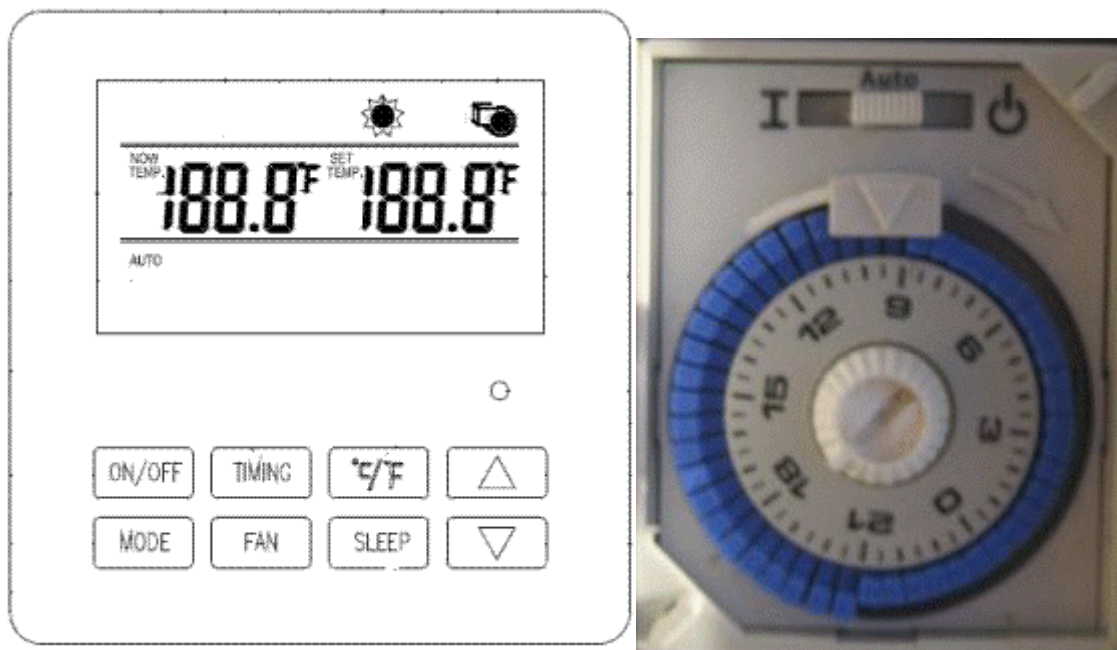


Calyenty RBH125 & RBH185

Customer Manual

Quick Reference

Appearance of Calyenty control panel screen and a typical pool time clock under normal operating conditions.



Please note: if the icons showing on your control screen are different from the illustration shown, press mode button until screen appears as illustrated above.

Time clock above illustrates auto mode with 12 daytime hours (between 9.00am and 9.00pm). Note - if the top slider switch is in the I position the filter pump will run continuously, and in O will be off.

Setting the Time Clock (guideline only):

We recommend that for optimum filtration of an 8m x 4m or 10m x 5m pool with a 0.75 - 1.2 kW circulation/filter pump, the pump runs for 6 - 8 hours a day during the day, i.e. from 10.00am until 6.00pm. This coincides with the optimum time settings for the running of the heat pump. As the ambient air temperature drops in the colder months you may find that you need to increase the time that the circulation/filter

pump runs, maybe up to twelve hours to maintain the pool water temperature that you require.

Please note that you may find that it becomes uneconomical to maintain a high pool water temperature during the colder weather, or that the temperature loss is greater than the temperature gain provided by the heat pump. In such cases you may decide that it is prudent to cease using your heater. **Remember during months where the outside ambient temperature drops to zero you must use the by-pass and drain down your heat pump.** Always use a Calyenty heat pump cover when your heater is not in use.

Installation and Maintenance Procedures:

You will need as a minimum:

3 x 50mm ball valves.

2 x 50 mm pressure 90° elbow fittings.

2 x 50 mm pressure T fittings

Adequate 50mm pressure tubing (rigid or flexible).

uPVC solvent and cement.

Adequate 2.5mm x 3 core electrical cable.

Tools:

Tape measure, hacksaw, Phillips screwdriver, Drill + m8 masonry bit.

Do not over tighten any water fittings, as hand tight should be sufficient to ensure a good watertight seal.

1. This unit should be installed by a competent person.
2. All electrical work should be carried out, or checked, by a qualified electrician.
3. Check packaging for obvious signs of damage, before installation begins. Report any damage to Calyenty before installation if you have concerns.
4. Please read the Installation & Operation Manuals carefully before you install or operate the unit.

5. The company will not be responsible should someone be injured in the event that the proper installation procedures have not been adhered to.

6. Choose a suitable location for your heat pump. Remember this must satisfy your aesthetic requirements, should be close to the filter pump, be on flat ground (unless positioned on a custom bracket), be in a sunny position if possible and comply with the space requirements as illustrated in 3.3 in the main customer manual.

7. Secure the Stainless Steel fixing base to the ground. First position the base and mark where the fixing bolt will go. Next drill a hole with an m8 masonry bit. Fix the base permanently using the m8 fixing bolt supplied, ensuring that the anti-vibration pads are in place (between the ground and the underside of the base). If you are positioning the unit on softer ground, i.e. a grassed area, you can place a concrete pad where the central fixing point will be and fix the base to this.

8. Lift the heat pump into place onto the base. The pump must be lifted using the lifting points which are under the outside edge of the fan housing. Once the pump has been lowered onto base, make sure the screw holes line up and screw in the retaining screws, this fixes the main heat pump body securely to the base plate. Also make sure that the anti-vibration pads are positioned between the base and the bottom of the heat pump.

MAKE NO ATTEMPT TO LIFT THE HEAT PUMP FROM THE BOTTOM AND DROP ONTO THE BASE, AS THIS MAY DAMAGE THE UNIT.

9. The water is fed through the heat pump using the circulation/filter pump. You will need to identify the return pipe from the filter to the pool (this is often marked RETURN). You will now need to cut into this return plumbing / pipe work of the pool system. Before you make this cut, make sure that if there are shut off valves/taps in this pipe-work that they are in the closed position. USEFUL TIP: If there are not any taps, it is possible to do this work without draining the pool by inserting wine bottle corks into the return jets. IMPORTANT - Make sure that the connection from the filter goes to the pipe connector on the heat pump marked *WATER INLET*. Connect the pipe connector on the heat pump marked *WATER OUTLET* to the return pipe that continues to the pool jets. See diagram below to ensure that the pipe work is connected correctly as shown. When making uPVC connections, it is very important that the surfaces of both the pipe and the fitting are clean and dry. It is also very important to thoroughly wipe the surfaces with the solvent cleaner, as this starts the chemical reaction to ensure a good bond when the adhesive is applied. Make sure that the adhesive covers 100% of both surfaces that are to come in contact with each other.

10. It is possible to connect a drain tube from the base tray to control the discharge of any collected water from the condensation produced, (under normal operation the heat pump will create considerable condensation).

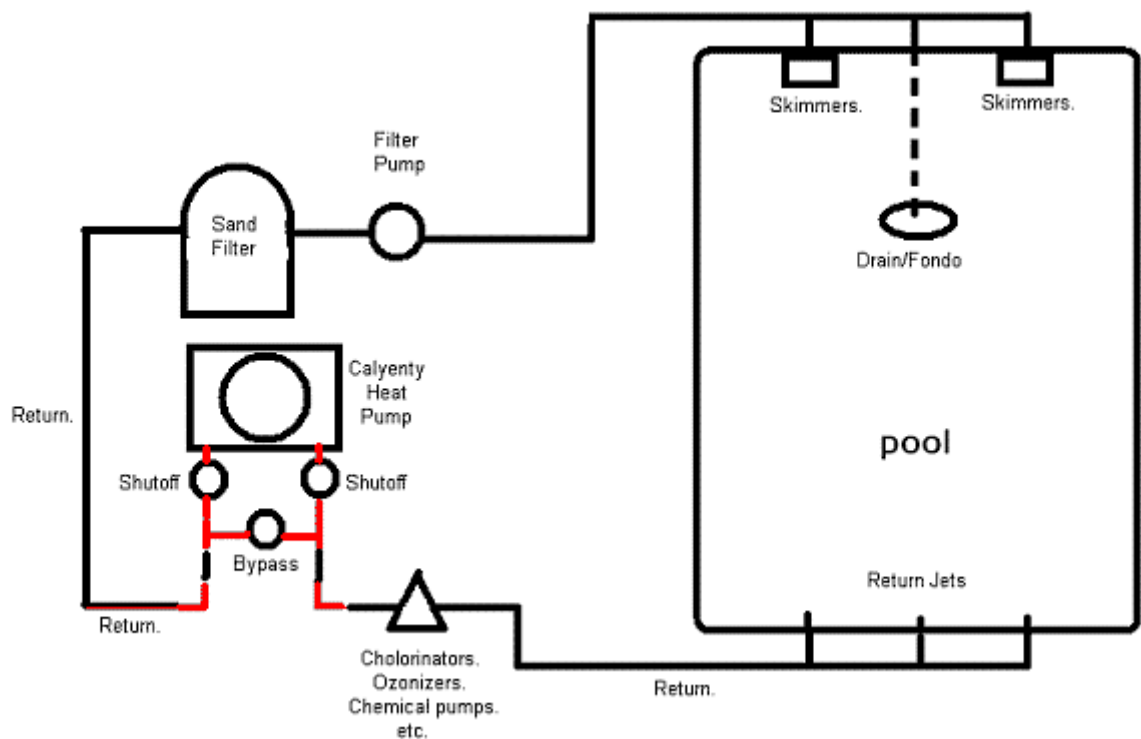
Please ensure that this exit is always kept clear to avoid water collecting in the tray. This tube can be taken to any convenient point for discharge of the water.

11. Using the electrical entry marked *Power Supply*, connect the heat pump to a suitable & adequate electricity supply. Please ensure this is carried out, or checked, by a qualified electrician. It is important to give the heat pump power supply its own RCD circuit breaker.

12. Connect the supplied control panel to the snap connectors to complete the installation. The control panel can be mounted in a convenient dry place.

13. We recommend that the heat pump is fitted within 8 meters (25 feet) of the existing circulation pump for maximum performance. This is not critical but could slightly reduce the efficiency of the unit if positioned further than this distance.

14. If the water in the heat pump is allowed to freeze it will damage the unit. It is essential for the guarantee to remain valid to drain the heat pump during months where the outside ambient air temperature can drop to 0°C. Simply close the ball valve / shutoffs and open the bye-pass. Then remove the drain plug at the base of the unit to remove all the water (see diagram on page 8. of the main manual).



Main Customer Manual - RBH125 & RBH185

This manual includes the information about specifications, installation, debugging, operation and maintenance for the [RBH125](#) and the [RBH185](#). Please read this manual carefully before you install, start, repair or service the unit. Professional technicians must carry out the installation of the unit. The manufacturer shall not be held legally responsible for any damage of the unit or physical injury or death caused by improper installation, debugging, operation, maintenance or disregarding the manual.

1. General Information

This swimming pool heat pump is produced to strict standards. The unit runs safely, giving excellent performance, low noise and lasting durability.

1.1 Features

Titanium heat exchanger - Most manufacturers use copper in heat exchanger production. The chemicals (chlorine, bromine and acid) in pool water are extremely corrosive to copper heat exchangers. Calyenty uses a titanium heat exchanger, which is completely immune to the corrosive chemicals in pool water. NO LEAKAGE, NO POLLUTION, MORE DURABLE.

Brand-name compressors - The compressors in Calyenty swimming pool heat pump are famous brands such as HITACHI, SANYO, DAIKING, COPELAND, etc - world leaders who stand for excellent performance, lasting durability and low noise.

Note the extra-wide heat exchanging area. Except for the electrical wiring and water connection area, the whole side-surface of the Calyenty swimming pool heat pump is for heat exchange between the air and refrigerant in the evaporator. This extra-wide heat exchanging area gets more heat from the air and helps the unit heat the pool with greater efficiency.

Large impeller & powerful fan motor - The large impeller and powerful fan motor accelerate the circulation of air. The faster the air circulates the more heat the unit gets from the air.

Easy operation - The temperature of your pool and running time of the unit can be easily set on the small digital control panel, which is designed with a clear and operator-friendly style.

Compact size - Calyenty swimming pool heat pump is much smaller than the other products of the same heating capacity. It saves space and is less intrusive.

1.2 Note

We recommend about 27°C (80°F) as the optimum water temperature for swimming. Overheated water may cause tiredness and be uncomfortable when swimming.

Children should be supervised at all times: both in the pool and in close proximity.

Don't use the pool after drinking alcohol. The warm pool water can quicken the circulation of alcohol in the body and cause unconsciousness.

Special notice for pregnant women: water above 38C (100F) may result in brain-damage to the foetus.

People with medical history of heart disease, diabetes, and circulatory system or blood pressure problems should consult their physicians before using a hot pool.

Don't use a hot pool after taking medicines which may cause drowsiness.

Soaking in a hot pool too long may result in hypothermia.

Always use an accurate thermometer to monitor the water temperature.

It is necessary to maintain a chemical balance within the pool water to ensure longevity of the heat pump.

1.3 Energy Saving Tips

A pool heat pump cannot heat your pool as quickly as a gas or electric pool heater does. It will take a few days for a heat pump to heat your pool water to your desired temperature.

We suggest you to use a pool cover to reduce energy loss when you don't use the pool.

For weekend use, it's more economical to maintain the pool water at your expected temperature or a little lower.

If you don't use the pool for a long period, turn the unit off.

Please turn the unit off during the winter and drain out all the water by removing the drain plug.

Use an accurate thermometer to measure the water temperature. A slight temperature difference may cause a considerable difference in energy consumption.

Set the water temperature according to the temperature of the air. For example, you can set the temperature lower when the weather is warmer.

During the summer, if the weather is very hot, you may find you can even turn off the unit.

2. Specifications

2.1 Data

Calyenty Eco Heat Pump Specifications

Item/Type		Unit	RBH 125	RBH 185
Pool Capacity	.	Cu. Mtrs	50	75
Fan Location			Top	Top
Heating Capacity	F*	BTU/H	42650	63125
		W	12500	18500
	E*	BTU/H	32414	58869
		W	9500	17200
Power Input	F*	W	1900	3300
	E*	W	1800	3100
C O P	F*		6.58	5.6
	E*		5.27	5.5
Current	F*	A	8.6	15.8
	E*	A	8.2	15
Power Supply		V/Ph/Hz	220-240/1/50	220-240/1/50
Compressor			Rotary	Scroll
Heat Exchanger			Titanium heat exchanger in PVC housing	
Refrigerant			R407C	R407C
Fan Amount			1	1
Power Input of Fan		W	175	175
Rotation Speed			650	650
Noise Level		dB(A)	47	47
Connections			50mm	50mm
Water Flow		Metre ³ hour	per ₃	6

Water Pressure	Kpa	10	12
Dimensions	mm	575x575x680	575x575x780
Packaged	mm	710x710x820	710x710x920
Net Weight	Kg	58	88
Gross Weight	Kg	72	103

F = Factory Test Conditions

**Surrounding temperature 24c db/19c wb
27c entering water
COP 4.5 - 7.0**

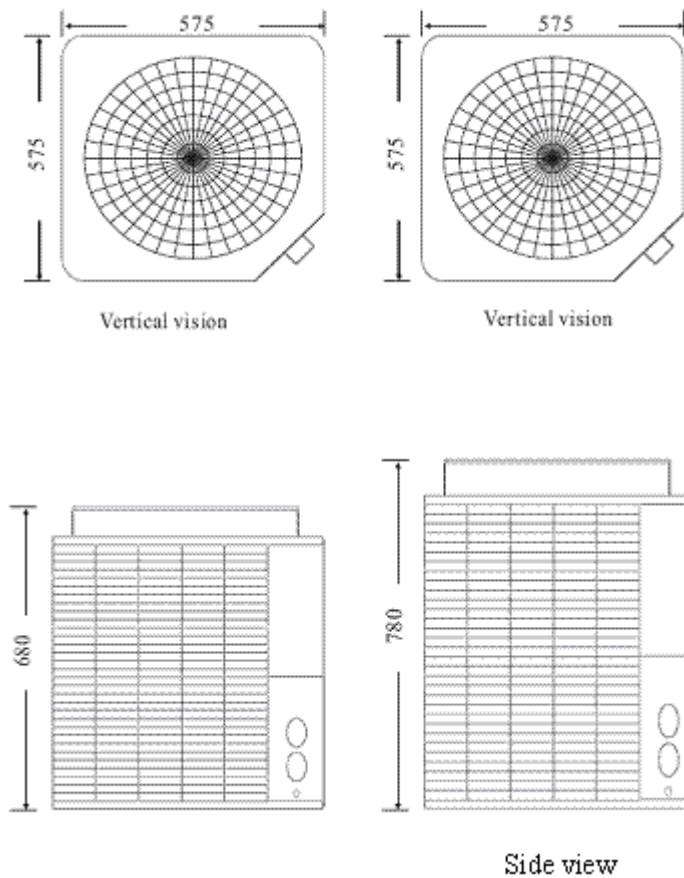
E* = European Test Conditions

**Surrounding temperature 15c db/11c wb
27c entering water
COP 4.0 - 6.1**

Note

The above data is for your reference. There will be no prior notice for technical improvement.

2.2 Illustrations:



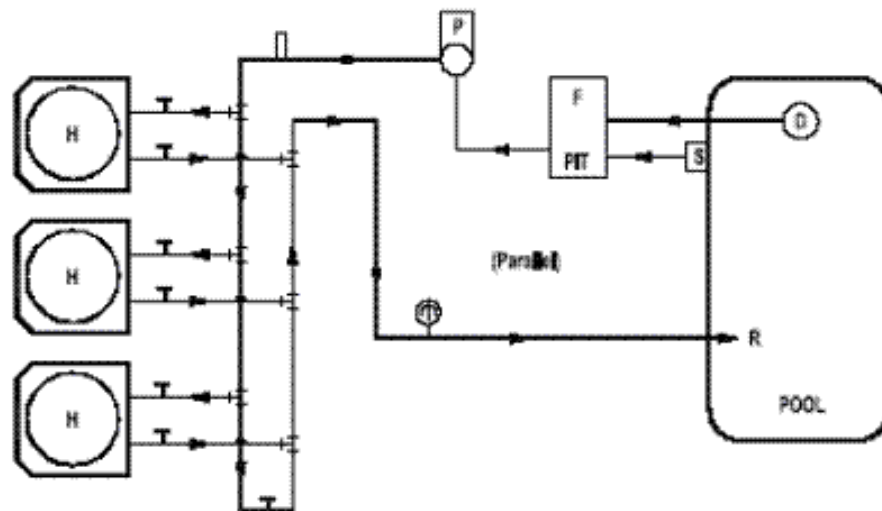
3. Installation

3.1 Inspection of Unit

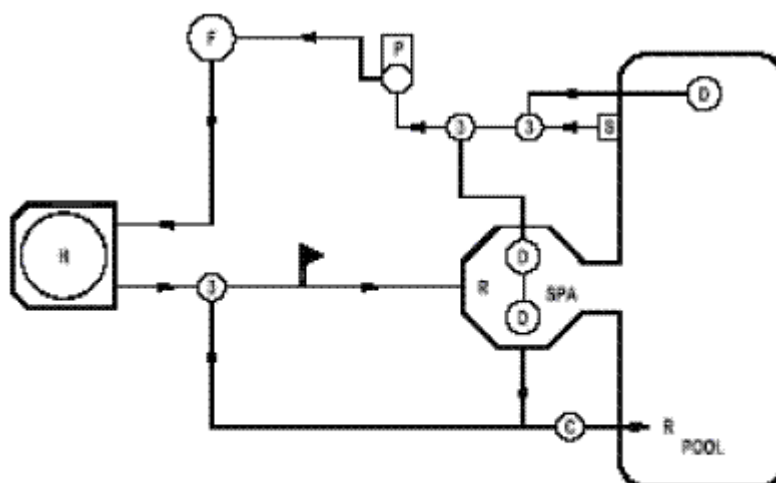
Inspect the casing, unit and spare parts after receipt for possible damage in shipment. Check whether there are any breakages of the casing and cabinet, or deformation of the unit. The manufacturer shall not be responsible for any damage due to improper handling or shipping.

3.2 Location

This type of unit is generally installed outdoors (for indoor installations, please consult the factory or your supplier). Install the unit downstream of all pumps and filters and upstream of all chlorinators, ozonizers and chemical pumps.



Multiple Heat Pump Installation



Pool/Spill over Spa - One Pump System

LEGEND

- | | |
|---------------------------|---------------------------|
| 3 - 3 way valve | ▶ - Flow Switch (ADT Kit) |
| C - Chlorinator (if used) | T - Throttle valve |
| D - Drain | ⊕ - Thermometer |
| F - Filter | ▶ - By-Pass Check Valve |
| H - Heat pump | ▮ - Flow meter |
| P - Pump | |
| R - Return | |
| S - Skimmer | |

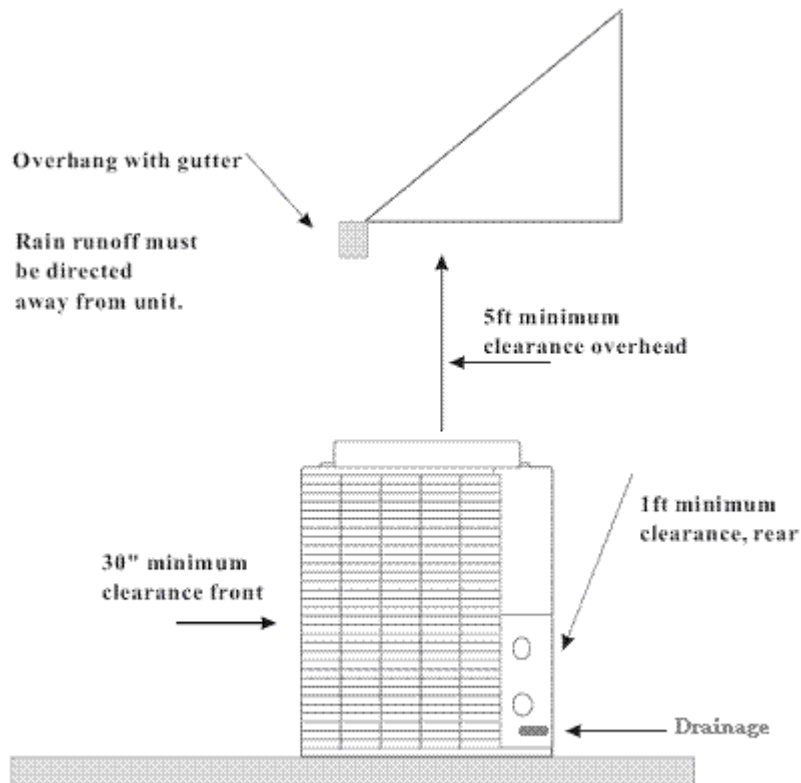
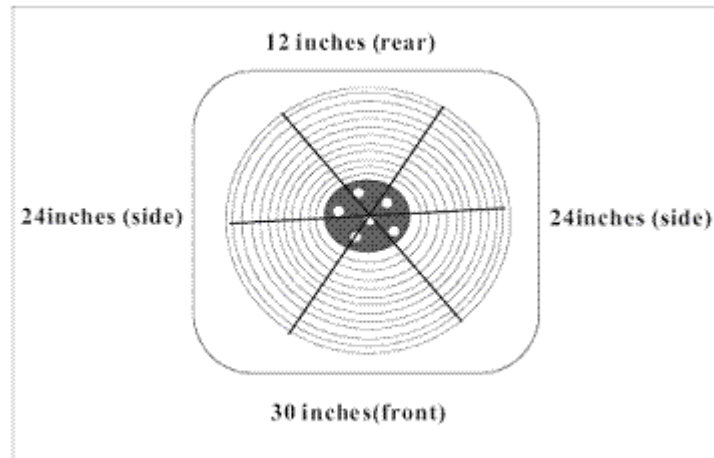
Please note that the longer the pipes connecting your pool and the unit, the more loss of energy. We recommend the distance between the unit and pool is no more than 8 metres for optimum efficiency.

Mount quick couplers with the unit inlet and outlet for convenient draining when servicing and hibernating.

3.3 Clearance

The unit needs continuous fresh air while running. Please leave enough space around the unit for unobstructed air absorption and discharging. Don't keep the unit in an enclosed area, or the discharged cold air will circulate in the unit again and consequently lower the heating efficiency.

Recommended Clearance:



3.4 Condensation Drainage

While the unit is running, water in the air may condense on the fins of the evaporator. If the air humidity is very high, the condensation water within an hour can be several gallons. The water will flow down to the base plate through the fins into the collector tray.

3.5 Electric Wiring

General Requirements:

Read the information in the manual before connecting. It is compulsory that a qualified electrical technician must check or install the wiring.

Connection made by unprofessional people may cause injury or even death. The manufacturer shall not be responsible for the consequences of connection made by unqualified people or those disregarding the manual.

Ensure there is no power supply to the unit while connecting.

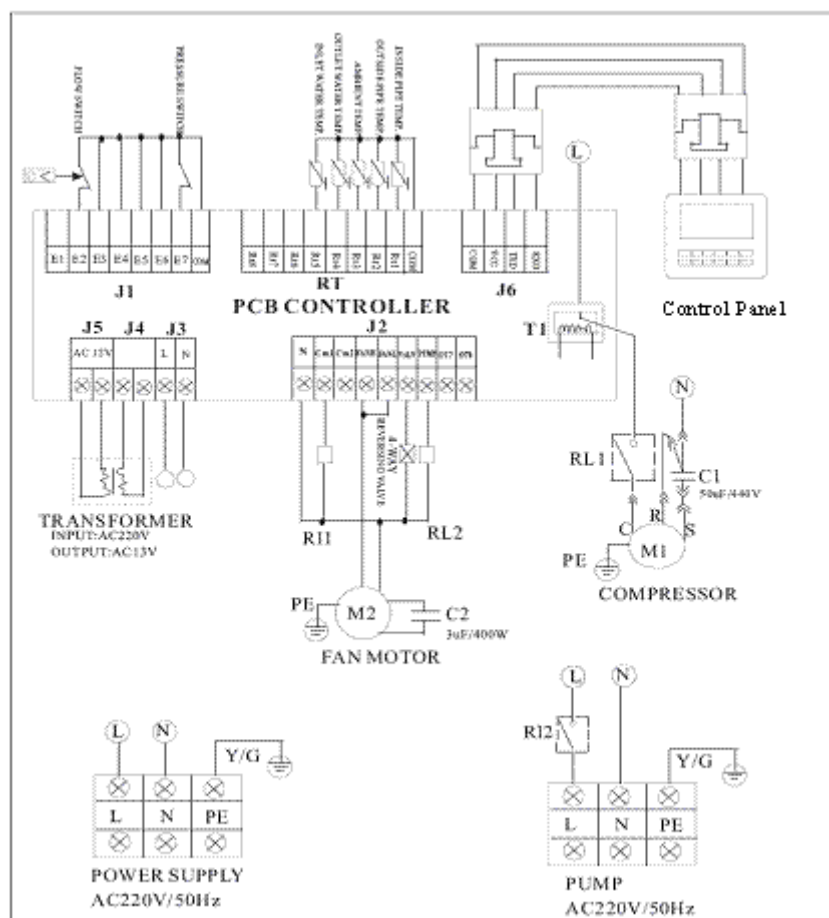
Always comply with the national and local electrical codes and standards.

The unit must be equipped with a breaker, which is located within sight and accessible from the unit.

The unit must be properly earthed.

Several screws fix the front board of the cabinet. Unscrew and remove the front panel. Remount the front panel after connecting. Make sure that it is fixed firmly by the screws.

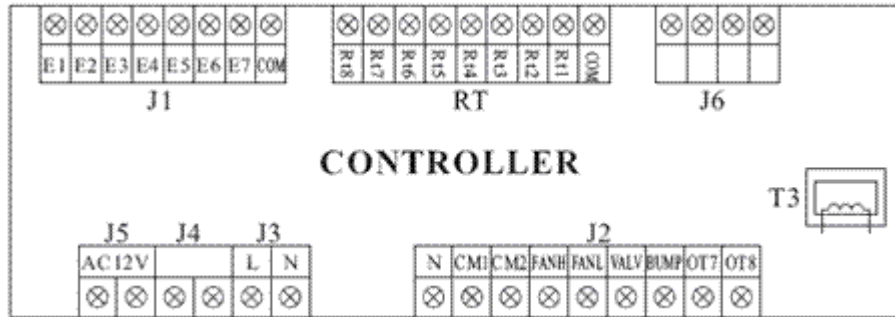
Wiring Diagram:



Single Phase:

Notice: above diagram is for reference only.

The PCB:



Explanations:

No.	symbol	meaning
1	AC12V(J5)	Transformer output (AC13V 0.25A)
2	J4	Transformer input (AC220V)
3	L(J3)	Live wire
4	N(J3)	Neutral wire
5	N(J2)	Neutral wire
6	CM1(J2)	Compressor of system1 (AC220V)
7	CM2(J2)	Compressor of system2 (no use)
8	FANH(J2)	Outside fan high speed (AC220V)
9	FANL(J2)	Outside fan low speed (AC220V)
10	VALA(J2)	4-Way reversing valve (AC220V)
11	PUMP(J2)	Water pump (AC220V)
12	OT7(J2)	Fan Speed (high) (AC220V) (no use)
13	OT8(J2)	Fan Speed (low) (AC220V) (no use)
14	T3	Compressor overload protection
15	J6	Wire controller
16	COM(RT)	Temperature sensor GND
17	RT1(RT)	Inlet water temperature sensor (Input)
18	RT2(RT)	Outlet water temperature sensor (Input)
19	RT3(RT)	Ambient temperature sensor (Input)
20	RT4(RT)	Defrost temperature sensor (Input)
21	RT5(RT)	Titanium pipe temperature sensor (Input)
22	RT6-RT8(RT)	In spare
23	COM(J1)	Protection signal input GND
24	E7(J1)	hi pressure protection (input) (normal close)
25	E3-E6(J1)	In spare (input) (normal close)
26	E2(J1)	Flow switch (input) (Q>25L/min close)
27	E1(J1)	In Spare (input) (normal open)

3.6 Initial Start-up

Notice: the unit will not heat the pool when the water circulation pump is not working.

Starting procedure:

Check whether the connectors, wires and cables of the unit, water pump, chlorinator, ozonizer, chemical pumps and control panel are correctly coupled or connected.

Turn on the water pump and filter. Check for water leakage and verify the water flow.

Turn on the power of the unit. Then press the button ON/OFF on the control panel. The unit will start after a few seconds.

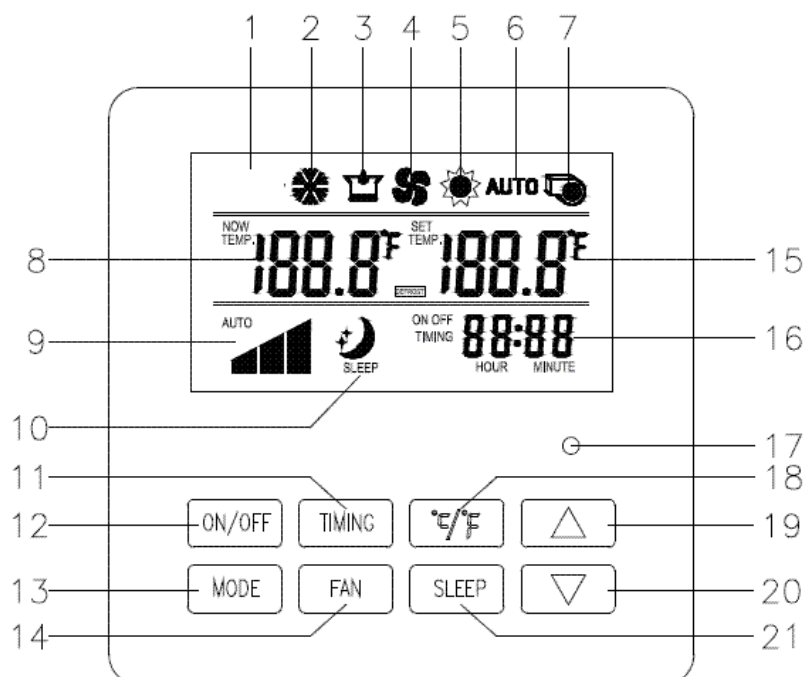
After the unit has been running for a few minutes, check whether the air discharged from the fan is cooler than the ambient air.

Turn the water pump off while the unit is running. The unit should stop working automatically. If not, adjust the flow switch. Turn on the unit again, set the temperature on the control panel and keep the whole pool system running. The unit will stop running automatically as the pool water reaches the set temperature. When the temperature drops to 1° lower than the set temperature, the unit will restart automatically.

4. Usage

4.1 Control Panel

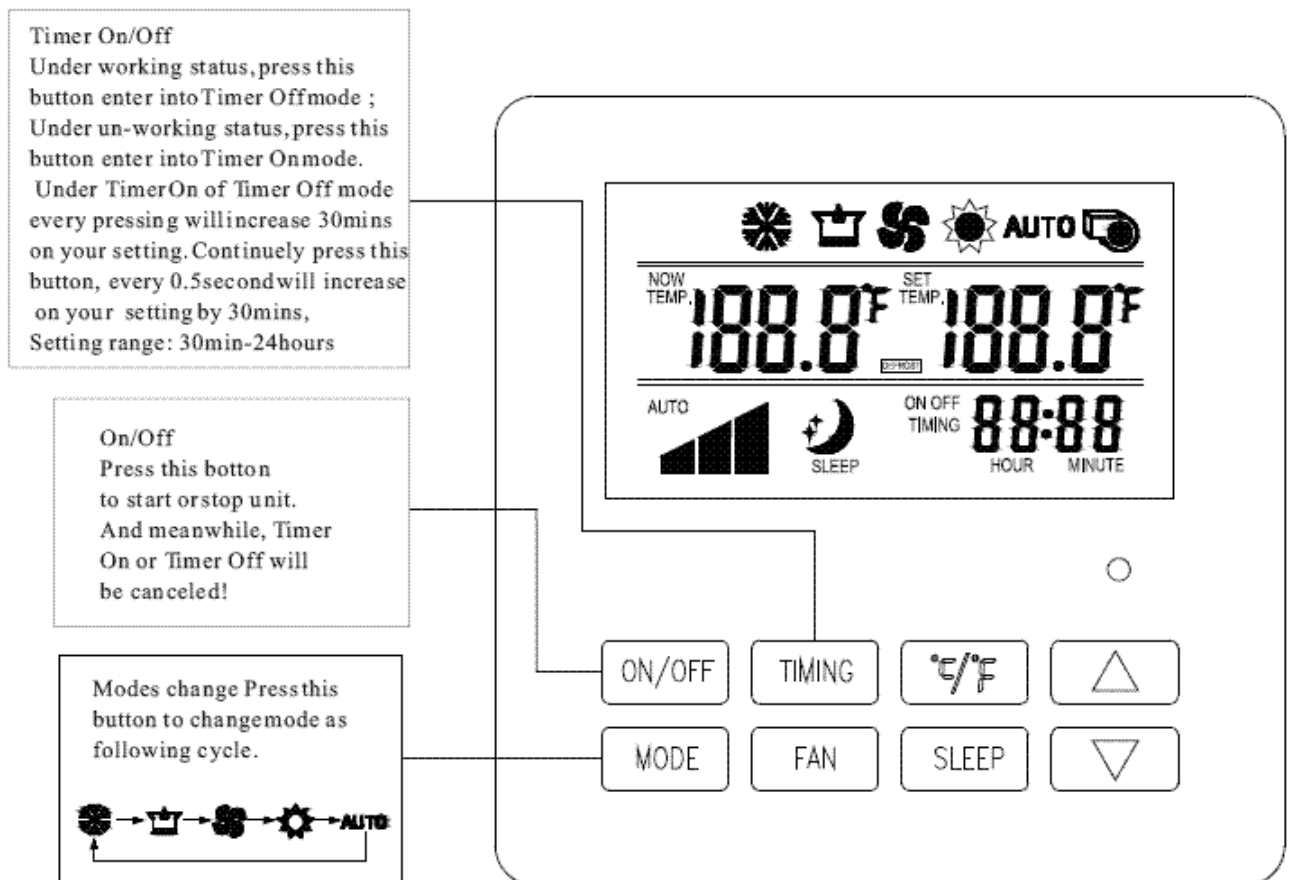
The control panel should be mounted in a convenient dry place.

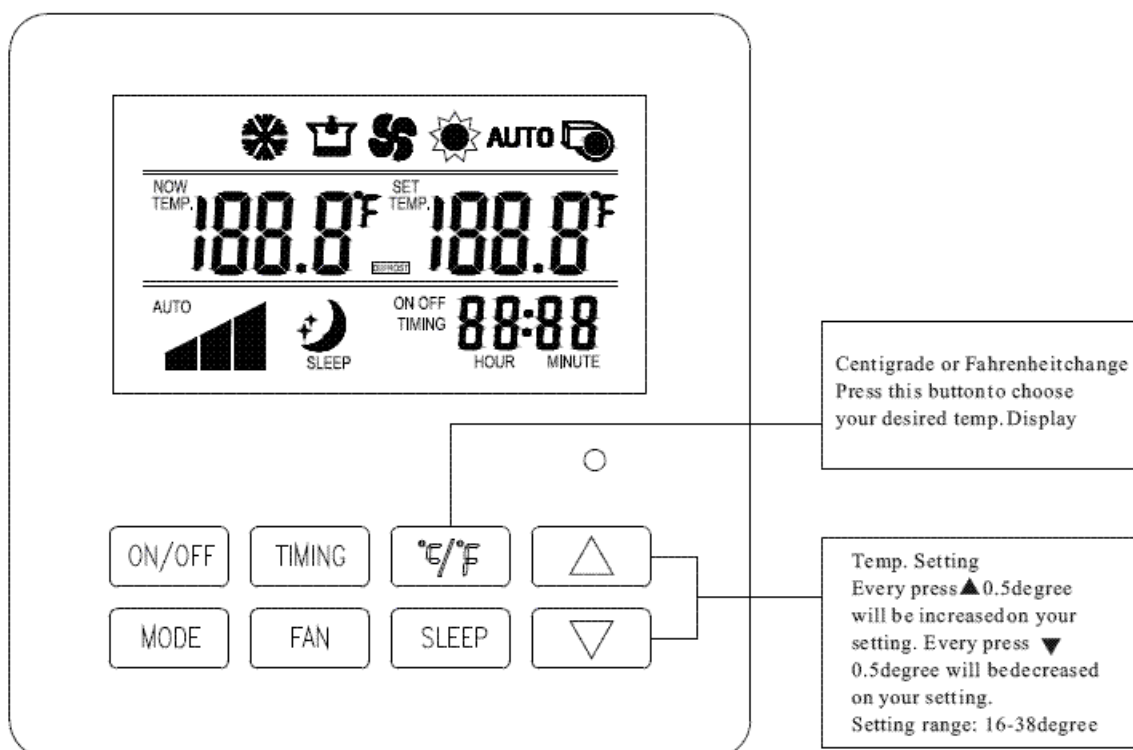


Explanation:

Number	Meaning	Number	Meaning
1	Unavailable	12	Power
2	Cooling mode	13	Modes shift
3	Dehumidifying mode	14	Fan motor rotate speed control
4	Ventilating mode	15	Set temperature
5	Heating mode	16	Timer display
6	Auto mode	17	Buzzer
7	Water pump indicating	18	Celsius/Fahrenheit
8	Water temperature at inlet	19	Temperature setting (up)
9	Fan indicating	20	Temperature setting (down)
10	Sleeping mode	21	Sleeping button
11	Timer	?	Unavailable

4.2 Settings using the Control Panel





4.3 Operation Data Setting

The operation data of the unit can be set on the control panel.

Meaning	Setting range	Default	Adjustable (yes/no)
Return water temperature (heating mode)	16~45C	27C	Yes
Mode shift	Button	Heating mode	NO

5. Maintenance and Troubleshooting

5.1 Maintenance

The unit should be maintained by qualified technicians on a regular basis.

A professional technician should clean the unit periodically. It is NOT recommended to use a sprinkler to flush the unit.

The unit is designed to withstand normal rainfall. A flow of water into the inside of the unit may damage the components (place unit away from garden sprinklers & watering systems). If the unit is located under the eaves, ensure water does not flow directly onto the unit.

Clean the drain hose.

Ensure a proper water flow:

Keep the filter clean. The filter may get dirty with use and can reduce the water flow.

Keep the pump clean.

Check the valves regularly.

5.2 Troubleshooting

The unit does not run.

Is the screen of control panel lit? If not, ensure the electrical wires and cables are correctly connected and the power is on.

If the screen displays "E7", check the water flow. Is the water pump running normally or is the filter jammed?

Remember, the unit will stop running automatically when the pool water reaches the set temperature.

The unit is running but not heating the water.

Is the air discharged from the fan cooler than the ambient temperature? If not, ask a professional technician to check the refrigerant gas.

Is there enough space around the unit? There should not be any obstruction to the airflow.

Malfunction code and solutions:

Code	Meaning	Reason	Solution
E0	Phase error	Wrong connection or lack of connection	Check connections
E1	System 1 compressor overload	System 1 protection failure	Check compressor connection and wait for recovery of built-in protection
E2	System 2 compressor overload	System 2 protection failure	Check compressor connection and wait for recovery of built-in protection
E3	System 1 high pressure	High pressure protection or disconnection	Check high pressure of system 1
E4	System 2 high pressure	High pressure protection or disconnection	Check high pressure of system 2
E7	Flowswitch failure	No or little water	Check water flow and water pump
E9	Communication failure	Control panel and PCB connection failure	Check wire connection
F1	Inlet water temperature sensor failure	The sensor is open or short circuit	Check the sensor or replace it
F2	Outlet water temperature sensor failure	The sensor is open or short circuit	Check the sensor or replace it
F3	Ambient temperature sensor failure	The sensor is open or short circuit	Check the sensor or replace it
F4	Defrosting temperature sensor failure	The sensor is open or short circuit	Check the sensor or replace it
F5	Titanium coil temperature sensor failure	The sensor is open or short circuit	Check the sensor or replace it