

EXPERIENCE THE
ALLIANCE
DIFFERENCE

TECHNICAL MANUAL



Alliance

Commercial R32 Pool Heat Pump

INVERTER

ALLPH1550R32 - INV

Alliance

Thank you for choosing an Alliance Heat Pump.

This manual contains important information on the correct installation and operation of your heat pump water heater.

Read these instructions carefully before installation. Keep this manual in a handy location for future reference.

CONTENTS

SAFETY PRECAUTIONS	2 - 4
PREFACE	5
SPECIFICATIONS	6
DIMENSIONS	7
INSTALLATION	8- 9
ELECTRICAL / START UP	10
CONDENSATION	11
CONTROLLER	12 - 17
ERROR CODES	18 - 24
MAIN PC BOARD	25 - 28
WIRING DIAGRAM	29
MAINTAINANCE	30
Wi-Fi SETUP	30
APPENDIX	31
WARRANTY	32 - 34

Alliance reserves the right to discontinue, or change at any time, specifications or designs without notices and without incurring obligations.

Safety Precautions



- R32 refrigerant – This heat pump MUST be installed outdoors.
- DO NOT install or operate this system before reading the manufacturer's instructions.
- This appliance must be installed, commissioned and serviced by an authorized person in accordance with all applicable local rules and regulations.
- Removing access covers and or water heating system components will expose 380V wiring and MUST only be removed by an authorised person.
- If the system's power supply is damaged, it MUST BE replaced by an authorised person in order to avoid a hazard. Take care not to touch the power connections or plugs with wet hands.
- 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 use of the appliance by a person responsible for their safety. Children should be supervised to ensure they DO NOT play with the appliance.
- For continued safety of this appliance it must be installed, operated and maintained in accordance with the manufacturer's instructions.
- Care should be taken not to touch the pipe work as it may be HOT!
- DO NOT place articles on or against this appliance.
- DO NOT operate with panels removed from this appliance.
- Electricians must have a reliable earth connection.
- DO NOT store chemicals or flammable materials near this appliance.
- This product must be protected with a residual current device of adequate rating.
- Do not interfere with any permanent instruction, labels or warning plate attached to the external cover of this heat pump.
- This product must be installed by a qualified person in the mechanical and electrical industry.
- Always comply with local wiring regulations.
- Always engage with a trained professional to relocate this product after it has been professionally installed.
- Maintenance and repair work must only be undertaken by trained and qualified personnel.
- This appliance should never be used by children.

WARNING

- DO NOT store chemicals or flammable materials near this appliance.
- NEVER use a flammable spray such as hair spray, paint, etc near this unit as it may cause fire.
- Avoid risk of injury from contact with refrigerant if you notice a leak.
- End of life recycling: The refrigerant must not enter the atmosphere. Only have the refrigerant removed by a qualified professional.

Safety Precautions

Important Notice:

This manual provides installation and operation instructions for the Commercial Heat Pump Water Heater. Consult the dealer for any questions regarding this equipment.

Attention Installer: This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the heat pump.

Attention User: This manual contains important information that will help you in operating and maintaining this heat pump. Please retain it for future reference.



WARNING - Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage.



— Risk of electrical shock or electrocution.

The electrical supply to this product must be installed by a licensed or certified electrician in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to heat pump users, installers or others due to electrical shock and may also cause damage to property. Read and follow the specific instructions inside this manual.



WARNING - This water heater is not intended to be operated or adjusted by young children, elderly, infirm or physically/mentally handicapped persons.

Safety Precautions

Range of application:

Power supply: 380~415V ~ 50Hz.

Environment temperature: -15°C ~ 43°C.

- To prevent injury to the user or other people and property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.
- The installation should be done by a qualified technician to prevent leakage, electric shock or fire disaster.
- Confirm the ground connection, if the ground connection is not correctly done, it may cause electric shock.
- Install the heat pump outdoors in an area with proper ventilation.
- Don't insert fingers or any object into the air inlet or air outlet. Because the high-speed motor operation may cause injury.
- When the unit needs to be removed or re-installed, please contact your heat pump installer to do it. If the installation is not done correctly, it may cause unit operation failure, electric shock, fire, injury, water leaks, etc.
- In case of any malfunction, please contact your heat pump installer to inspect the heat pump.
- Improper maintenance may cause operational failure, electric shock, fire, injury, water leaks etc.
- Do not install the unit in combustible gas area, in case of leakage it may cause a fire.
- Ensure the installation base is level and strong enough to support the heat pump.
- Ensure electric leakage protection switch is installed to avoid electric shock or fire.
- When cleaning the unit the heat pump must be switched off.
- The unit must be earthed effectively. The earthing pole of socket must be grounded well, make sure that power supply socket and plug are dry enough and connected tightly.
- Do not remove, cover or deface any permanent instructions, labels, or the data labels from either the outside of the unit or inside of unit panels.
- Never use the wire and fuse with wrong rated current, otherwise unit may break down and cause fire.
- Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary. Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the ground water and get into the food chain, damaging people's health and well-being.
- Before cleaning, be sure to stop the operation and turn the breaker off or pull out the power plug. Otherwise, an electric shock and injury may be caused.
- Arrange the drain pipe to ensure smooth draining. Improper drainage work may cause damage of the building.
- Do not touch the inner parts of the controller. Do not remove the front panel. Some parts inside are dangerous to touch, otherwise a machine malfunction may be caused.
- Do not turn off the power supply. System will stop or restart heating automatically. A continuous power supply for water heating is necessary, except service and maintenance.

Preface

To provide our customers with quality, reliability and versatility, this product has been made to strict production standards. This manual includes all the necessary information about installation, debugging, discharging and maintenance. Please read this manual carefully before you open or maintain the unit. The manufacture of this product will not be held responsible if someone is injured or the unit is damaged, because of improper installation, debugging, or unnecessary maintenance. It is vital that the instructions within this manual are always adhered to. The unit must be installed by qualified personnel.

The unit can only be repaired by qualified personnel or an authorised dealer.

Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.

Use genuine standard spare parts only. Failure to comply with these recommendations will invalidate the warranty.

Swimming Pool Heat Pump Unit heats the swimming pool water and keeps the temperature constant.

Our heat pump has the following characteristics:

- **Durable**

The heat exchanger is made of PVC & Titanium tube which can withstand prolonged exposure to swimming pool water.

- **Quiet operation**

The unit comprises an efficient inverter compressor and fan motor, which guarantees its quite operation.

- **Advanced control**

The unit includes micro-computer controlling, allowing all operation parameters to be set. Operation status can be displayed on the LCD wired controller.

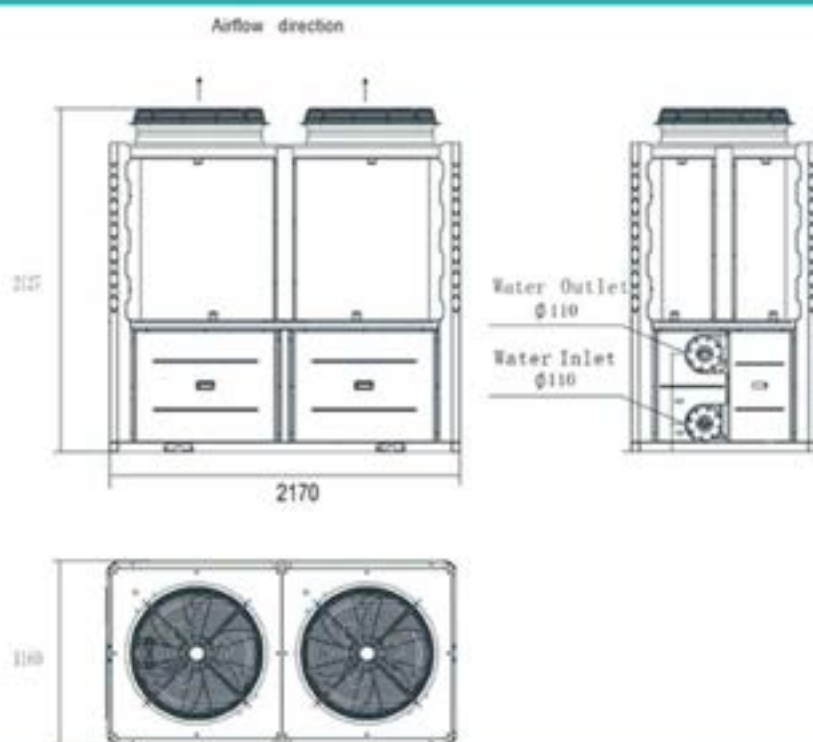
General Specifications

Performance Data

UNIT		ALLPH1550R32 - INV
Heating Capacity	kW	30 – 155
Consumed power	kW	1.88 – 22.13
COP		6.1 – 25.5
Operating air temperature	°C	-15 to 43
Power supply		380V – 415V / 3N ~ / 50Hz
Max power input	kW	25.1
Rated current input	A	40.9
Compressor quantity		2
Compressor type		Rotary
Refrigerant		R32
Fan quantity		2
Fan rotary speed	RPM	500 - 700
Fan direction		Vertical
Noise	dB(A)	59 - 62
Water connection	mm	110
Nominal water flow	m3/h	42
Water pressure drop (max)	kPa	37
Set water temperature Cooling / Heating	°C	9 / 40
Unit net dimensions (L x W x H)	mm	2170 x 1160 x 2127
Carton dimensions (L x W x H)	mm	2330 x 1330 x 2340
Net weight	kg	603
Gross weight	kg	683
Test conditions - Air 27°C / Water 26°C / Humidity 80%		

Dimensional Drawings

ALLPH1550R32-INV



Installation

R32 REFRIGERANT

The unit **MUST NOT** be installed in any enclosed area. Doing so will void the warranty.

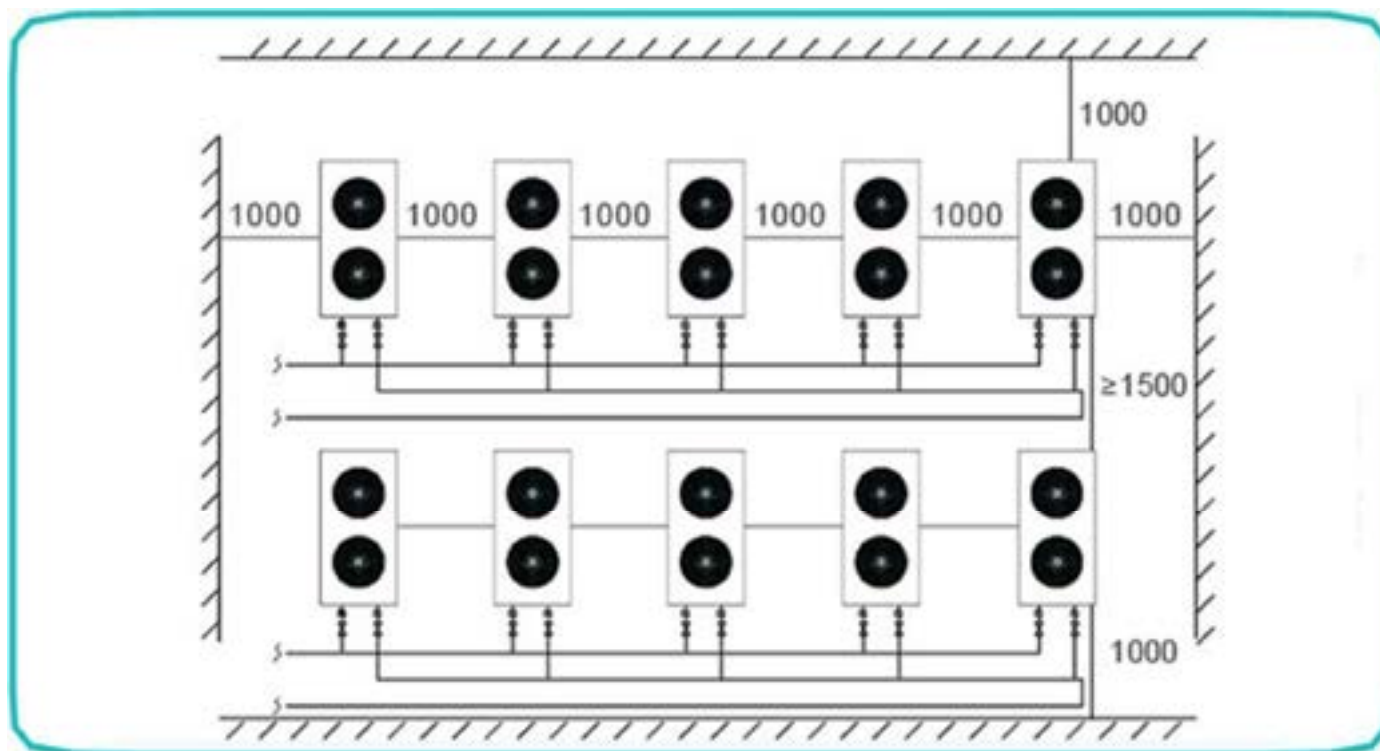
Heat Pump Location

The unit will perform well in any outdoor location provided that the following three factors are presented:

Fresh Air - 2. Electricity - 3. Pool filter piping

The unit may be installed virtually anywhere outdoors. For indoor pools please consult the supplier.

DO NOT place the unit close to bushes or shrubs which can block air inlet / outlet. These locations deny the unit of a continuous source of fresh air which reduces its efficiency and may prevent adequate heat delivery.

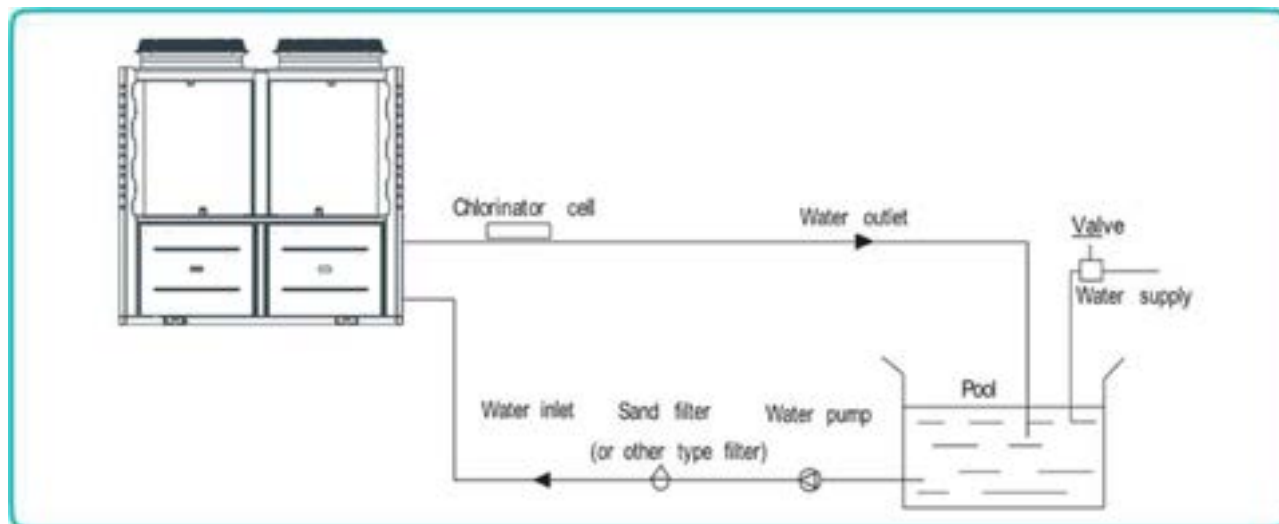


How close to your pool?

Normally, the pool heat pump is installed within 7.5 meters of the pool. The longer the distance from the pool, the greater the heat loss from the piping. For the most part, the piping is buried. Therefore, the heat loss is minimal for runs of up to 15 meters (15 meters to and from the pump = 30 meters total), unless the ground is wet, or the water table is high.

A very rough estimate of heat loss per 30 meters is 0.6 kW-hour, (2000BTU) for every 5°C difference in temperature between the pool water and the ground surrounding the pipe, which translates to about 3% to 5% increase in run time.

INSTALLATION ILLUSTRATION



Remarks

The factory only provides the heat pump. Other parts, including a by-pass are to be provided by the user or installer.

Attention

Please take the following steps when installing the heat pump:

1. Each addition of chemicals must be performed through the piping located AFTER the heat pump.
2. Install a by-pass for easy maintenance.
3. Always place the heat pump on a solid base and use the supplied rubber blocks to avoid vibrations and noise.
4. Always keep the heat pump in an upright position. If the unit has been tilted, you should wait for at least 24 hours before turning it on.

Installation of a check valve

When using automatic chlorine and pH dosage systems, it is of extremely import to protect the heat pump from high concentrations of these chemicals that could corrode the heat exchanger. Therefore, such systems should add the chemicals in the pipes DOWNSTREAM of the heat pump and it is recommended to install a check valve in order to prevent backflow when there is no water circulation. Damage to the heat pump caused by disregarding these recommendations will invalidate the warranty.

Electrical

Important - Although the heat pump is electrically isolated from the rest of the unit, this only prevents the passage of electricity to or from the pool water. Grounding the unit is still required to protect yourself from short circuits inside the unit. The heat pump must be earthed.

Check if the electrical mains voltage corresponds with the operating voltage of the heat pump prior to installing the heat pump.

Model	Voltage (V)	Fuse (C-curve)	Max current (A)	Cable section*
ALLPH1550R32 – INV	380-415V/3N	63A	40.9	5 x 10mm

* For a maximum cable length of 50m

Note: Due to the unstable and unreliable power supply in South Africa, Under / Over voltage protection is required to protect electronic components inside the heat pump. Failure to install Under / Over voltage protection will void the warranty.

Initial Start Up

NOTE - For the unit to heat the pool or spa, the filter pump must be running to circulate water through the heat exchanger.

Startup Procedure - After installation is completed, you should follow these steps:

1. Turn on your pool pump. Check for water leaks and verify flow to and from the pool.
2. Turn on the electrical power supply to the heat pump, then press the key ON/OFF on the wire controller. It should start in several seconds.
3. After running a few minutes make sure the air leaving the fan opening of the unit is cooler (between 5-10°C)
4. With the unit operating turn, the pool pumps of. The unit should also turn of automatically,
5. Allow the unit and pool pump to run 24 hours per day until desired pool water temperature is reached. When the desired pool water temperature reaches the setting, the unit just shuts off.
6. The unit will now automatically restart (if your pool pump is running) when the pool temperature drops more than 2°C below set temperature.

Time Delay - The unit is equipped with a 3-minute built-in solid state restart delay included to protect control circuit components and to eliminate restart cycling and contactor chatter.

This time delay will automatically restart the unit approximately 3 minutes after each control circuit interruption. Even a brief power interruption will activate the solid state 3-minute restart delay and prevent the unit from starting until the 3-minute countdown is completed. Power interruptions during the delay period will have no effect on the 3-minute countdown.

Condensation

Since the Heat pump cools down the air about 5°C, water may condense on the fins of the evaporator. If the relative humidity is very high, this could be as much as several litres an hour. The water will run down the fins into the base pan and drain out through the barbed plastic condensation drain fitting on the side of the base pan.

This fitting is designed to accept 20mm clear vinyl tubing which can be pushed on by hand and run to a suitable drain. It is easy to mistake the condensation for a water leak inside the unit.

TIP:

A quick way to verify that the water is condensation is to shut of the unit and keep the pool pump running. If the water stops running out of the base pan after a couple of hours, it is condensation. AN EVEN QUICKER WAY IS TO TEST THE DRAIN WATER FOR CHLORINE with a PH strip - if there is no chlorine present, then it is condensation.

Display interface introduction

Main interface



Button description

NO.	Name	Button Function
1	ON/OFF	Start/Stop the unit
2	Lock screen	Locks the screen
3	Parameters	Access to parameters
4	Clock settings	Set the date & time Activate timers
5	Error codes	View error code history
6	Silent settings	Press to activate silent function Set timing Low speed function
7	Mode	Mode switch interface
8	Statistics	View temperature and power curve
9	Water temperature	Mode settings and target temp setting interface

Button functions

ON/OFF

With the ON/OFF button, the heat pump is turned ON or OFF (stand-by status)

LOCK SCREEN

Press this button to lock the screen

To unlock: press the lock button and enter the code "22"

PARAMETERS

N/A

CLOCK SETTINGS

In the main interface, tap on the clock Settings button 3 times, interface displays as follows:



Setting the time

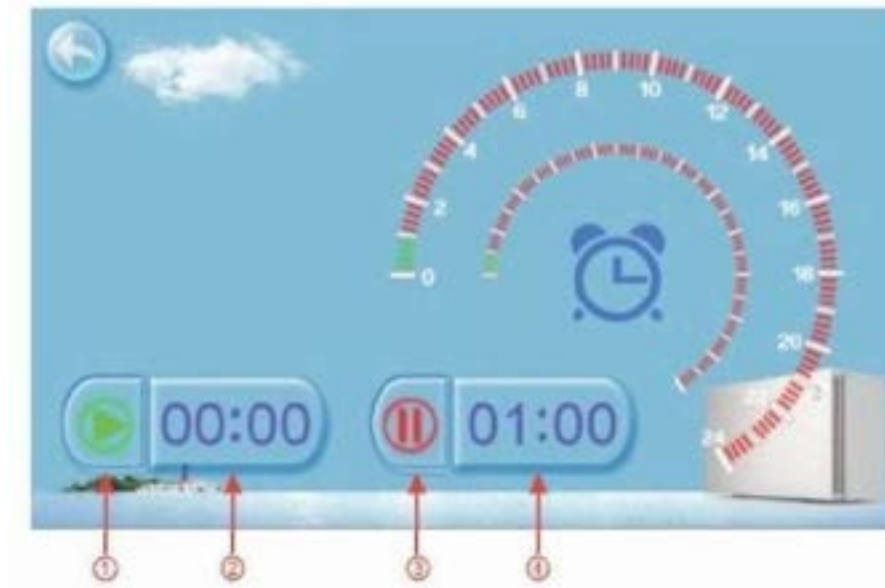
Tap on the Time Settings button (1), then the following menu pops up:



Tap the value to set time directly, the tap the Enter button to save the Settings. For example: setup time: the 02-25-2020 15:00:00, input 15 00 00 02 25 20

Note: If the input format is not correct, the setting cannot be saved by tapping Enter.

Setting/activating the Timers



NO	Name	Button color	Button function
1	TIMER START	Activated: Green Not activated: Grey	Tap this button to activate/deactivate the START timer
2	Start time		Set Start time
3	TIMER END	Activated: Red Not activated: Grey	Tap this button to activate/deactivate the END timer
4	End time		Set End time

For the example above: without action, 00:00 o'clock and 01:00 o'clock will be the on and off times of timing settings.

TIMER set button (2), to enter the timer menu.

Whisper mode settings

In the main screen, tap the silent settings button A pop-up appears with 2 icons:



Whisper mode

Tap the fan button (one time), the unit will enter Whisper mode.

The displays shows a fan icon with 3 blades to indicate that the Whisper mode is active Tap the fan button again to exit the Whisper mode.



Timed Whisper mode

Tap the fan button (two times).

The display shows a menu with timer settings to activate/deactivate the Whisper mode



For the example above, Tap "ON" to use the Timed Whisper mode. The unit will start the Whisper mode at 23:00h and end at 08:00h

NO	Name	Button color	Button function
1	Timer WHISPER OFF	Activated: Red Not activated: Grey	Tap to activate/deactivate the END timer
2	Timer WHISPER ON	Activated: Green Not activated: Grey	Tap to activate/deactivate the START timer
3	Start time		Set start time
4	End time		Set end time

Note: If the unit is running in Whisper mode, and the OFF button (1) is tapped, then the unit will exit Whisper mode immediately

Mode

In the main screen, tap the Mode button. A new menu will pop up:

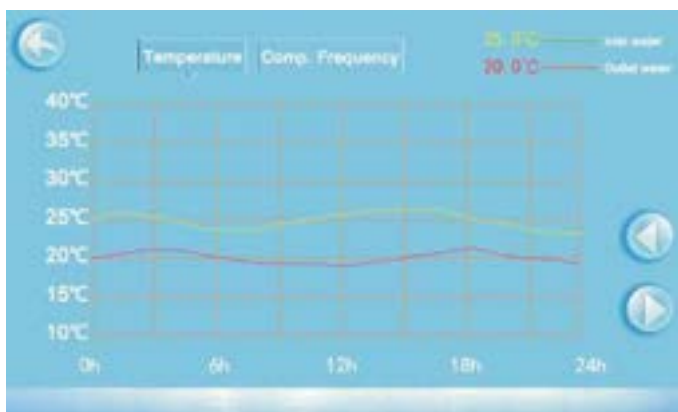
- 1) Cooling mode
- 2) Automatic heating/cooling mode
- 3) Heating mode
- 4) Set desired swimming pool temperature



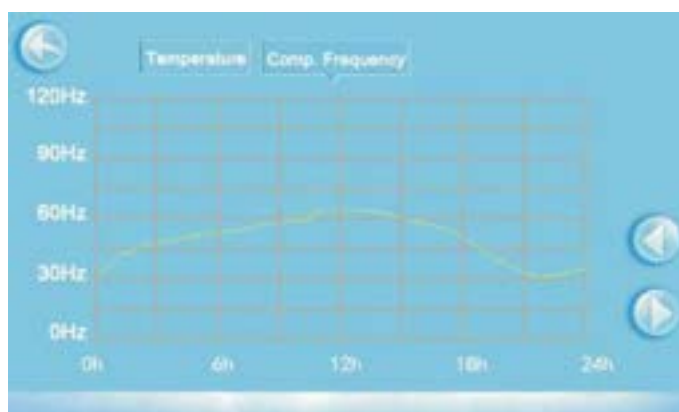
Statistics

In the main screen, tap the Statistics button. A new menu will pop up. The temperature curve automatically updates every hour, and the curve record can be stored for 60 days.

Temperature recording curve

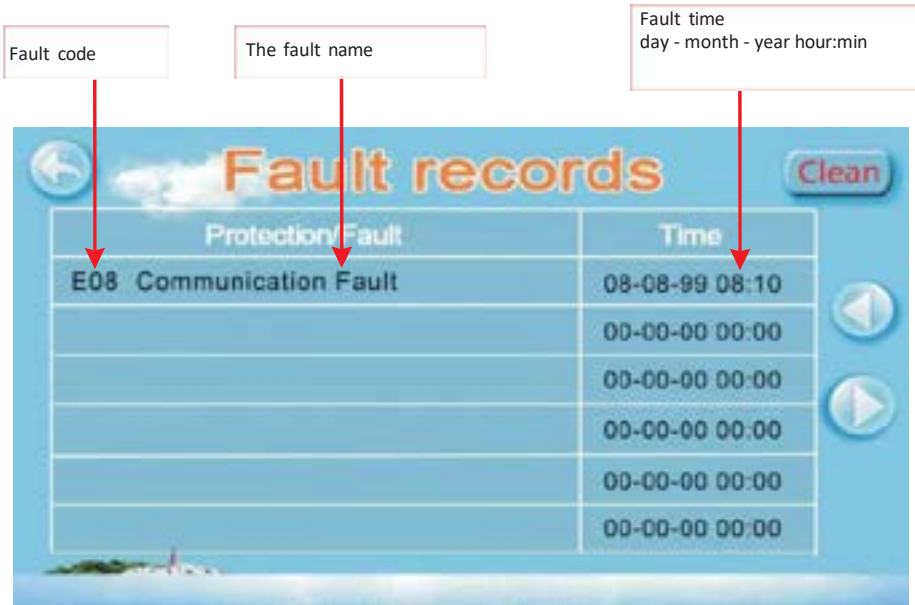


Compressor frequency curve



Error codes

In the main screen, tap the Error codes button. A new menu will pop up:



If there are no error codes present, the main display will show a grey triangle logo: ▲ When an error occurs, the error icon will flash orange/grey: ▲ the system will record the time, code and name of the error.

When an error occurs, and you don't check the Error code history menu, the main interface will display a static ▲ icon after a while. If you do check the Error code history menu, the main interface will display a static ▲ icon.

The Error code history menu shows all the error codes in reverse order, with the most recent code on top. If you tap the "Clean" key, you can erase all the codes.

Error codes

Protect / fault	Fault display	Reason	Elimination methods
Inlet Temp. Sensor Fault	P01	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Outlet Temp. Sensor Fault	P02	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Ambient Temp. Sensor Fault	P04	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 1: Coil 1 Temp. Sensor Fault	P151	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 2: Coil 1 Temp. Sensor Fault	P251	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 1 : Suction Temp. Sensor Fault	P17	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 2 : Suction Temp. Sensor Fault	P27	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 1 : Exhaust Temp. Sensor Fault	P181	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 2 : Exhaust Temp. Sensor Fault	P281	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 1 : Exhaust Air over Temp. Prot.	P182	The compressor is overload	Check whether the system of the compressor running normally
Syst 1 : Exhaust Air over Temp. Prot.3+	P182	The compressor is overload	Check whether the system of the compressor running normally
Syst 2 : Exhaust Air over Temp. Prot.	P282	The compressor is overload	Check whether the system of the compressor running normally
Syst 2 : Exhaust Air over Temp. Prot.3+	P282	The compressor is overload	Check whether the system of the compressor running normally
Syst 1 : High Pressure Prot.	E11	The high-pressure switch is broken	Check the pressure switch and cold circuit
Syst 1 : High Pressure Prot. 3+	E11	The high-pressure switch is broken	Check the pressure switch and cold circuit
Syst 2 : High Pressure Prot.	E21	The high-pressure switch is broken	Check the pressure switch and cold circuit
Syst 2 : High Pressure Prot. 3+	E21	The high-pressure switch is broken	Check the pressure switch and cold circuit
Syst 1 : Low Pressure Prot.	E12	The low-pressure switch is broken	Check the pressure switch and cold circuit
Syst 1 : Low Pressure Prot. 3+	E12	The low-pressure switch is broken	Check the pressure switch and cold circuit
Syst 2 : Low Pressure Prot.	E22	The low-pressure switch is broken	Check the pressure switch and cold circuit
Syst 2 : Low Pressure Prot. 3+	E22	The low-pressure switch is broken	Check the pressure switch and cold circuit

Flow Switch Prot.	E03	No water/little water in water system	Check the pipe water flow and water pump
Flow Switch Prot.3+	E03	No water/little water in water system	Check the pipe water flow and water pump
Waterway Anti-freezing Prot.	E05	Water temp.or ambient temp. is too low	Check the ambient temp value
Excess Water Temp.Diff Prot.	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not

Error codes

Protect / fault	Fault display	Reason	Elimination methods
Excess Water Temp. Diff Prot. 3+	E06	Water flow is not enough and low differential pressure	Check the pipe water flow and whether water system is jammed or not
Anti-freezing Prot.	E07	Water flow is not enough	Check the pipe water flow and whether water system is jammed or not
Anti-freezing Prot. 3+	E07	Water flow is not enough	Check the pipe water flow and whether water system is jammed or not
Syst 1 : Low Pressure Sensor Fault	PP11	The pressure Sensor is broken	Check or change the pressure Sensor or pressure
Syst 2 : Low Pressure Sensor Fault	PP21	The pressure Sensor is broken	Check or change the pressure Sensor or pressure
Syst 1 : High Pressure Sensor Fault	PP12	The pressure Sensor is broken	Check or change the pressure Sensor or pressure
Syst 2 : High Pressure Sensor Fault	PP22	The pressure Sensor is broken	Check or change the pressure Sensor or pressure
Syst 1: Comp. Overcurrent Prot.	E151	The compressor is overload	Check whether the system of the compressor running normally
Syst 1: Comp. Overcurrent Prot. 3+	E151	The compressor is overload	Check whether the system of the compressor running normally
Syst 2: Comp. Overcurrent Prot.	E251	The compressor is overload	Check whether the system of the compressor running normally
Syst 2: Comp. Overcurrent Prot. 3+	E251	The compressor is overload	Check whether the system of the compressor running normally
Abnormal Power Down Record	EE1	Loss of power when power on	Automatic recovery after 3 minutes of power on
Syst 1: Coil 2 Temp. Sensor Fault	P152	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor
Syst 2: Coil 2 Temp. Sensor Fault	P252	The temp. Sensor is broken or short circuit	Check or change the temp. Sensor

Primary Anti-freezing Prot.	E19	The ambient temp. Is low	Check the ambient temp value
Secondary Anti-freezing Prot.	E29	The ambient temp. Is low	Check the ambient temp value
Communication Fault	E08	Communication failure between wire controller and mainboard	Check the wire connection between remote wire controller and main board
Communication Fault (Fan Motor 1)	E081	Speed control module and main board communication fail	Check the communication connection
Communication Fault (Fan Motor 2)	E082	Speed control module and main board communication fail	Check the communication connection
Low AT Protection	TP	Ambient temp is too low	Check the ambient temp value
EC fan feedback Fault	F051	There is something wrong with fan motor and fan motor stops running	Check whether fan motor is broken or locked or not
Water (Out) High Temp Protection	E065	The outlet temperature is too high	Check the pipe water flow and water pump
Water(Out) High Temp Protection 3+	E065	The outlet temperature is too high	Check the pipe water flow and water pump
Water(Out) Low Temp Protection	E071	The outlet temperature is too low.	Check the pipe water flow and water pump
Water(Out) Low Temp Protection 3+	E071	The outlet temperature is too low.	Check the pipe water flow and water pump
The Wire Controller does not match Main Controller	E084	The Wire Controller program does not match Main Controller program	Re-burn the new program
Fan Motor 1 Overheat Protection	E103	Fan Motor 1 overload	Check whether the fan motor 1 is in normal operation
Fan Motor 2 Overheat Protection	E203	Fan Motor 2 overload	Check whether the fan motor 2 is in normal operation

Error codes

Protect / fault	Fault display	Reason	Elimination methods
Syst 1: Refrigerant Leakage Protection	E131	System1 Refrigerant Leakage	Check whether the System 1 refrigerant has been leaking
Syst 2: Refrigerant Leakage Protection	E231	System2 Refrigerant Leakage	Check whether the System 2 refrigerant has been leaking
Syst 1: Suction High Temp Protection	E077	Suction overtemperature	Check whether the suction temperature over the protection value
Syst 2: Suction High Temp Protection	E078	Suction overtemperature	Check whether the suction temperature over the protection value
Syst 1: 4-way Valve Abnormal Switch	E121	4-way Valve Abnormal Switch	Check whether 4-way Valve state is the required state
Syst 2: 4-way Valve Abnormal Switch	E221	4-way Valve Abnormal Switch	Check whether 4-way Valve state is the required state
Syst 1: Refrigerant Leakage Protection 3+	E131	System1 Refrigerant Leakage	Check whether the System 1 refrigerant has been leaking
Syst 2: Refrigerant Leakage Protection 3+	E231	System2 Refrigerant Leakage	Check whether the System 2 refrigerant has been leaking
Fan Motor 1 Overheat Protection 3+	E103	Fan Motor 1 overload	Check whether the fan motor 1 is in normal operation
Fan Motor 2 Overheat Protection 3+	E203	Fan Motor 2 overload	Check whether the fan motor 2 is in normal operation
Anti-condensation Prot.	E174	The condition of current air temp and inlet water temp is cruel	Check the air temp and inlet water temp
Fan Motor 1 Output Out Phase	F101	Fan motor 1 does not start	Check the wiring of fan motor 1
Fan Motor 1 Output Zero Speed	F102	Fan motor 1 does not start	Check if the fan motor 1 is blocked or not
Fan Motor 1 Start IPM Protection	F103	The start current of fan motor 1 is overloaded	Check if the fan motor 1 is blocked or not
Fan Motor 1 Running IPM Protection	F104	The running current of fan motor 1 is overloaded	Check if the fan motor 1 is blocked or not
Fan Motor 1 Overcurrent Protection	F105	The running current of fan motor 1 is overloaded	Check if the fan motor 1 is blocked or not
Fan Motor 1 Over-temperature Protection	F106	The heat reduction of fan motor 1 is not enough	Check the condition of heat reduction
Fan Motor 1 Bus Over Voltage	F107	The voltage is overloaded	Check if the power supply is higher than 480V or not
Fan Motor 1 Bus Under Voltage	F108	The voltage is too low	Check if the power supply is lower than 250V or not

Fan Motor 2 Output Out Phase	F201	Fan motor 2 does not start	Check the wiring of fan motor 2
Fan Motor 2 Output Zero Speed	F202	Fan motor 2 does not start	Check if the fan motor 2 is blocked or not
Fan Motor 2 Start IPM Protection	F203	The start current of fan motor 2 is overloaded	Check if the fan motor 2 is blocked or not
Fan Motor 2 Running IPM Protection	F204	The running current of fan motor 2 is overloaded	Check if the fan motor 2 is blocked or not
Fan Motor 2 Overcurrent Protection	F205	The running current of fan motor 2 is overloaded	Check if the fan motor 2 is blocked or not
Fan Motor 2 Over-temperature Protection	F206	The heat reduction of fan motor 2 is not enough	Check the condition of heat reduction
Fan Motor 2 Bus Over Voltage	F207	The voltage is overloaded	Check if the power supply is higher than 480V or not
Fan Motor 2 Bus Under Voltage	F208	The voltage is too low	Check if the power supply is lower than 250V or not

Error codes

Protect / fault	Fault display	Reason	Elimination methods
Syst 1: Inverter Board Communication Failure	F151	Communication failure with system 1 Inverter board	1. Check whether the communication line is normal. 2. Check whether the system 1 inverter board power on is normal
Syst 1: Compressor Start Failure	F152	System1 compressor start failure	1. Check whether the compressor line is normal 2. Check whether the System1 compressor is blocked
Syst 1: Start IPM Protection	F153	Excessive system1 compressor startup current	1. Check whether the starting high pressure is too high 2. Check whether the System1 compressor is blocked
Syst 1: Running IPM Protection	F154	Excessive system1 compressor running current	Check whether the pressure ratio is too high
Syst 1: Comp. IPM Over-temperature Protection	F155	Poor heat dissipation of system1 Inverter Board	Check whether there are any gaps in the installation of refrigerant cooling fins
Syst 1: Compressor Overcurrent Protection	F156	Excessive System1 Compressor running current	Check whether the pressure ratio is too high
Syst 1: Compressor Bus Over Voltage	F157	Over Voltage	Check whether the input voltage is higher than 480v

Syst 1: Compressor Bus Under Voltage	F158	Under Voltage	Check whether the input voltage is lower than 250v
Syst 2: Inverter Board Communication Failure	F251	Communication failure with system 1 Inverter board	1. Check whether the communication line is normal. 2. Check whether the system 1 inverter board power on is normal.
Syst 2: Compressor Start Failure	F252	System 2 compressor start failure	1. Check whether the compressor line is normal. 2. Check whether the System 1 compressor is blocked.
Syst 2: Start IPM Protection	F253	Excessive system 1 compressor startup current	1. Check whether the starting high pressure is too high 2. Check whether the System 1 compressor is blocked
Syst 2: Running IPM Protection	F254	Excessive system 1 compressor running current	Check whether the pressure ratio is too high
Syst 2: Comp. IPM Over-temperature Protection	F255	Poor heat dissipation of system 1 Inverter Board	Check whether there are any gaps in the installation of refrigerant cooling fins
Syst 2: Compressor Overcurrent Protection	F256	Excessive System 1 Compressor Running Current	Check whether the pressure ratio is too high
Syst 2: Compressor Bus Over Voltage	F257	Over Voltage	Check whether the input voltage is higher than 480v
Syst 2: Compressor Bus Under Voltage	F258	Under Voltage	Check whether the input voltage is lower than 250v

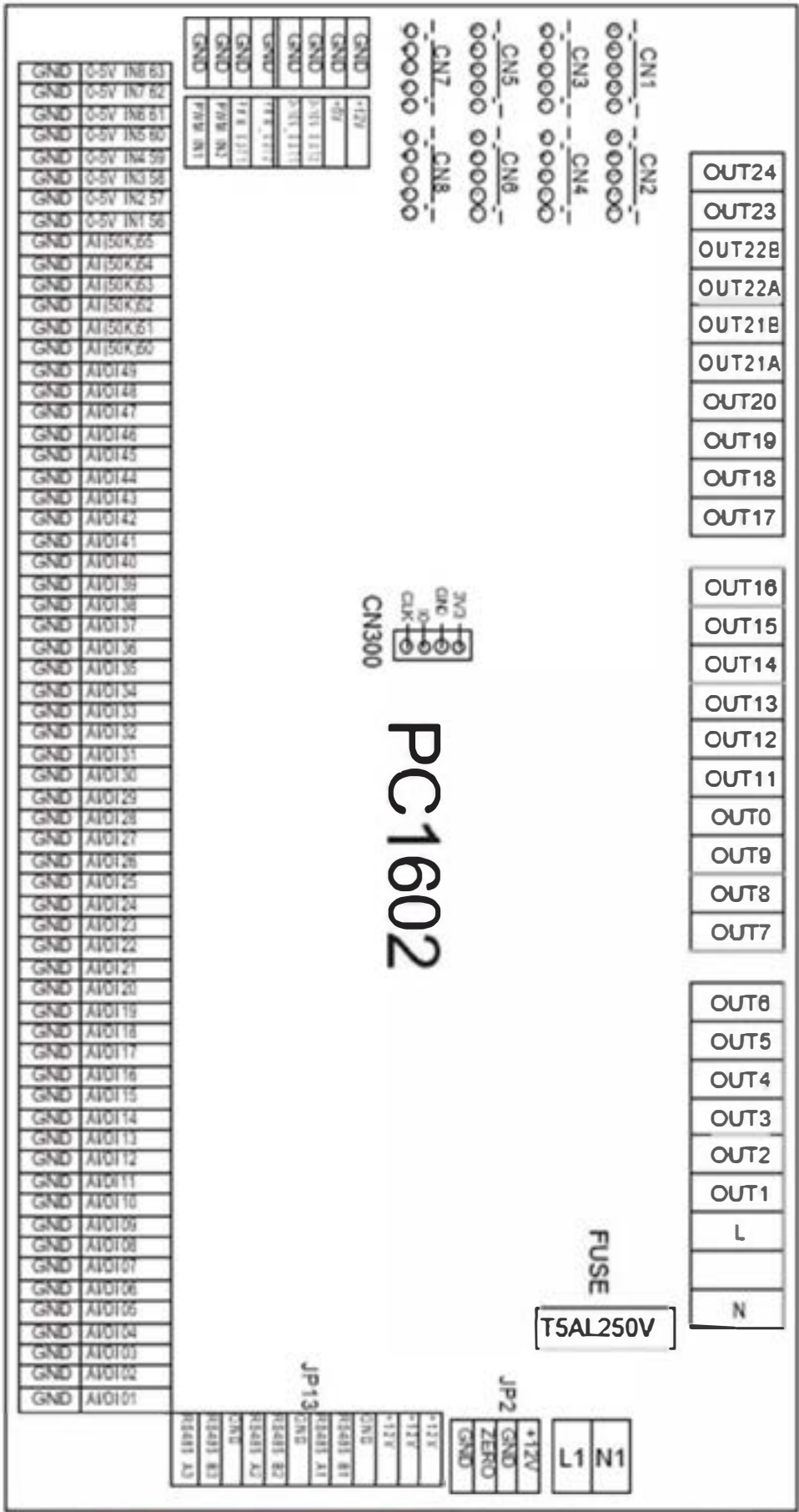
Parameter list

Meaning	Default	Remarks
Refrigeration target temperature set point	27°C	Adjustable
Heating the target temperature set point	27°C	Adjustable
Automatic target temperature set point	27°C	Adjustable

Wire control interface diagram and definition

Sign	Meaning
V	12V (power +)
R	No use
T	No use
A	485A
B	485B
G	GND (power -)

Controller interface diagram and definition



Main board input and output interface instructions:

Number	Sign	Meaning
1	OUT1	System 1 compressor (output 250VAC)
2	OUT2	System 2 compressor2 (output 250VAC)
3	OUT3	Low speed of fan 1 (output 250VAC)
4	OUT4	High speed 1 of fan 1 (output 250VAC)
5	OUT5	High speed 2 of fan 1 (output 250VAC)
6	OUT6	Low speed of fan 2 (output 250VAC)
7	OUT7	High speed 1 of fan 2 (output 250VAC)
8	OUT8	High speed 2 of fan 2 (output 250VAC)
9	OUT9	Four-way valve 1 (output 250VAC)
10	OUT10	Four-way valve 2 (output 250VAC)
11	OUT11	Crankshaft heating belt 1
12	OUT12	Crankshaft heating belt 2
13	OUT13	Water pump (output 250VAC)
14	OUT14	Chassis heating belt
15	OUT15	Electrical heating 1
16	OUT16	Electrical heating 2
17	OUT17	Reserved
18	OUT18	Reserved
19	OUT19	Reserved
20	OUT20	Reserved
21	OUT21	Reserved
22	OUT22	Reserved
23	OUT23	Reserved
24	OUT24	Reserved
25	AI/DI01	Water input temperature (input)
26	AI/DI02	Water output temperature (input)
27	AI/DI03	Ambient temperature (input)
28	AI/DI04	System 1 suction temperature (input)
29	AI/DI05	System 2 suction temperature (input)
30	AI/DI06	System 1 fan coil temperature 1 (input)
31	AI/DI07	System 2 fan coil temperature 1 (input)
32	AI/DI08	System 1 fan coil temperature 2 (input)
33	AI/DI09	System 2 fan coil temperature 2 (input)
34	AI/DI10	Reserved
35	AI/DI11	Reserved
36	AI/DI12	Reserved
37	AI/DI13	Reserved
38	AI/DI14	Reserved
39	AI/DI15	Reserved
40	AI/DI16	Reserved
41	AI/DI17	Reserved

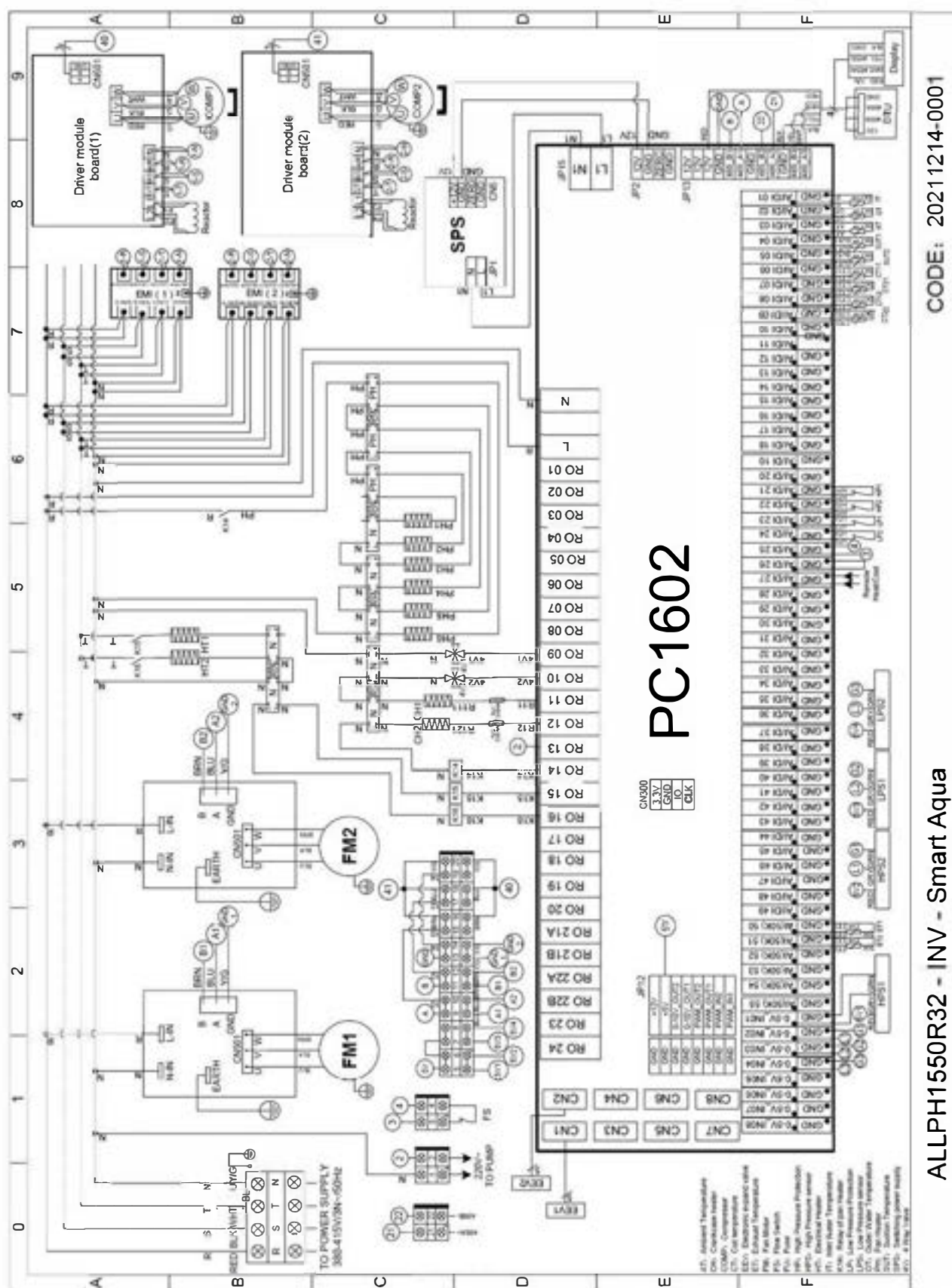
Number	Sign	Meaning
42	AI/DI18	Reserved
43	AI/DI19	Reserved
44	AI/DI20	Reserved
43	AI/DI21	System 1 high pressure (input)
44	AI/DI22	System 2 high pressure (input)
45	AI/DI23	System 1 low pressure (input)
46	AI/DI24	System 2 low pressure (input)
47	AI/DI25	Water flow switch (input)
48	AI/DI26	Emergency switch (input)
49	AI/DI27	Mode switch (input)
50	AI/DI28	Master-slave machine switch (input)
51	AI/DI29	Fan 1 heater overload protection (input)
52	AI/DI30	Fan 2 heater overload protection (input)
53	AI/DI31	Reserved
54	AI/DI32	Reserved
55	AI/DI33	Reserved
56	AI/DI34	Reserved
57	AI/DI35	Reserved
58	AI/DI36	Reserved
59	AI/DI37	Reserved
60	AI/DI38	Reserved
61	AI/DI39	Reserved
62	AI/DI40	Reserved
63	AI/DI41	Reserved
64	AI/DI42	Reserved
65	AI/DI43	Reserved
66	AI/DI44	Reserved
67	AI/DI45	Reserved
68	AI/DI46	Reserved
69	AI/DI47	Reserved
70	AI/DI48	Reserved
71	AI/DI49	Reserved
72	AI (50K) 50	System 1 exhaust temperature (input)
73	AI (50K) 51	System 2 exhaust temperature (input)
74	AI (50K) 52	Reserved
75	AI (50K) 53	Reserved
76	AI (50K) 54	Reserved
77	AI (50K) 55	Reserved
78	0-5V_IN1	System 1 high pressure transducer (input)
79	0-5V_IN2	System 2 high pressure transducer (input)
80	0-5V_IN3	System 1 low pressure transducer (input)
81	0-5V_IN4	System 2 low pressure transducer (input)

Number	Sign	Meaning
82	0-5V_IN5	Reserved
83	0-5V_IN6	Reserved
84	0-5V_IN7	Reserved
85	0-5V_IN8	Reserved
86	CN1	System 1 electronic expansion valve (output 12VDC)
87	CN2	System 2 electronic expansion valve (output 12VDC)
88	CN3	Reserved
90	CN4	Reserved
91	CN5	Reserved
92	CN6	Reserved
93	CN7	Reserved
94	CN8	Reserved
95	+12V	12V output
96	+5V	5V output
97	0-10V_OUT2	Reserved
98	0-10V_OUT1	Reserved
99	PWM_OUT2	Reserved
100	PWM_OUT1	Reserved
101	PWM_IN2	Reserved
102	PWM_IN1	Reserved
103	CN300	Program port
104	L N	220V input
105	L1 N1	220V output
106	JP2	12V input
107	JP13_1	Inverter board/DC fan speed regulation module
108	JP13_2	Centralized control communication port
109	JP13_3	Color line controller communication/DTU module/WIFI

Note:

JP5_1 represents +12V, 485_A1, 485_B1, GND on the JP5 terminal;
 JP5_2 represents +12V, 485_A2, 485_B2, GND on the JP5 terminal;
 JP5_3 represents +12V, 485_A3, 485_B3, GND on the JP5 terminal.

Wiring diagram



CODE: 20211214-0001

ALLPH1550R32 - INV - Smart Aqua

Maintenance

- Check the water inlet and drainage often. The water and air inflow into the system should be sufficient so that its performance and reliability does not get compromised. You should clean the pool filter regularly to avoid damage to the unit caused by clogging of the filter.
- The area around the unit should be spacious and well ventilated. Clean the sides of the heat pump regularly to maintain good heat exchange and to save energy.
- Check if all processes in the unit are operational and pay special attention to the operation pressure of the refrigerant system.
- Check the power supply and cable connections regularly. Should the unit begin to function abnormally or should you notice a smell from an electrical component, arrange for timely repair or replacement.
- Winterizing : make sure to drain all the water from the heat pump and other systems in order to prevent frost damage. Damage caused by freezing is not covered by the warranty.
- You should also purge the water if the unit will not work for an extended period of time. You should check all parts of the unit thoroughly and completely fill the system with water before turning it on again afterwards.

Wi-Fi Module

Note that a Wi-Fi module is available for this heat pump. The Wi-Fi module connects to the heat pump and then allows it to be controlled from a mobile phone or a web browser over the internet. Please refer to the separate Wi-Fi installation manual for details of the Wi-Fi module and mobile APP.



Appendix

Caution & Warning

1. The unit can only be repaired by qualified installer center personnel or an authorized dealer.
2. 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 use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
3. Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.
4. If the power supply cord is damaged, it must be replaced by the manufacturer or our service agent or similarly qualified person in order to avoid a hazard.
5. Directive 2002/96/EC (WEEE):
The symbol depicting a crossed-out waste bin that is underneath the appliance indicates that this product, at the end of its useful life, must be handled separately from domestic waste, must be taken to a recycling centre for electric and electronic devices or handed back to the dealer when purchasing an equivalent appliance.
6. Directive 2002/95/EC (RoHS): This product is compliant with directive 2002/95/EC (RoHS) concerning restrictions for the use of harmful substances in electric and electronic devices.
7. The unit CANNOT be installed near flammable gas.
8. Make sure that there is a circuit breaker for the unit, lack of a circuit breaker can lead to electrical shock or fire.
9. The heat pump is equipped with an over-load protection system. It does not allow for the unit to start for at least 3 minutes from a previous stoppage.

Warranty

ALLIANCE INVERTER SWIMMING POOL HEAT
PUMP WARRANTY CARD

TWO YEAR LIMITED WARRANTY ON UNIT
THREE YEAR LIMITED WARRANTY ON COMPRESSOR
FIVE YEAR LIMITED WARRANTY ON HEAT EXCHANGER

PLEASE READ CAREFULLY BEFORE FILLING IN AND STORING IN A SAFE PLACE

Terms of our comprehensive Warranty are as follows:

1.	Subject to the stated terms and conditions, warranty is given to the purchaser in respect of the Alliance Heat Pump, Model No and Serial No. as listed on the back of this card for 24 months on the unit, 60 months on the heat exchanger and 36 months on the compressor, from date of installation. This warranty is subject to servicing being maintained in line with the servicing standard as set out in the schedule on the back of this warranty card. Should the equipment not be serviced as per the schedule, this warranty will become null and void.	5.	This warranty will lapse if any repairs are carried out by any dealer other than any dealer authorised by Alliance. An authorised dealer is a company that deals with Fourways Group. The warranty will also lapse if any unauthorised alteration to this warranty card is affected.
			
2.	This warranty covers defects caused by original manufacturing faults, defective manufacturing assembly, or faulty material. It does not cover defects as a result of incorrect installation but is a parts only warranty and excludes labour costs. It also does not extend to repairs, replacement of parts, maintenance or service necessitated by normal wear and tear, incorrect operation, failure to properly maintain, improper cleaning methods, infestation by insects or vermin, maltreatment of the product, misuse, connection to an incorrect voltage, power under and over voltage, damage caused by lightning, accidents, flooding, fire, Acts of God, public disturbances, accidental damage, rust and corrosion, work carried out by persons other than an authorised Alliance dealer, or being incorrectly sized for the application required, according to authorised dealer's recommendations. In cases of dispute, repairs, replacement of spare parts, maintenance and service shall be deemed to be beyond the scope of this warranty unless the purchaser can prove to the contrary.	6.	This warranty is not transferable and is only valid in South Africa. It is valid only for the original purchaser of the Product. This purchaser will be the person who owns the machine once installation is completed.
		7.	Any repairs carried out under this warranty will not extend the period of the warranty in any way.
		8.	Neither Alliance nor authorised Alliance service agents shall be responsible at any time during or after the period of this warranty for any loss or damage of whatsoever nature, whether general, special, or consequential which may be caused or sustained by the purchaser, whether arising from, connected with, or relating to any defect, fault, or lack in the Product, whether such inability is complete or partial.
3.	During the period of the warranty, faults covered by the warranty will be repaired as per the schedule by the installing dealer (or other authorised Alliance dealer), with only the cost of the parts covered. These will be supplied by the relevant Alliance Service Centre.	9.	This warranty replaces all common law and other rights or remedies which may otherwise be available to the purchaser.
4.	Alliance shall not be responsible, without limitation, for any charges for dismantling or reassembling the heat pump for repair, any transportation or storage expenses, injury to persons or property, work stoppage, impairment of other goods, breach of contract, negligence or other such action as may be deemed or alleged to be cause of a loss or damage to buyer, its agents, or customers.	10.	Should repairs become necessary DURING THE WARRANTY PERIOD, please phone the installation dealer as noted on the back of this warranty card. For any repairs after the warranty period is over, contact your nearest authorised Alliance Dealer.

PLEASE COMPLETE AND STORE IN A SAFE PLACE

Customer Name

Customer Address

Model No:

Serial No:

Company Name of Installer:

Date:

Name of installer:

Tel. Number:

WARRANTY:

Period	Covered
Two years	Electronic (Parts only after 1 st year)
Three years	Compressor (Parts only after 1 st year)
Five years	Heat Exchanger (Parts only after 1 st year)

TERMS AND CONDITIONS OF WARRANTY:

1. This warranty is applicable only to the original purchaser and to units serviced by an authorised Alliance dealer.
2. This warranty is only valid if the unit is serviced every year as per the schedule below (or more frequently as advised by authorised Alliance installer).
3. Should the equipment be installed in very dusty or dirty environments, servicing should be done every three months (or a minimum of twice a year depending on environment). The installing dealer will advise you as to the servicing intervals required and may contact the Alliance distributor to get advice on this.
4. For export: Warranty applicable on a parts basis only, for collection in South Africa.
5. Should a fault occur on a new Heat Pump following installation and initial satisfactory operation, the Heat Pump will be repaired, not replaced with a new unit.
6. ALLIANCE domestic swimming pool heat pumps must be installed by a qualified installer that has received heat pump installation training from ALLIANCE.
7. Any unauthorized installation, alteration or repair will void this Warranty. All repairs are to be carried out by a qualified refrigeration technician who is registered in the Safe Handling of Refrigerants. (Further information in this regard may be obtained from ALLIANCE).
8. The installer must ensure that the installation fully complies with ALLIANCE'S recommendations in the installation manual concerning installation, water piping and electrical work including electrical earthing of the unit.
9. All electrical installations must comply with current specifications. Failure to install over / under voltage protection on the heat pumps power supply will void this warranty.
10. ALLIANCE heat pumps MUST always be installed outdoors, with unrestricted air flow around the heat pump.
11. The size and model of the ALLIANCE domestic swimming pool heat pump selected must be appropriate to the specific application and sized using Alliance's swimming pool sizing calculator.
12. For coastal and corrosive environment installations, BluChem or similar treatment against corrosion is required for warranty claims to remain valid.
13. Not maintaining a proper chemical balance in your pool (pH level between 7.0 and 7.8 Total Alkalinity (TA) between 80 and 150ppm. Free Chlorine between 0.5 – 1.2mg/l. Total dissolved solids 9 (TDS) less than 1200ppm. Slat maximum 8g/L) will void this warranty.
14. Overheating, incorrect wire runs, improper electrical supply, collateral damage caused by failure of O-Rings or damage cause by running the pump with insufficient water flow will void this warranty.

15. Parts and warranty details:
- Controller, PC boards, Capacitor, Relays, Sensors – 2 Year warranty (Part only after first year)
 - High pressure / low pressure switch – 2 Year warranty (Part only after first year)
 - Water flow switch. EEV / Solenoid – 2 Year warranty (Part only after first year)
 - Compressor – 3 Year warranty (Part only after first year)
 - Titanium heat exchanger – 5 Year warranty (Part only after first year)

ALLIANCE reserves the right to update or modify this warranty (including terms and conditions) any time without prior notice.

Service Schedule:

- Clean evaporator coil (High Pressure Washer)
- Check outdoor fan motors.
- Check fan blades for damage / out of balance.
- Check all electrical connections.
- Check for oil spots on refrigerant piping.
- Check & clean condensate drains.
- Check heating operation.
- Check refrigerant standing and running pressures.
- Check running current.
- Measure on & of coil temperatures
- Clean unit cabinets

Service No	Date	Technician Name	Technician Sign
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

By signing this service record the authorised Alliance dealer technician confirms that the service has been carried out and that the unit is in a satisfactory working condition and performing to specification.

Alliance

fourways 