USER'S MANUAL

IMMERGAS

Instruction and recommendation booklet **IE**

AUDAX TOP

6 - 8 - 12 - 16 ErP

1.038897ENG

Dear Customer,

Our compliments for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a qualified after-sales service, prepared and updated to guarantee constant efficiency of your heat pump. Read the following pages carefully: you will be able to draw useful suggestions regarding the correct use of the appliance, the respect of which, will confirm your satisfaction for the Immergas product.

For assistance and scheduled maintenance contact Authorised Immergas After-Sales centres: they have original spare parts and are specifically trained directly by the manufacturer.

General recommendations

All Immergas products are protected with suitable transport packaging.

The material must be stored in dry environments protected against bad weather.

The instruction book is an integral and essential part of the product and must be consigned to the new user also in the case of transfer or succession of ownership.

It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.

This instruction manual provides technical information for installing the Immergas pack. As for the other issues related to pack installation (e.g. safety in the work site, environment protection, injury prevention), it is necessary to comply with the provisions specified in the regulations in force and good practice rules.

In compliance with legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, intending staff with specific technical skills in the plant sector, as envisioned by the Law.

Improper installation or assembly of the Immergas appliance and/or components, accessories, kit and devices can cause unexpected problems to people, animals and objects. Read the instructions provided with the product carefully to ensure a proper installation.

Maintenance must be carried out by skilled technical staff. The Immergas Authorised After-sales Service represents a guarantee of qualifications and professionalism.

The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.

If errors occur during installation, operation and maintenance, due to non compliance with technical laws in force, standards or instructions contained in this book (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the appliance warranty is invalidated.

For further information regarding legislative and statutory provisions relative to the installation of heat pumps, consult the Immergas site at the following address: www.immergas.com

CE DECLARATION OF CONFORMITY

For the purpose and effects of the CE 2004/108 "Electromagnetic Compatibility" and CE 2006/95 Low Voltage Directives.
The Manufacturer: Immergas S.p.A. v. Cisa Ligure n° 95 42041 Brescello (RE)

DECLARES THAT: Immergas packs model:
Audax Top 6-8-12-16 ErP
complies with the same European Community Directives

Mauro Guareschi
Research & Development Director

Signature:

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1 INSTALLATION AUDAX TOP ErP.

1.1 SAFETY PROCEDURE.

- **Attention:** important safety information is reported on the product and in this Manual. Read this installation manual carefully before installing the unit. The Manual contains important information regarding proper installation.

Meaning of the instructions

- **Danger.** Indicates the danger of death or serious injury in the event of incorrect use.
- **Warning.** Indicates the danger of death or serious injury in the event of incorrect use.
- **Attenzione.** Indicates the danger of injury or damage to property, things or animals for failure to comply with the instructions.

General information

Read this manual carefully and keep it handy for future consultation.

- Before any repairs or maintenance, carefully assess potential dangers and take the necessary precautions to ensure safety of personnel.
- Do not try to restart, move or reinstall the unit without assistance from an authorised company.

Responsibility

The manufacturer declines any responsibility and declares the warranty null and void in the event of damage caused by:

- Incorrect installation, including failure to comply with the instructions in the relative manuals.
- Electrical or cooling or hydraulic connection modifications or errors.
- Use of the unit that differs from those indicated.

N.B.: all materials used to package the new appliance are ecological and recycable.

Use of the unit

- Make sure that personnel wear suitable personal protective equipment.
- Make sure that no damage was caused during transport or when handling the appliance. If necessary, immediately send any claims to the shipping company.
- Dispose of the packaging material in compliance with local regulations.
- Do not lift the unit by inserting the hooks into the side handles, but use specific equipment (lifting devices, forklifts, etc.)
- Do not stand or place objects on the external unit, which can cause injury or damage the unit.
- Do not place liquid containers or other objects on the unit.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the product by a person responsible for their safety. Children must be supervised to ensure they do not play with the appliance.

1.2 INSTALLATION RECOMMENDATIONS.

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

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

Only a professionally qualified heating/plumbing technician is authorised to install Audax Top ErP. Installation must be carried out according to the provisions of the laws in force and in compliance with local technical regulations and the required technical procedures. Before installing the device, ensure that it is delivered in perfect condition; if in doubt, contact the supplier immediately. Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children. Keep all flammable objects away from the appliance (paper, rags, plastic, polystyrene, etc.). In the event of malfunctions, faults or incorrect operation, turn the device off immediately and contact an authorised company (e.g. the Immergas Technical Assistance centre, which has specifically trained staff and original spare parts). Do not attempt to modify or repair the appliance alone. Failure to comply with the above implies personal responsibility and invalidates the warranty.

- Installation regulations:

N.B.: installation must be carried out by an authorised company.

Do not install in places that are:

- Difficult to access for installation and maintenance operations.
- Next to sources of heat.
- Where unit vibrations can increase.
- On surfaces unable to withstand the weight of the unit.
- Subject to risk of exposure to gas combustibles.
- Exposed to oil vapours.
- In special environmental conditions.

External unit

Location selection

- Select a place where noise emissions and air discharged do not bother neighbours.
- Select a position that is protected against wind.
- Select an area that complies with the minimum recommended spaces.
- Select a place that does not obstruct access to doors and corridors.
- The surface of the floor must be solid enough to withstand the weight of the unit and minimise transmission of vibrations.

N.B.: secure the unit with bolts acquired on site, bolted into the base and using the supplied vibration-dampening devices. If the unit is installed in zones subject to heavy snow, it will be necessary to raise the unit by at least 200 mm above the normal level reached by the snow, or alternatively use the suspension bracket for outdoor units.

Electrical connections

N.B.: all electrical connections carried out on site shall be the installer's responsibility.

Danger:

Electrical discharges can cause serious personal injury, or even death. Electrical connections must only be carried out by qualified technicians.

Warning:

- The appliance complies with Machinery Directive (2006/42/EC), electromagnetic compatibility (2004/108/EC) and pressurised systems (EEC/97/23).
- In order to prevent electrical discharges or accidents, make sure that electrical connections are only carried out by qualified technicians.
- Make sure the electrical system supply voltage complies with the national regulations in force with regard to safety.
- Comply with the national safety regulations in force.
- Make sure an efficient earthing line is available.
- Make sure that voltage and frequency of the electrical system correspond with those required, and that the available power installed is sufficient to operate other domestic appliances connected to the said electrical lines.
- Make sure that the line's supply voltage impedance complies with the unit's electrical absorption indicated on the unit's identification plate (EN 61000-3-12).
- Make sure that adequate isolator and safety switches are installed next to the unit.
- The mains supply voltage disconnecting devices must enable total disconnection with Category III overvoltages.

Attention:

- Connect the cable correctly in order to prevent damage to the electrical components.
- Connection to the mains supply voltage is type Y, therefore, replacement of the cable must only be carried out by technical assistance service in order to prevent any danger.
- Use specific cables for wiring and connect them well to the relative clamps.

Warning:

- Make sure there is adequate earthing; inadequate earthing can cause electrical discharges.
- Do not connect earthing cables to gas pipes, water pipes, lightening rods, or earthing cables for telephone wires.

Danger:

Do not modify the unit by removing the safety devices or bypassing safety switches.

N.B.: contact assistance service each time one of the events described below occurs:

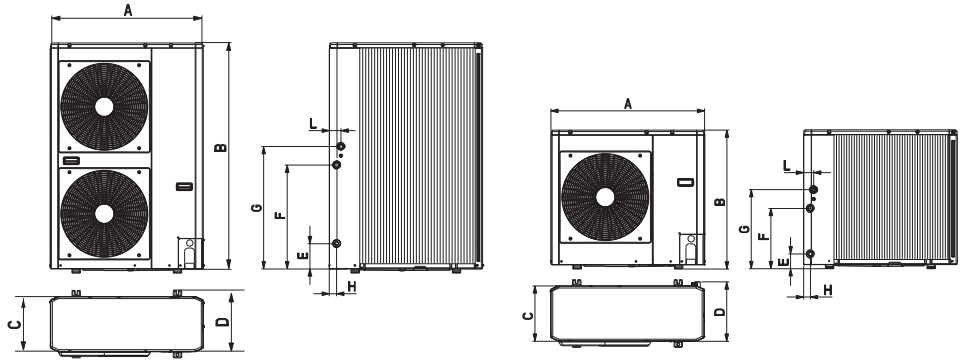
- overheated or damaged supply voltage cable;
- unusual noise during operation;
- frequent triggering of the protection devices;
- unusual smells (like burning).

1.3 DIMENSIONS AND MINIMUM SPACES.

For dimensions, refer to Fig. 1-1 and the tables shown below.

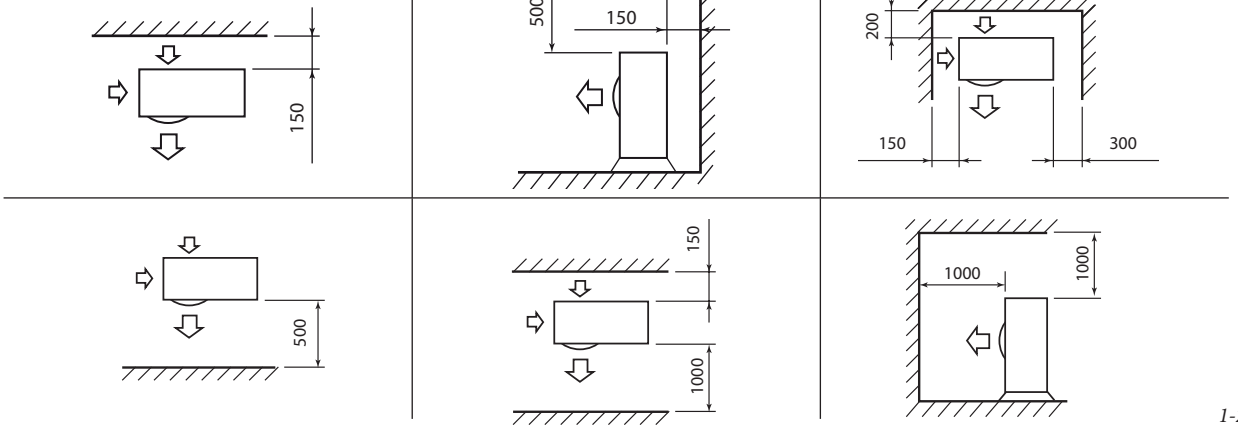
the minimum installation spaces expressed in mm are indicated in Fig. 1-2 (installation of 1 unit) and in Fig. 1-3 (installation of several units).

N.B.: the height of the obstacle on the front and rear must be below the external height of the unit.



1-1

Audax TOP ErP	A	B	C	D	E	F	G	H	L	kg
6 kW single phase	908	821	326	350	87	356	466	40	60	61
8 kW single phase	908	821	326	350	87	356	466	40	60	69
12 kW single phase	908	1363	326	350	174	640	750	44	69	104
16 kW three phase	908	1363	326	350	174	640	750	44	69	116



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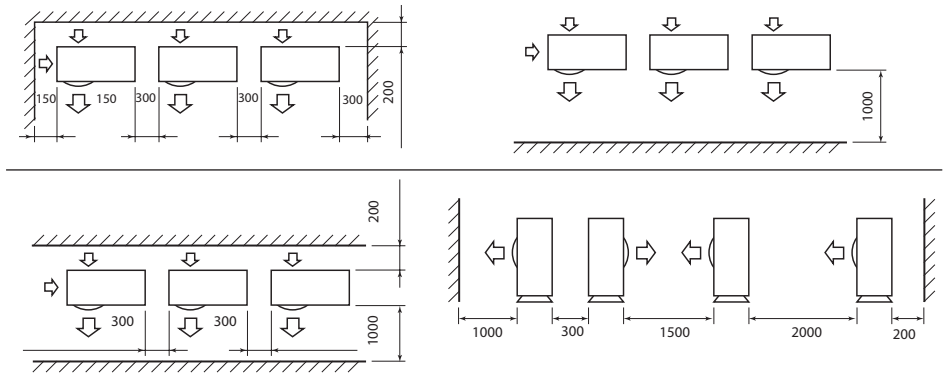


1-3

1.4 INSTALLATION.

Before installation, make sure the base is solid and laid flat in order to prevent the onset of anomalous noise. Depending on the dimensions and minimum spaces requested, secure the base well by using anchoring bolts (nuts and anchoring bolts M10 x 2 pairs).
When the external unit must be installed in a place exposed to strong wind, make sure operation of the fan is normal by using an anti-wind protection.

Cable passage opening procedure

To enable the cables to pass through, remove the pre-cut part from where to pass the electrical wires. Do not remove the unit's front panel so that the pre-cut part can be easily punched. To remove the pre-cut metal-sheet plate, punch the 3 connection points using a chisel and following the guideline, then remove the part with pliers (refer to Fig. 1-4). After opening the passage for the cables, remove the trimmings and assemble the supplied cable protection in order to protect them.

Method used to remove the front panel

1) Remove the screws from the front panel (Refer to Fig. 1-5).
2) Pull the front panel downwards using the handle.

Condensate drain pipe and pre-cut holes in the base

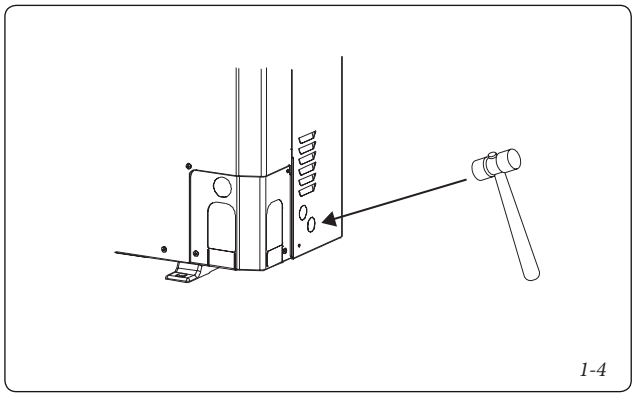
If draining is carried out through the drain pipe, connect the drain fitting (A, Fig. 1-6) and use a drain pipe (internal diameter: 16 mm) available on the market. In the event of installation in very cold zones or zones subject to heavy snow where the condensate drain pipe can freeze, check the draining capacity of the pipe. Draining capacity increases when the pre-cut holes at the base, which collect condensate, are open (open the pre-cut holes outwards with the aid of a hammer with smooth edges (B, Fig. 1-6), etc.).

Operating limits

Cooling operation (Refer to Fig. 1-7):
X1 - Outdoor Air Temperature (°C)
Y1 - Outlet Water Temperature (°C)

N.B.: for Audax TOP 6 ErP units, consider a minimum Outdoor Air Temperature of +5°C.

Central Heating Operation (Refer to Fig. 1-8):
X2 - Outdoor Air Temperature (°C)
Y2 - Outlet Water Temperature (°C)



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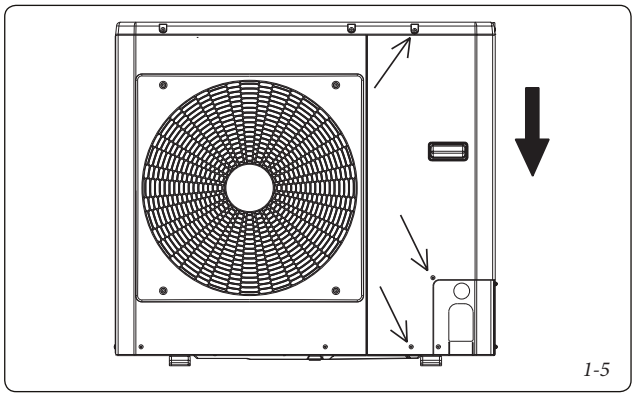

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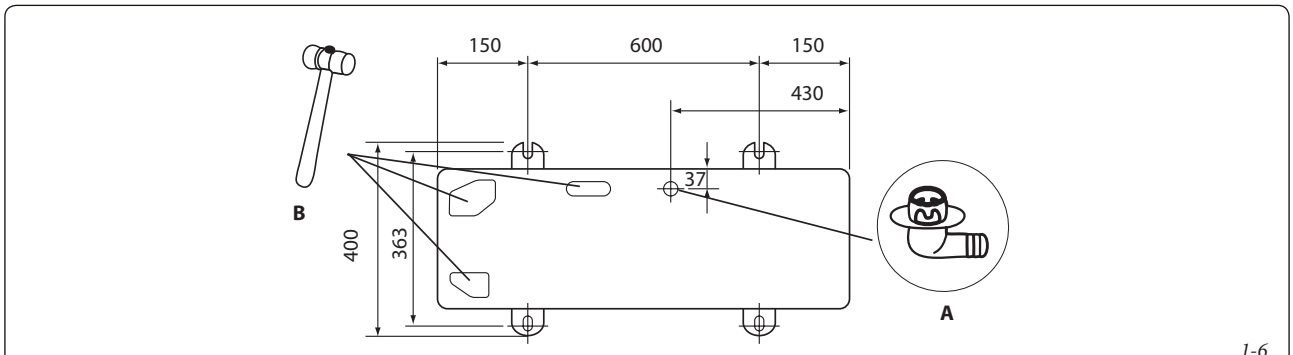

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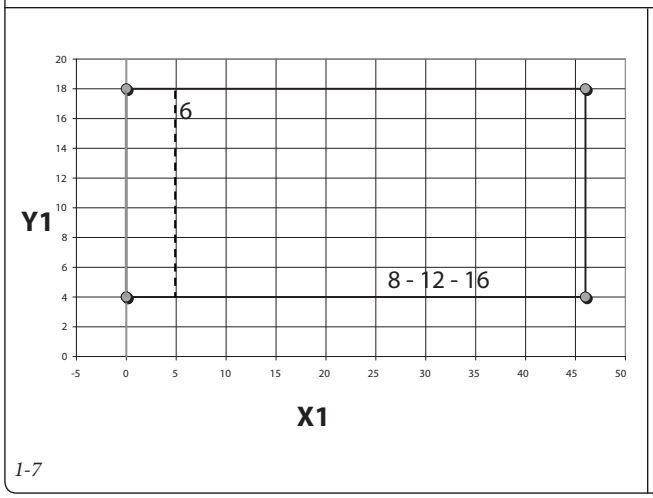
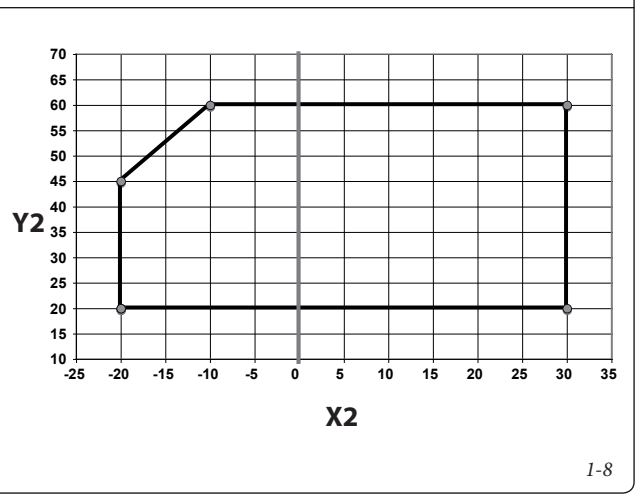


1-7



1-8

1.5 HYDRONIC MODULE.

Audax TOP ErP units are equipped with an in-built hydronic module that enables quick installation with the aid of a few external components. All protections and valves required are inserted in the unit's hydraulic circuit. Refer to Figure 1-9 for proper connection of the hydraulic pipes. Figure 1-10 describes the in-built components with different configurations.

N.B.: it is the installer's responsibility to size the expansion vessel correctly according to the type of system.

N.B.: the safety valve discharge can be channelled out of the machine by using the pre-cut holes (refer to Fig. 1-4).

In this case, you must provide a draining funnel on demand.

1.6 HYDRAULIC CONNECTIONS.

The plate heat exchanger hydraulic connections must be carried out by using all the components that are required and made from materials that are able to ensure a watertight seal of the threaded couplings. Figure 1-11 shows a classical example of a hydraulic circuit.

The hydraulic circuit must be carried out by following the recommendations below:

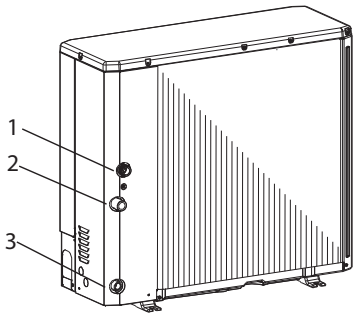
1) It is recommended to provide shut-off valves that insulate the most important components of the system and the said heat exchanger. The said valves, which can be ball, globe or throttle (not galvanised), must be sized in a way as to have the least possible head losses when they are completely open.
2) The system must be equipped with a draining system situated at the lowest point.
3) The highest point of the system must have air vents.
4) Pressure point connections and manometers must be installed upstream and downstream of any additional pumps.
5) All pipes must be insulated and supported in an appropriate manner (no galvanised pipes).

It is important to take the following precautions:

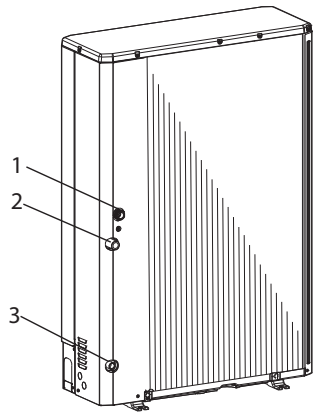
1) The presence of solid particles in the water can obstruct the heat exchanger. Therefore, you must protect the heat exchanger inlet with a filter having a removable mesh (supplied).
2) After assembling the system, and after each repairs, it is essential to thoroughly clean the entire system, paying special attention to the state of the filter.
3) To adjust the pump's flow rate, you must assemble a check valve on the flow pipe during the installation phase.
4) Should water be cooled at temperatures below 5°C, or if the device is installed in areas subject to temperatures below 0°C, it is important to mix the water with an adequate amount of glycol.

Unit			6	8	12	16
Compressor type			Rotary DC Inverter Technology			
Water Pump Speed			Modulating			
Expansion Vessel	Capacity	l	2		3	
	Pre-charged pressure	kPa	100			
Water circuit content		l	1	1.2	2.5	2.5
Hydraulic connections			1”M			
Water circuit maximum operating pressure		kPa	300			

Hydraulic connections
Audax TOP 6-8 ErP



Hydraulic connections
Audax TOP 12-16 ErP

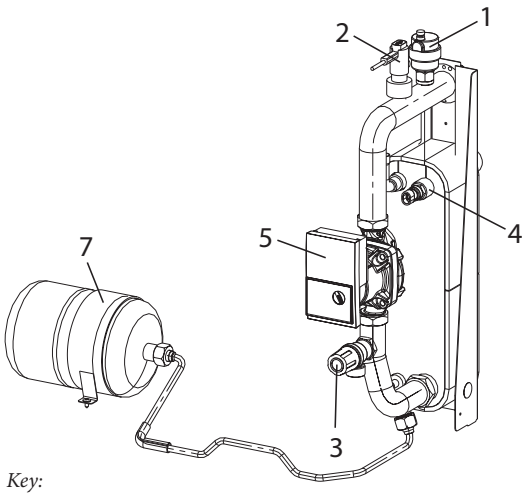


Key:

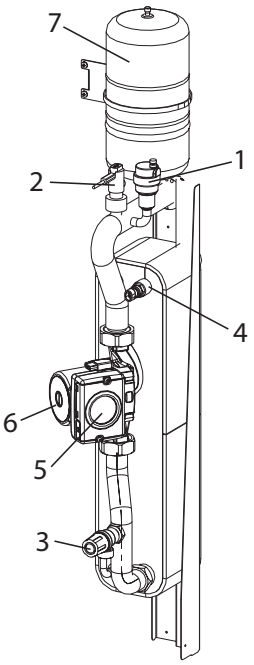
1 - Unit water inlet
2 - Unit water outlet
3 - Unit water draining

1-9

Integrated hydraulic circuit
Audax TOP 6-8 ErP



Integrated hydraulic circuit
Audax TOP 12-16 ErP



Key:

1 - Automatic air vent valve
2 - Flow switch
3 - Safety valve (outlet 1/2')
4 - Temperature probe
5 - Circulation pump
6 - Cap to release a seized pump
7 - Expansion vessel

1-10

Pump anti-seizure
Audax TOP ErP units are equipped with an anti-seizure protection of the pump's motor shaft. For this function to operate correctly, the system must not be emptied and supply voltage must not be disconnected during long periods of inactivity. However, if the pump rotor shaft should seize after long periods of inactivity, the operator should do as follows in order to release it (only for Audax TOP 12-16 ErP):

- Disconnect voltage
- Remove the front panel
- Loosen the shaft's protection cap at the rear of the pump
- Insert a flat-blade screwdriver into the groove and turn the rotor's shaft
- Reassemble the protection cap
- Supply voltage to the system

Cleaning the system and Water features
With new installations or when emptying the circuit, preventive cleaning of the system must be carried out.
In order to ensure proper operation of the product, after each cleaning operation, replace water or top up glycol. Make sure the liquid is clear, is without any visible impurities and the hardness is below 20°f.

Antifreeze protection
If the device is kept off during the winter months with the room temperature below 0°C and glycol is not used in the hydraulic system, it is recommended to empty the entire system by draining the unit (Fig. 1-9, point 3) and the system's discharge valve (Fig. 1-11, point 5).

System minimum water content
Minimum water content is mainly important to provide **proper execution of defrosting cycles**. In this regard, the minimum amount of water to ensure is:
AUDAX TOP 6-8-12-16 ErP → **6 l/kW** for any type of system.
N.B.: it is also important to check that the dehumidifier line has a minimum of 3 l/kW (dehumidifier hydraulic circuit connection).

Pipe content			
Inside diameter		External diameter	Litres/metre
Copper	12 mm)	14 mm)	0.11 l/m
	14 mm)	16 mm	0.15 l/m
	16 mm)	18 mm	0.20 l/m
	20 mm)	22 mm	0.31 l/m
	25 mm)	28 mm)	0.49 l/m
	32 mm)	35 mm	0.80 l/m
Steel	"12.7 mm (1/2")"	3/8" Gas	0.13 l/m
	"16.3 mm (5/8")"	1/2" Gas	0.21 l/m
	"21.7 mm (7/8")"	3/4" Gas	0.37 l/m
	"27.4 mm (11/16")"	1" Gas	0.59 l/m

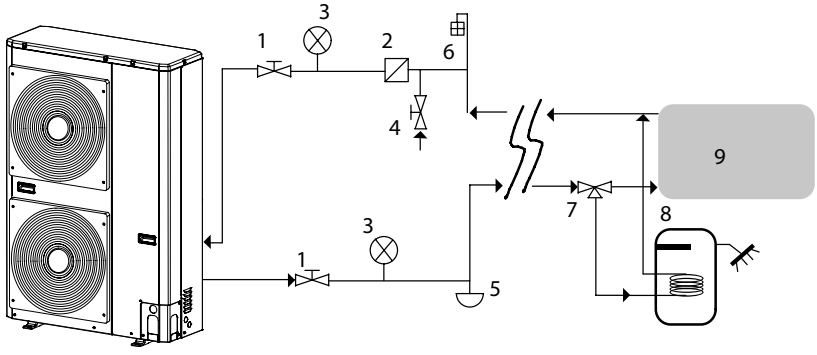
Unit			Audax TOP ErP			
			6	8	12	16
Nominal water input	Std	l/s	0.28	0.33	0.58	0.69
Operating Pressure	Max	kPa	300	300	300	300
Filling pressure	Min	kPa	120	120	120	120
Unit lowest level difference	Max	m	20	20	20	20

	% Glycol	10%	20%	30%	40%
	Freezing Temperature (*)	-4 °C	-9 °C	-15 °C	-23 °C
Correction Factors	Capacity	0.996	0.991	0.983	0.974
	Absorbed Power	0.990	0.978	0.964	1.008
	Heat loss	1.003	1.010	1.020	1.033
(*) N.B.: the temperature values are indicative. Always refer to the temperature levels indicated regarding the specific product used.					

TABLE USED TO CALCULATE THE WATER CONTENT IN THE SYSTEM		
Installed Unit		
Unit content (*)	I	
Pipe content (**)	I	
Utilities (fan coils, panels, radiators, etc.) (***)	I	
Total content (****)	I	

(*) Consult the technical specifications table
(**) Consult the water pipes content table
(***) Consult the manual regarding utilities installed
(****) The content of water in the system must be above 6 litres per kW of machine power (e.g. Audax TOP 12kW, 6x12 = more than 72 litres).

Typical diagram of a hydraulic circuit for Audax TOP ErP units



Key:

1 - Shut-off valve
2 - Water line filters (10 links/cm²)
3 - Manometer
4 - Filling valve
5 - System draining valve (in the lowest points of the circuit)
6 - Air vent valve (in the highest points of the circuit)
7 - 3-way valve
8 - DHW storage tank
9 - Internal utility

1-11

Attention: do not use the heat pump to treat industrial process water, swimming pool water or DHW.
In all these cases, provide an intermediate heat exchanger.

1.7 ELECTRICAL CONNECTIONS.

Attention: Electrical connections by the installer.
Attention: connect the hydraulic pipes before carrying out electrical connections. Connect earthing before carrying out electrical connections.

Unit		Audax TOP ErP			
		6	8	12	16
Supply Voltage	V - ph - Hz	230 - 1 - 50			400 - 3 - 50
Permitted voltage range	V	207 ÷ 253			376 ÷ 424
Maximum power absorbed	kW	2	2.7	3.85	6.5
Maximum current absorbed	A	11	14.5	20.7	11.1
Supply voltage fuses		gL Type			
	A	16 - Type B	16 - Type B	25 - Type D	16 - Type B
Supply voltage cables	mm^2	H07RN-F 3 x 2.5 mm^2			H07RN-F 5 x 2.5mm2
External pump circulation maximum current	A	2			
Use H03VV-F 5x0,75 mm^2 cables to connect the remote control					

Remove the panel to see the electrical components on the front. The electrical supply voltage cables can be inserted in the holes set up. You must clamp the electrical cables using group cable ties acquired on-site in order to prevent them from touching the compressor and hot pipes.
To provide proper traction resistance, secure the electrical cables to the plate with cable ties. Refer to Fig. 1-13 for supply voltage cable wiring.
The unit can be controlled and set by means of:
• Remote panel
• Switches or thermostats (not supplied).

Refer to Figure 1-12 for electrical connections, whereas for use, refer to the relative manuals.
N.B.: the quality of the contacts must be higher than 25mA @ 12V.
You are always required to install a circuit breaker switch.

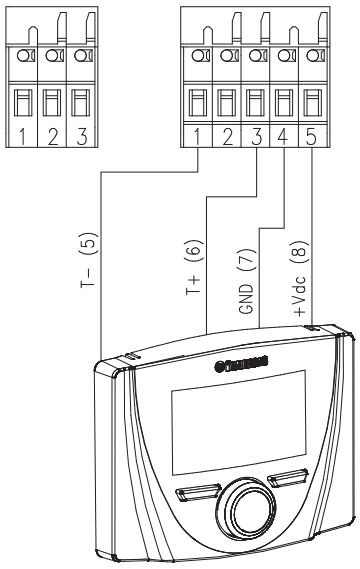
Supply Voltage	Select the cable; the cables must be type H07 RN-F. According to installation instructions, all mains supply voltage disconnection devices must be equipped with contacts opening (4 mm) to enable complete disconnection, in compliance with the conditions provided for Class III overvoltage. In order to prevent any danger, the supply voltage cable must be replaced by service assistance technicians only.

Switch connection and auxiliary connections

HEAT PUMP

Orange 3-pole terminal board

Grey 5-pole terminal board



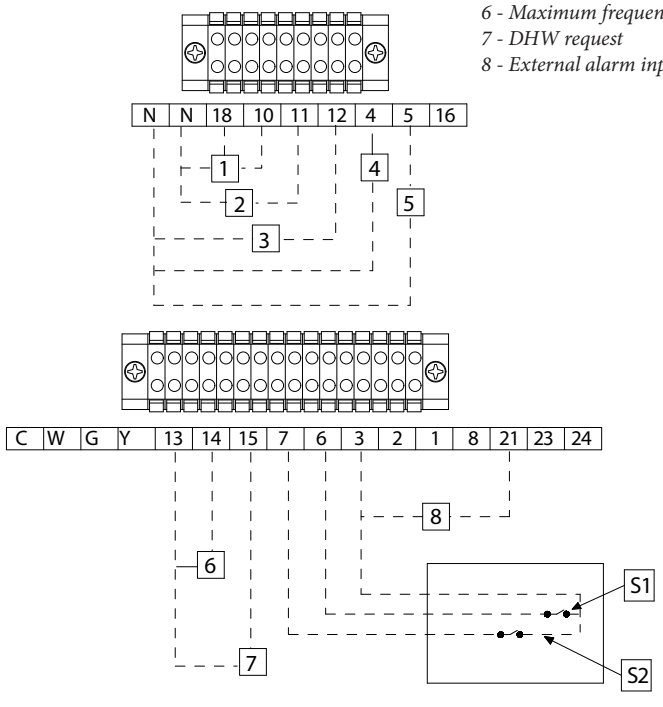
REMOTE PANEL

N.B.: in the event of system management connection, connect it to clamps 1 and 3

Key:

Switch connection
S1 - OFF (open) / ON (closed)
S2 - Cooling (open) / Central heating (closed)

Auxiliary connections
1 - 3-way valve
2 - Alarm
3 - Additional water pump
4 - External heat source
5 - Alarm
6 - Maximum frequency reduction
7 - DHW request
8 - External alarm input

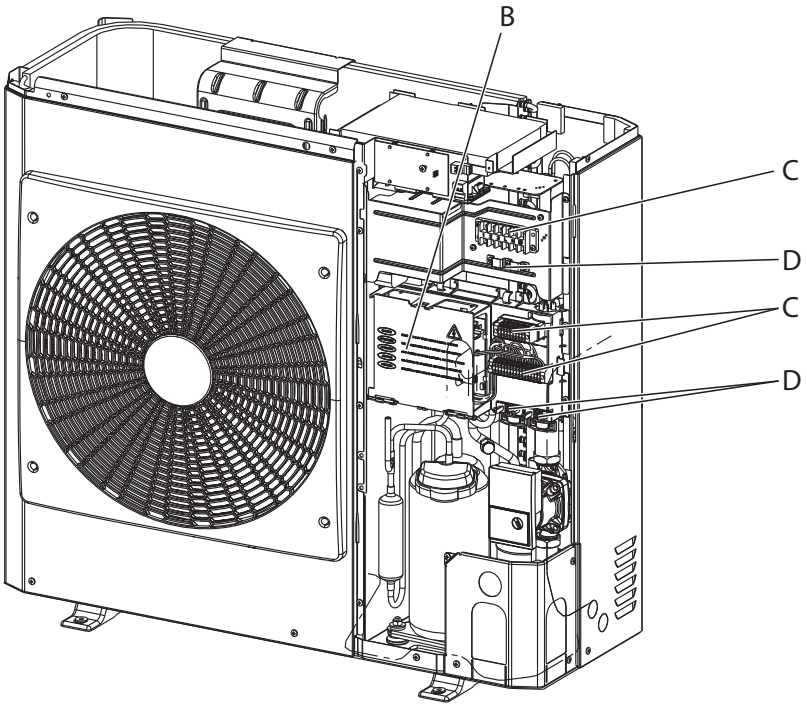


1-12

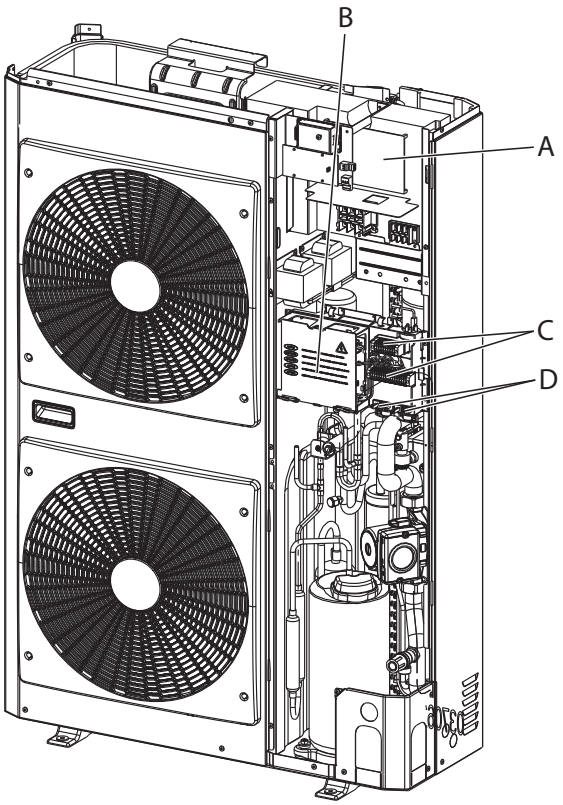
Key:

A - Position of 4 Inverter Board Diagnostics LEDs (Audax TOP 12 ErP and Audax TOP 16 ErP only)
B - GMC Board
C - Installation terminal board
D - Cable tie

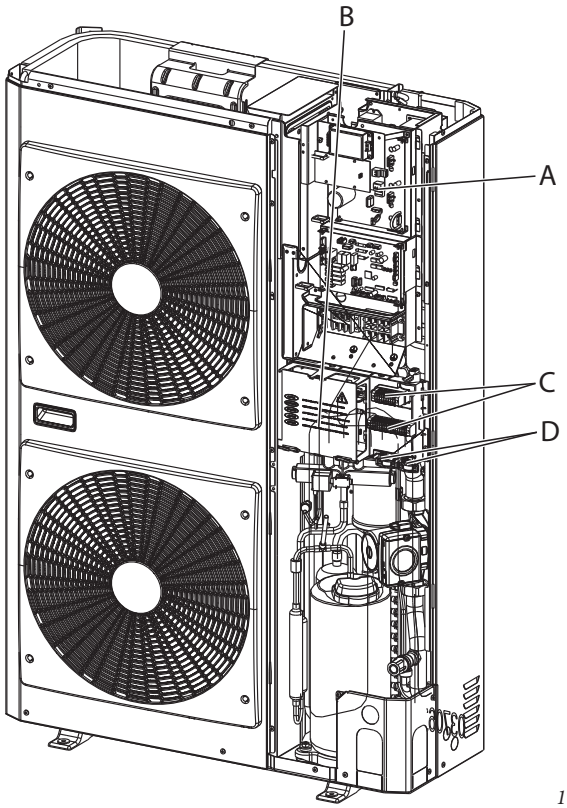
Audax TOP 6 e 8 ErP



Audax TOP 12 ErP

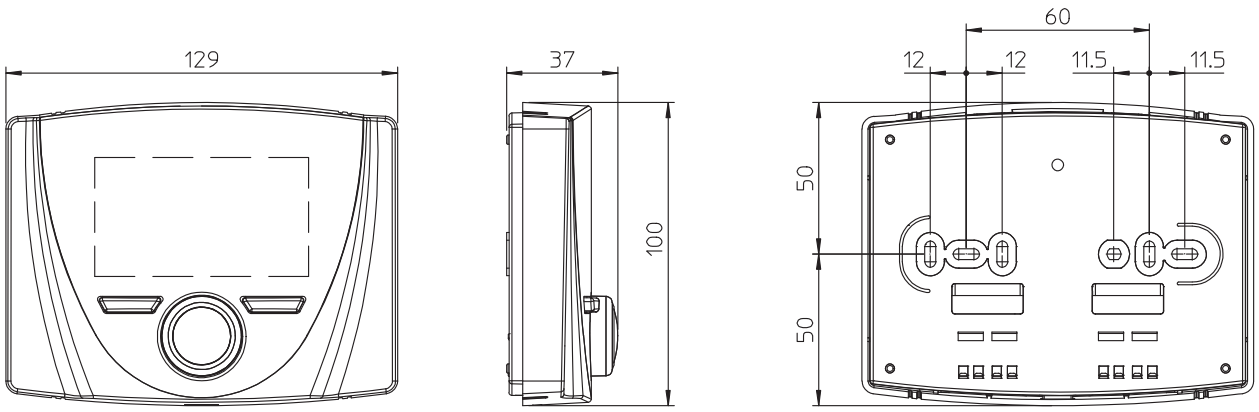


Audax TOP 16 ErP



1-13

1.8 REMOTE PANEL MAIN DIMENSIONS.



1-14

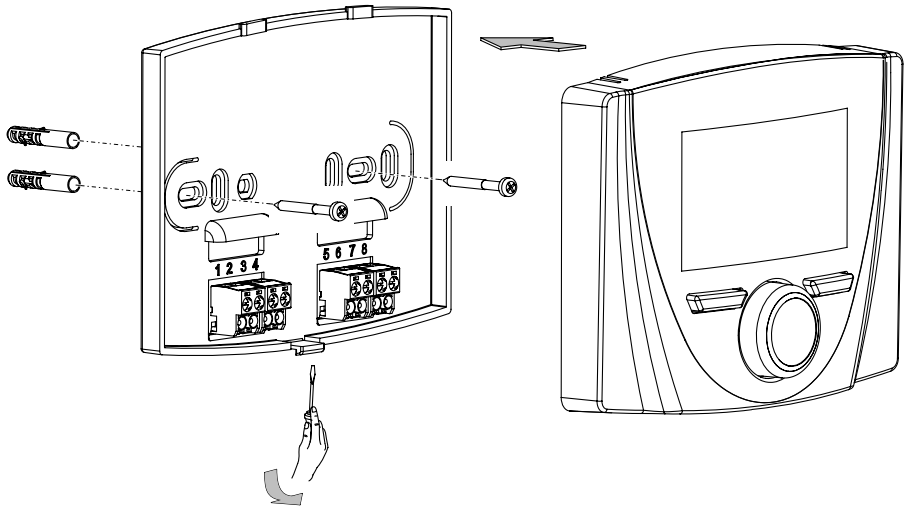
1.9 REMOTE PANEL INSTALLATION OPERATIONS.

1) Separate the fixing template from the body of the remote panel using a screwdriver as a lever in the relative recess (Fig. 1-15). Install the remote panel away from heat sources and in a suitable position to detect the room temperature correctly.
2) Install the remote panel using the openings on its rear part directly onto the wall or on a recess box using the relative supplied screws.
3) Connect the remote panel to the electronic management clamps, as indicated in the diagram (Fig. 3-1 and 3-2).

   The connection is made using wires with a minimum section of 0.50 mm^2 and maximum section of 1.5 mm^2 and with a maximum length of 50 metres.

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

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



1-15

1.10 AUXILIARY ACCESSORIES CONNECTION.

3-way valve.
Audax TOP ErP units pilot a 3-way valve to manage a DHW storage tank. The operation logic provides that if DHW is requested by a storage tank, the system controls a 3-way valve to direct hot water only to the tank and operate maximum capacity to supply water at 60°C (compatible with the operating limits).
For operation, connect the 3-way valve between PIN 18, N and terminal board 10 (refer to Fig. 1-12). PIN 18 (Line) and N (Neutral) provide supply voltage to the valve (1ph ~ 230V, 2A max), whereas PIN 10 has the control signal (1ph ~ 230V, 2A max).
If a spring check valve is used, connect PIN 10 and N only.
The signal to request DHW must be a Dry Contact type (quality of contacts above 25mA @ 12V), which closes the circuit between PIN 15 and 13 of the terminal board (refer to Fig. 1-12).
Attention: DHW request has priority over programmed operation, both with central heating and cooling.

Frequency limitations.
To force the unit to operate at a lower maximum frequency (to reduce noise), provide a potential-free contact switch (quality of contacts above 25mA @ 12V) between PIN 13 and 14 of the terminal board (refer to Fig. 1-12). With a closed contact, the unit operates with a lower maximum frequency than standard mode; vice-versa, it operates in standard mode.
For proper operation, you must first configure the relative parameter from the remote panel (refer to Par. 3.2).
Maximum noise reduction is approximately 3dB at 75% maximum operation frequency of the compressor.

Unit Stop signal.
The terminal board has a few signals available to indicate special operating conditions or to stop the external unit.
The signals available are:

- Alarm: an alarm status is indicated, which stops the compressor (PIN: 5-N)

Additional water pump (ADD WP).
It is possible to connect an auxiliary water pump through clamps 12 and N. Regulation is as follows:
1) On or off according to the heat pump's main pump. In the event of DHW input activation, the pump is on if a system request is present;

Signal for an External Heat Source (EHS) request.
Between PIN 4 and N of the terminal board (refer to Fig. 1-12), an outlet is available (1ph ~ 230V, 2A max), which can be programmed by means of the remote panel (refer to Par. 3.2).
Two different strategies are available according to the outdoor air temperature value:
1) Switching the heat pump off and activating an auxiliary heat source. This function is activated if the outdoor air temperature is below the value set by means of the remote panel (refer to Par. 3.2). In this zone, the heat pump switches off while the auxiliary heating device is activated according to the following logic:
   - ON/OFF according to the set-point of the water temperature.
2) Both the heat pump and auxiliary heating device are activated simultaneously if heat output supplied by the heat pump is insufficient. This function is activated when the outdoor air temperature is below the value set by means of the remote panel (refer to Par. 3.2). In this zone, the unit remains operating while the auxiliary heating device only starts if the water temperature drops below the set-point minus 5°C for 10 minutes, which can be configured from the remote panel (refer to Par. 3.2). The auxiliary heating device switches off when the water set-point is reached.

N.B.: in the event in which DHW request is activated (closed contact between PIN 13-15), the heat pump starts again and the auxiliary heating device switches off.
Attention: in the event in which any kind of outdoor heat source is installed, you must install a thermal switch on the water circuit in order to protect the system from excessive water temperature peaks. This safety device must be immediately placed downstream of the auxiliary heating device.

Outdoor alarm input.
On the terminal board's terminal 21 (refer to Fig. 1-12) it is possible to receive an alarm signal (potential-free contact) from outside, which forces the unit to switch off.
When the contact closes (between PIN 21 and 3), the entire system switches off (Unit off, water pump off, alarm N° 2 on the GMC board). As soon as the potential-free contact opens, the unit restarts operation according to the last configuration. This signal can be sent to different types of external control systems and/or safety devices. For example, in case of danger, the contact can be closed by an alarm signal sent from an external safety device. This way, the external unit switches off without restarting until the contact opens again.

TERMINAL BOARD PIN

Audax TOP ErP				
Description	PIN	Signal	Limits	Menu installation code 33AW-CS1B
DHW request	13 - 15	Input (contacts quality switch >25mA@12V)	N.A.	153
Compressor Maximum Frequency Reduction	13 - 14	Input (contacts quality switch >25mA@12V)	N.A.	5 - 6
3-way valve	10 - 18 - N	Output 230Vac (18-N: Supply voltage, 10: signal)	1 ph ~ 230V, 2A	N.A.
External Heat Source request	4 - N	Output, Relay Contact	1 ph ~ 230V, 2A	106 - 148 - 150 - 151 - 152 - 154 - 155
Alarm	5 - N	Output, Relay Contact	1 ph ~ 230V, 2A	147
Auxiliary Pump	12 - N	Output, Relay Contact	1 ph ~ 230V, 2A	156 - 157
Alarm input	21 - 3	Input (contacts quality switch >25mA@12V)	N.A.	N.A.
On/Off	6 - 3	Potential-free contact	N.A.	N.A.
Central Heating/Cooling	7 - 3	Potential-free contact	N.A.	N.A.

1.11 CIRCULATION PUMP (ONLY FOR VERSION AUDAX TOP 6-8 ErP).

The system is supplied with pumps equipped with speed regulators.
These settings are suitable for most systems.

Central heating/cooling system pumps The circulators are equipped with electronic control that allows to set advanced functions.. For proper operation one must select the most suitable type of operation for the system and select a speed in the available range.

The central heating/cooling system pumps control the room central heating or cooling requests downstream of the hydraulic manifold.

- **Constant head (ΔP C) (4 fig. 1-16) default setting.** The circulator pump maintains the pressure level (head) constant as the system heat demand decreases (flow rate reduction). With these settings, the circulator pump is suitable for all floor systems where all the circuits must be balanced for the same drop in head. One can select the power level from a minimum one to a maximum one by turning the selector switch clockwise in the relative power scale.
- **Proportional head (ΔP V) (3 Fig. 1-16).** This allows the pressure level (head) to be proportionally reduced as the system heat demand decreases (flow rate reduction). Thanks to this function, the electric power consumption of the circulator pump is reduced further: the energy (power) used by the pump decreases according to the pressure level and flow rate. With this setting, the pump guarantees optimal performance in most heating systems, proving particularly suitable in single-pipe and two-pipe installations. Any noise of the water flow in the pipes, valves and radiators is eliminated by reducing the head. Optimal conditions for thermal comfort and acoustic well-being. One can select the power level from a minimum one to a maximum one by turning the selector switch counterclockwise on the relative power scale.

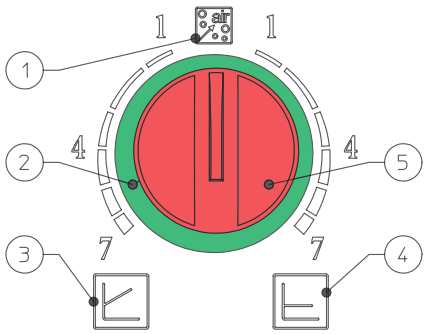
Adjustments. Turn the selector and set it on the desired curve to adjust the circulator pump.

Automatic vent function (1 fig. 1-16). The circulator pump is equipped with a function that activates its operation for 10 minutes, alternating the speed between minimum and maximum, so that the air contained in the circulator pump is expelled by the air vent valve.

Diagnostics in real time: a light ring (2 fig. 1-16) supplies, with different colours, information relating to the circulator pump operating status, see table below.

N.B.:

* The variable pressure (PP) mode is recommended for heating systems with radiators.
* The constant pressure (CP) mode is recommended for floor heating systems.
* All hydronic curves have been defined in constant pressure mode with minimum, intermediate and maximum speed.



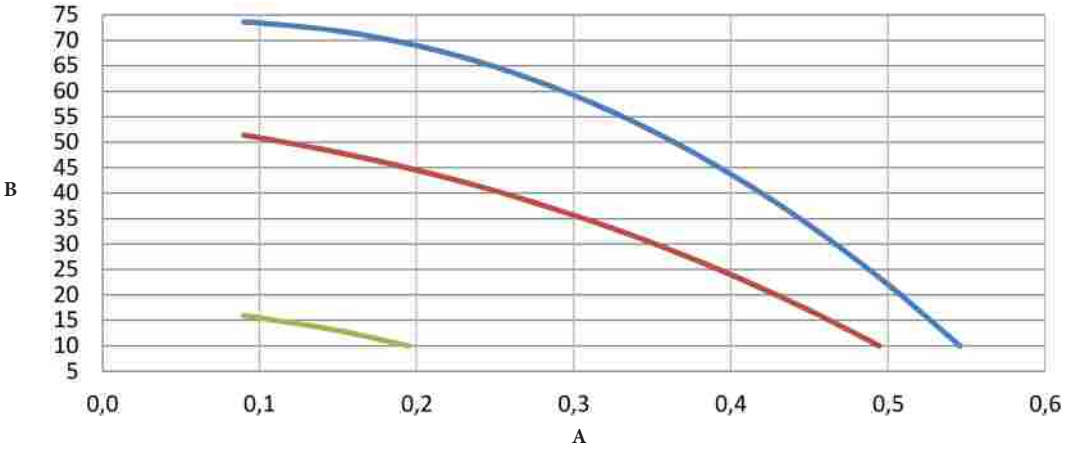
Key:

1 - Automatic vent mode operation
2 - Light ring to indicate the operating status
3 - Proportional head operation
4 - Constant head operation
5 - Operating mode selector switch

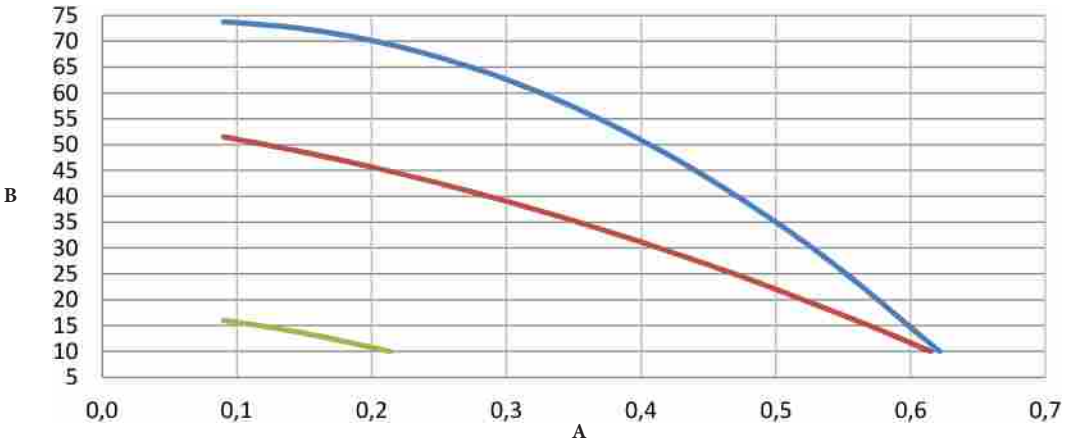
1-16

LED	Description	Diagnostics	Cause	Remedy
Green (on)	Normal functioning			
Green (fast flashing)	Automatic vent in operation	The circulator pump vents for 10 minutes	Air in circulator pump	If the circulator pump requires the automatic vent function often, one must adjust the operating mode properly.
Red (on) Green (flashing)	Abnormal situation Circulator pump working but stationary	The circulator pump restarts once the abnormal situation has been solved	a) voltage out of range (160 ÷ 253V) b) circulator pump temperature high	a) check power supply b) check temperature of room and of the water contained in the system
Red (flashing)	Circulator pump blocked	the circulator pump cannot restart automatically due to an anomaly	check the circulator pump	if the problem persists replace the circulator pump
LED (off)	circulator pump not working	electronics not powered	a) circulator pump not connected b) LED damaged c) electronics damaged	a) check the electrical connections b) check that the circulator pump is working c) replace the circulator pump

Audax TOP 6 ErP



Audax TOP 8 ErP



Key:
A - Water flow rate (l/s)
B - Available static pressure (kPa)

1-17

1.12 CIRCULATION PUMP (ONLY FOR VERSION AUDAX TOP 12-16 ErP).

The pump's interface enables you to select between 6 pressure levels with 2 types of controls:
- 3 constant pressure/power curve (CP)
- 3 proportional pressure (PP) curves

Setting procedure:	
1) Factory setting	Constant Pressure Curve CP3
2) Press the button for 10 seconds	The pump goes into setting mode - the LED starts flashing
3) Each time it is pressed, the settings change	LED "I", "II", and "III" are lit / the control curve and mode change (*)
4) 10 seconds after the button is not pressed	The setting is changed - the pump goes back to operating mode
5) LED "I" or "II" or "III" is still lit	The pump is operating with the selected mode and curve.

(*) By pressing the button, the control mode changes cyclically (CP3 - CP2 - CP1 - PP3 - PP2 - PP1)

PP1 (fast flashing) LED "I"

PP2 (fast flashing) LED "II"

PP3 (fast flashing) LED "III"

CP1 (slow flashing) LED "I"

CP2 (slow flashing) LED "II"

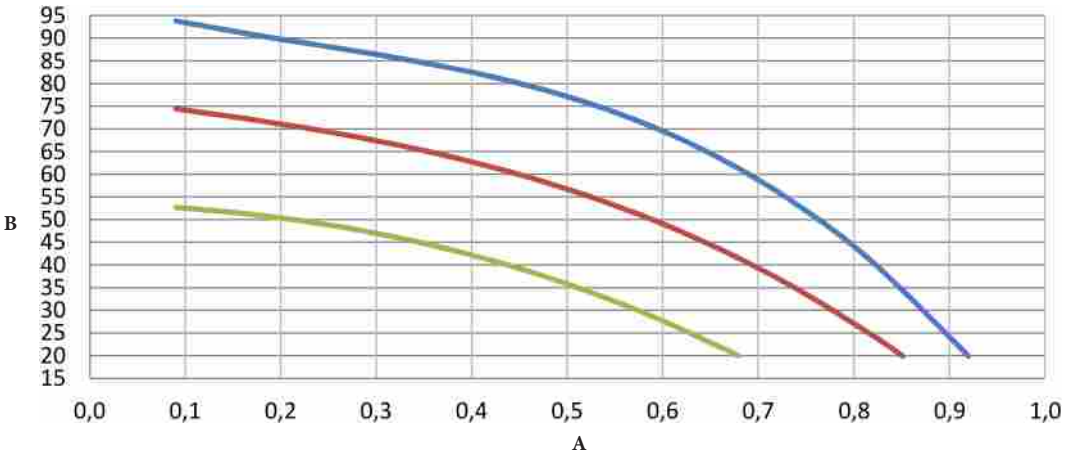
CP3 (slow flashing) LED "III"

Min flow rate=1; Max flow rate=3

N.B.:

* The variable pressure (PP) mode is recommended for heating systems with radiators.
* The constant pressure (CP) mode is recommended for floor heating systems.
* All hydronic curves have been defined in constant pressure mode with minimum, intermediate and maximum speed.

Audax TOP 12-16 ErP



Key:
A - Water flow rate (l/s)
B - Available static pressure (kPa)

1-18

2 USE AND MAINTENANCE INSTRUCTIONS.

2.1 CLEANING AND MAINTENANCE.

Attention: the heating systems must undergo periodical maintenance (regarding this, see the section dedicated to the maintenance engineer, relating to "yearly appliance check and maintenance") and regular energy efficiency checks in compliance with national, regional or local provisions in force.
This ensures that the optimal safety, performance and operating features that distinguish Audax Top ErP remain unchanged over time.
We recommend stipulating a yearly cleaning and maintenance contract with your zone technician.
Use damp cloths and neutral detergent to clean the Audax Top ErP casing. Never use abrasive or powder detergents.

2.2 GENERAL WARNINGS.

Use of the appliance by unskilled persons or children is strictly prohibited.
If temporary shutdown of the appliance is required, proceed as follows:

a) drain the heating system if anti-freeze is not used;

b) shut-off all electrical, water and gas supplies (if the latter is present).

- **Attention:** using any components that use electrical power requires some fundamental rules to be observed:

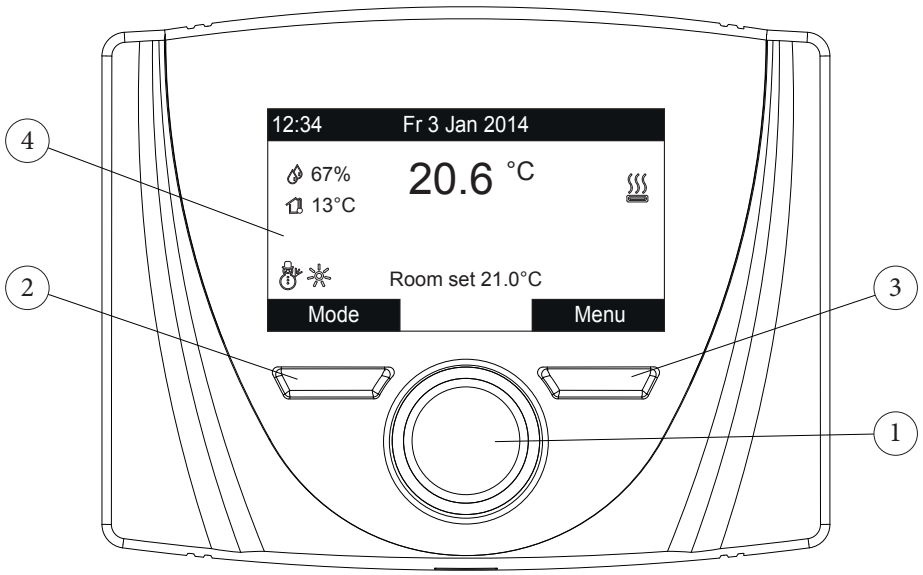
- do not touch the appliance with wet or moist parts of the body; do not touch when barefoot;
- do not pull electric cables;
- if the appliance is not to be used for a certain period, disconnect the main supply voltage switch.

2.3 DECOMMISSIONING.

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

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

2.4 REMOTE PANEL.



Key:

1 - Main parameters switch with button to confirm and save data
2 - Left context button
3 - Right context button
4 - Display

2-1

2.5 SYSTEM USE.

Once the device has been powered, it goes into the status prior to switch-off. Press the "Modo" (Mode) button to cyclically select the desired mode amongst those available.
The current operating mode in use is displayed by the relative icon at the bottom left corner (Fig. 2-2).

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

State	Description
nn	Room humidity value (if humidity probe is present)
nn	External temperature value (external probe enabled)
	Request for room central heating or cooling in progress
	Comfort temperature operation
	Economy temperature operation
	Operation in manual mode
	External probe enabled
	Anomaly present

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

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

- Set room: defines the room zone temperature.
- Set flow: defines the system's flow temperature to the zone.
- Offset flow: changes the operation curve of the external probe.

State	Description	Domestic hot water	Cooling	Central heating	Anti-freeze
	Stand-by	Disabled	Disabled	Disabled	Enabled
	Summer	Enabled	Disabled	Disabled	Enabled
	Cooling	Enabled	Enabled	Disabled	Disabled
	Winter	Enabled	Disabled	Enabled	Enabled

2-2

2.6 COMFORT / ECONOMY / MANUAL OPERATION.

Once the calendar is set and the relative association of days is executed, the system operates automatically by switching from "comfort" to "economy" according to what has been set.

- **Comfort ( ).** During periods in comfort mode, a relative icon appears next to the operation mode.
- **Economy ( ).** During periods in economy mode, a relative icon appears next to the operation mode.
- **Manual ( ).** If the remote panel was set to manage the room temperature of the zone, if required, it is possible to change the value manually for a determined range.

  Turning the main switch changes the room temperature, and pressing it confirms the change. The change is displayed by the symbol " ". This change remains active until the next time range is changed from the active calendar.

2.7 EXTERNAL PROBE OPERATION.

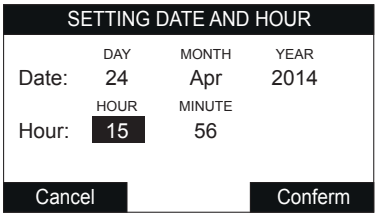
When the system is associated with the external probe, the relative symbol ( ) **is displayed.** From this moment, the system's flow temperature for room central heating is managed by the external probe depending on the external temperature measured (Par. 3.2 "Assistance" "Central heating thermoregulation" menu). It is possible to change the operation curve by using the main switch and changing the external probe offset (Fig. 3-2).

2.8 CLOCK AND PROGRAMS.

From this menu, it is possible to set the system's date and time as well as the time ranges for operation in comfort and economy mode.

- Date and time. On first electric supply voltage from the remote panel, or in the event of a voltage drop, you must set the date and time. Proceed as follows:
  - Press the "Menu" button (ref. 3 fig. 2-1), select item "Orologio e Programmi" (Clock and Programs) from the main switch (ref. 1 fig. 2-1), then press "Data e ora" (Date and time).
  - Once you have accessed the menu, adjust the various items highlighted by turning the main switch. Set the value and save it by pressing the main switch. Each time it is saved, it moves to the next item.
  - After programming, press "Conferma" (Confirm).

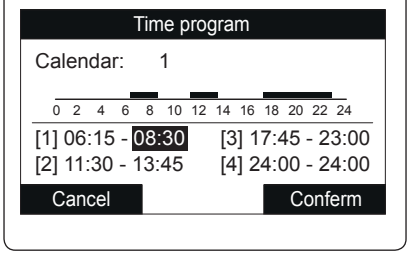
2-3



- **Time ranges.** The remote panel enables you to set 4 calendars with 4 time operating ranges in system comfort mode. The system will operate in economy mode during out-of-range time of these time ranges.

  After setting these 4 calendars it is possible to associate them to the various days of the week and DHW function according to one's needs.
  - Press the "Menu" button, select item "Orologio e Programmi" (Clock and Programs) from the main switch (ref. 1 fig. 2-1), then press "Fasce orarie" (Time ranges).
  - Once you have accessed the menu, adjust the various items highlighted by turning the main switch. Set the value and save it by pressing the main switch. Each time it is saved, it moves to the next item.
  - After programming, press "Conferma" (Confirm).

2-4

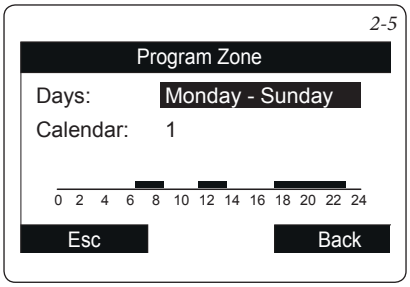


- **Programma di Zona (Zone Programming).** Time ranges (Calendars from 1 to 4) are assigned to Zones in these menus. You can assign the calendar to a single day or to a group of days. (single day, Monday - Friday, Saturday - Sunday, Monday - Saturday, Monday - Sunday).

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

  For convenient selection, the bottom part displays the graphics of the relevant calendar being selected (refer to the following fig.).

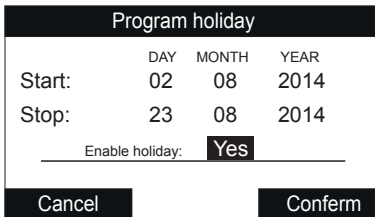
2-5



- **Programma vacanze (Holiday programming) ( ).** If required, it is possible to pause system operation for an established period. Access the "Orologio e programmi" (Clock and Programs) menu, select "Programma vacanze" (Holiday programming) and set the period in which you wish to pause system operation. During this time, the previously set calendars will not be taken into consideration.

The antifreeze function is still ensured during the holiday period.

2-6



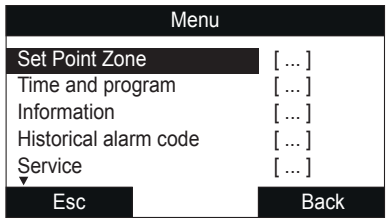
2.9 SETTINGS MENU.

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

To browse the menus, which can be accessed by pressing the relative "RH" or "LH" context buttons, scroll through the sub-menus displayed by turning the main switch. Press the said selector to select the one highlighted. By pressing repeatedly, you can scroll down the menu levels and go back to a previous level by pressing the "Indietro" (Back) context button. To exit the menu completely, press the "Esci" (Exit) button, which will take you back to the initial page of normal operation.

To confirm the parameter change, press the main switch.

2-7



Hereunder is a list of available menus

MAIN MENU	
Menu item	Description
Set Point Zone	Defines the operating parameters to manage the zone
Time and Program	Defines the date/time and time operating ranges
Information	Display system operating data
Historical alarm code	Displays the list of the last 10 anomalies
Service	Password protected menu dedicated to a qualified technician
Language	Defines the remote panel operation language

Menù Set Point Zone				
Menu item	Description	Range	Default	Customised value
Set comfort heat	Room temperature in central heating zone Comfort mode	15 ÷ 35 °C	20	
Set economy heat	Room temperature in central heating zone Economy mode	5 ÷ 25 °C	17	
Set flow heat	Flow temperature in room zone central heating mode	5 ÷ 85 °C	40	
Offset flow heat	Offset temperature for central heating zone	- 15 ÷ + 15°C	0	
Set comfort cool	Room temperature in cooling zone Comfort mode	15 ÷ 35 °C	25	
Set economy cool	Room temperature in cooling zone Economy mode	15 ÷ 35 °C	28	
Set flow cool	Flow temperature in room zone cooling mode	5 ÷ 85 C	8	
Offset flow cool	Offset temperature for cooling zone	-15 ÷ + 15 °C	0	

Menù Time and Program				
Menu item	Description	Range	Default	Customised value
Date and time	Current date and time setting			
Time slots	Defines the time range for operation in Comfort and Economy mode			
Program Zone	Time programming for controlled zone		Mon - Fri Calendar 1 Sat - Sun Calendar 3	
Program Holiday	Defines the period during which the system disables both hot water heating and room central heating and/or cooling functions. At the end of the set days, the previously active functions will be reset.		Disabled	

Menù Information	
Menu item	Description
Flow temperature	Instant outlet temperature from the system
External temperature	External temperature detected by the external probe
Flow temp. system calc.	Flow temperature requested by the generators
Dew point	Dew temperature
Firmware board version	Heat pump board software revision
Firmware display version	Display software revision installed on the remote panel
H.P. hours of operation	Number of operating hours of the heat pump
Mode of operation H.P.	Describes the heat pump operation mode.

Menù Historical alarm code
Description
Alarm reset
Historical alarm code, parag. 2.10

Menù Service				
Menu item	Description	Range	Default	Customised value
Password protected menu dedicated to a qualified technician				

Menù Language				
Menu item	Description	Range	Default	Customised value
Language	Defines the remote panel operation language	ITA - ENG	ITA	

2.10 TROUBLESHOOTING.

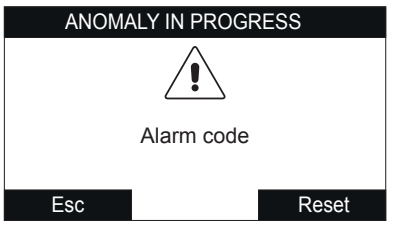
The system signals any anomalies by displaying the attention screen with the relative anomaly code (Fig. 2-8).

Press the "esci" (exit) button to go back to the main screen and the anomaly is displayed with the symbol.

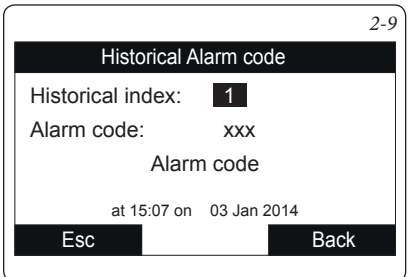
You must access the "Storico anomalie" (Anomalies log) menu to display the anomalies log where the last 10 system anomalies are displayed in time order (Fig. 2-9). Turn the main switch to scroll through the list.

From the "Anomalies log" menu, it is also possible to reset the list by selecting "Reset anomalie".

2-8



2-9



2.11 GMC BOARD ALARM CODES.
The GMC board has a LED to signal any board errors. From the flashing LED, it is possible to identify the error code according to the following table. In the event of several errors, the error with the highest priority will be displayed until it is solved.
In the event of normal operation, the LED flashes at a frequency of ½ Hz.
In the event of an error, the LED remains off for 4 seconds then flashes at a frequency of 1 Hz the same number of times as the error code. Then it remains off for another 6 seconds. If an error code is made up of 2 digits, flashing pauses for 2 seconds between display of the first digit and the second.

Example: error 23: 4 seconds LED Off. 2 flashes at a frequency of 1Hz. 2 seconds off. 3 flashes at a frequency of 1Hz. 6 seconds off. Repeat the cycle until switching off, solving the problem, or in the event of an error with higher priority.

Error Code	Anomaly signalled	Protection/notes function	System status / Solution
0	External alarm signal		If activated, switch the entire Outlet/Production system off.
2	Coolant temperature sensor (TR)	Off, freezing protection active and compressor does not restart	1. Check the coolant temperature sensor (TR) 2. Check the GMC board
3	GMC air temperature sensor	All protections activated	1. Check the GMC external sensor 2. Check the GMC board
4	Loss of Remote Panel control communication	System active just like the last controls.	1. Check the cables between the GMC board and Remote Panel 2. Check the GMC board and Remote Panel
7	Water sensor error	No protection	1. Check for the presence of air and/or system pump
8	EEProm corrupt	No protection	Check the control panel If faulty, replace it
9	Unit setting	Off, freezing protection active and compressor does not restart	Check the remote panel settings
10	4-way valve faulty	Off, freezing protection active and compressor does not restart	Check the 4-way valve coil
11	Loss of RS485 communication (type 6 system configuration)	System active just like the last controls.	1. Check the cables 2. Check the GMC board
12	Loss of inverter board signal or compressor temperature sensor	No protection	1. Check the cables 2. Check the GMC board
13	Water outlet temperature sensor	Off, freezing protection active and compressor does not restart	1. Check the Outlet Water Temperature Sensor (LWT) 2. Check the GMC board
15	Inverter (TO) air temperature sensor	All protections are activated	1. Check the Inverter Air sensor (TO) 2. Check the Inverter board
16	Inverter G-Tr short circuit protection	Off, freezing protection active and compressor does not restart	1. The inverter stops immediately even if reactivated 2. Check the Inverter board for wiring errors
18	Compressor rotor control position error	Off, freezing protection active and compressor does not restart	1. The inverter stops immediately even if reactivated - check the inverter board 2. Check the three-phase voltage and cables
19	Inverter current sensor error	Off, freezing protection active and compressor does not restart	1. Check the inverter current sensor error 2. Check the Inverter board
20	Heat exchanger coolant sensors or compressor intake (TE) / (TS)	Off, freezing protection active and compressor does not restart	1. Check Heat Exchanger Sensors (TE, TS) 2. Check the inverter board
21	Compressor flow temperature sensor (TD)	Off, freezing protection active and compressor does not restart	1. Check the flow temperature probe (TD) 2. Check the inverter board
22	Fan motor error	Off, freezing protection active and compressor does not restart	1. Detection of defective position 2. Overload protection circuit of the external fan motorisation operating 3. External fan blocked 4. Check the Inverter board
24	Other errors on the Inverter board	Off, freezing protection active and compressor does not restart	
25	Compressor blocked	Off, freezing protection active and compressor does not restart	1. Compressor faulty - replace the compressor 2. Defective compressor cables 3. Check the three-phase voltage and cables
26	Flow temperature error	Off, freezing protection active and compressor does not restart	1. Check the coolant cycle for gas leakages 2. PMV fault 3. Check TD sensor operation

Error Code	Anomaly signalled	Protection/notes function	System status / Solution
27	Compressor faulty	Off, freezing protection active and compressor does not restart	1. Check the supply voltage: CA 220-s40V +/- 10V 2. Coolant cycle overload 3. Check
28	Low pressure switch	Off, freezing protection active and compressor does not restart	
29	High pressure switch	Off, freezing protection active and compressor does not restart	

3 CHECKS AND MAINTENANCE.

Assistance and maintenance
Attention:

- Make sure that personnel wear personal protective equipment.
- Extraordinary maintenance operations must be carried out by qualified personnel.

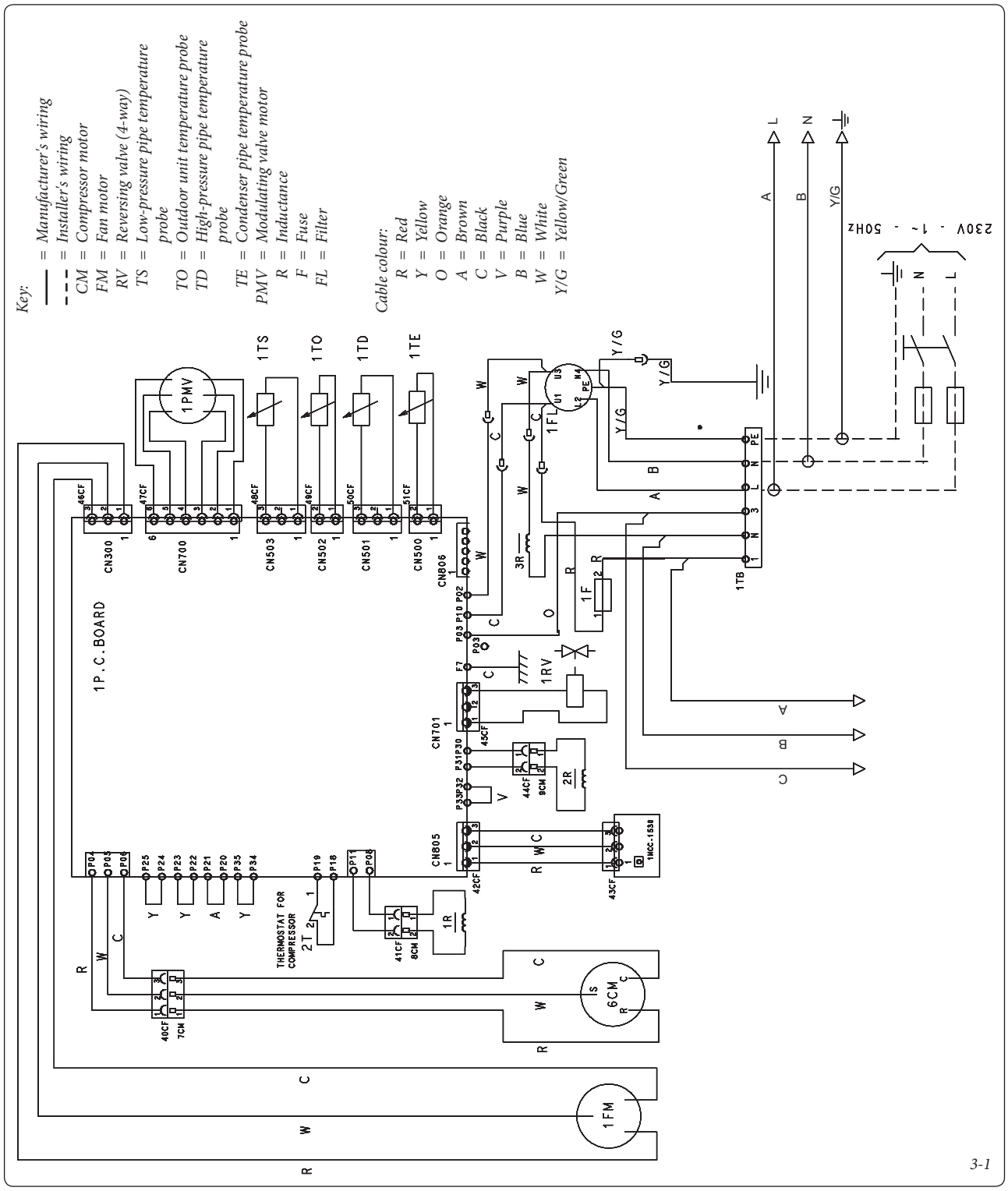
N.B.: disconnect the mains supply voltage before starting any maintenance operations or before handling any components inside the unit.
Attention:

- The air conditioning unit contains coolant that requires special disposal.
- After its useful lifespan, remove the air-conditioning unit with care.
- The air-conditioning unit must be taken to special collection centres or dealers who will provide for its proper and suitable disposal.

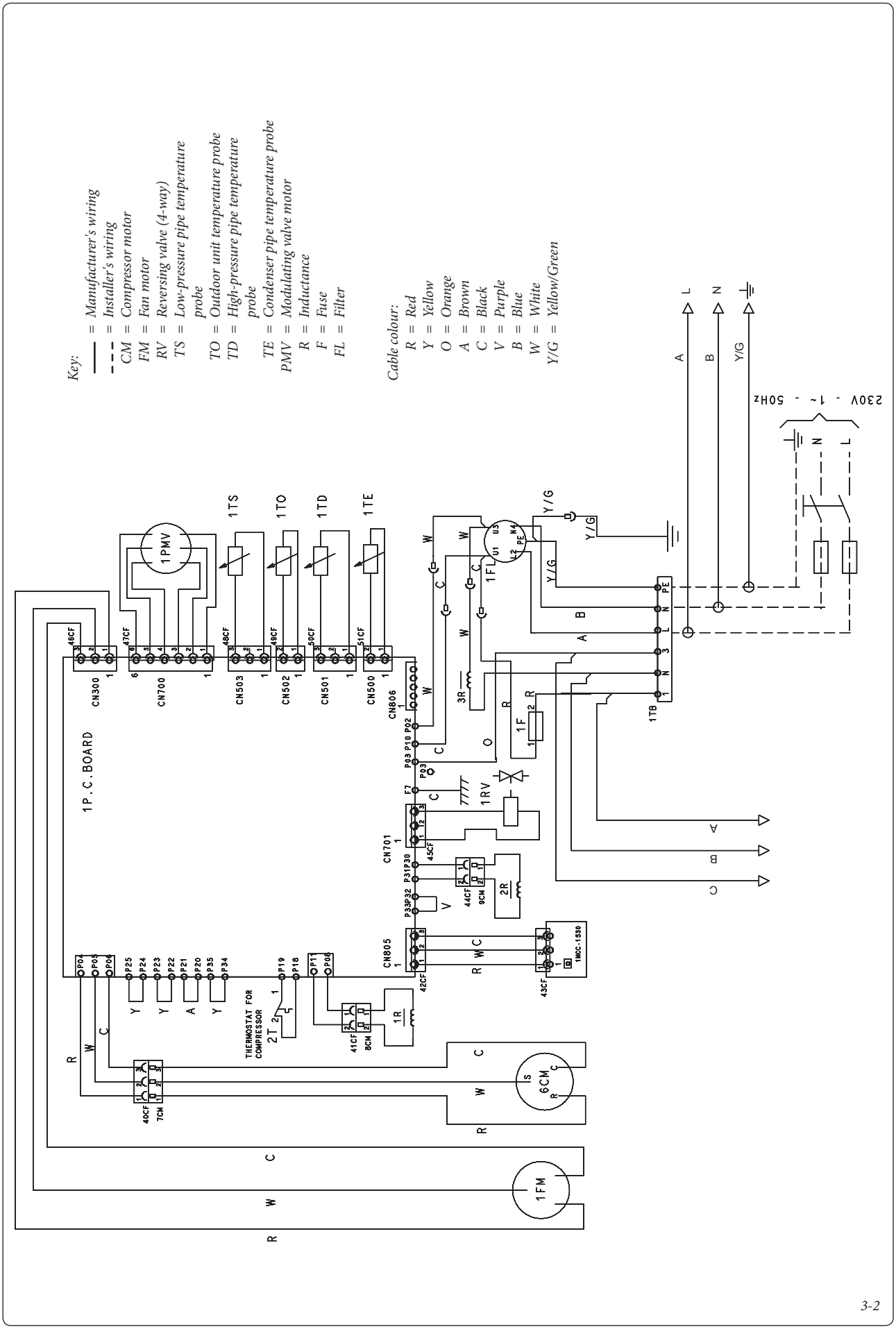
- using an omnipolar disconnecter, check connection to 230V-50Hz mains power supply, correct L-N polarity and the earthing connection;
- make sure the central heating system is filled with water and that the manometer indicates a pressure of 1÷1.2 bar.
- make sure that the air vent valve cap (if present) is open and that the system is well deaerated;
- check activation of the main switch located upstream of Audax Top ErP;
- check sealing efficiency of water circuits;
- check correlation between the electric and hydraulic connections;

If even only a single safety check offers a negative result, do not commission the system.

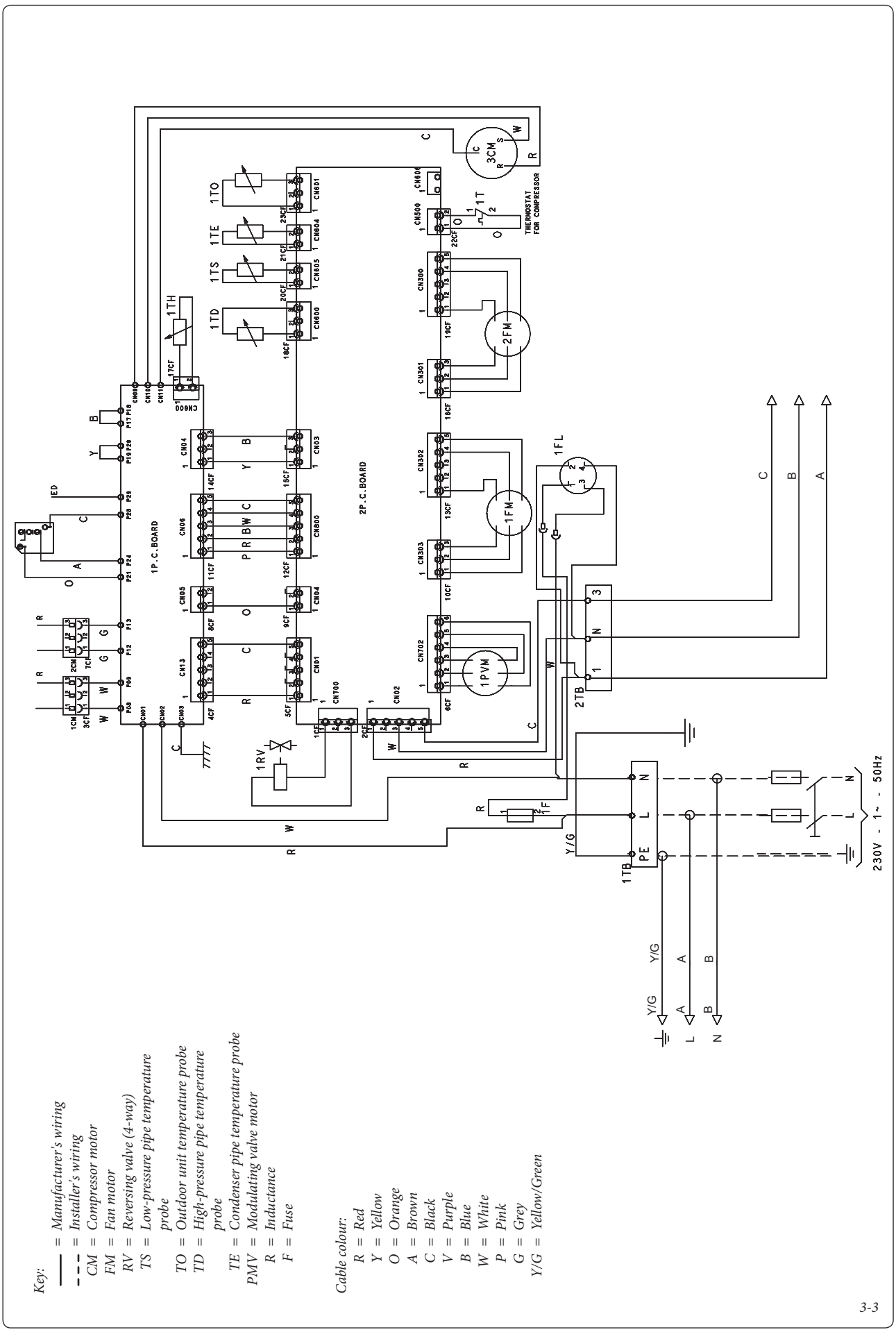
3.1 AUDAX TOP 6 ErP WIRING DIAGRAM.



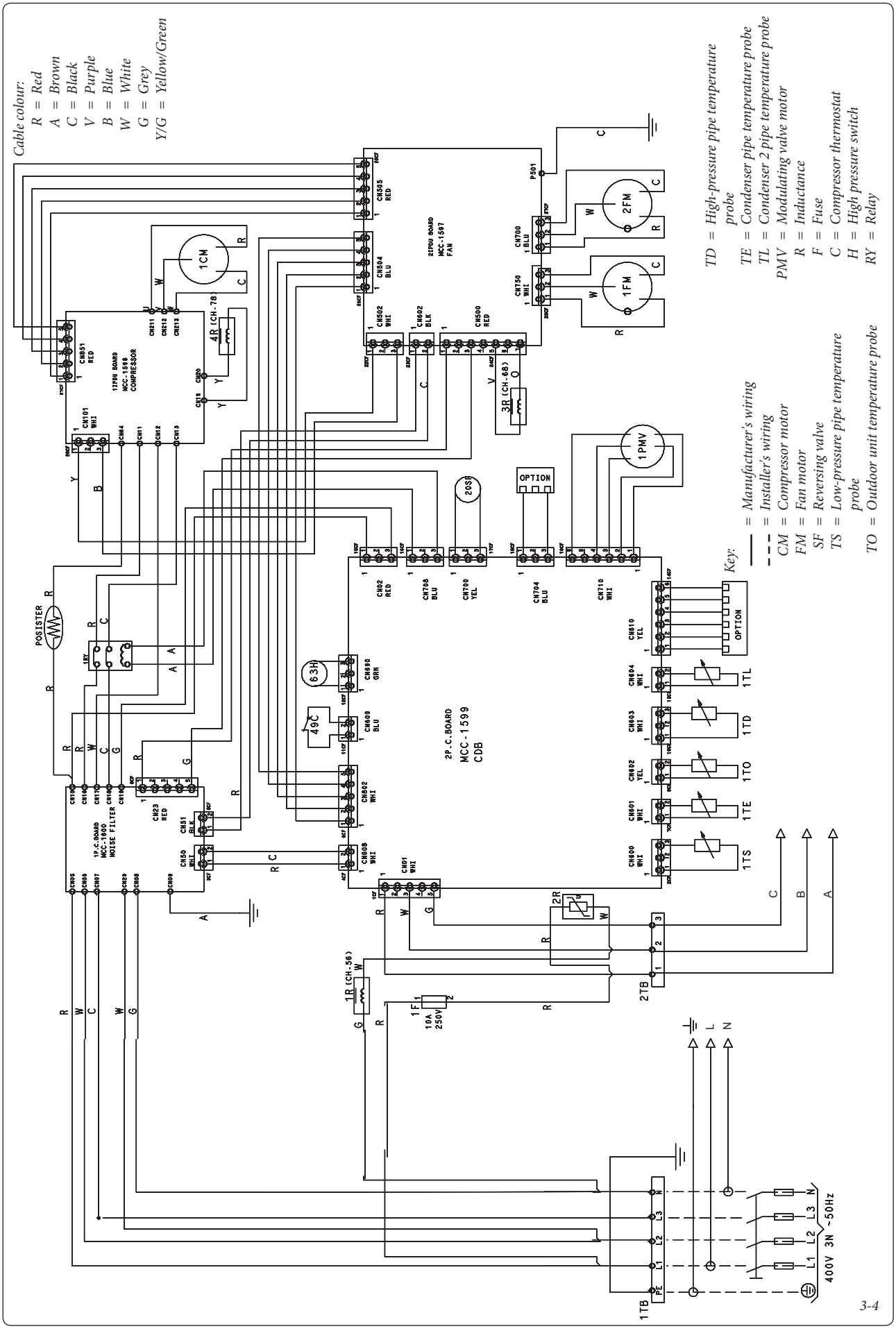
3.2 AUDAX TOP 8 ErP WIRING DIAGRAM.



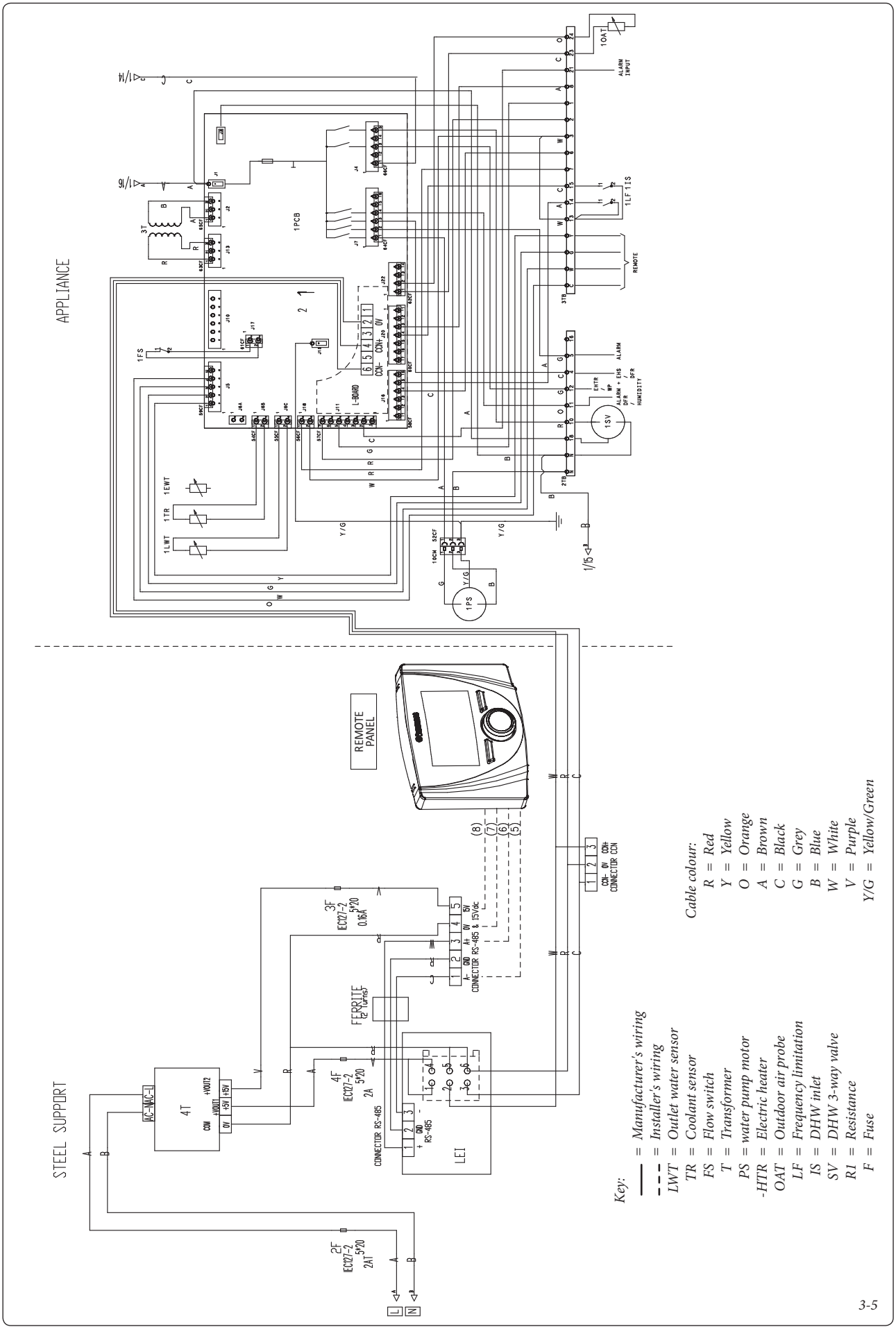
3.3 AUDAX TOP 12 ErP WIRING DIAGRAM.



3.4 AUDAX TOP 16 ErP WIRING DIAGRAM.



3.5 AUDAX TOP ErP CONTROL BOARD.



3.6 PROGRAMMING.

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

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

Menù Service		
Menu item	Description	Range
Definition of Zone	Zone system sub-menu settings	-
Defining plant	Sub-menu to define the devices connected to the system	-
Device configuration	Sub-menu to set the device's configuration	-
Thermoreg. heat	Central heating thermoregulation setting sub-menu	-
Thermoreg. cool	Cooling thermoregulation setting sub-menu	-
Thermoreg. parameters	Parameters thermoregulation setting sub-menu	-
Integration	System integration setting sub-menu	-
Heat pump	Heat pump operating parameters sub-menu	-
Manual	Manual operating parameters sub-menu	-
Factory settings	Default settings restore sub-menu	-

Menù Service -> Definition of Zone				
Menu item	Description	Range	Default	Customised value
Mode	Display the operating mode	- Hot + Cold	-	
Enable remote control	Enable operation of the supplied remote control. If "No" is set, the remote panel only displays the heat pump statuses. **N.B.:** setting "No", it is compulsory to enable the room thermostat (refer to the next item), otherwise the machine will display an anomaly.	Yes / No	Yes	
Enable thermostat	Enable operation of a room thermostat to check the heat pump PdC is controlled by contacts in the said P.C.B.	Yes / No	No	
Enable dew point	Enable operation with a humidity probe in the remote panel.	Yes / No	Yes	

Menù Service -> Defining plant				
Menu item	Description	Range	Default	Customised value
External probe	Enables operation with the external probe.	No / PdC	No	
Reduction function	Enable PdC operation frequency reduction, which is controlled by the said terminal board.	Yes / No	No	

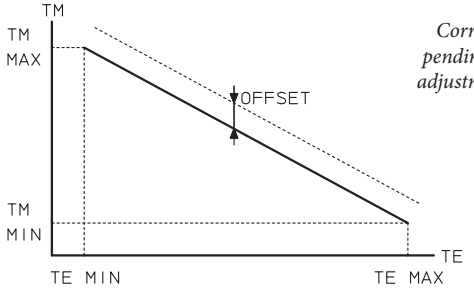
Menù Service -> Device configuration				
Menu item	Description	Range	Default	Customised value
H.P. control	Setting "Yes", the default remote control supplied manages the heat pump. Setting "No", the remote control does not control the heat pump and must be coupled with other Immergas systems (for example, Trio, Magis Hercules). If "No" is set, it displays another item "slave address". **N.B.:** if it is erroneously set to "No", it is still possible to change the selection.	Yes / No	Yes	
Slave address	Address to configure according to the zone where the device is installed (e.g.: zone 1 = 41, zone 2 = 42, zone 3 = 43, etc...).	1 ÷ 247	-	

Menù Service -> Thermoreg. heat				
Menu item	Description	Range	Default	Customised value
Discharge Set min	Without the external probe it defines the minimum flow temperature that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	25 ÷ 50 °C	25 °C	
Discharge Set max	Without the external probe it defines the maximum flow temperature that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	35 ÷ 85 °C	45°C	
External Temp. min	With the external probe present it defines at what minimum external temperature the system must operate at the maximum flow temperature	-25 ÷ +15 °C	-5 °C	
External Temp. max	With the external probe present it defines at what maximum external temperature the system must operate at the minimum flow temperature	-5 ÷ +45 °C	25 °C	

Menù Service -> Thermoreg. cool				
Menu item	Description	Range	Default	Customised value
Discharge Set min	Without the external probe it defines the minimum flow that can be set by the user. With the external probe present it defines the minimum flow temperature corresponding to operation with maximum external temperature	6 ÷ 20 °C	18°C	
Discharge Set max	Without the external probe it defines the maximum flow that can be set by the user. With the external probe present it defines the maximum flow temperature corresponding to operation with minimum external temperature	10 ÷ 20 °C	20°C	
External Temp. min	With the external probe present, it defines at what maximum external temperature the system must operate at the minimum flow temperature	20 ÷ 45 °C	25 °C	
External Temp. max	With the external probe present, it defines at what minimum external temperature the system must operate at the maximum flow temperature	5 ÷ 45 °C	35°C	

Menù Service -> Thermoreg. parameters				
Menu item	Description	Range	Default	Customised value
Room probe modul.	It enables you to set operation of the remote panel as modulating ON/OFF: Set "Yes", the flow temperature will be varied depending on the room temperature set. Set "No", the flow temperature will be kept constant until the desired room temperature is reached. **N.B.:** if an external temperature probe is present, the flow temperature will be set depending on the relative functioning curve.	Yes / No		
System inertia	It establishes the system reaction speed according to the type of system present. Example: 5 system with little heat inertia 10 system with normal dimensions with radiators 20 system with a lot of heat inertia (e.g. floor-standing system)	1 ÷ 20		
Antifreeze anable	Enables the room antifreeze function.	Yes / No	Yes	
Antifreeze set	Allows to set the room temperature for activation of the anti-freeze function.	0 ÷ 10 °C	5 °C	

External temperature probe.
The system is set up to use the external probe on the heat pump.
The correlation between system flow temperature and external temperature is determined by the parameters set in assistance menu "Central heating thermoregulation" according to the curves represented in the diagram (Fig. 3-6).



EXTERNAL PROBE
Correction law of the flow temperature depending on the external temperature and user adjustments of the central heating temperature.

TM-MAX/MIN = Selected flow temperature range.
TE = External temperature.

3-6

Menù Service -> Integration				
Menu item	Description	Range	Default	Customised value
Integration device	It establishes the type of integration in the system	- None - Electrical resistance	None	
Min. temp. of integration	Temperature threshold below which integration is activated and the heat pump is switched off.	-20 ÷ +30 °C	-20 °C	
Contemp. temp. integr.	A value that is equal to, or higher than, the minimum integration temperature must be set. Activate central heating integration when the outdoor temperature is below the set value, the set intake requested has not been reached, and the heat pump remains active.	0 ÷ 60 °C	20°C	
Waiting time integration	Standby to reach the set value before activating integration when outdoor temperature is below the previously set temperature values (minimum integration temperature and simultaneous integration temperature).	0 ÷ 600’	60’	
Counter reset H.P.	Reset the number of operating hours of the heat pump	Yes / No	No	

Menù Service -> Heat pump		
Menu item	Description	Range
Flow temperature	Instant outlet temperature from the system	
Flow temp. system calc.	Flow temperature requested by the generators	
Comp. discharge temp.	Current heat pump compressor temperature	0 ÷ 100 °C
Comp. suction temp.	Compressor intake temperature	-20 ÷ 100 °C
BPHE refrigerant temp.	Coolant temperature inside the plate heat exchanger	-20 ÷ 100 °C
Coil refrigerant temp.	Battery temperature	-20 ÷ 100 °C
Outdoor Air Temp.	Room temperature	-20 ÷ 100 °C
Max freq. compressor	Maximum frequency in current operating conditions	0 ÷ 200 Hz
Requested frequency	Frequency requested by the control board	0 ÷ 200 Hz
Actual frequency	Current compressor frequency	0 ÷ 200 Hz
Compressor runtime	Number of hours of operation of the compressor	
System mode	Indicates the system's operating mode	0 = Off 1 = Standby 2 = Cooling 3 = Central heating 4 = Extra central heating 5 = Extra cooling 6 = Central heating reduction 7 = Cooling reduction 8 = Antifreeze protection 9 = Defrosting 10 = High temperature protection 11 = Surveillance time 12 = Anomaly
Flow switch	Indicates circulation inside the hydraulic circulator	On / Off
Flags anomalies H	Indicates any multiple anomalies on the heat pump	
Flags anomalies L		
Communication status	Indicates the communication status between the remote panel and heat pump 2 or more than 2 = communication OK 0 = communication problem	

Menù Service -> Manual		
Menu item	Description	Range
Manual	0 = No manual forcing 1 = "On" heat pump circulator 2 = "On" alarm outlet on clamp N° 5 3 = "On" external circulator on clamp N° 4 4 = Alarm/defrosting outlet on clamp N° 11 5 = Outlet for integration resistance on clamp N° 12 6 = DHW 3-way valve outlet on clamp N°10	0 ÷ 6

N.B: Before exiting this menu, remember to bring the value to "0" (zero) for correct operation.

3.7 INVERTER BOARD ALARM CODES (AUDAX TOP 12 ErP ONLY).

Inverter faults can be diagnosed by using the LED indications on the external unit's PCB.
Use them for various controls.
Before a check, make sure that all the positions of the DIP micro-switch are set to OFF.

LED indications and code controls

LED indication	Cycle control PCB				Cause
	LED indication				
	D800	D801	D802	D803	
D800 O: Red D801 O: Yellow D802 O: Yellow D803 O: Yellow ♦: Flashing ●: Off ○ On	○	●	●	●	Heat exchanger sensor error (TE)
	●	●	○	●	Intake sensor error (TS)
	○	○	●	●	Hot gas exhaust sensor error (TD)
	●	○	●	○	High pressure protection error
	●	○	●	●	Outdoor air temperature sensor error
	○	○	○	●	External fan motor error DC
	○	●	●	○	IPDU communication error (Anomalous stop)
	●	○	●	○	High pressure protection intervention
	●	○	○	●	Very high hot gas exhaust temperature error
	○	○	●	○	EEPROM error
	●	●	○	○	IPDU communication error (Anomalous stop)
	♦	●	●	●	G-Tr short circuit protection
	●	♦	●	●	Detection circuit error
	♦	♦	●	●	Current sensor error
	●	●	♦	●	Compressor block error
	♦	●	♦	●	Compressor faulty