MODELS AHP020 AHP030 AHP050 AHP060 AHP100 AHP130 AHP200 AHP250 AHP400 AHP500

EN

V-HEAT HEAT PUMP

Instruction manual

ES

BOMBA DE CALOR V-HEAT

Manual de instrucciones

FR

POMPE À CHALEUR V-HEAT

Manuel d´instructions

DE

WÄRMEPUMPE V-HEAT

Bedienungsanleitung

IT

POMPA DI CALORE V-HEAT

Manuale delle instruzioni

PT

BOMBA DE CALOR V-HEAT

Manual de instruções

NL

WARMTEPOMP V-HEAT

Handleiding met instructies

V. 2010 - 04 - 30 R22

V-HEAT HEAT PUMP - V-HEAT SERIES • AIR/WATER SYSTEM
BOMBA DE CALOR V-HEAT - SÉRIES V-HEAT • SISTEMA AIRE/AGUA
POMPE À CHALEUR V-HEAT - SÉRIES V-HEAT • SYSTÈME AIR/EAU
WÄRMEPUMPE V-HEAT - V-HEAT SERIE • LUFT-WASSER-SYSTEM
POMPA DI CALORE V-HEAT - SERIE V-HEAT • SISTEMA ARIA/ACQUA
BOMBA DE CALOR V-HEAT - SÉRIES V-HEAT • SISTEMA AR/ÁGUA
WARMTEPOMP V-HEAT – SERIE V-HEAT SYSTEEM LUCHT/WATER

TECHNICAL MANUAL. START-UP AND OPERATION
MANUAL TÉCNICO. ARRANQUE Y FUNCIONAMENTO
MANUEL TECHNIQUE. MISE EN ROUTE ET FONCTIONNEMENT
TECHNISCHES HANDBUCH. INBETRIEBNAHME UND BETRIEBSWEISE
MANUALE TECNICO. AVVIAMENTO E FUNZIONAMENTO
MANUAL TÉCNICO. ARRANQUE E FUNCIONAMENTO
HANDLEIDING MET INSTRUCTIES. STARTEN EN BEDIENING

ENGLISH

TABLE OF CONTENTS

EIGHT ESSENTIAL POINTS (Read carefully before start-up)

1.

Check unit condition upon receipt. If the unit is damaged or if the shipment is not complete, make a note in the delivery note and send an immediate complaint to the company that forwarded the shipment.

2.

It is essential that the installer receives the installation manual. Read the manual and follow the safety, use and handling instructions of the product carefully. Keep the manual for further reference.

3.

When washing the purification filter, the heat pump must be off. In the event of any maintenance or repair manipulation in the heat pump, it is obligatory to switch off the power supply. You should not try any kind of repair work in the heat pump. A qualified installer should be called. He will take it upon himself to return the faulty unit to the manufacturer. In order to guarantee the correct operation of the pump it is necessary to make a periodic maintenance of the pump, to make a good use of the pump and not to exceed the limits set by the manufacturer.

4.

The installation must be made by qualified technical personnel. These personnel commit themselves to observe the instructions of the manufacturer and the applicable regulations. They also must have available standard-issue material and must guarantee their training in refrigeration facilities. The manufacturer should not be responsible for any damage in the installation that may cause damages to animals, objects or people. The manufacturer should not be responsible either for any wrong manipulations by the installer.

5.

This heat pump should be used for the purposes it has been built for. Any other use which does not conform will be considered dangerous. The safety in the operation of the heat pump could be compromised by the lack of observance of the previous points. The damages caused by errors in the installation, use or due to the lack of observance of the instructions or applicable regulations are excluded from any guarantee.

6.

In the case of sale to third parties, it is advisable to include this manual with the heat pump, in case the new client or installer wishes to consult it.

7.

The machine can take of 2 to 3 days in warming up the water until the wished temperature depending on the initial conditions.

8.

The machine must work with filter.

1 INTRODUCTION

Thank you for acquiring the heat pump for heating outdoor swimming pools. The experience our company has gained during more than 25 years in the world of air conditioning of swimming pools has been put to your service in this product, in which we also incorporate the technical breakthroughs that turn this heat pump into the equipment that can solve once and for all the air conditioning of your swimming pool, extending thus the length of your bathing season.

IMPORTANT

Please, read this manual carefully in order to: make a successful installation and commissioning, know the whole potential of the machine, and take into account all the needed circumstances for a proper and lasting performance.

IT IS SUGGESTED THAT NOTE BE MADE OF THE FOLLOWING DATA	
INSTALLER COMPANY	
DATE	
TELEPHONE	
MODEL	
SERIAL NUMBER	

Dealer's stamp Installer's stamp

2 DESCRIPTION OF THE HEAT PUMP

2.1 Technical Data

- The calculation of power output in heating mode has been done with an outdoor air temperature of 24ºC/19ºC, a water temperature of 27 ºC and 63% humidity.
- The calculation of power output in cooling mode has been done with an outdoor air temperature of 43ºC/32ºC, a water temperature of 32 ºC and 63% humidity.

- Operational temperature limits:
  - *Outdoor minimum air temperature: 8ºC*
  - *Outdoor maximum air temperature: 50ºC*
  - *Maximum temperature of pool water in heating mode: 36ºC*

- Maximum water pressure input 3,5 bar.

MODELS	CV	BTU/H	Heating W Out	Heating W In	COP	BTU/H	Cooling W Out	Cooling W In	EER
AHP020	2HP	30.000	8.800	1.800	4,9	24.000	7.000	2.300	3.1
AHP030	2,5HP	44.000	13.000	2.650	4.9	30.000	8.800	2.850	3.1
AHP050	5HP	72.000	21.000	4.600	4,6	49.500	14.500	5.200	2,8
AHP060	6HP	86.000	25.000	5.000	5.0	59.500	17.000	5.800	2.9
AHP100	9HP	150.000	45.000	9.500	4,7	102.000	30.000	10.200	2,9
AHP130	10HP	187.000	55.000	12.500	4.4	130.000	38.000	13.200	2,8
AHP200	14,5HP	280.000	82.000	18.000	4,5	198.000	58.000	19.500	2.9
AHP250	20HP	360.000	108.000	24.500	4.4	245.000	72.000	25.000	2.8
AHP400	30HP	550.000	160.000	34.200	4,7	410.000	120.000	41.600	2,9
AHP500	40HP	720.000	210.000	46.300	4,5	510.000	150.000	56.200	2,7

MODELS	A	V/Ph/Hz	Compressor Number	Compressor	Fan Nº	Fan Power Input (W)	RPM	Fan Direction	dB(A)	Water Connection (mm)	Water Flow (m^3/h)	Water Pressure Drop (kPa)
AHP020	10,5/8,2	230/1/50	1	ROTARY	1	120	850	Vertical	51	50	4	10
AHP030	14,3/13,6	230/1/50	1	ROTARY	1	120	850	Vertical	58	50	6	10
AHP050	7,35/7,1	380/3/50	1	SCROLL	1	200	850	Vertical	58	50	7,5	12
AHP060	10,3/8,9	380/3/50	1	SCROLL	2	120x2	850	Vertical	56	50	9	12
AHP100	16,4/15,7	380/3/50	2	SCROLL	2	200x2	850	Vertical	61	63	15	15
AHP130	19,2/18,8	380/3/50	2	SCROLL	2	200x2	850	Vertical	61	63	19,5	15
AHP200	30,8/29,8	380/3/50	3	SCROLL	3	200x3	850	Vertical	65	63	30	20
AHP250	38,3/37,9	380/3/50	4	SCROLL	3	200x3	850	Vertical	66	110	30	25
AHP400	74,2/61	380/3/50	3	SCROLL	3	200x3	850	Vertical	64	110	40	30
AHP500	99,1/81,8	380/3/50	4	SCROLL	4	200x4	850	Vertical	65	110	50	35

3 PRECAUTIONS FOR USE AND CONDITIONS OF USE

3.1 Safety Instructions

Read the safety instructions prior to any manipulation:

ATTENTION

Any incorrect manipulation may cause an important risk that could involve deadly injuries.

WARNING

Any incorrect manipulation may cause serious damages to the user and the unit.

ATTENTION

Do not place heavy objects, pull, damage, heat up or modify the electrical plug. The cable would be damaged and it would cause electric discharges and fire risk.	**IMPORTANT**: Keep the plug clean. If dirt adheres to the plug or if does not plug in properly, it may cause a fire or electric shocks.
Never introduce rods, finger or other items in the air inlet / outlet. The fan operates at great speed, being able to cause a very serious incident.	**KEEP AWAY FROM CHILDREN**
Do not connect / disconnect the unit in use. It can cause a fire due to the sparks, etc.	If the unit continues working in abnormal conditions, it can cause a fire or damages. Check with its installer.
If any anomaly takes place (burning smell, etc.), stop the unit, retrieve the plug or turn the power off.	The repair or installation should never be performed by the client.
The unit must never be put under water or mud discharges and the water outlet should never be located in places exposed to strong winds.	Connection: Do not tie an earth wire to a gas or water pipe, bright-line viewfinder or telephone plug. This would cause a fire risk.
Do not pull the power supply cord. There is a risk of fire if the electrical cable is ripped off.	Do not place animals or indoor plants in direct contact with the air outlet. This would cause injury to the animals and plants.
When unit maintenance must be undertaken, switch it off and disconnect the unit or turn the power off. The fan operates at great speed, being able to cause a very serious incident.	When the unit may not be used for some time, unplug it or turn the power off. It could accumulate vegetation and dust and cause a fire.
Do not manipulate the plug with wet hands, since it could cause an electrical discharge. In case of storm, switch the heat pump off to avoid lightning related damages.	Do not vaporize with insecticide or any other flammable spray in the direction of the heat pump. This would cause a fire and the distortion of the housing.

3.2 Installation Conditions

Do not install the unit near a flammable gas source, since a gas leak may occur and cause an explosion.

According to the place where the unit must be installed (humid place, etc.), install electrical protection by a 30 mA differential circuit breaker. Otherwise, an electrical discharge may take place.	Condensers must have been completely drained. Otherwise, the water could leak out of the unit and dampen and damage its components.

WARNING

Do not leave a damaged installation. The unit could cause an accident.	Do not mount or place anything upon the unit. The fall of the object or the unit could cause an accident.
Verify the network compatibility with the data specified in the unit before starting to install the heat pump.	
In order to obtain an optimal operation of the heat pump, certain norms must be respected: **A.** Use of free chlorine: 0.5 – 2 ppm **B.** Bromine: 6.6 mg/l max. **C.** pH: 7.2 to 7.6 **D.** Salt : 4-6 gr/l	
When washing the filter of the filtering pump for swimming pools, the heat pump must be disconnected.	

SPECIFIC INSTRUCTIONS: It is obligatory for users contact a specialized company that has experience installing and repairing heat pumps. Users should not install or repair the heat pump themselves nor should another person do it.
The operating environment of the unit usually varies between 8 ºC and 50 ºC.

4 START-UP OF THE HEAT PUMP

4.1 Installation Rules

It is necessary to determine the unit location according to certain criteria:

· The unit must be secured on a hard base (concrete or hard steel frame type) and must be protected from flood risks.

· The unit must be installed outside, taking advantage of the sun's direct rays.

· A clear space around the unit of around 0.6 m at the front, adequate room for serviceability, and a minimum of 0.5 m at the back and sides of the unit must be left.

· If the heat pump is to be installed in a garage or under a vertical overhang, the unit must have a minimum of 2.5 meters clearance from the top of the heat pump.

· The air caused by the helix must be directed away from the limits of the work environment (windows, doors...).

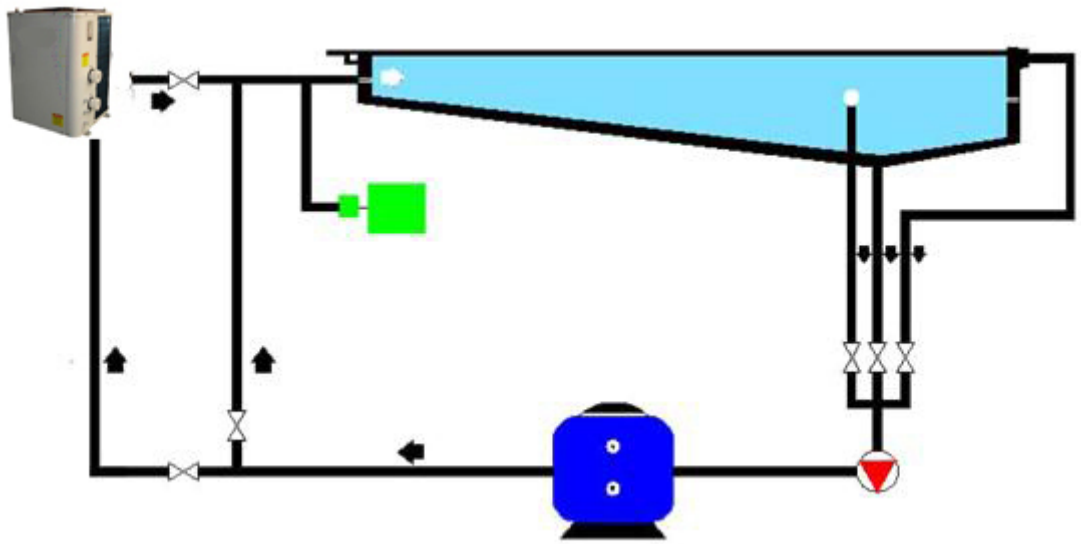
· The minimum distance between the heat pump and the rim of the swimming pool must be at least 3.5 m. (Electrotechnic Regulations for Low Voltage, Supplementary Technical Instructions, Low Voltage, 31, ITC-BT-31).

· The electrical and hydraulic connections must be made according to the applicable regulations (NF C 15 100, EC 1 364). The ducting for the connections must be fixed.

- During operation of the unit, it is normal that the condensation produced by the evaporation unit will produce a certain quantity of water which will have to be evacuated. It is important to remember that no part of the tubing or hose may be above the level of the drain hole in the base of the heat pump.
- This condensation water does not have to be treated in any special manner.
- Keep lawn sprinkler heads from spraying on the heat pump to prevent corrosion and damage. Use a deflector if needed.
- Make sure the heat pump is not located where large amounts of water may run off from a roof into the unit. Sharp sloping roofs without gutters will allow massive amounts of rain water, mixed with debris from the roof, to be forced through the unit.

4.2 Hydraulic Connections

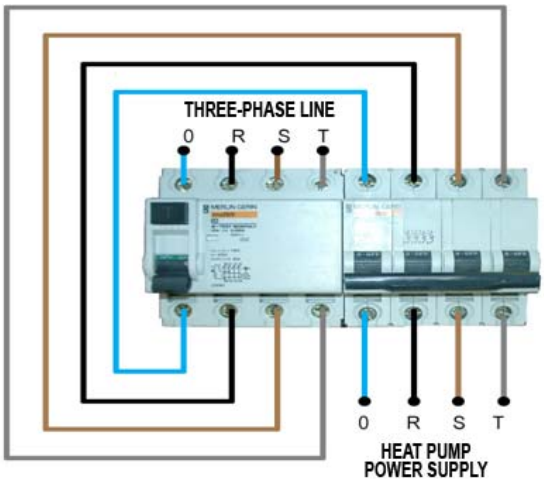
Connect the PVC piping water inlets and outlets of the swimming pool to the heat pump inlet and outlet. The connection will be performed through a by-pass over the filtering circuit of the swimming pool after the filter and before the water treatment. Adjust the flow so that the arrow of this pressure gauge in the green zone.



If it is not possible to install the feeder 25cm below the water discharge of the heat pump a siphon should be installed. For additional security, a check valve should also be installed to prevent the chemical product from returning to the pump when water circulation is interrupted.
There must be water flowing through the hydraulic connections when the unit is running.
Never place concentrated chemicals in the swimming pool skimmers.
A full-flow shut-off valve should be installed on each of the hydraulic elements in the equipment, so that each of these may be isolated if needed (for filter cleaning, repairs, substitutions, etc.) without the need to drain the circuit.
Anti-vibration dampers should be installed in the inlet and outlet of the machine, in order to avoid vibrations which may cause cracks or breakage in the hydraulic connections.
In order to avoid possible breakage, do not force the PVC tubes connected to the water supply.

4.3 Electrical Connection

· The power supply for the heat pump must come, preferably, from a sole circuit provided with standard-issue protection components (see above: protection by a 30 mA differential) and a magnetic circuit breaker.



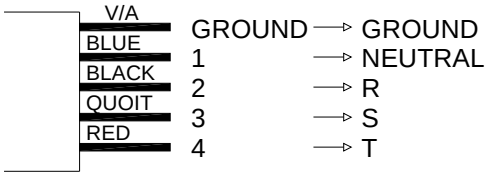
The electrical installation must be carried out by a qualified professional (an electrician, for example) according to the applicable laws and regulations of the target country.
· The heat pump circuit must be linked to a safety earth circuit levelled to the terminal block.
· The cables must be correctly installed so that they do not cause interferences (items in the lead boards).
· The heat pump may be connected to an earthed 230/2/50Hz or 400/3/50Hz general-purpose power supply.
· Table 1 shows some indicative sections, which must be verified and adapted according to the installation needs and conditions.
· All wiring should comply with local and national electric codes and should not be prone to overheating and subsequent voltage failures. As a guide, you can use the general power supply table for lengths of less than 25 metres.
· The acceptable tolerance to voltage fluctuation is +/- 10% during operation.

ELECTRICAL DATA	MODEL									
	AHP020	AHP030	AHP050	AHP060	AHP100	AHP130	AHP200	AHP250	AHP400	AHP500
Voltage. (V)	230 II	230 II	400 III	400 III	400 III	400 III	400 III	400 III	400 III	400 III
Section (mm^2) POWER	4	4	4	4	6	6	10	16	35	50
Nº. of wires	3	3	5	5	5	5	5	5	5	5

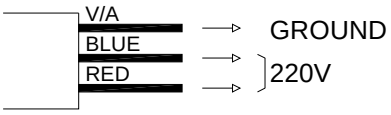
The electrical installation should be done by qualified professionals, keeping in mind the following points:

1. Connect the equipment following the wiring diagram included in this manual.
2. Place a U-curve thermal-magnetic circuit breaker in the general power connection to protect the line in the case of a short in the circuit.
3. Place a differential circuit breaker in the general power connection to protect the equipment from possible grounding problems. The differential breaker should be minimum 30 mA.
4. Before installing the connections, be sure to disconnect the electricity so that the power supply is turned off.
5. Connect the power supply wires to the unit's input terminal.
6. Connect the grounding wire to its corresponding terminal.
7. Connect the debugger control connections for the debugger in parallel with the debugger time connection.

380/3/50 Hz CONNECTIONS



220/2/50 Hz CONNECTIONS



IMPORTANT: The heat pump should always operate together with the purification pump. We must have the precaution never to interconnect timers or programmers which may stop the purification pump and leave the unit working alone.

All local and national electricity codes concerning the protection of defects in electric power lines should be respected at all times during the electrical installation.

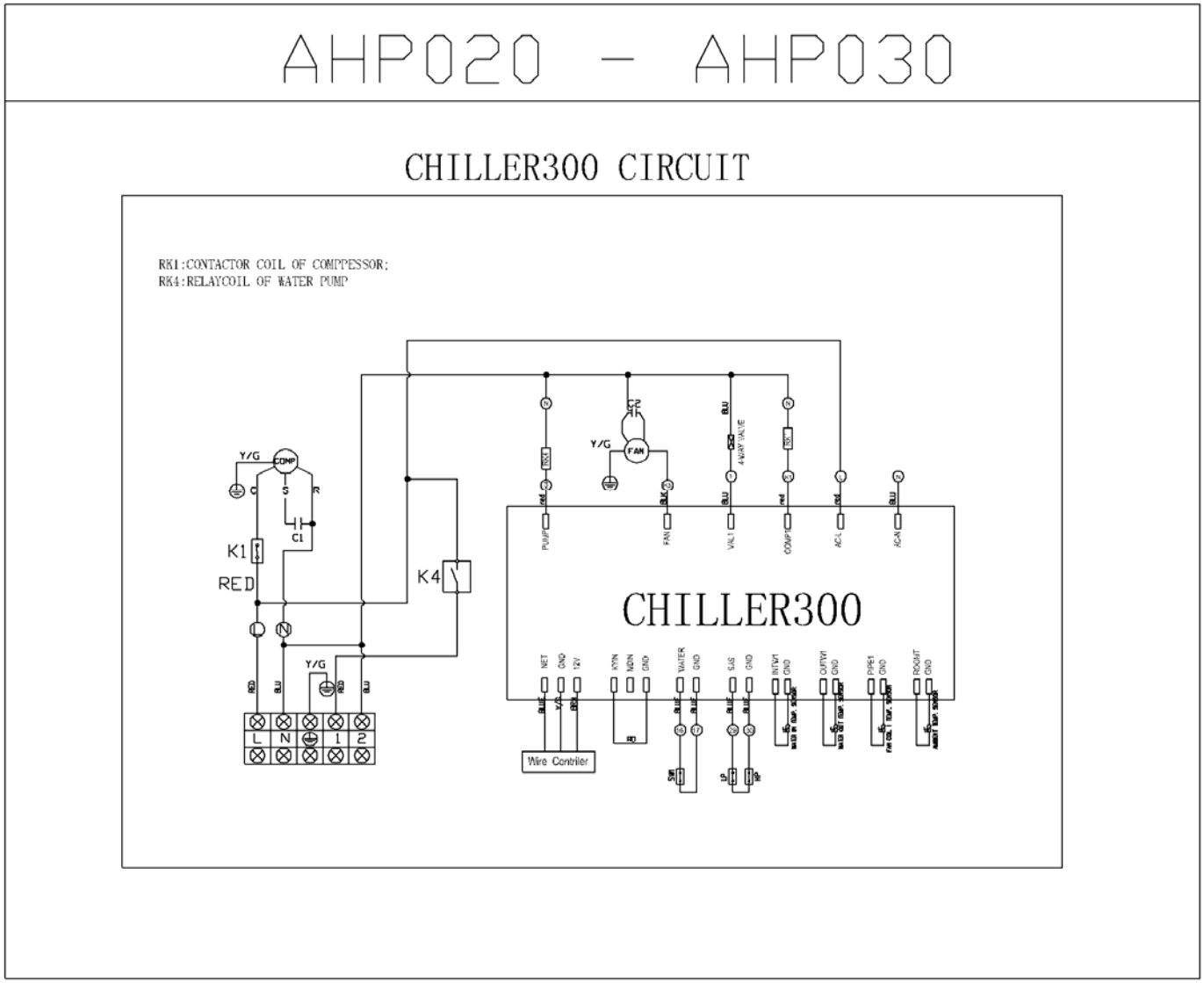
Verify the torque of all electrical connections.

The electrical resistance between the ground and any electric terminal will be verified to be over 1 megaohm. Otherwise, the equipment will not start up until electrical loss is located and repaired.

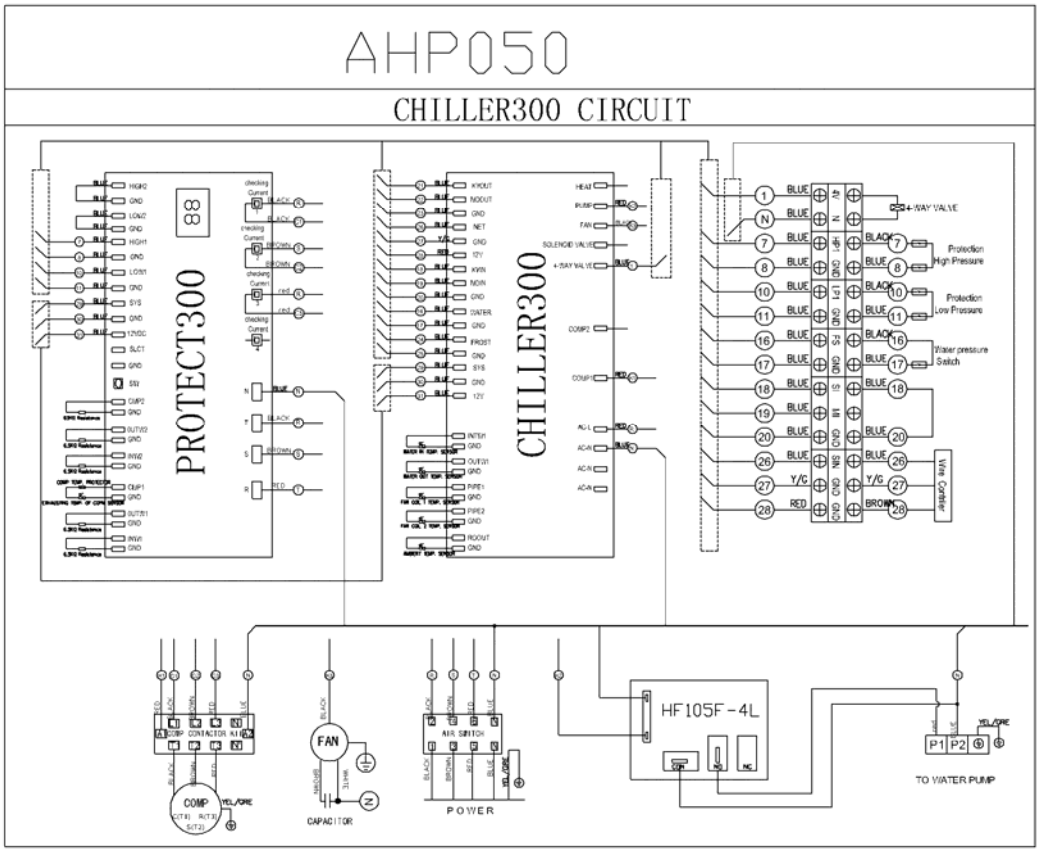
In the case of fluctuations in the power supply, a power supply stabilising system is recommended in order to protect the equipment.

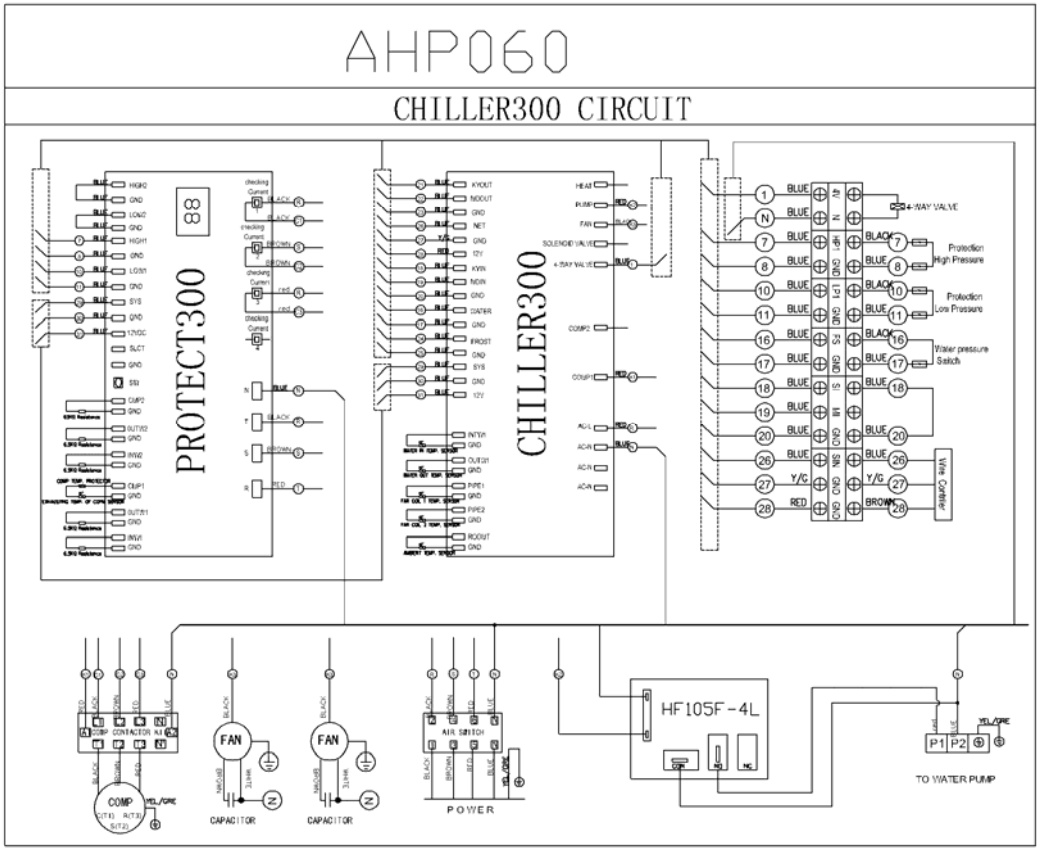
4.4 Diagrams

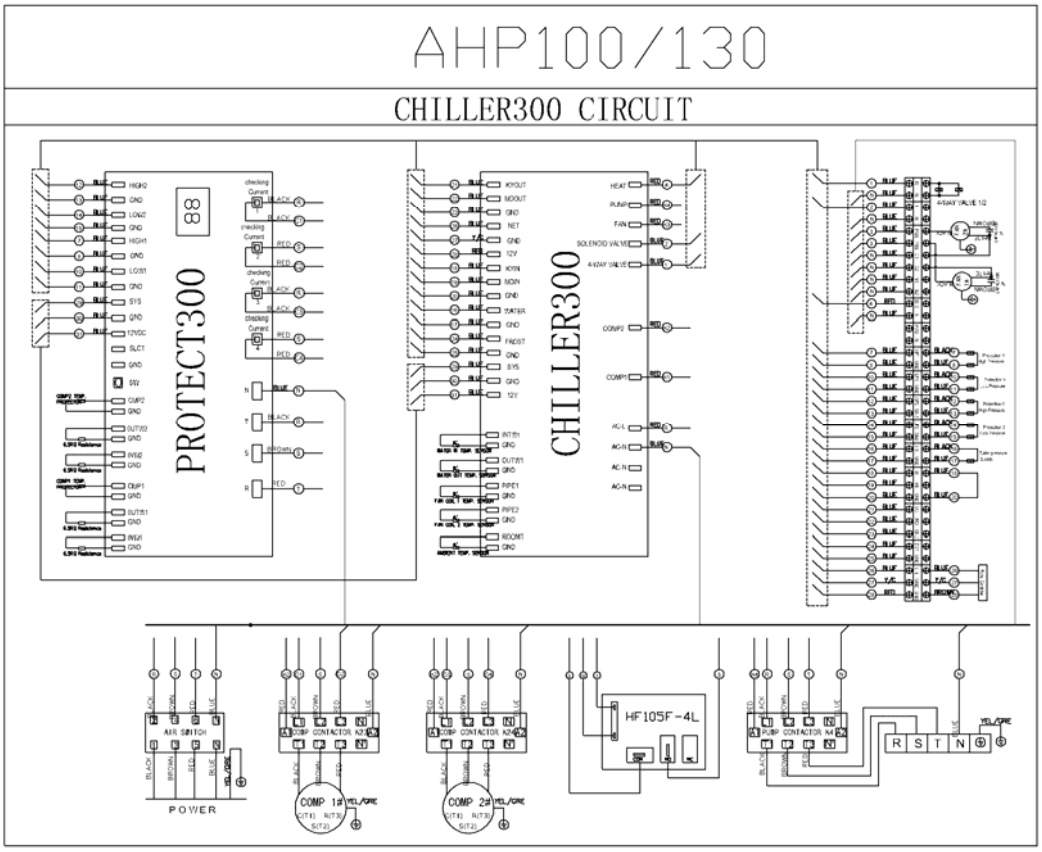
4.4.1 Electrical diagram for single-phase installation

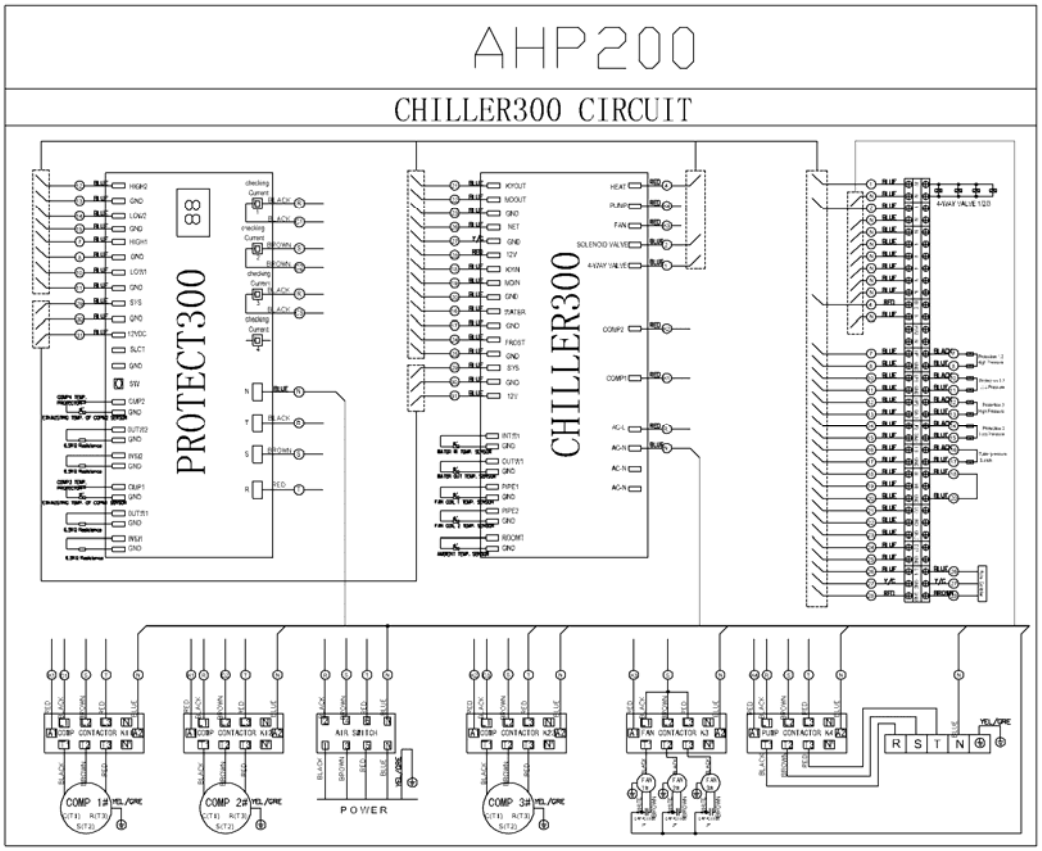


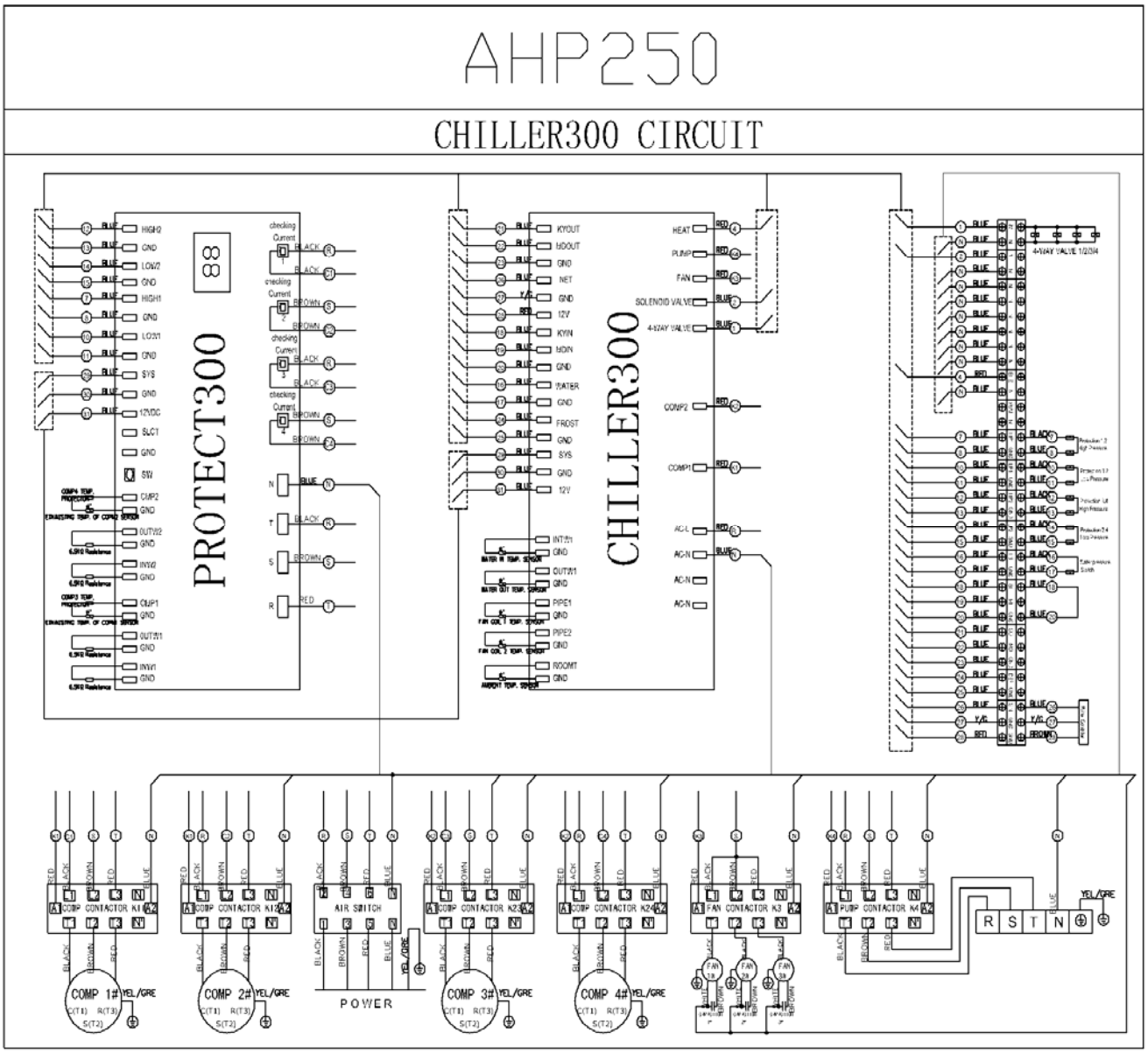
4.4.2 Electrical diagram for three-phase installation

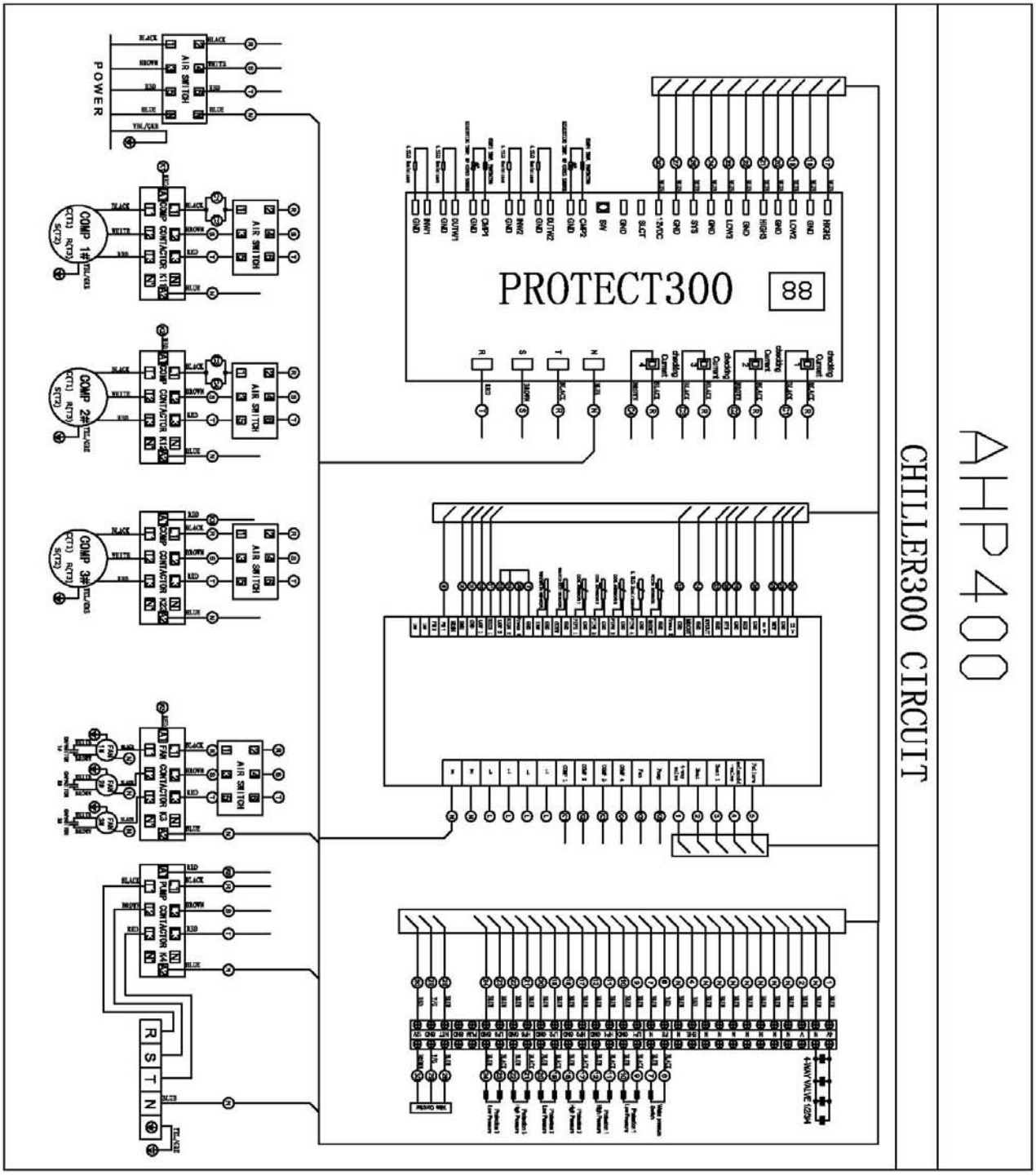


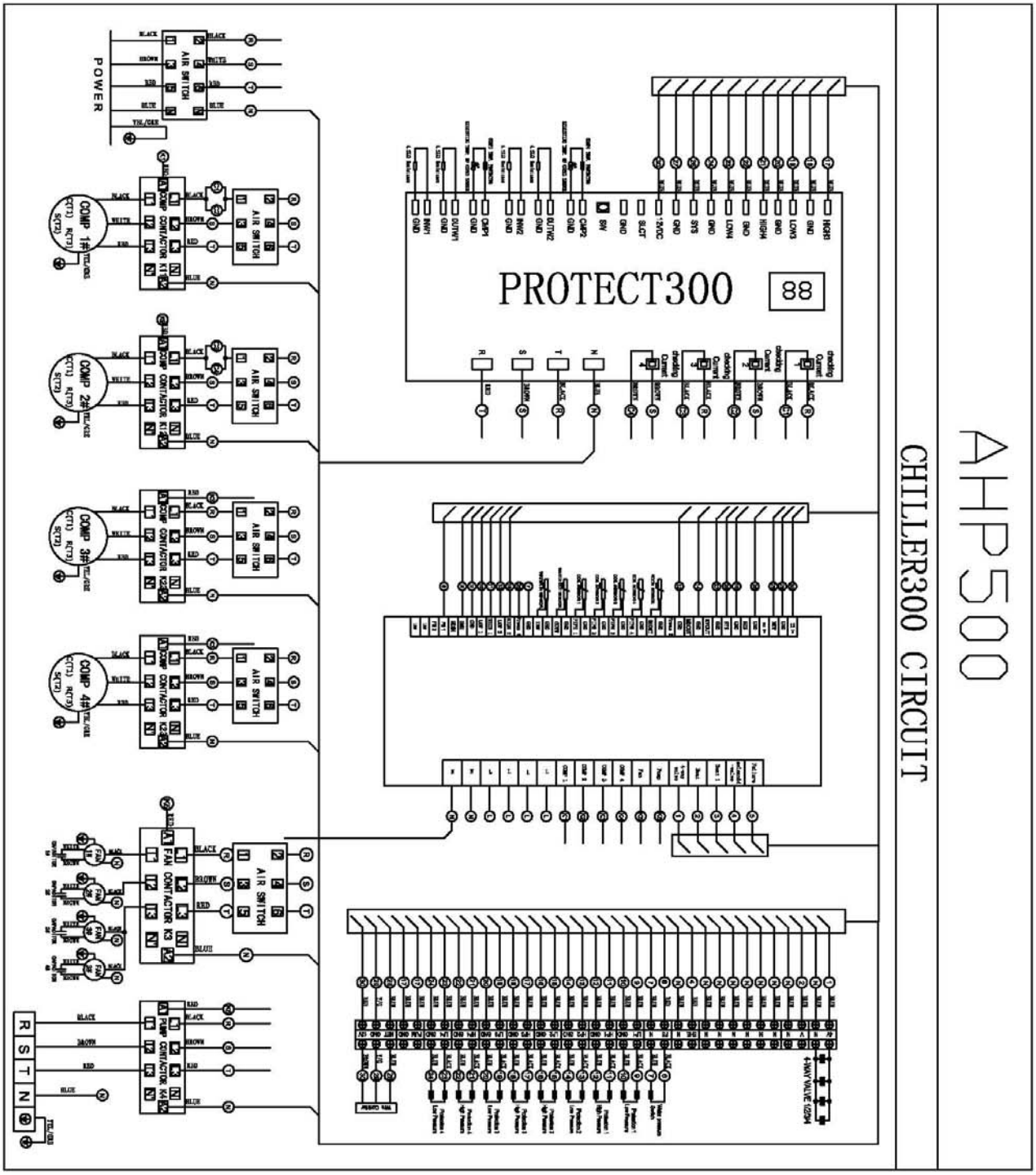


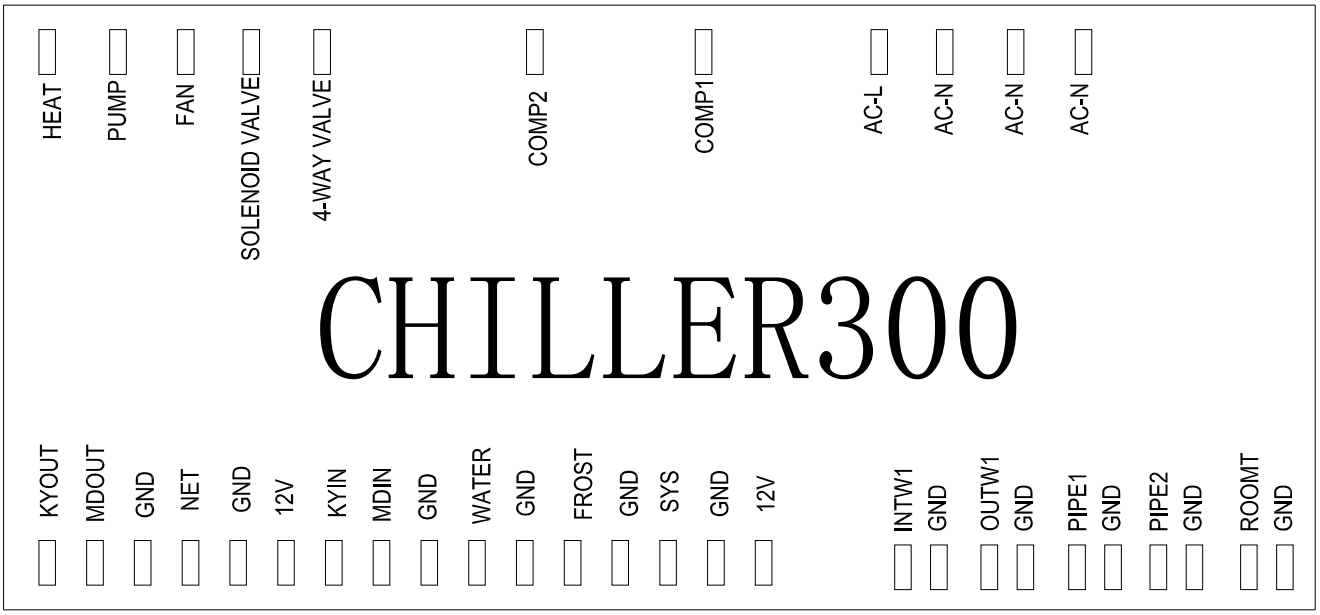




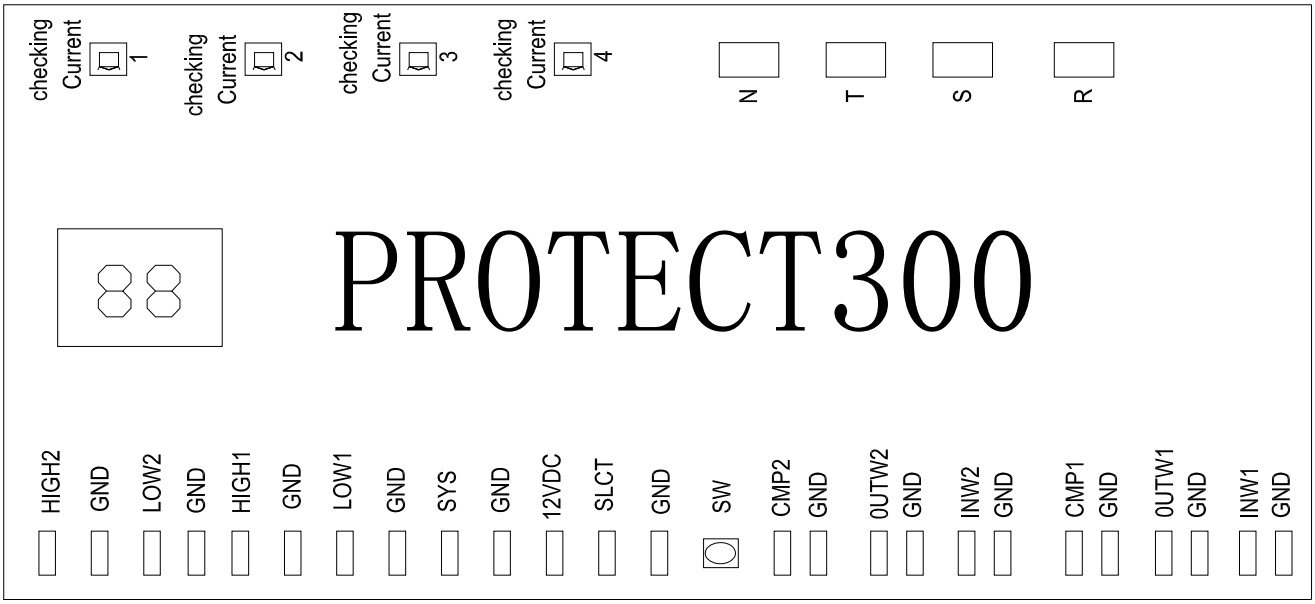




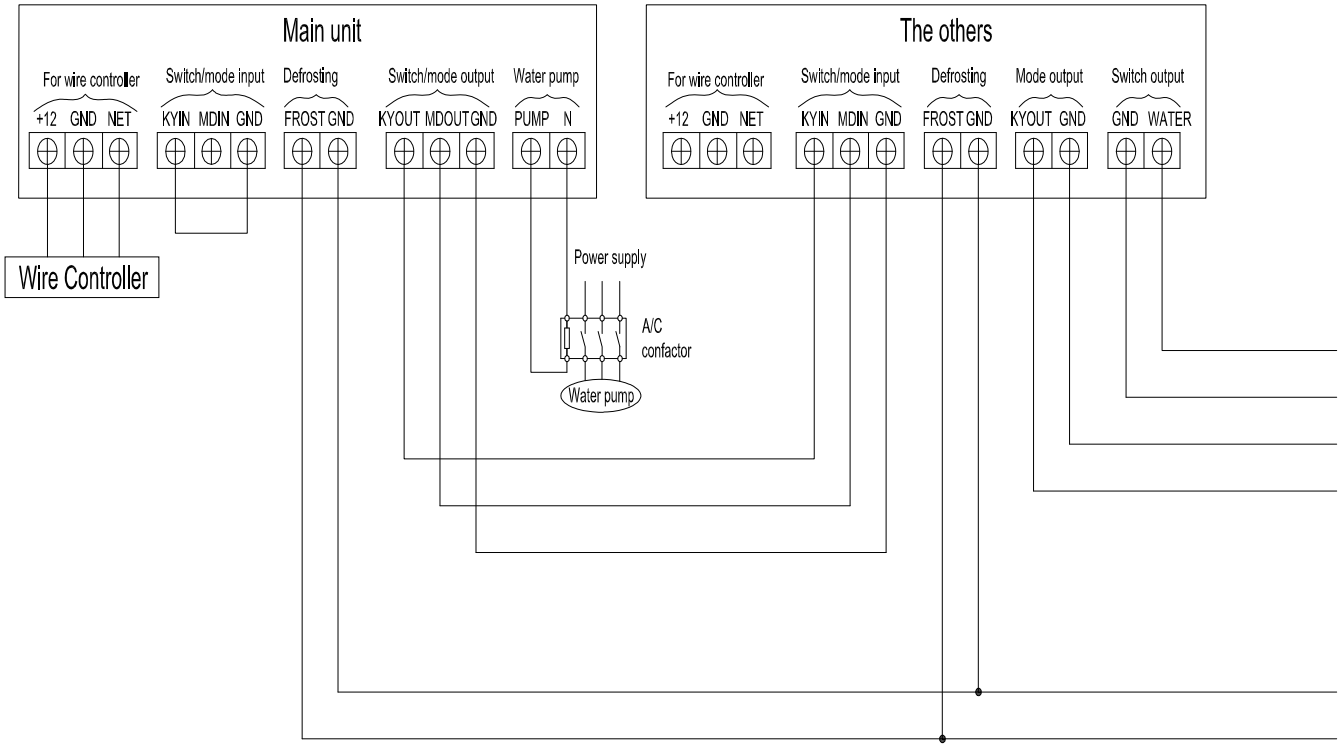


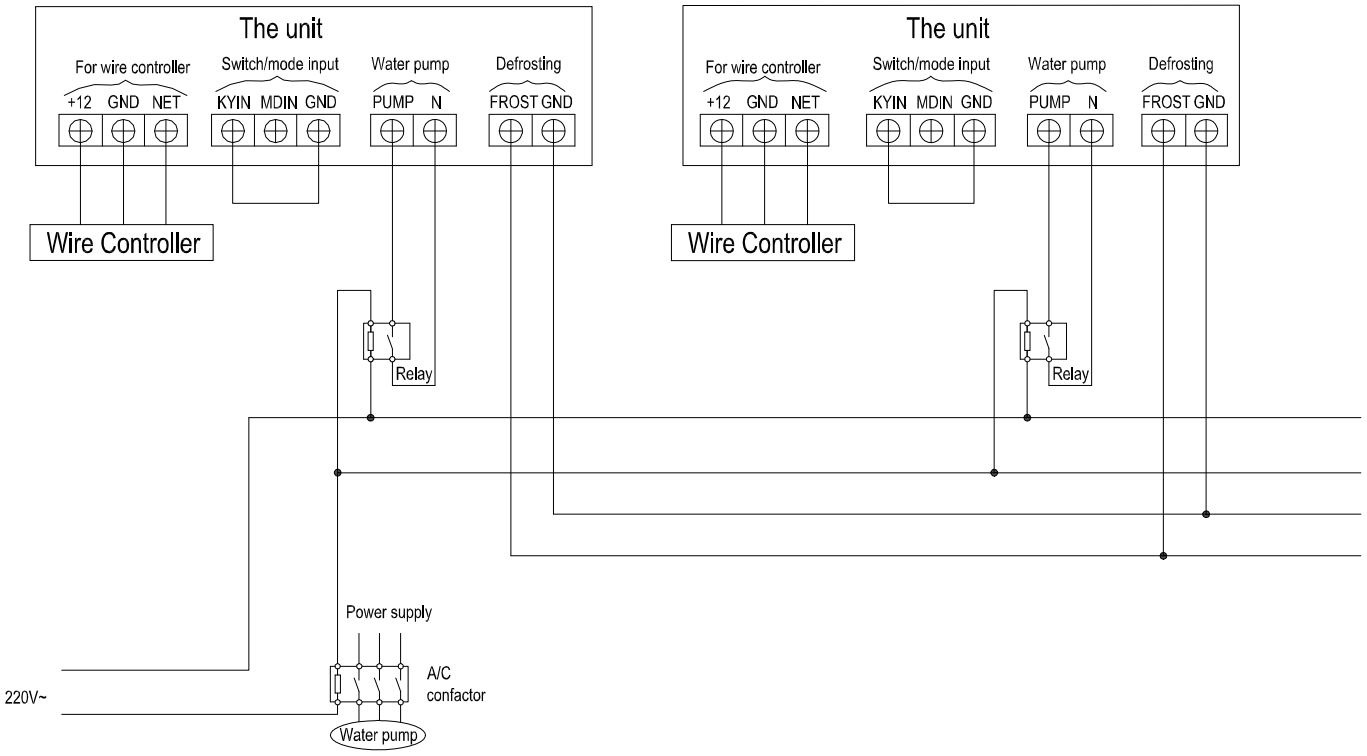


No.	Symbol	Meaning
1	HEAT	Alarm output(220-240VAC)
2	PUMP	Water pump (220-240VAC)
3	FAN	Fan motor (220-240VAC)
4	VAL2	Solenoid valve (220-240VAC)
5	VAL1	4Way valve of system1 (220-240VAC)
6	COMP2	Compressor of system2 (220-240VAC)
7	COMP1	Compressor of system1 (220-240VAC)
8	AC-L	Live wire
9	AV-N	neutral wire
10	KYOUT GND	On/Off Switch(output)(no use)
11	MDOUT GND	Model Output (no use)
12	NET GND 12V	Wire controller
13	KYIN	On/Off Switch(Input)(no use)
14	MDIN	Model Input (no use)
15	WATER GND	Flow Switch(Input)(normal close)
16	FROST GND	Defrost signal (no use)
17	SYS GND 12V	System protection(input)(no use)
18	INTET	Ambient temp.(input)
19	PIPE2	Temp. of fan coil2 (input)(no use)
20	PIPE1	Temp. of fan coil1 (input)(no use for split type)
21	OUTWT	Water out temp.(input)
22	INTET	Water in temp.(input)

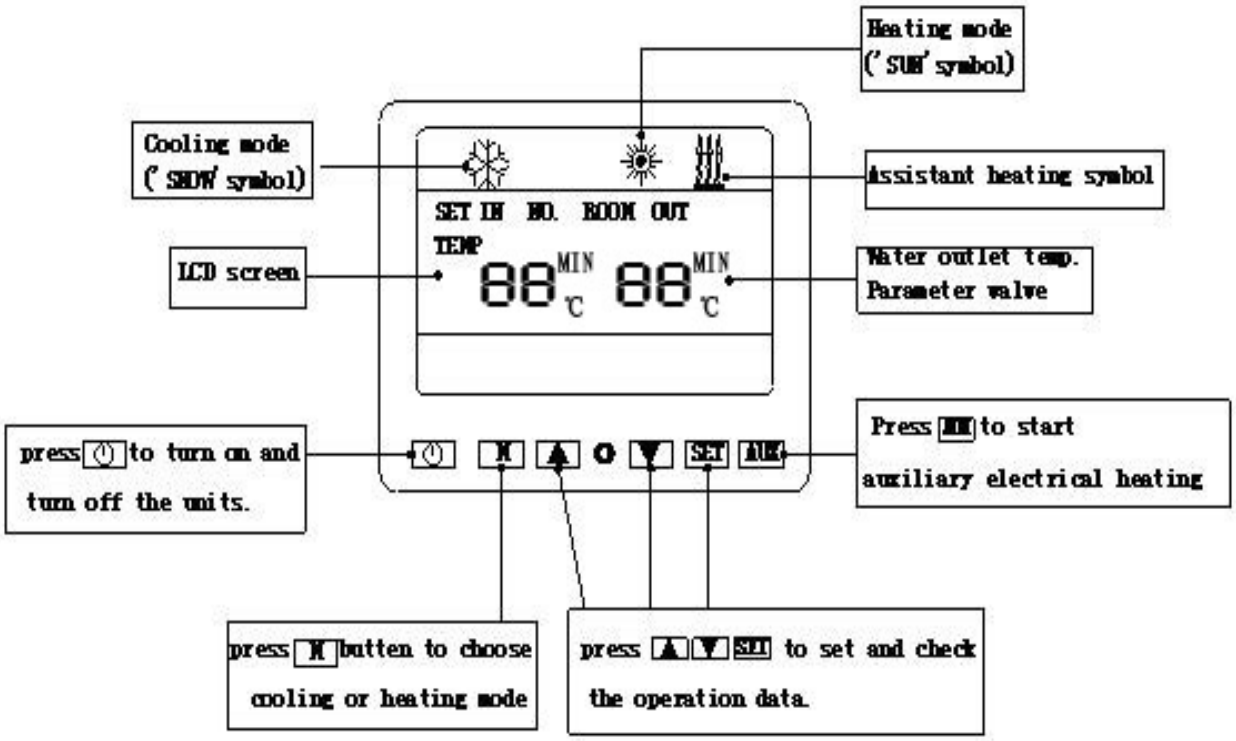


No.	symbol	Meaning
1	High2 GND	High pressure protection for system2(normal close)
2	Low2 GND	Low pressure protection for system2(normal close)
3	High1 GND	High pressure protection for system1(normal close)
4	Low1 GND	Low pressure protection for system1(mortal close)
5	SYS GND 12V	Protection signal
6	SW	Current setting (handset)
7	COMP2	Exhausting temp. of compressor2
8	OUTW2	Tube temp. of compressor2
9	INW2	Tube temp. of compressor2
10	COMP1	Exhausting temp. of compressor1
11	OUTW1	Tube temp. of compressor1
12	INW1	Tube temp. of compressor1

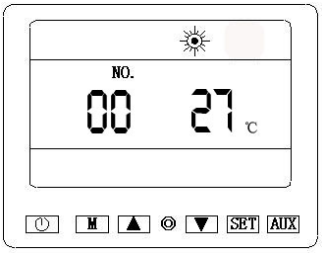




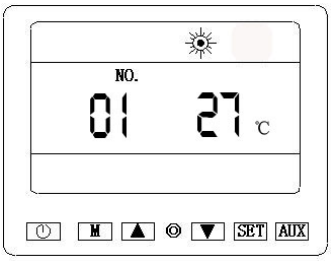
5 DESCRIPTION AND OPERATION OF THE CONTROLLER



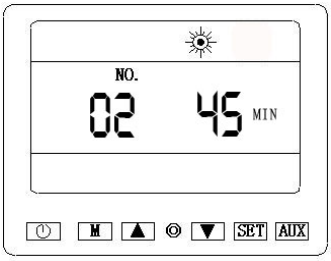
Standby status-press “SET” button to enter operation parameter setting interface.
Press “SET” again to start setting (parameter from 00 to 09. See Operation Parameter’s Table).
Under parameter setting, press “▲”or “▼” to set data for parameter from 00-01, but must press “▲” and “▼” for 3 second to set data for parameter from 02-09.
No press in 5s, the LCD will display water-in/water-out temperatura (under running) or ambient temperature(unit stop).
Whilst running, you can press “SET” to check current parameter, but data can’t be changed.



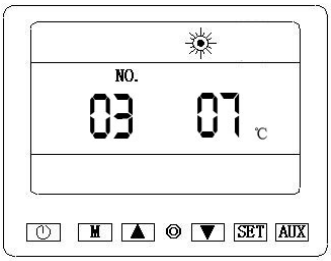
Parameter 00 to set the entering water temperature under cooling mode (8-28ºC).
Default setting = 27ºC



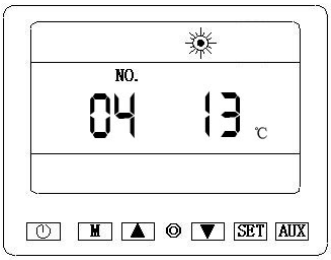
Parameter 01 to set the entering water temperature under heating mode (15-40ºC).
Default setting = 27ºC



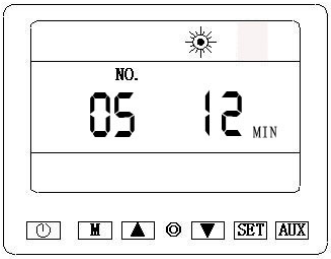
Parameter 02. Total working time of the compressor after defrosting



Parameter 03. Terms of defrosting start (-30-0ºC)
Default setting = -7ºC

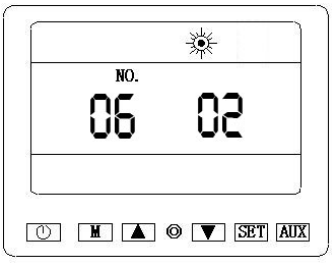


Parameter 04. Terms of defrosting end (0-30ºC)
Default setting = 13ºC

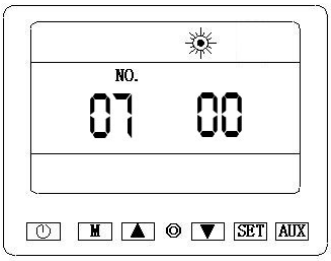


Parameter 05. Maximum time of defrosting (0-15 min)
Default setting = 8 min

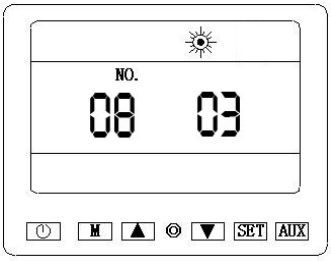
Parameter 06. System quantity



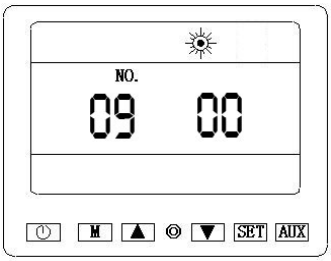
(do not modify)



Parameter 07. Save settings after power off (1=yes, 0 = no)
The unit will restart automatically (0) or not (1).

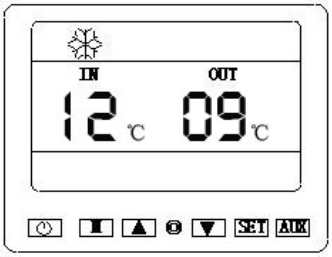


Parameter 08. Selection Mode
0 = Cooling only
1 = Cooling and heating
2 = Auxiliary electric heating
3 = Heating only

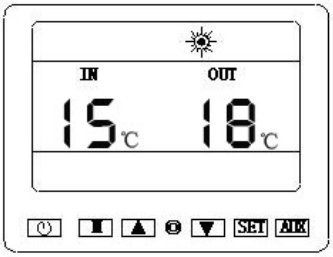


Parameter 09. Water Pump Control
0 = Always open
1 = 60 seconds start before compressors starting, 30 seconds stop after compressors stopping

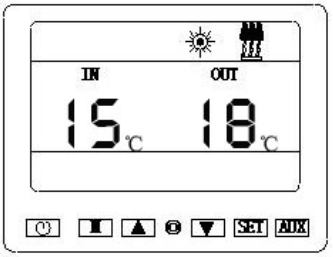
How to choose the Mode



Cooling Mode



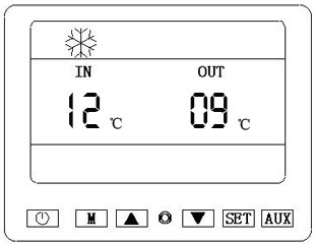
Heating Mode



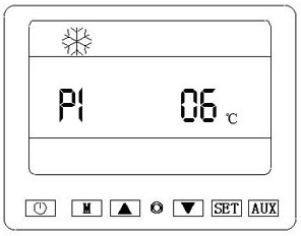
Auxiliary Electric Heating

Press "**M**" to choose (mode can be changed under running)
Press "⏻" to power on unit. Under running, the LCD displays the water-in temp, water-out temp and current mode.
AUX. Elec. Heating is NOT APPLICABLE FOR THESE MODELS.

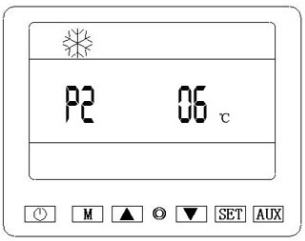
How to know the current status



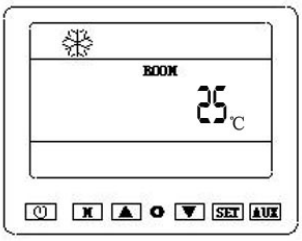
Water Temp. In/Out



Evaporator 1 Temp.



Evaporator 2 Temp.



Ambient Temp.

Under running, press "▲" "▼" to check the current status of the unit. You can check water-in / water-out / evaporator / ambient temperature. If no buttons are depressed within 5 seconds, the LCD will display water-in/water-out temp. When the unit is switched off, current ambient temperature is displayed.

Operation Data Settings

The unit's operation data can be set on the whire controller. Please set according the below table:

Digit	Meaning	Range	Default	Adjust (yes/no)
00	Return water temp. Setting(cooling mode)	8-28	27℃	yes
01	Return water temp. Setting(heating mode)	15-40	27℃	yes
02	Turn round of dehumidifying under heating mode(frost)	30-90 min	45 min	yes
*03	Defrosting start temperature	0-30	7℃	yes
04	Terms of exit defrost under heating model	0-30	13℃	yes
05	Time of exit defrost under heating model	1-12MIN	8MIN	yes
*06	System quantity	1-2	1/2	Do not Modify
*07	Automatic restarting	0-1 0 (NO) / 1 (YES)	0	yes
08	Model(cooling only/heat pump/auxiliary electrical heating/hot water)	0/1/2/3	0	yes
*09	Water pump model	0/1	0	yes

Note: Above data setting 00 is relevant to cooling mode only. All other data (ie 01-08) is relevant to heating mode.

Remarks:
Parameter 03:
The wire controller displays (0 - 30ºC), but the actual range is (-30 - 0ºC).
The default 7ºC is -7ºC actually.
Parameter 06:
1: the unit has 1 system;
2: the unit has 2 systems;
Parameter 07:
0: the unit can restart automatically;
1: the unit can not restart automatically;

6 START-UP PROCEDURE FOR THE UNIT

Operating requirements for the heat pump

· The outdoor temperature must be higher than +8 ºC.

· The heat pump is provided with a defrost thermostat that guarantees the compressor shutdown and the operation of the defrost system.

· When washing the filter of the filtering pump, it is OBLIGATORY that the heat pump is turned off.

Before any start-up, you should check:

1st. · The correct clamping of the hydraulic connections (exchanger inlet / outlet).

2nd. · The correct fastening of the electrical cables to the connection terminals. Poorly secured terminals can cause the terminal block to heat up.

3rd. · When setting-up, the electrical connections, as well as the general power supply and voltage should be verified.

4th. · Once the unit is connected, verify the intensity absorbed by the phases and check that the fan is operating in the correct direction.

5th. · Give power to the equipment by connecting the general power switch on the outside of the unit. Once the unit is connected, verify the intensity absorbed by the phases.

6th. Three-phase units have a phase control relay that guarantees the compressor is operating in the correct direction. If the controller shows the compressor it is running and it does not, phases must be interchanged. Card gives an alarm signal.

7th. · With the machine running, verify the intensities absorbed by the electric motors, making sure they do not exceed the limits mentioned in the technical specification sheet.

8th. · Verify that the currents of the different lines are not out of phase except in the case of single-phase circuits.

9th. · High and low pressure switches should be installed in the cooling circuit and verify the refrigerant charge (Refrigerant Charge section).

Performing the heat pump adjustments in its initial operation

1. Start filtering in order to circulate the swimming pool water inside the heat pump exchanger. It is essential that the filtering equipment starts before the heat pump.
2. Switch the heat pump on. Turn on the magnetic circuit breaker. If purification is not programmed, the heat pump will take readings to activate the purification pump if the system thermostat determines that the water needs to be cooled or heated.
3. Set the temperature you prefer (Description and operation of the controller).
4. The installing technician must adjust the valves of the by-pass according to the pressures of the machine and must refrain from intervening anymore during the warming-up period.

IMPORTANT

The heat pump should always operate together with the purification pump. We must have the precaution never to interconnect timers or programmers which may stop the purification pump and leave the unit working alone.

The heat pump will take several days to reach the requested temperature: This is completely normal

7 HIBERNATION PROCEDURE

1. Switch off the filtering pump.
2. Turn off the by-pass valves.
3. Open completely the drain cock of the condensers.
4. Drain the exchanger to protect it from ice.
5. Once drained part of the condenser, close the drain cock.
6. Check the connectors and the (closed) by-pass valves of the heat pump to restrict the entrance of foreign bodies or water to the exchanger.

8 MAINTENANCE INSTRUCTIONS

This operation must be obligatorily carried out by a professionally qualified person. It should be carried out at least once a year and includes several elements:

· Cleaning of the evaporator(s) with the aid of a thin brush and a nondirty and nonchlorinated water spray.
· Revision of instructions and operating issues of the unit.
· Revision of the safety mechanisms.
· Dusting the circuit board.
· Checking the earth connections.
· Checking the gas pressure.

PREVENTIVE MAINTENANCE.

A record should be kept of each element repaired or substituted as well as of all maintenance and repairs.
The surface of the exterior panels may be cleaned with a soft cloth and non-abrasive cleaner.
DISCONNECT THE EQUIPMENT FROM THE POWER SUPPLY before performing any maintenance procedures.

To keep in mind:

EVAPORATOR COIL:

The evaporator coil should be kept clean and free of obstacles which may hinder the circulation of air through them. In order to clean it, use water (little pressure) and non-abrasive detergents or cleaning liquids made specifically for it.

COMPRESSOR:

Compressor oil must be checked in those unit models provided with an oil viewer.
Verify that the compressor refrigerates adequately with the circulating gas (verify the refrigerant charge).
Verify that the power consumption has not increased.
Verify that the compressor discharge pressure is not too high and that the intake pressure is not too low.
Verify that the compressor fasteners are not deteriorated.
Verify that no frost develops on the compressor.

CONDENSER:

Install chemical feeders “downstream” from the heat pump, as far away and at a lower height. The feeder should never be installed near the intake of the purification pump as this will damage the condenser.

NEVER introduce concentrated chemical products in the pool skimmers as this will damage the Titanium condenser.

In climates where temperatures occasionally fall below freezing, circulate the water using the purification pump to maintain the water temperature above freezing (0º C).

In the case these temperatures are persistent or common, the heating and purification system should be completely drained. The condensers have a system the purge the system.

FAN:

Verify the flows of the fan each year.

Clean the louvers of the fan as well as the protection grill regularly.

ELECTRICAL PANEL:

Verify all electrical connections.

Verify that there is no over-heating of the electrical terminals.

Verify that the protection systems operate correctly.

Verify that the regulator operates correctly and verify the temperature with a mercury thermometer (calibration probe).

9 REFRIGERANT CHARGE.

For the procedures described below, we recommend you contact a professional specialised in heating and air conditioning units.

Draining the Cooling Circuit:

It is imperative to drain the cooling circuit before charging the refrigerant.

- First draining procedure:

1.- High and low pressure switches.
2.- Low pressure circuit (blue).
3.- Vacuum pipe/ gas charge (yellow).
4.- Low pressure circuit (red).
5.- Vacuum pump (yellow).
6.- Pressure valves (on the machine)

A. Connect the gauge tubes to the intake pressure lines of the circuit (low pressure) and to the return pressure lines (high pressure).
B. Connect the main line of the gauge to the vacuum pump.
C. Open all the valves, including the solenoid and the regulating valves.
D. Open the valves of the gauge (LO = low pressure valve / HI = high pressure valve).
E. Activate the vacuum pump and wait until the circuit is completely drained.
F. Close all valves or stopcocks and disconnect the vacuum pump.

Refrigerant Gas Charge:

The equipment uses R22 class refrigerant. The gas taken from the refrigerant bottle must be introduced in the low-pressure circuit by means of a charger (expansion system).
After having discharged the cooling circuit, and after having installed the charger and connected the flexible tubes of the gauge to the high and low-pressure circuits, we can proceed with the charge:

1.- High and low pressure switches
2.- Low pressure circuit (blue).
3.- Vacuum pipe/ gas charge (yellow).
4.- Low pressure circuit (red).
5.- R22 gas (yellow).
6.- High pressure valve (on the machine).
7.- Low pressure valve(on the machine).

A. Connect the main line of the gauge to the R22 bottle stopcock.
B. Open the bottle stopcock and purge the section of tubing.
C. Open the high-pressure valve.
D. Pressurise the equipment to equal the pressure of the bottle.
E. Close all gauge valves.
F. Start the machine. The low-pressure switch may be activated. To continue with the charge, you must disconnect the low-pressure switch in the electrical panel (just while the charging operation is underway).
G. Open the low-pressure valve until the pressure is above the trip point of the low-pressure switch.
H. Once in a while, close the LO valve of the gauges in order to confirm the real pressure of intake.
I. Verify that the outflow pressure is not above the normal range for normal working conditions.
J. When the correct weight of refrigerant has been charged, close the LO valve.
K. When the equipment is functioning according to the specified working conditions, close the valve of the charging bottle and disconnect the tubes taking precautions regarding gas purge.
L. Place the caps on the supply and return lines of the compressor.

Detecting Leaks:

- Symptoms of gas leaks.
- Leaks will cause a decrease in the refrigerant charge in the equipment. Low refrigerant charge may be the caused by the following symptoms:

    1. The evaporating temperature is very low. This may be also caused by an obstructed fluid line or the incorrect operation of the expansion valve.
    2. The compressor is functioning on cycles which are too short.
    3. Compressor is overheated: Gas leaks cause gas flow to be insufficient to cool the compressor. This may cause the tripping of the internal thermostat of the compressor.
    4. The compressor operates continuously, there is not enough refrigerant to obtain the desired power, and since the specified temperatures are never reached, the unit never shuts down.

- In any case, it is better not to wait until a leak appears and service regularly the circuit.

Methods for Searching for a Gas Leak:

- There are various tools on the market used in order to detect leaks, although not all of them are sufficiently sensitive to certain types of refrigerants. It is very important to choose an adequate detector for the refrigerant used for this equipment and that the maintenance guidelines by followed.
- You can also use soap bubbles (liquid detergent in a spray bottle) to detect leaks.
- Other methods such as halogen lighters and additives may also be used to detect leaks.

The R22 Gas:

- The R22 is a NONFLAMMABLE gas; it has no flash point, and so is not subjected to the rules and regulations of the transportation of inflammable gases.
- The R22 does not irritate the skin, eyes or mucous membranes and does not produce and side-effects.
- It has a very low level of toxicity for one or many repeated exposures; it does not cause cancer or mutations.
- The R22 may cause freezing if it comes into contact with the skin, due to its immediate evaporation.
- As with all hydrocarbons, whether they are halogenated or not, the R22 gas may, although it has a very low level of toxicity, cause anaesthetic or preanaesthetic conditions if inhaled deeply and within a closed area.

10 TROUBLESHOOTING GUIDE.

The reasons why your heat pump may not function properly are mentioned below:

- ***The unit does not start:***
  - *Operating switch tripped:* Check there is no short circuit in the control panel, repair the possible short circuit.
  - *Coil contactor does not activate:* Verify that it is not burned, and replace it if it is. Verify the terminals which activate the coil.
  - *Thermal switch tripped*: Verify the voltage of the line. Verify that the operating conditions are correct. Excessive compressor consumption. Short circuit in the compressor.
  - *Low pressure switch tripped:* Verify that the pressure switch operates correctly and substitute if necessary. Verify that the fan is operating correctly. Verify the refrigerant charge of the equipment (refrigerant leak, loss of refrigerant fluids) in order to solve this problem; please refer to the refrigerant charge section.
  - *Verify that there is sufficient ventilation around coils.* Check for any obstruction of the cooling circuit and eliminate the obstruction if necessary. Verify that the thermostatic valve is operating properly, checking the bulb has no gas leaks and that the pressure inlet is free of obstruction. Replace if needed.
  - *High pressure switch tripped:* Verify that the pressure switch operates correctly and substitute if necessary. Check the refrigerant charge (excess refrigerant) in order to solve this please refer to the refrigerant charge section. Check for any obstruction of the cooling circuit and eliminate the obstruction if necessary. Verify there is a good water flow through the condenser, checking there are no obstructions in the hydraulic circuit, the shut-off valves are open and the purification pump operates properly (replace if needed).
  - *Flow alarm:* Verify the purification pump is operating properly (pump flow may be less than needed). The filter of the purification pump is dirty. Clean it if needed. By-pass are closed or not sufficiently open. Revise it if needed. The pump is not working. Revise clock condition and purification mode. The flow switch is faulty (call for service).
  - *Defrost cycle*: The ambient conditions are not correct (temperatures are too low). The unit does not work under these conditions. It is recommended to disconnect the unit.
- ***Low oil level:***
  - *Low initial oil charge:* Refill up to needed level.
  - *Oil stains on the equipment:* Check for leaks in the cooling circuit and repair them if necessary, check the torque on the high and low pressure valves, and replace them if necessary.
- ***The equipment operates on cycles which are too short*:**
  - *The low pressure switch opens then closes again:* Verify the points mentioned in the "low pressure switch tripped" section above.
  - *Intermittent contact on machine control unit:* Repair or replace the faulty electrical part. Check the temperature indicator.
  - *Make sure the equipment is not too large for the facilities.*
- ***The equipment does not shut down:***
  - *Verify that the thermostat functions properly, repairing or replacing it if necessary.*
  - *Compressor contactor contacts are stuck together:* Check that the coil is functioning properly and that the contacts are not burned.
  - *The pressure of the intake duct is too low:* Check the refrigerant charge of the equipment for leaks, to solve this problem please refer to the refrigerant charge section. Check that there are no obstructions in the cooling circuit,

filter-drier, expansion valve, etc. and replace if necessary. Verify that the equipment is powerful enough for the existing thermal conditions.

- *Excessive noise*: The fastening screws of the compressor or fan are loose: Tighten all the fastening elements.
- *Check the compressor oil level.*
- *The compressor produces internal bumping noises:* Check that the noise does not come from any fluid leak from overheating (see section of refrigerant charge).

GENERAL INSTRUCTIONS

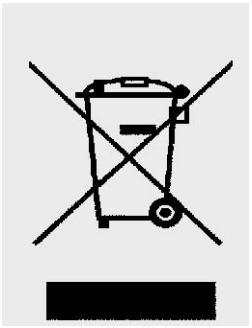
- Any intervention in the refrigeration circuit must be made following the applicable safety regulations: recovery of refrigeration fluids, nitrogen welds, etc.
- Any welding intervention must be made by qualified welders.
- For units loaded with R22, refer to specific instructions in the user manual.
- Piping can only be replaced by copper pipes according to standard NF EN 12735-I.
- Search for leaks:
    1. Never use oxygen or dry air, danger of fire or explosion.
    2. Use dry nitrogen or the mixture of nitrogen and coolant indicated in the plate.
- Any substitution of parts different to the ones considered by the manufacturer, any modifications in the refrigeration circuit, any substitution of refrigeration fluid by a fluid different to the one indicated in the plate or any use of the unit beyond the limits specified in the unit documentation would result in the cancellation of the guarantee.
- All information must be registered in the unit manual that must be included in the installation project.

In the following table there are the meeseges shown by the display in case malfunction of the unit:

Malfunction	LCD Controller	Reason	Resolution
Water inlet temp. sensor failure	PP01	The sensor is open or short circuit	Check or change the sensor
Water outlet temp. sensor failure	PP02	The sensor is open or short circuit	Check or change the sensor
Cool1 sensor1 failure	PP03	The sensor is open or short circuit	Check or change the sensor
Cool2 sensor2 failure	PP04	The sensor is open or short circuit	Check or change the sensor
Ambient sensor failure	PP05	The sensor is open or short circuit	Check or change the sensor
Temp. differential between water-in and water-out is too large	PP06	Water flow volume not enough. Water pressure different is too low	Check the water flow volume or system obstruction
Anti freezing under cooling mode	PP07	Outlet water is too low	Check the water flow volume or outlet water temp. sensor
The first time freezing protection in winter	PP07	Ambient or inlet water temp. is too low	
The second time freezing protection in winter	PP07	Ambient or inlet water temp. is too low	
Malfunction of system 1	EE01	System 1 protection was failed	Check each protection point of system 1 remove the malfunction according to system production board malfunction table
Malfunction of system 2	EE02	System 2 protection was failed	Check each protection point of system 2 remove the malfunction according to system production board malfunction table
Flow switch failure	EE03	No water/litter water in water system.	Check the water flow volume, water pump is failure or not
Power supply connections wrong	EE04	Wrong connections or lack of connection	Check connections of power cable
Power supply connections wrong	no display		
High/low pressure	EE04	Gas change too low or high. Possible system blockage	Check through each pressure switch and return circuit
3 times water-in and water-out temp. difference protection 30 minutes	EE05	Water flow rate not enough	Check the water flow rate, or water system is jammed or not
Defrosting	Defrost Code Display		
Communication failure	EE08	LCD controller and The PCB connection failure	Check the wire connection

11 PRODUCT RECYCLING

This unit has a refrigeration gas in liquid state and electrical components. When the heat pump reaches the end of its service life, it should be dismantled by an authorised company or it should be sent to the place selected by the local authorities.



With the aim of reducing the amount of electrical and electronic equipment residues and the danger of their components, to promote the recycling of the equipment and the appreciation of their residues, and to determine a suitable management that attempts to improve the effectiveness of the environmental protection, a series of regulations applicable to the manufacturing of the product and others related to the correct environmental management when they become residues have been implemented.

It is also envisaged to improve the environmental behaviour of all the agents involved in the service life of the electrical and electronic equipment, such as the producers, distributors, users, and, specially, those agents directly involved in the management of the residues derived from this equipment.

As of 13 August 2005, when you wish to throw away this unit, you have two possible return systems:

- If you acquire a new one that is of an equivalent type or it has the same functions as the one thrown away, you could hand it over at no cost to the distributor.

- Or you could take it to the place so selected by the local authorities.

The units are labelled with the symbol of a "crossed out wheeled rubbish container ". This symbol denotes the need for its selective and differentiated collection from the rest of urban rubbish.

12 GUARANTEES

There is a 2-year warranty for all the parts.

In the event of warranty cancellation:

- A failure or a mistake in the hibernation procedure leads to the cancellation of the warranty. The elimination, suppression or modification of one of the safety components involves the cancellation of the warranty.
- A failure in the installation procedure which is related to the lack of observance of the instructions contained in this manual will mean the cancellation of the warranty.

IMPORTANT

The warranty will only have effect if the coupon is returned duly completed, sealed and signed by all interested parties.

WARRANTY CERTIFICATE

1. WARRANTY COVERAGE

1.1 In accordance with these provisions, the salesman guarantees that the product corresponding to this warranty ("the product") does not present any non-conformance at the moment of its delivery.

1.2 The warranty period of the product is of two (2) years and it will take effect as of the time of delivery to the buyer.

1.3 If a Product non-conformance occurs and the buyer notifies it to the salesman during the Warranty Period, the salesman should repair or replace the Product at his own cost in the appropriate place, unless it is impossible or disproportionate.

1.4 When the Product cannot be repaired nor be replaced, the buyer shall be able to ask for a proportional price reduction or, if the non-conformance is sufficiently important, the discharge of the sales contract.

1.5 The replaced or repaired parts by virtue of this warranty will not extend the warranty term of the original Product, although they will have its own warranty.

1.6 For the effectiveness of this warranty, the buyer will have to credit the acquisition date and delivery date of the Product.

1.7 When the delivery of the Product to the buyer had been more than six months before and the buyer alleges non-conformance with the Product, the buyer will have to prove the origin and existence of the alleged fault.

1.8 The present Warranty Certificate does not limit or prejudges the rights the consumers are entitled by virtue of local prevailing and applicable regulations.

2. CONDITIONS TO WARRANTY

2.1 This warranty covers the products referred to in this manual.

2.2 For the effectiveness of this warranty, the buyer will have to strictly follow the manufacturer instructions included in the documentation enclosed with the Product, whenever this warranty is applicable according to the Product range and model.

2.3 When a calendar for the substitution, maintenance or cleaning of certain parts or components of the Product is specified, the Warranty will only be valid when the calendar has been observed.

3. LIMITATION TO LIABILITY

3.1 This warranty will be solely applicable to those sales to consumers, being understood "consumers" as those people who acquire the Product with a purpose that does not fall within the scope of their professional activity.

3.2 No warranty is granted referred to the wear and tear caused by the use of the Product. In relation to the parts, components and/or consumable materials such as batteries, light bulbs etc, it will refer to the provisions of the documentation enclosed with the Product, when applicable.

3.3 The warranty does not cover those cases where the Product: (I) has been incorrectly treated; (II) has been repaired, maintained or manipulated by a nonauthorized person, or (III) has been repaired or maintained with nonoriginal pieces.

3.4 When the non-conformance of the Product is a consequence of an incorrect installation or start-up, this warranty will only cover those installations or start-ups included in the contract of sale of the Product and carried out by the salesman or under his/her responsibility.

:

Unit_____

Reference No._____ **Model**_____

INSTALLER

Name_____ **Town**_____

Address_____

Telephone_____ **Start-up date**_____

USER

Name_____ **Town**_____

Address_____

Telephone_____ **Start-up date**_____

(To be filled by the installer) **INSTALLER'S STAMP:**

For all units, this warranty will only have effect if this card is returned duly completed

EN WE RESERVE THE RIGHT TO CHANGE ALL OR PART OF THE FEATURES OF THE ARTICLES OR CONTENTS OF THIS DOCUMENT, WITHOUT PRIOR NOTICE

ES NOS RESERVAMOS EL DERECHO DE CAMBIAR TOTAL O PARCIALMENTE LAS CARACTERÍSTICAS DE NUESTROS ARTÍCULOS O CONTENIDO DE ESTE DOCUMENTO SIN PREVIO AVISO.

FR NOUS NOUS RÉSERVONS LE DROIT DE MODIFIER EN TOUT OU EN PARTIE LES CARACTÉRISTIQUES DE NOS ARTICLES OU LE CONTENU DE CE DOCUMENT SANS AVIS

DE DE WIR BEHALTEN UNS DAS RECHT VOR, DIE CHARAKTERISTIKA UNSERER PRODUKTE ODER DEN INHALT DIESES DOKUMENTS OHNE VORHERIGE ANKÜNDIGUNG VOLLSTÄNDIG ODER TEILWEISE ZU ÄNDERN.

IT CI RISERVIAMO IL DIRITTO DI MODIFICARE IN TUTTO O IN PARTE LE CARATTERISTICHE DEI NOSTRI ARTICOLI O CONTENUTO DI QUESTO DOCUMENTO SENZA PREAVVISO.

NE WIJ BEHOUDEN ONS HET RECHT VOOR OM DE KENMERKEN VAN DE ARTIKELS OF DE INHOUD VAN DIT DOCUMENT ZONDER VOORAF GAANDE KENNISGEVING GEHEEL OF GEDEELTELIJK TE WIJZIGEN.

PO RESERVAMO-NOS O DIREITO DE ALTERAR TOTAL OU PARCIALMENTE AS CARACTERÍSTICAS DOS NOSSOS ARTIGOS OU O CONTEÚDO DESTE DOCUMENTO SEM AVISO PRÉVIO.

Declares under their own responsibility that all the heatpumps: V-HEAT
Manufactured since 31/07/2008, independent of the serial number, are in compliance with:

Machine safety directive 2006/42/EC.
Electromagnetic compatibility directive 2004/108/EC and its modifications.
Low-voltage equipment directive 2006/95/EC.
Directive 2000/14/CE concerning noise produced by equipment for outdoors use, as amended by Directive 2005/88/EC.
Restrictions in the use of certain risky substances in the electrical and electronic instruments 2002/95/EC (RoHS).
Relative to the electrical and electronic waste products 2002/96/EC (RAEE).
Relative to the electrical and electronic instruments and the management of their waste products Spanish R.D. 208/2005.
The registration, the evaluation, the authorization and the restriction of the chemical substances EC Nº 1907/2006 (REACH).
Relative to the regularization of the management and production of the construction and demolition waste products Spanish R.D. 105/2008

Declara bajo su única responsabilidad que todas las bombas de calor del tipo: V-HEAT
Producidas a partir del 31/07/2008, independientemente del número de serie, son conformes con:

Directiva de seguridad de máquinas 2006/42/CE.
Directiva de compatibilidad electromagnética 2004/108/CE, y sus modificaciones.
Directiva de equipos de baja tensión 2006/95/CE.
Directiva sobre el ruido producido por máquinas para uso exterior 2000/14/CE y su corrección con la Directiva 2005/88/CE.
Directiva sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos 2002/95/CE (RoHS).
Directiva sobre residuos de aparatos eléctricos y electrónicos 2002/96/CE (RAEE).
Real Decreto 208/2005 sobre aparatos eléctricos y electrónicos y la gestión de sus residuos.
Reglamento relativo al registro, la evaluación, la autorización y la restricción de las sustancias y preparados químicos CE Nº 1907/2006 (REACH).
Real Decreto 105/2008 para la regularización de la gestión y producción de residuos de construcción y demolición.

Déclare sous sa seul responsabilité que toutes les pompes à chaleur: V-HEAT
Fabriquées a partir du 31/07/2008, indépendamment du numéro de série, sont conformes avec:

Directive de sécurité de machines 2006/42/CE.
Directive de compatibilité électromagnétique 2004/108/CE, et ses modifications.
Directive d'appareils de basse tension 2006/95/CE.
Directive 2000/14/CE sur les émissions sonores du matériel destiné à l'extérieur, et sa correction à la directive 2005/88/CE.
Directive relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques 2002/95/CE (RoHS).
Directive relative aux déchets d'équipements électriques et électroniques 2002/96/CE (DEEE).
Espagnol Décret Royal 208/2005 sur les équipements électriques et électroniques et la gestion de leurs déchets.
Règlement concernant l'enregistrement, l'évaluation et l'autorisation des substances chimiques, ainsi que les restrictions applicables à ces substances (CE) nº 1907/2006 (REACH).
Espagnol Décret Royal 105/2008 sur la régularisation de la gestion et la production de déchets de construction et de démolition.

Bescheinigt in alleiniger Verantwortung, dass alle Wärmepumpen des Typs: V-HEAT
Ab 31/07/2008 produziert wurden, unabhängig von der Seriennummer, konform sind mit:

Richtlinie über Maschinensicherheit 2006/42/EG.
Richtlinie über elektromagnetische Verträglichkeit 2004/108/EG und ihren Änderungen
Richtlinie über Geräte mit Niederspannung 2006/95/EG.
Richtlinie 2000/14/EG über umweltbelastende Geräuschemissionen von zur Verwendung im Freien vorgesehenen Geräten und Maschinen, und zuletzt geändert durch die Richtlinie 2005/88/EG.
Richtlinie 2002/95/EG zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (RoHS)
Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte.
Spanisch Königliches Dekret 208/2005 über die Elektro-und Elektronik-Altgeräte und die Bewältigung ihrer Abfälle.
Verordnung (EG) Nr. 1907/2006 zur Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe (REACH).
Spanisch Königliches Dekret 105/2008 über die Regularisierung des Managements und der Produktion von Bau-und Abbruchabfälle.

Dichiara sotto la sua diretta responsabilità che tutte le pompe di calore del tipo: V-HEAT
Prodotte a partire dal 31/07/2008, independentemente dal numero di serie, sono conformi a:

Direttiva sulla sicurezza macchine 2006/42/CE.
Direttiva sulla compatibilità elettromagnetica 2004/108/CE, e relative modifiche.
Direttiva sui dispositivi a bassa tensione 2006/95/CE.
Direttiva 2000/14/CE sulle emissione acustica ambientale delle macchine ed attrezzature destinate a funzionare all'aperto e la sua correzione con la direttiva 2005/88/CE.
Direttiva 2002/95/CE sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche (RoHS).
Direttiva 2002/96/CE sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE).
Spagnolo Regio Decreto 208/2005 sulle apparecchiature elettriche ed elettroniche e la gestione dei loro rifiuti.
Regolamento (CE) Nº 1907/2006 concernente la registrazione, la valutazione, l'autorizzazione delle sostanze chimiche (REACH).
Spagnolo Regio Decreto 208/2005 sulle regolarizzazione della gestione e della produzione di rifiuti da costruzione e demolizione.

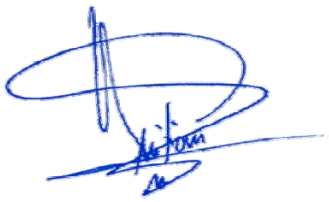
Declara sob sua única responsabilidade que todas as bombas de calor do tipo: V-HEAT
Produzidas a partir de 31/07/2008, independentemente do número de séria são conformes com:

A Directiva de segurança de máquinas 2006/42/CE.
A Directiva de compatibilidade electromagnética 2004/108/CE, e suas modificações.
Directiva de equipamentos de baixa tensão 2006/95/CE.
Directive 2000/14/CE relativa à Emissões sonoras para o ambiente dos equipamentos para utilização no exterior, alterada pela Directiva 2005/88/CE.
Directiva 2002/95/CE relativa à restrição do uso de determinadas substâncias perigosas em equipamentos eléctricos e electrónicos (RoHS).
Directiva 2002/96/CE relativa aos resíduos de equipamentos eléctricos e electrónicos (REEE).
Espanhol Real Decreto 208/2005, em equipamentos eléctricos e electrónicos e gestão dos seus resíduos.
Regulamento (CE) N.o 1907/2006 relativo ao registo, avaliação, autorização e restrição dos produtos químicos (REACH).
Espanhol Real Decreto 105/2008 para estabilizar a produção e gestão de resíduos de construção e demolição.

Signed the present conformity evidence / Signe la présente déclaration / Firma la presente declaración /
Firma la seguente dichiarazione/ Unterzeichnet diese Erklärung / Assina a presente declaração:

Los Corrales de Buelna 31/03/2010

Signature / Firma/ Unterschrift / Assinatura



Sr. Jesús Guitián. Chief Executive Officer of B-39390968