 month	**---**
7091	**S**	DHW tank since maintenance. Reset? no, yes	0... 240		**0**
7141	**U**	Emergency operation	Stop, Start		**Stop**
		Stop: The heat pump does not use the boiler when there is a fault (error 370). Start: The heat pump uses the boiler when there is a fault (error 370). In the "Start" position the energy bill may be high if the error is not resolved.			
7142	**S**	Emergency operating function type	Manual, Automatic		**Manual**
		Manual: The emergency operation is not activated when there is a fault (emergency operation = Stop). Start: The emergency operation is activated automatically when there is a fault (emergency operation = start). In the "Automatic" position, the energy bill may be high if the error is not detected and resolved.			
7150	**I**	Simulation of outdoor temperature	---, -50... 50 °C	0.5	**--**
7181	**I**	Manager's telephone 1	0... 255		
7183	**I**	Manager's telephone 2	0... 255		

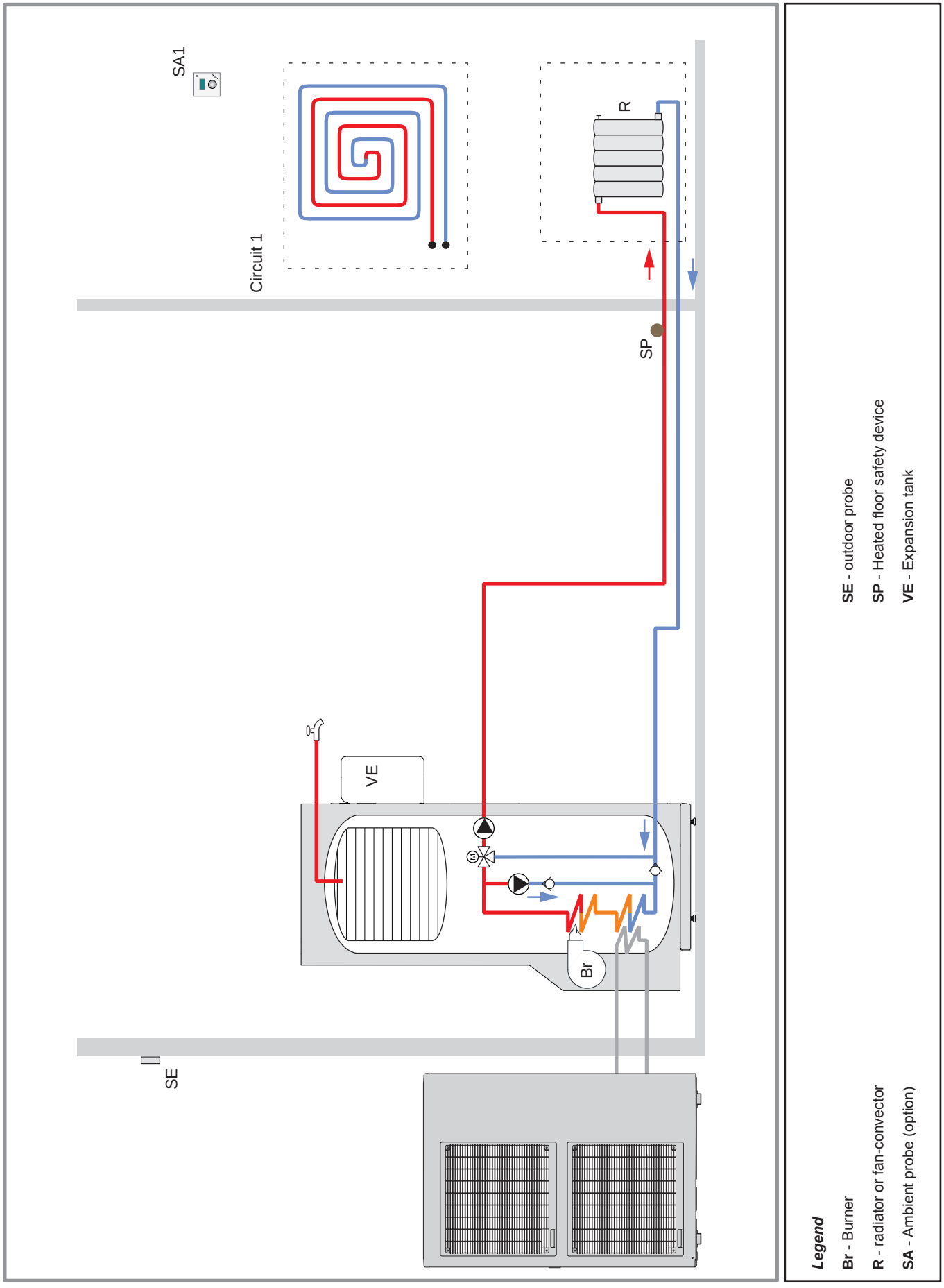
Line		Function	Setting range or display	Setting increment	Basic setting
Test of inputs/outputs					
7700	I	Relay test			**No test**
		This test consists of commanding the regulator relays one by one and checking the outputs. This permits a check that the relays are operating and that the wiring is correct (for this, check that each appliance is operating on the installation). **(0) No test**, **(1) Everything is STOPPED** , **(2) Relay output QX23 module 1:** Pool circulator , **(3) Relay output QX21 module 1:** not used, **(4) Relay output QX22 module 1:** not used, **(5) Relay output QX1:** opening valve for circuit 1 mixer, **(6) Relay output QX2:** Closure of circuit 1 mixing valve, **(7) Relay output QX3:** Circuit 1 heating Circulator , **(8) Relay output QX4:** SHW Circulator , **(9) Relay output QX5:** not used, **(10) Relay output QX6:** Starting of burner, **(11) Relay output QX23 module 2:** Circuit 2 heating Circulator or pool Circulator , **(12) Relay output QX21 module 2:** Opening valve for circuit 2 mixer, **(13) Relay output QX22 module 2:** Closure of circuit 2 mixing valve, **(14) Relay output QX7:** Not used.			
		The display shows the "key" symbol. By pressing the Info button, "error 368" is displayed. **Warning! During the test, the component tested is electrically powered.**			
7710	I	Test on output Ux	--, 0... 100%	1	**--**
7711	I	Voltage value Ux	0... 10 Volt		**0**
7720	I	Digital outputs test	0 = No test 1 = Everything is stopped 2 = Digital output DO1 3 = Digital output DO2		**No test**
7721	I	Digital output DO1	Cooling level, Heating level		**Heating operation**
7722	I	Digital output DO2	Stop, Start		**Stop**
7730	I	Outdoor temperature (B9)	-50... 50 °C		**0**
7820	I	Temperature sensor BX1	-28... 350 °C		**0**
7823	I	Temperature sensor BX4	-28... 350 °C		**0**
7824	I	Temperature sensor BX5	-28... 350 °C		**0**
7830	I	Temperature sensor BX21 module 1	-28... 350 °C		**0**
7831	I	Temperature sensor BX22 module 1	-28... 350 °C		**0**
7832	I	Temperature sensor BX21 module 2	-28... 350 °C		**0**
7833	I	Temperature sensor BX22 module 2	-28... 350 °C		**0**
7841	I	H1 contact state	Open, Closed		**Open**
7846	I	H2 contact state	Open, Closed		**Open**
7855	I	H3 contact state	Open, Closed		**Open**
7914	I	Input Ex4	0, 230 V		**0**
7915	I	Input Ex5	0, 230 V		**0**
7916	I	Input Ex6	0, 230 V		**0**
State					
8000	I	State of heating circuit 1			**0**
8001	I	State of heating circuit 2			**0**
8003	I	State of circuit SHW			**0**
8004	I	State of cooling circuit 1			**0**
8006	I	State of heat pump			**0**
8011	I	State of pool circuit			**0**
8022	I	State of additional generator			**0**
8050	I	History 1	Date, time, state code		
8052	I	History 2	Date, time, state code		
8054	I	History 3	Date, time, state code		

Line		Function	Setting range or display	Setting increment	Basic setting
8056	I	History 4	Date, time, state code		
8058	I	History 5	Date, time, state code		
8060	I	History 6	Date, time, state code		
8062	I	History 7	Date, time, state code		
8064	I	History 8	Date, time, state code		
8066	I	History 9	Date, time, state code		
8068	I	History 10	Date, time, state code		
Diagnosis of generator					
8402	I	electrical resistor 1 start	Stop, Start		**Stop**
8403	I	electrical resistor 2 start	Stop, Start		**Stop**
8406	I	Condenser pump	Stop, Start		**Stop**
8410	U	Heat pump return temperature	0... 140 °C		
		Heat pump ref. value (return)			
8412	U	Heat pump start temperature	0... 140 °C		
		Heat pump ref. value (start)			
8413	U	Compressor modulation	0... 100%		
8425	I	140°C	-50... 140 °C		
8454	S	Duration of heat pump locking Reset? no, yes	0... 2730 h		
8455	S	Heat pump counter locking Reset? no, yes	0... 65535		
8456	S	Hours of operation of electrical start Reset? no, yes	0... 2730 h		
8457	S	Counter for n° of electrical starts Reset? no, yes	0... 65535		
Consumer diagnostis					
8700	U	Outdoor temperature	-50... 50 °C		
8701	U	Minimum outdoor temperature Reset? no, yes	-50... 50 °C		
8702	U	Maximum outdoor temperature Reset? no, yes	-50... 50 °C		
8703	I	Attenuated outdoor temperature Reset? no, yes	-50... 50 °C		
		This is the mean outdoor temperature over a period of 24 h. This value can be used for the automatic switching between summer/winter (line 730).			
8704	I	Outside temp composite	-50... 50 °C		
		The mixed outdoor temperature is a combination of the "current outdoor temperature" and the "mean outdoor temperature" calculated by the regulator. This value is used to calculate the start temperature.			
8730	I	Heating circuit pump HC1	Stop, Start		**Stop**
8731	I	Mixer valve CC1 open	Stop, Start		**Stop**
8732	I	Mixer valve CC1 closed	Stop, Start		**Stop**
8740	U	Room temperature 1	0... 50 °C		**20 °C**
		Ambient temperature reference value 1			**20 °C**
8743	U	Start temperature 1	0... 140 °C		**50 °C**

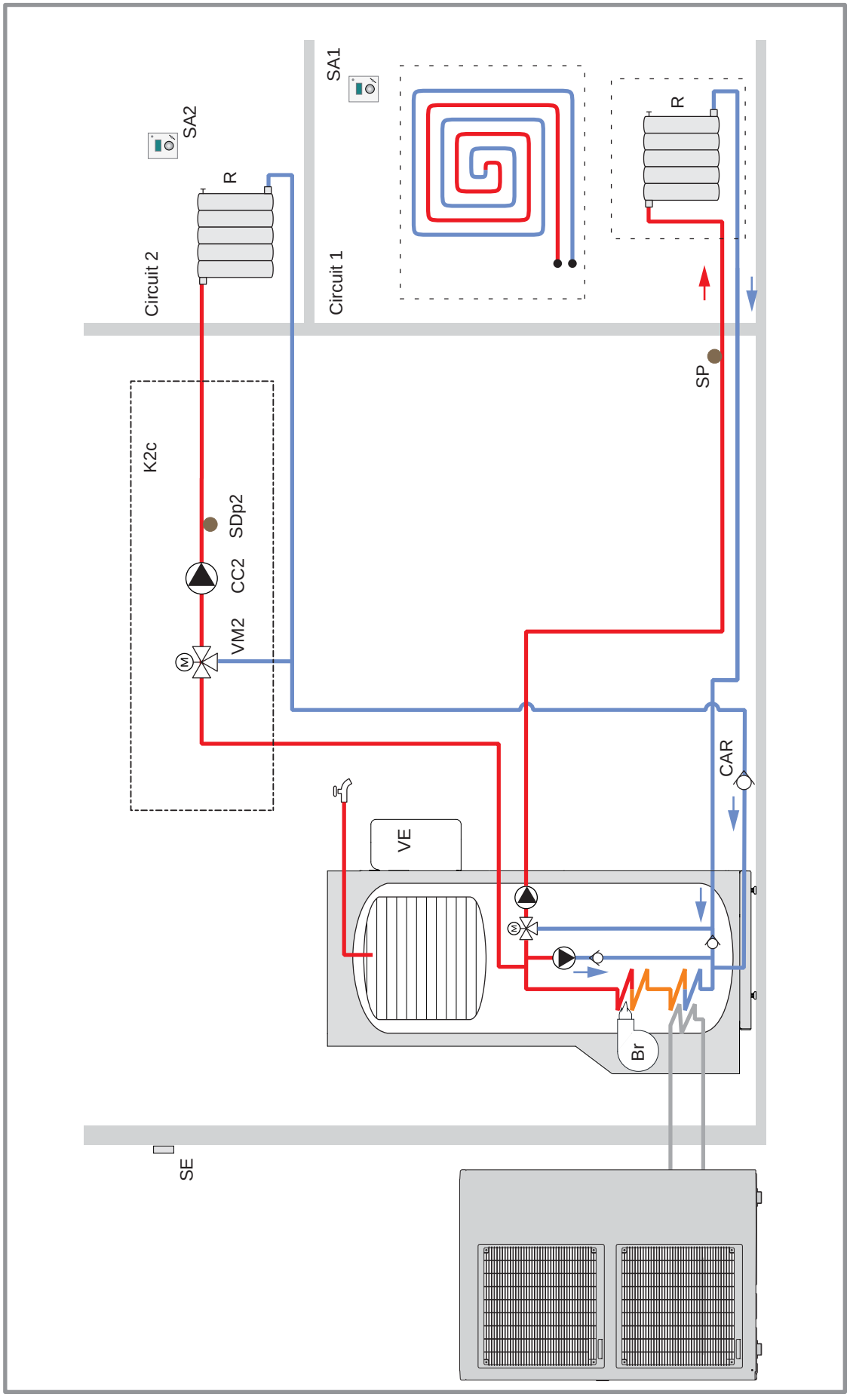
Line		Function	Setting range or display	Setting increment	Basic setting
		Start temperature ref. value 1			**50 °C**
8756	**U**	Cooling start temperature 1	0... 140 °C		**0**
		Initial cooling temperature reference value 1			**0**
8760	**I**	Pump CC2	Stop, Start		**Stop**
8761	**I**	Mixer valve CC2 open	Stop, Start		**Stop**
8762	**I**	Mixer valve CC2 open	Stop, Start		**Stop**
8770	**U**	Room temperature 2	0... 50 °C		**20 °C**
		Ambient temperature reference value 2			**20 °C**
8773	**U**	Start temperature 2	0... 140 °C		**50 °C**
		Start temperature ref. value 2			**50 °C**
8820	**I**	DHW pump	Stop, Start		**Stop**
8821	**I**	Electrical resistor SHW K6	Stop, Start		**Stop**
8830	**U**	DHW temperature	0... 140 °C		
		DHW temperature value			**50 °C**
8840	**S**	Hours of operation of DHW pump	0... 2730 h		
8841	**S**	Counter for DHW pump starts	0... 2730 h		
8842	**S**	Hours of operation of DHW electrical system	0... 2730 h		
8843	**S**	Counter for DHW electrical system starts	0... 65535		
8900	**U**	Swimming pool temperature	0... 140 °C		
		Swimming pool temperature value			**22 °C**
8950	**I**	Common start temperature	0... 140 °C		
		Common start temperature value			**0**
8957	**I**	Common start value, Refrigeration	0... 140 °C		
9031	**I**	Relay output QX1	Stop, Start		**Stop**
9032	**I**	Relay output QX2	Stop, Start		**Stop**
9033	**I**	Relay output QX3	Stop, Start		**Stop**
9034	**I**	Relay output QX4	Stop, Start		**Stop**
9035	**I**	Relay output QX5	Stop, Start		**Stop**
9036	**I**	Relay output QX6	Stop, Start		**Stop**
9037	**I**	Relay output QX7	Stop, Start		**Stop**
9050	**I**	Relay output QX21 module 1	Stop, Start		**Stop**
9051	**I**	Relay output QX22 module 1	Stop, Start		**Stop**
9052	**I**	Relay output QX23 module 1	Stop, Start		**Stop**
9053	**I**	Relay output QX21 module 2	Stop, Start		**Stop**
9054	**I**	Relay output QX22 module 2	Stop, Start		**Stop**
9055	**I**	Relay output QX23 module 2	Stop, Start		**Stop**

4 Overall view of the electrical connections

• Configuration 13: 1 heating circuit.



• Configuration 14: 2 heating circuits.



5 Electrical wiring diagrams

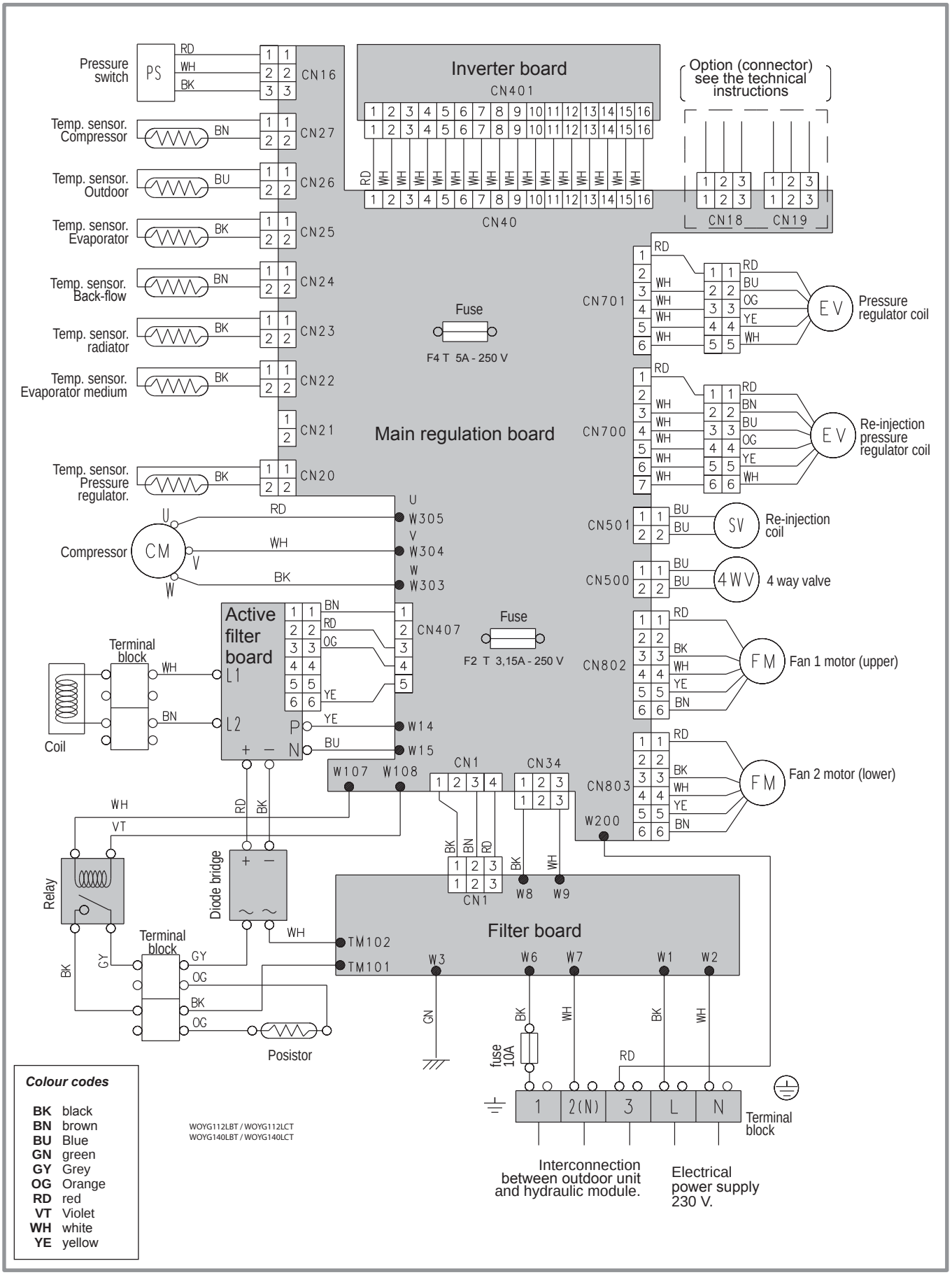


figure 49 - Electrical wiring of outdoor unit (single phase model)

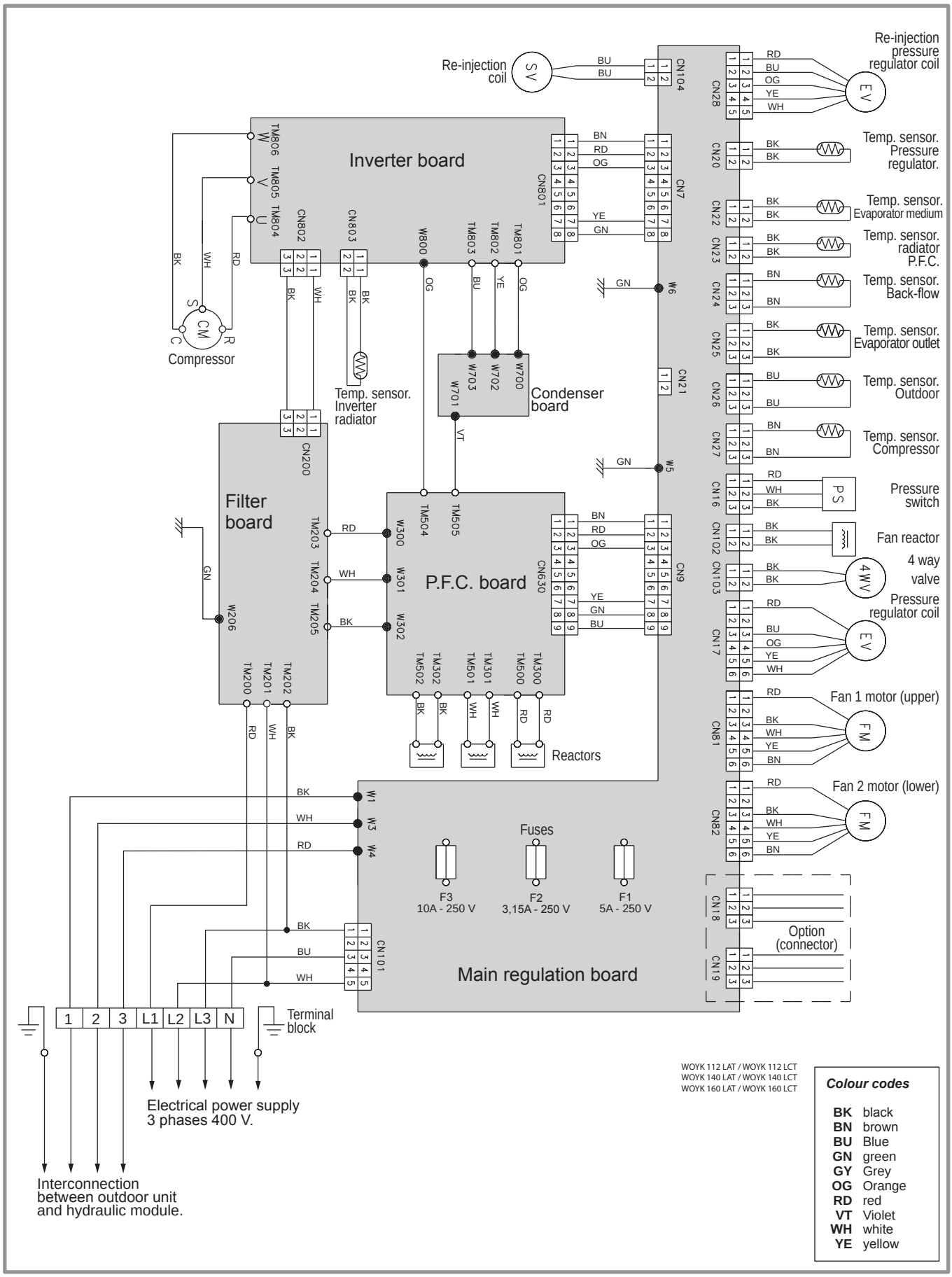


figure 50 - Electrical wiring of outdoor unit (3 phase model)

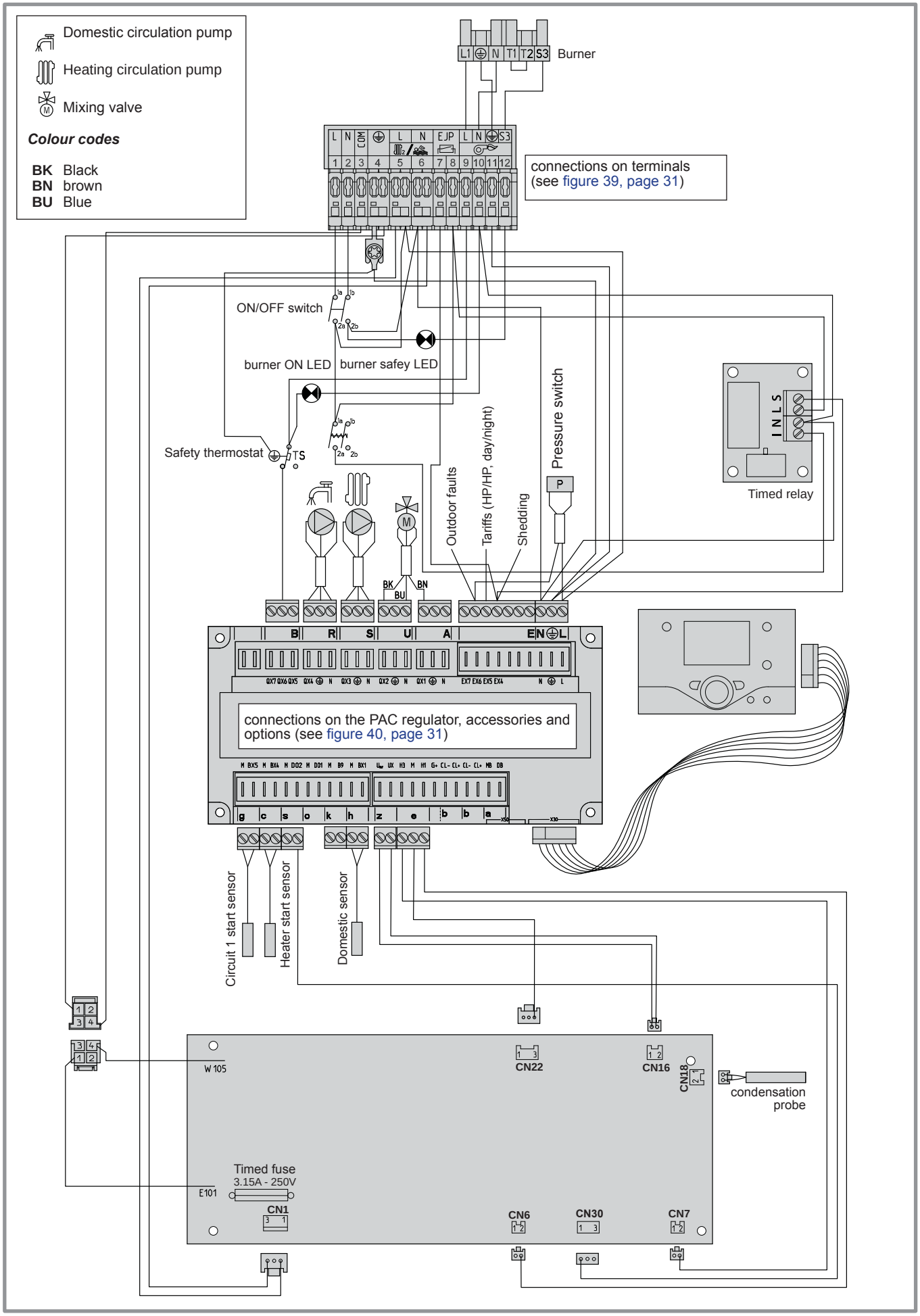


figure 51 - Hydraulic module electrical wiring (excluding installation connections)

6 Breakdown diagnosis and information

Depending on whether the fault is from the outdoor unit or the Hydraulic module, the fault may be signalled by the digital display or the diode on the interface boards.

6.1 Faults displayed on the Hydraulic module

The faults or breakdowns of the hydraulic module are advised on the display unit of the user interface.

the display shows the symbol .

Press the button to obtain details on the origin of the fault.

When the error is resolved, the faults are cleared automatically.

Hydraulic module: Visible faults on the digital display.

Error number	*Error contents*	*Error location*	*PAC operation in spite of error*
-	No connection.	The polarity of the ambient sensor has not been respected.	No
10	Outdoor sensor.	B9	Yes
33	Heat pump start sensor temperature error.	B21	Yes
44	Heat pump start sensor temperature error.	B71	Yes
50	DHW temperature sensor.	B3	Yes
60	Ambient sensor 1.		Yes
65	Ambient sensor 2.		Yes
105	Maintenance message.		Yes
121	Heating circuit 1 start temperature not reached.		Yes
122	Heating circuit 1 start temperature not reached.		Yes
127	Anti-legionella temperature not reached.		Yes
369	Hydraulic pressure fault.		No
370	outdoor unit error (in a start up phase, see § "Commissioning").	see below.	No

Hydraulic module: Visible flashing of the diode on the interface board.

Error text		*Error contents*
LED 2 (green)	*LED 1 (red)*	
1 Flash	1 Flash	communication error between the Hydraulic module and the outdoor unit.
4 Flashes	1 Flash	connection error between the Hydraulic module and the outdoor unit.
4 Flashes	2 Flashes	Hydraulic unit heat-exchange thermistor Error.
6 Flashes	3 Flashes	Inverter error.
6 Flashes	4 Flashes	active filter error / P.F.C. error
7 Flashes	1 Flash	Discharge thermistor error.
7 Flashes	2 Flashes	Compressor thermistor error.
7 Flashes	3 Flashes	Heat-exchange thermistor (outlet / intermediate) error.
7 Flashes	4 Flashes	Outdoor thermistor error.
7 Flashes	7 Flashes	radiator temperature probe error (inverter / P.F.C).
7 Flashes	8 Flashes	Expansion valve thermistor error.
8 Flashes	4 Flashes	Current sensor error.
8 Flashes	6 Flashes	Pressure switch probe error . / pressure sensor. error
9 Flashes	4 Flashes	Current sensor error.
9 Flashes	5 Flashes	Detection ofthe position error of te compressor rotor. Error on compressor start up.
9 Flashes	7 Flashes	Outdoor unit fan motor error.
10 Flashes	1 Flashes	Discharge temperature protection.
10 Flashes	3 Flashes	Compressor temperature protection.
10 Flashes	5 Flashes	Low pressure abnormal.
continually flashing (1 sec lit /1 sec extinguished).		Pump down operation.
Permanently lit.	Stop	Defrosting.

6.2 Faults displayed on the single phase outdoor unit

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

When an error occurs:

The diode "**ERROR**" (2) flashes

Press the "**ENTER**" button once (SW3).

The "**ERROR**" diode (2) flashes several times according to the type of error (see table below).

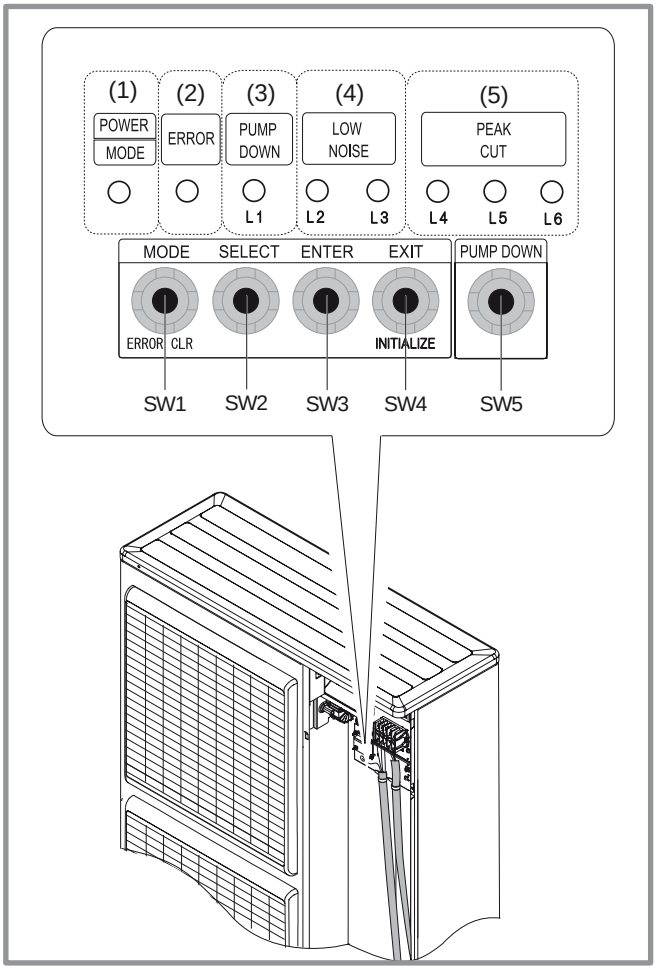


figure 52 - Positions of the switches and diodes of the single phase outdoor unit

Diode display	*Error contents*
1 Flash	Serial communication feedback error.
2 Flashes	Discharge thermistor error.
3 Flashes	Pressure switch probe error .
4 Flashes	Error on exchanger temperature sensor.
5 Flashes	Error on exchanger temperature sensor.
6 Flashes	Expansion valve thermistor error.
7 Flashes	Outdoor thermistor error.
8 Flashes	Compressor thermistor error.
9 Flashes	Radiator temperature probe error.
11 Flashes	Discharge thermistor protection (permanent stop).
12 Flashes	Discharge thermistor protection (permanent stop).
13 Flashes	Current sensor error (permanent stop).
14 Flashes	Detection error for the position of the compressor rotor (permanent stop).
15 Flashes	Compressor start error (permanent stop).
16 Flashes	Error on fan 1 motor (permanent stop).
17 Flashes	Error on fan 2 motor (permanent stop).
18 Flashes	Inverter error.
19 Flashes	Active filter error
20 Flashes	Low pressure abnormal.
21 Flashes	Connection error with the hydraulic module.
22 Flashes	Hydraulic unit abnormality condition.

6.3 Faults displayed on the 3 phase outdoor unit

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

When an error occurs:

The diode "**ERROR**" (2) flashes

Press the "**ENTER**" button once (SW4).

The "**ERROR**" diode (2) flashes several times according to the type of error (see table below).

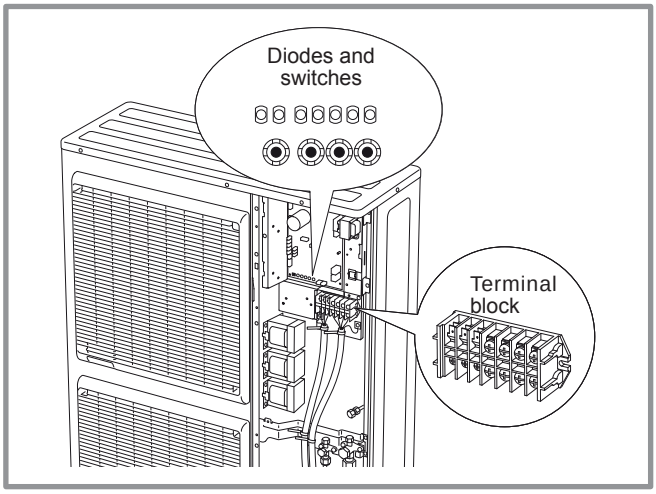


figure 53 - Positions of the switches and diodes of the outdoor unit.

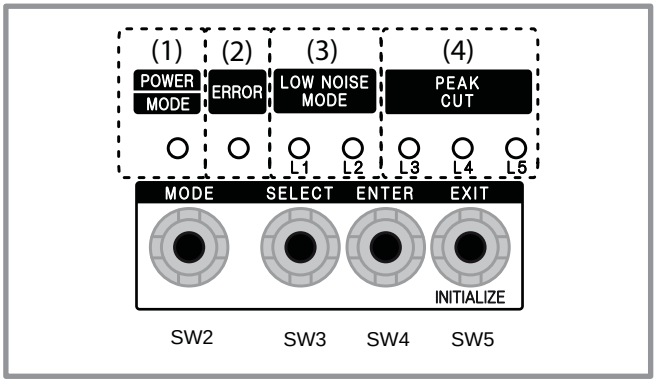


figure 54 - LED display on the outdoor unit

Diode display	*Error contents*
1 Flash	Serial communication feedback error.
2 Flashes	Discharge thermistor error.
3 Flashes	Pressure switch probe error .
4 Flashes	Error on exchanger temperature sensor.
5 Flashes	Error on exchanger temperature sensor.
6 Flashes	Expansion valve thermistor error.
7 Flashes	Outdoor thermistor error.
8 Flashes	Compressor thermistor error.
9 Flashes	Invertor radiator temperature probe error
10 Flashes	Error on radiator temperature sensor P.F.C.
11 Flashes	Discharge thermistor protection (permanent stop).
12 Flashes	Discharge thermistor protection (permanent stop).
13 Flashes	Current sensor error (permanent stop).
14 Flashes	Detection error for the position of the compressor rotor (permanent stop).
15 Flashes	Compressor start error (permanent stop).
16 Flashes	Error on fan 1 motor (permanent stop).
17 Flashes	Error on fan 2 motor (permanent stop).
18 Flashes	Inverter error.
19 Flashes	PFC error.
20 Flashes	Low pressure abnormal.
21 Flashes	Connection error with the hydraulic module.
22 Flashes	Hydraulic unit abnormality condition.

6.4 Display information

The Info button calls up various information.

Depending on the appliance type, the configuration and the state of operation, certain information lines may not be available.

- Possible error messages from the list of error codes. (see table, page 57).
- Maintenance messages possible in the maintenance code list.
- Special operation messages.
- Miscellaneous information (see below).

Designation	*Line*
Current drying value.	-
Current drying day.	-
Drying days completed.	-
State of heat pump	8006
State of additional generator	8022
DHW state.	8003
State of swimming pool.	8011
State of heating circuit 1.	8000
State of heating circuit 2.	8001
State of cooling circuit 1.	8004
Outdoor temperature.	8700
Ambient temperature 1.	8740
Ambient value 1.	
Start temperature 1.	8743
Initial ref. value 1.	
Ambient temperature 2.	8770
Ambient value 2.	
Start temperature 2.	8773
Initial ref. value 2.	
DHW temperature.	8830
Heat pump return temperature.	8410
PAC ref. value (initial).	
Heat pump start temperature.	8412
Heat pump ref. value (start)	
Heat pump ref. value (start)	8900
Swimming pool temperature	

7 Servicing of the installation

Before carrying out any work, ensure that the general electrical power supply and the fuel supply valve are switched off.

7.1 Checking the hydraulic circuit

☞ **Warning:If frequent refills are required it is essential that you look for any leaks.**
If filling and re-pressurization are required, check what type of fluid has been used initially.

Recommended filling pressure: between 1 and 2 bar (the precise filling pressure is determined according to the manometric height of the installation).

Every year,

- Check the pressure of the expansion tank (pre-inflate to 1 bar) and the correct operation of the safety valve.
- Check the safety unit on the sanitary cold water inlet. Make it work as prescribed by the manufacturer.
- Check the circuit breaker.

7.2 Servicing the tank

The tank must be serviced once a year (the frequency may vary depending on the hardness of the water)

- Reduce the pressure in the primary circuit (P < 0.5 bar).
- Drain the tank by turning the security group valve
- Remove the inspection hatch.
- Remove any scale deposits that may have accumulated in the tank. It is preferable to leave any limescale fixed to the walls of the tank: it forms a protective layer.
- Gently remove any limescale deposit on the thermowell. Do not use any metal objects or chemical or abrasive products.
- Replace the hatch gasket at each disassembly of the hatch.
- Reinstall the inspection hatch and tighten the bolts "crossover".

☞ **Don't forget to put the sensor into the sanitary thermowell.**

7.3 Checking the outdoor unit

- Dust off the heat exchanger if necessary, being careful not to damage the fins.
- Straighten the vanes using a comb.
- Check that there is nothing obstructing the passage of air.
- Check the fan.
- Verify that condensate drain is not obstructed.

• Checking the refrigerating circuit:

- When the volume of refrigerating fluid is over 2 kg, the refrigerating circuit must be checked every year by a company that complies with the legal requirements in force (cf. § 2.1, page 13)
- Check that there are no leaks (connectors, valves...).

7.4 Checking the electrical circuit

- Check connections and possible tightening.
- Checking the condition of the cables and plates.

7.5 Servicing of the heat exchanger

The boiler must be serviced regularly to maintain high its output.

Depending on the operating conditions, the servicing operation is to be carried out once or twice a year.

- Switch off the electrical power supply to the appliance.
- Open the firebox door.
- Remove the turbulators and clean them.
- Clean the exchanger using a scraper and a nylon swab Ø 50 mm.
- Remove residues of cleaning by the soot hatch.
- Don't use abrasive material or metal brush on the ceramic door protection
- Refit all of the parts correctly.
- Close the soot hatch and the firebox door, check for leaks

☞ **Lightly tighten the screws of the closing door**

7.6 Servicing the burner

The burner must be serviced regularly (cell, jet, combustion head, electrode, pump filter) by a specialist once or twice a year depending on the conditions of use.

These servicing operations are detailed in the technical instructions of the burner.

Before carrying out any work, ensure that the general electrical power supply and the fuel supply valve are switched off.

After refitting, check the operation of the burner to ensure that the setting has not been modified and that they suit the desired power level if the boiler.

- The "sweeping" (figure 56) push button authorises the burner operation for one hour.
- Create a heating demand to start the burner.

7.6.1 Servicing the chimney

The chimney must be checked and cleaned and by a specialist at least once a year.

7.6.2 Servicing the safety appliances

Every year, check that the expansion system is operating correctly. Check the pressure of the expansion tank and the calibration of the safety valve.

Check the safety unit on the domestic cold water inlet.

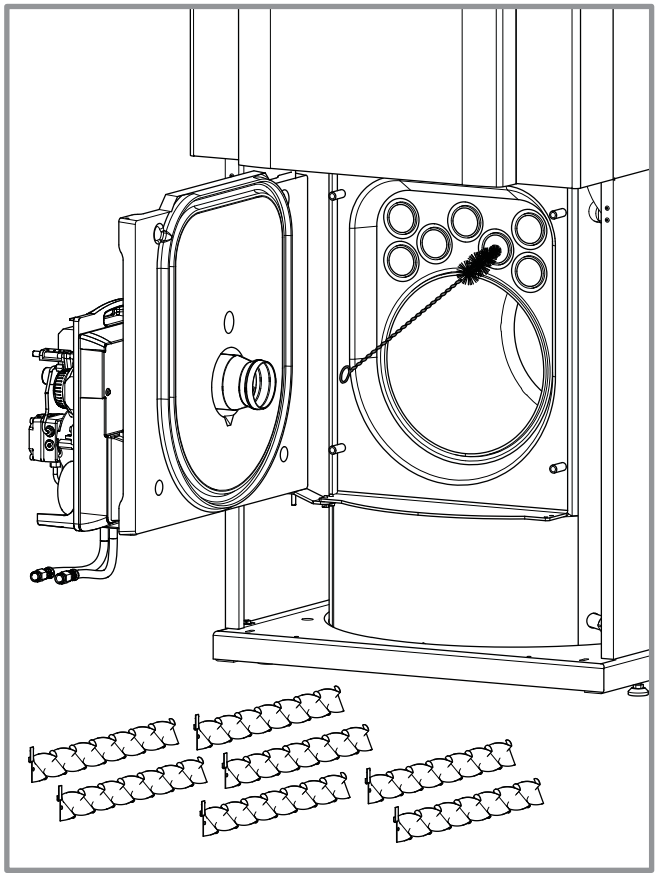


figure 55 - Access to the flue exchanger

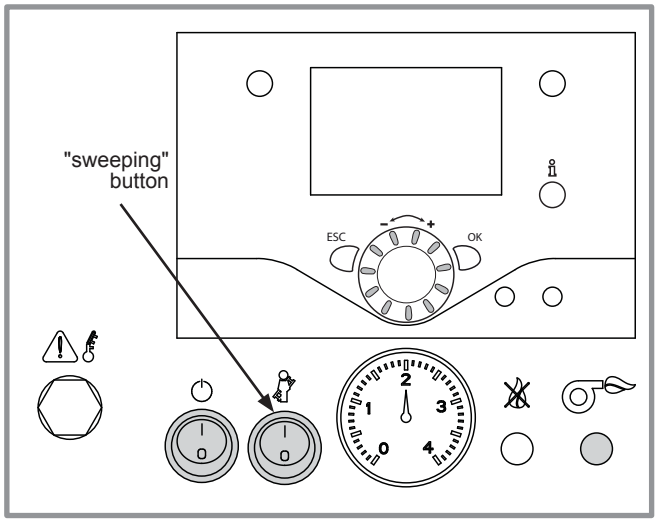


figure 56 - Sweeping function

8 Start-up procedure

Before switching on the hydraulic unit:

- Check the electrical wiring.
- Check the gas supply to the refrigerating circuit.
- Check the pressure in the hydraulic circuit (1 to 2 bars), check that the PAC is drained, as well as the rest of the installation.
- Ensure that all of the DIP SW on the interface board are in the OFF position before starting.

8.1 Start-up check-list

8.1.1 Before starting-up

• Sight checks

outdoor unit (see chapter "Installation de the outdoor unit" § 2.5, page 14).	OK	Non conforming	
Location and fittings, condensate evacuation.			
Compliance with distances from obstacles.			

• Hydraulic checks

Hydraulic module (see chapter "Installation of Hydraulic module" § 2.6, page 16).	OK	Non conforming	Value
connections of the pipes, valves and pumps (heating circuit, SHW).			
Installation water volume (expansion vessel of adequate capacity ?).			
No leaks.			
Primary system and degassing pressure.			

• Refrigeration connections and checks

(see chapters "refrigerating connections" and "Connecting gas supply to the installation" § 2.7, page 18 and § 2.8).	OK	Non conforming	
Checking the refrigerating circuits (sealing respected, no dust or humidity)			
Connections between units (pipe length, flare tightening torque...).			
Installation of HP pressure gauges on gas line (large tube).			
Pump down required.			
Nitrogen leak test (~ 10 bar).			
Opening of refrigeration valves to outdoor unit.			
Refrigerant filling of hydraulic unit and pipes.			

• Electrical checks

outdoor unit (see chapter "electrical connections" § 2.11, page 26).	OK	Non conforming	Value
Mains power supply (230v ou 400v).			
Protection by rated circuit breaker.			
Cross section of cable.			
Earth connection .			

Hydraulic module (see chapter "electrical connections on Hydraulic module side" § 2.11.7, page 30).	OK	Non conforming	
connection with the outdoor unit (L, N, Eartch or 3 L + Earth).			
Sensors connection (positioning and connections).			
connection of directional valves (measure and SHW) and circulator.			
Supply and protection of the electrical power option).			

8.1.2 Starting-up

• Switching On

(see "Commissioning" chapter § 2.14, page 34 and § Page40).	OK	Non conforming	
Engage the main circuit breaker of the installation (outdoor unit power supply) 2 hours before carrying out the tests => Pre-heat the compressor.			
Engage the ON/OFF switch => Initialisation within a few seconds.			
Operation of the heating circulation pump			
The outdoor unit starts after 4 min.			
Set the hour, Date and timer Programmes CC, SHW, if different from the default values.			
Configure the hydraulic circuit (parameter 5700).			
Set the heating curve (720 and 1020).			
Adjust the max. initial ref. value (741 and 1041).			

• Outdoor unit checks

	OK	Non conforming	Value
Operation of fan(s), compressor			
Current measurement.			
After a few minutes, measurement of air temp. delta.			
Check the pressure / temperature of condensation and evaporation.			

• Hydraulic unit checks

	OK	Non conforming	Value
After 15 mins of operation.			
Primary water temp. delta.			
Priority to SHW (switch of directional valve).			
Heating in operation, boiler measurement...			

• Room control

(see chapter "Configuration de the Ambient probe" § 2.16, page 35).	OK	Non conforming	
Set parameters, handling, checks.			
Set the timer programme of the heating periods (500 to 516 / 520 to 536)			
Set the reference values of the heating circuits if different from the default values (710 - 714 ; 1010-1014).			
Set the reference values SHW (1610-1612), if different from the default values .			
Setpoint display.			
Explanations on use.			

The heat pump is ready for operation !

8.2 Settings sheet

Parameter	Designation	Set	Menus
Preliminary settings			
20	language		*inter. user*
1	hours / minutes		*time and date*
2	day / month		*time and date*
3	year		*time and date*
5700	installation config.		*configuration*
Heating circuit N° 1 if 2 circuits = the colder one (ex: floor)			
710	comfort ref. value		*CC1 setting*
712	reduced ref. value		*CC1 setting*
720	water slope law		*CC1 setting*
741	max. initial ref. value		*CC1 setting*
750	ambient influence		*CC1 setting*
790 / 791	optimis. triggering / triggering.	/	*CC1 setting*
834	servo-motor travel time		*CC1 setting*
850 / 851	Drying floor	/	*CC1 setting*
Heating circuit N° 2 (with 2 circuits option) = the hotter one (eg.: radiators)			
1010	comfort ref. value		*CC2 setting*
1012	reduced ref. value		*CC2 setting*
1020	water slope law		*CC2 setting*
1041	max. initial ref. value		*CC2 setting*
1050	ambient influence		*CC2 setting*
1090 / 1091	optimis. triggering / triggering.	/	*CC2 setting*
1134	servo-motor travel time		*CC2 setting*
1150 / 1151	Drying floor	/	*CC2 setting*
Domestic hot water			
1610	T° reference value of comfort SHW		*DHW*
1612	T° reference value of reduced SHW		*DHW*
1620	liberation SHW		*DHW*
1640 to 1642	Anti-legionella cycle		*DHW*
5024	circ. brkr engaged. DHW		*SHW tank*
5030	limitation of load		*SHW tank*
5061	liber.elec. resistor.		*SHW tank*

Parameter	Designation	Set	Menus
Boiler measurement (if boiler measure. kit)			
3700	Outdoor T° to author. operation		*addit. gener.*
3705	time stopped		*addit. gener.*
Miscellaneous			
6420	Operation input H33	1	*configuration*
6100	correct. outdoor T° probe		*configuration*
6120	stop/start frost protection		*configuration*
6205	reinitiali. paramet.		*configuration*
6220	Software version		*configuration*
6711	reset PAC		*error*
Refresh (if refresh kit fitted)			
5711	cooling unit	Stop	*configuration*
Faults (if fault appears, press "Info" button)			
N° 10	outdoor sensor		
N° 33	flow temp.Sensor		
N° 44	return temp.Sensor		
N° 50	SHW T° probe		
N° 60	Ambient probe 1		
N° 65	Ambient probe 2		
N° 105	maintenance message		
N° 121	Init. T° CC1 not reached		
N° 122	Init. T° CC2 not reached		
N° 127	Anti-legio.T° not reached		
N° 369	External fault (EX3)		
N° 370	outdoor unit connection error		
6711	reset PAC		*error*
Heat pump			
2844	Max. thermodynamic oper. T°		*heat pump*
2884	OT auth. to start elec. aux.		*heat pump*
2920	EJP (EX1) liber. / locked		*heat pump*
Pool (with pool kit option)			
2056	generator reference value		*pool*
Outdoor unit faults (see § 6.2, page 58)			

8.3 Start-up data sheet

Site		**Installer**	

Outdoor unit	Serial N°		**Hydraulic module**	Serial N°	
	model			model	

Refrigerant type			Refrigerant charge	Kg

Checks				**Operating voltage & current on outdoor unit**			
Compliance with positioning distances				L/N or L1/N	V		
Correct evacuation of condensates				L2/N	V		
Electric connections / connections tightnees				L3/N	V		
Absence of GAS leaks (appliance identification n°:)				L/T or L1/T	V		
Correct installation of refrigerating connection (length m)				L2/T	V		
Reading in HEATING operating mode				L3/T	V		
Compressor discharge temperature		°C		N/T	V		
Liquid line temperature		°C		Icomp	A		
Condensation temperature	HP = bar	°C	}	sub-cooling		°C	
Tank water output temperature		°C	}	ΔT° condensation		°C	
Tank water input temperature		°C	}	Δ secondary T°		°C	
Evaporation temperature	LP = bar	°C					
Suction temperature		°C	}	Overheating		°C	
Battery air input temperature		°C	}	Δevaporation T°		°C	
Battery air output temperature		°C	}	ΔT° battery		°C	

Hydraulic system of hydraulic unit						
Secondary system	Floor heating system		}	Circulator brand	Type	
	LV radiators					
	Fan-convectors					
Domestic hot water ; tank type						
Estimated water volume of secondary system		L				

Options & accessoires:					
Location of room sensor correct			Ambient sensor T55		
2 circuits kit			ambient probe T58		
Swimming pool kit			Central ambient unit T75		
			Central ambient unit T78		
			Details		
Control settings					
Configuration type					
Essential parameters					

9 Values to be given to the user

- Advise the user in the choice of the most suitable electricity contract to benefit fully from the advantages offered by the hybrid heat pump: thermodynamics, the "Off peak rate tariff" days and the boiler on "Peak rate" days.

- Explain to the user how his installation operates, in particular the functions of the room thermostat and the programs accessible to him from the user interface.

- Emphasize that under-floor heating has considerable inertia and that consequently the settings need to be progressive.

- Also explain to the user how to check the heating circuit is filled.

CE

Complies with:
- Low voltage directive 2006/95/EC, under standard EN 60335-1.
- Electromagnetic compatibility Diretive 2004/108/EC,
- Directive 2006/42/EC Machinery,
- Directive for pressurised equipment 97/23/EC.

This appliance also conforms to:
- Regulation 842/2006 of the european parliament on certain fluorinated greenhouse gases.
- The standards relating to the product and the testing methods used: Air-conditioners, refrigeration unit s and heat pumps with compressor driven by electric motor for heating and refrigeration in 14511-1, 14511-2, 14511-3, and 14511-4.
- To standard XP ENV 12102: Air-conditioners, heat pumps and dehumidifiers with compressor driven by electric motor. Measurement of airborne noise. Determination of acoustic power level.

This appliance is marked with this symbol. This means that electrical and electronic products shall not be mixed with general household waste.
European Community countries (*), Norway, Iceland Liechtenstein should have a dedicated collection system for these products.
Do not try to dismantle the system yourself as this could have harmful effects on your health and on the environment.
The dismantling and treatment of refrigerant, oil and other parts must be done by a qualified installer in accordance with relevant local and national regulations.
This appliance must be treated at a specialized treatment facility for re-use, recycling and other forms of recovery and shall not be disposed of in the municipal waste stream.
Please contact the installer or local authority for more information.
* subject to the national law of each member state

Date of installation :

Contact your heating technician or your after-sales service.

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