



Calitec

HOT WATER SYSTEMS



Manual - Model KP-50 – 300L

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Installation & Maintenance

The installation of a Calitec Hot Water System is exclusively allowed by qualified tradesman.

It has to be done according to NZ building codes and local regulations. Do not install the unit by yourself (customer). Incomplete installation could cause injury due to fire or electric shock. Incorrect installation can also void the warranty.

It is a set-and-forget system with very little maintenance. Once your installer(s) are finished there is very little you have to do.

Maintenance of the outdoor unit:

It is very important that the air can flow unhampered through the outside unit. Keep it free from weeds and spider webs and don't block it off in any other way. A restricted or blocked air flow can result in a higher power consumption or failure of the unit.

It is also very important that the compressor unit is fitted level. Your installer will make sure that it is fitted correctly, but regularly check and make sure that it remains level. The lifetime of the compressor unit will be shortened with unlevelled operation.

Please inform your installer if you don't think it is level anymore.

Maintenance of the hot water cylinder:

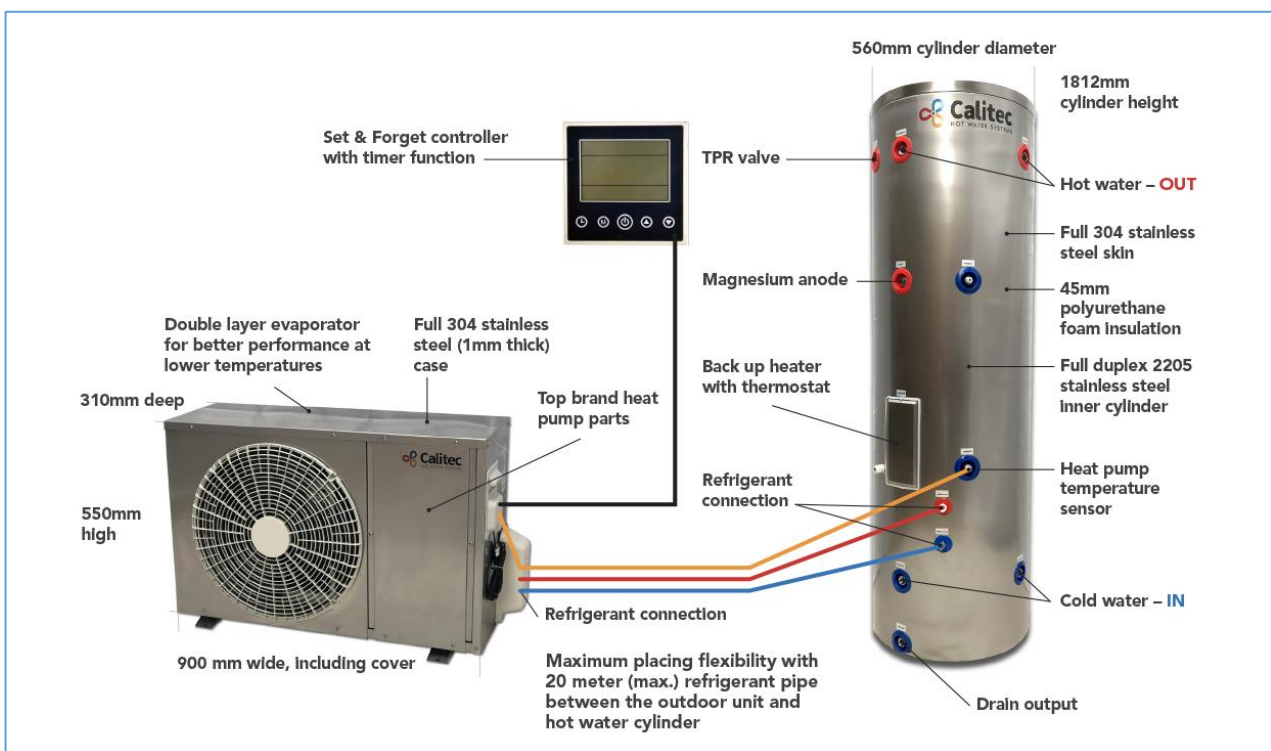
Mains pressure systems are fitted with a Pressure & Temperature Relief Valve (PTR Valve), once a month the release mechanism on the valve has to be activated to ensure its continuing function. When the release mechanism is jammed, the hot water pressure in your system could become too high causing all kinds of trouble.

Hot Water Cylinder - Installation

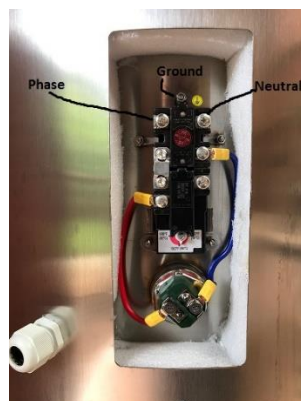
The hot water cylinder can be used as a low water pressure cylinder or as a mains water pressure cylinder.

The installation must be carried out by a qualified plumber and installed according to local rules and regulations. **The hot water cylinder is to be considered as a normal hot water cylinder.** Only the heating part is different. The cylinder must be installed vertically.

The electric heater needs to be connected by a qualified electrician. The electric heater is strictly a back-up heater and should be switched off at normal operation of the heat pump hot water system.



When the cover of the back-up heater is opened, you find the thermostat and electric heater behind a cover, remove this cover and connect the wiring. Top left for phase, top right for the neutral. Above the thermostat is a grounding point. Be careful as the edges of the skin of the cylinder could be sharp.



Outdoor Unit - Installation



The outdoor unit needs to be installed by a qualified heat pump split system installer/ refrigerant filler.

The best location for the outdoor unit is a place where:

- It is not exposed to strong winds.
- Airflow is good and dustless. At least 100mm space around the unit and 800mm space at the front.
- Neighbours are not annoyed by the operation sound.
- There is no risk of combustible gas leakage.
- The condensation water can flow to a drain or will be absorbed by the soil.
- Flooding water cannot reach the base of the unit.
- The outdoor unit should be fitted on feet on a level base or on a wall bracket.

Please avoid locations where trouble is liable to occur:

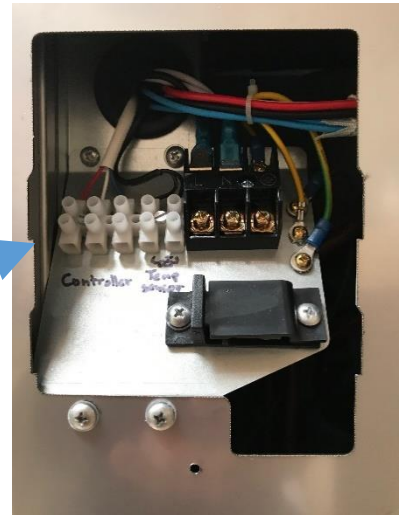
- Where flammable gas could leak.
- Where there is much machine oil.
- Salty places such as the seaside.
- Where sulphide gas is generated.

The refrigerant R32, pre-charged in the outdoor unit, is suitable for 5 meter copper pipe. If the refrigerant pipes between the outdoor unit and the hot water cylinder exceeds 5 meter, please add 15g R32 refrigerant per extra meter of pipe. The maximum pipe length is 20 meters.

Display Controller - Installation

The models with the separate controller needs to be connected to the outdoor unit with a 3 core cable.

The sensor cable could be cut to the required length and connected on the same terminal block as the controller. Make sure that the sensor is inside (150mm) the sensor pocket of the cylinder. Use the thermal grease for better heat conduction from the cylinder to the sensor.



PCB Board

The PCB board and the wiring diagram can be found behind the front cover plate (next to the fan grill)

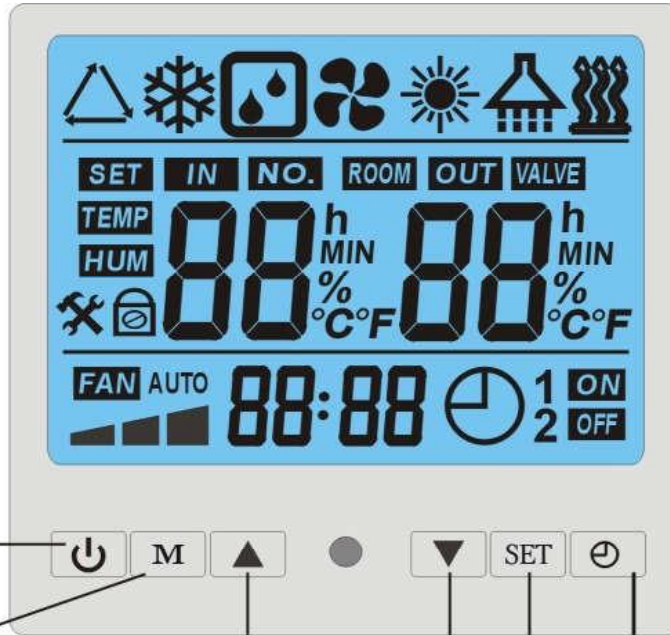


First start up

- 1) Open the high and low pressure refrigerant valves.
- 2) Open water switch and fill the hot water cylinder with water.
- 3) Make sure that the cylinder is filled with water.
- 4) Make sure that the temperature sensor is in the lower temperature probe pocket of the cylinder.
- 5) Connect the power cable.
- 6) Turn the system on at the control panel.
- 7) The Controller is pre-set for Cylinder heating at 60°C. All you have to do is set the clock and if required, the timer (see *Clock setting & Timer setting page 9 & 10*).

Control panel

Description of display panel:



ON/OFF
press to turn on/off heat pump

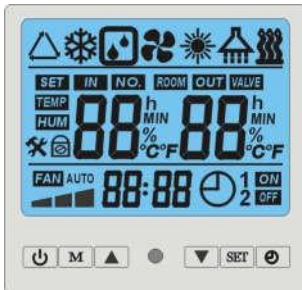
Mode
1) press to change the working mode
2) hold 3s to parameter setting

Adjust setpoint
adjust parameter

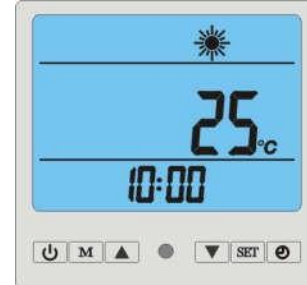
Adjust clock

Timer ON/OFF
hold 3s to running status

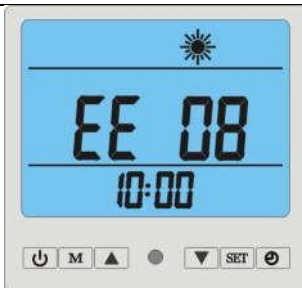
Start and Standby



1. Controller show all symbols when power on.




2. The screen show mode and water temperature after power on. The unit is standby.



3. If PCB and wire controller cannot communicate with each other properly, failure code EE 08 is shown on screen.
Please check the connection of Signal cable.

Lock the wire controller

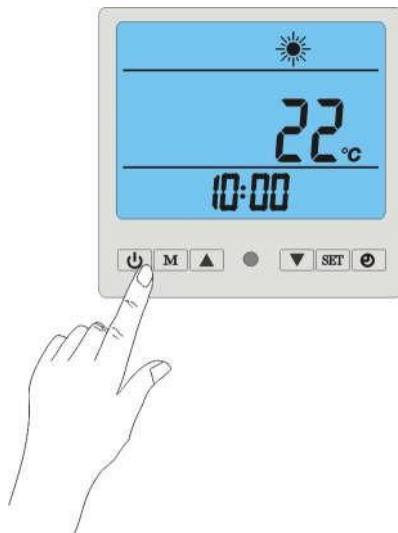



Hold  and  button 6 seconds at the same time,

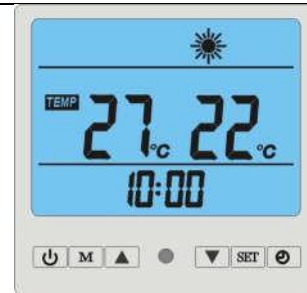
One buzzing will be heard to indicate that all buttons are locked.

Hold again to unlock keyboard.

ON/OFF unit

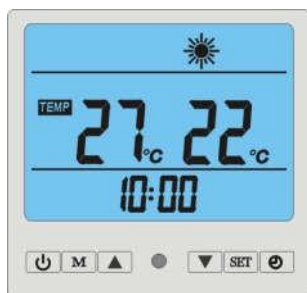


Press  button to turn on the heat pump.





The screen shows water setting temperature 27°C and current water temperature 22°C.

Clock Setting




Press , hour  flash,

Press  or  to change hour.

Press , minute  flash,

Press  or  to change minute.

Press  again to leave the clock setting.



TIMER Setting



Press , hour **08:** and **ON** flash,



Press  or  to change hour of TIMER ON.

Press , minute **:00** and **ON** flash,



Press  or  to change minute of TIMER ON.



Press , hour **18:** and **OFF** flash,


Press  or  to change hour of TIMER OFF.

Press , minute **:30** and **OFF** flash,

Press  or  to change minute of TIMER OFF.


During setting of TIMER, press  to cancel TIMER ON/OFF

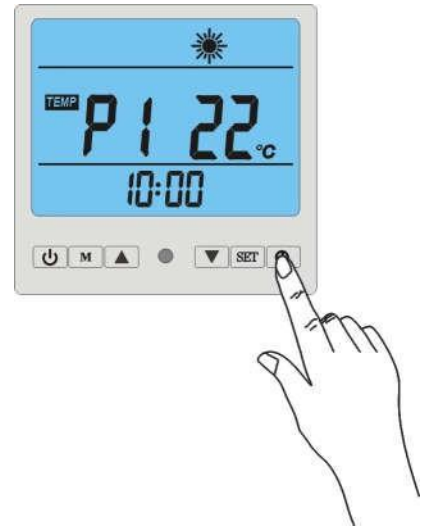



Press  to leave the timer setting.

Status checking:



Hold  6 seconds to check running statue.



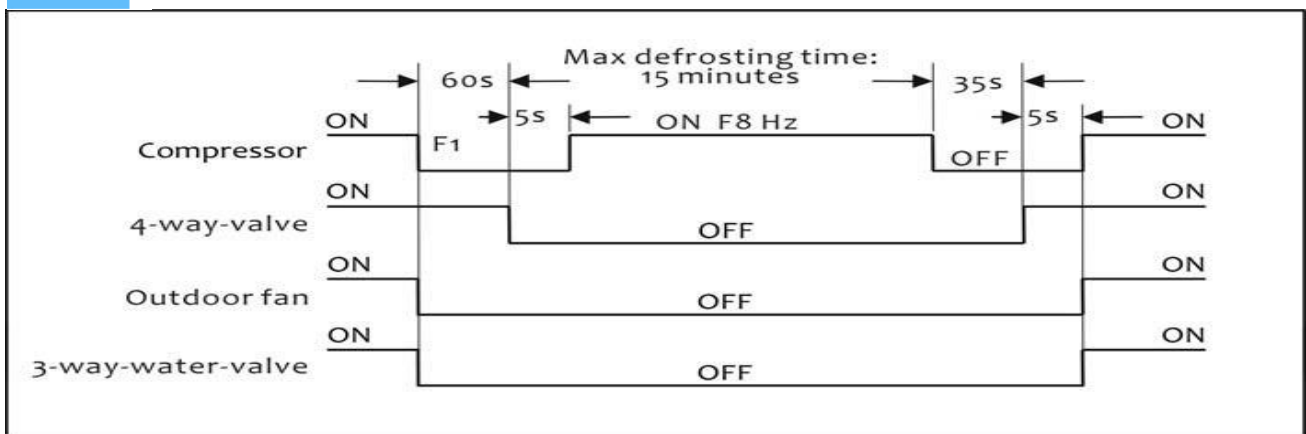
press  button to check other value.

Parameter	Description
P1	Water temperature sensor
P2	Ambient temperature
P3	Compressor exhaust temperature sensor
P4	Evaporator temperature sensor
P5	Water 2 temperature sensor (No use)
P6	Compressor return temperature sensor
P7	Current step of EEV

Defrosting



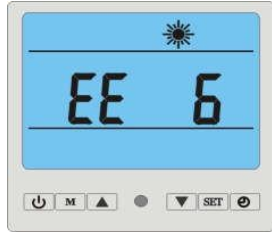
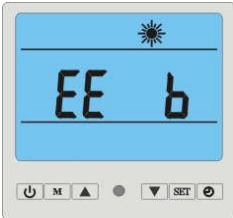
When this symbol is lit, the outdoor unit is in defrosting mode. This is an automatic process to remove the ice from the evaporator. It takes about 17 minutes and the heat pump will resume working afterwards.



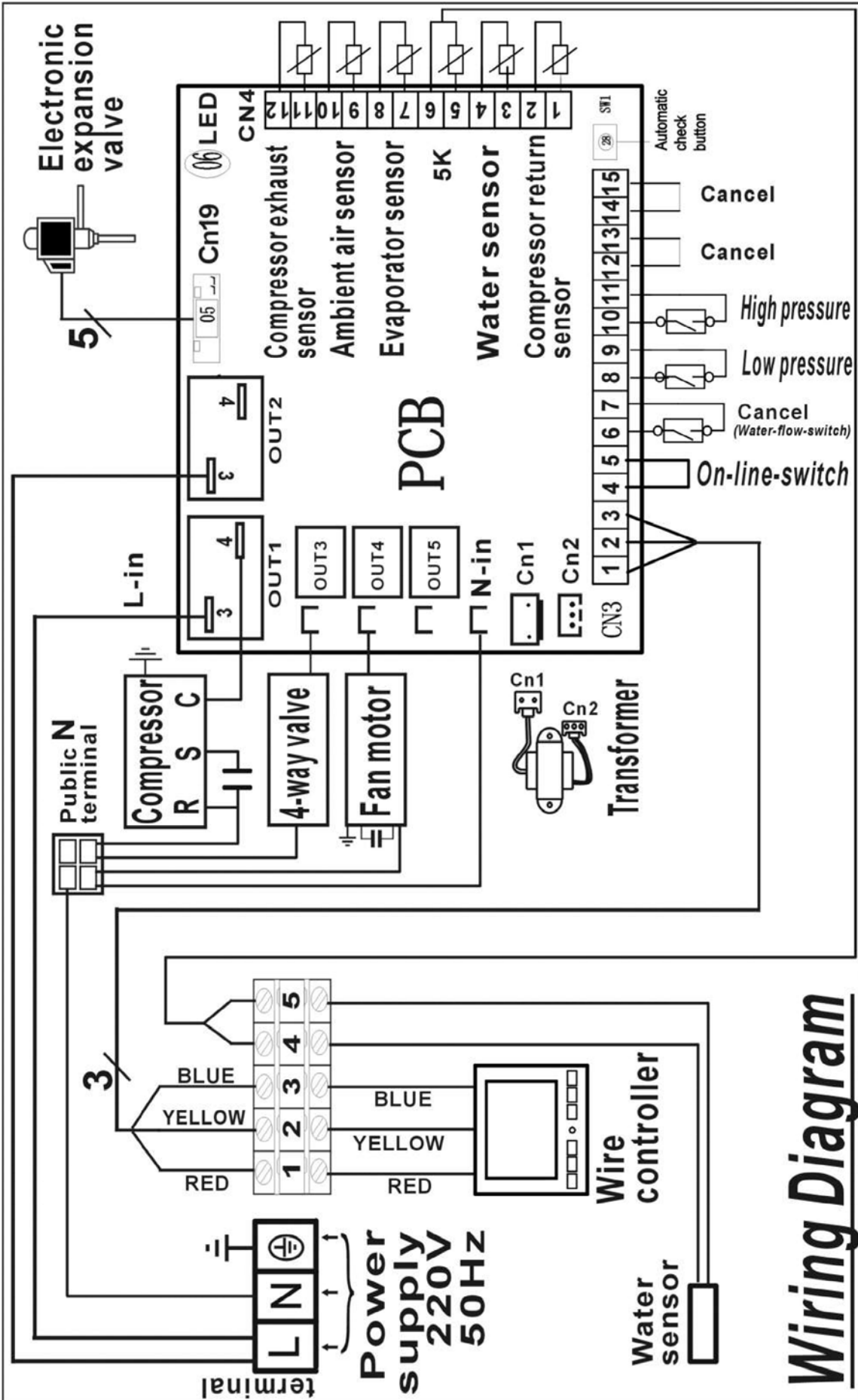
Depending on the ambient temperature and humidity this could occur several times.

Error messages

The outdoor unit is equipped with regulation and safety components; when a regulation component is defective or a safety sensor is activated, a message is posted like it's illustrated below. Call your installer for help.

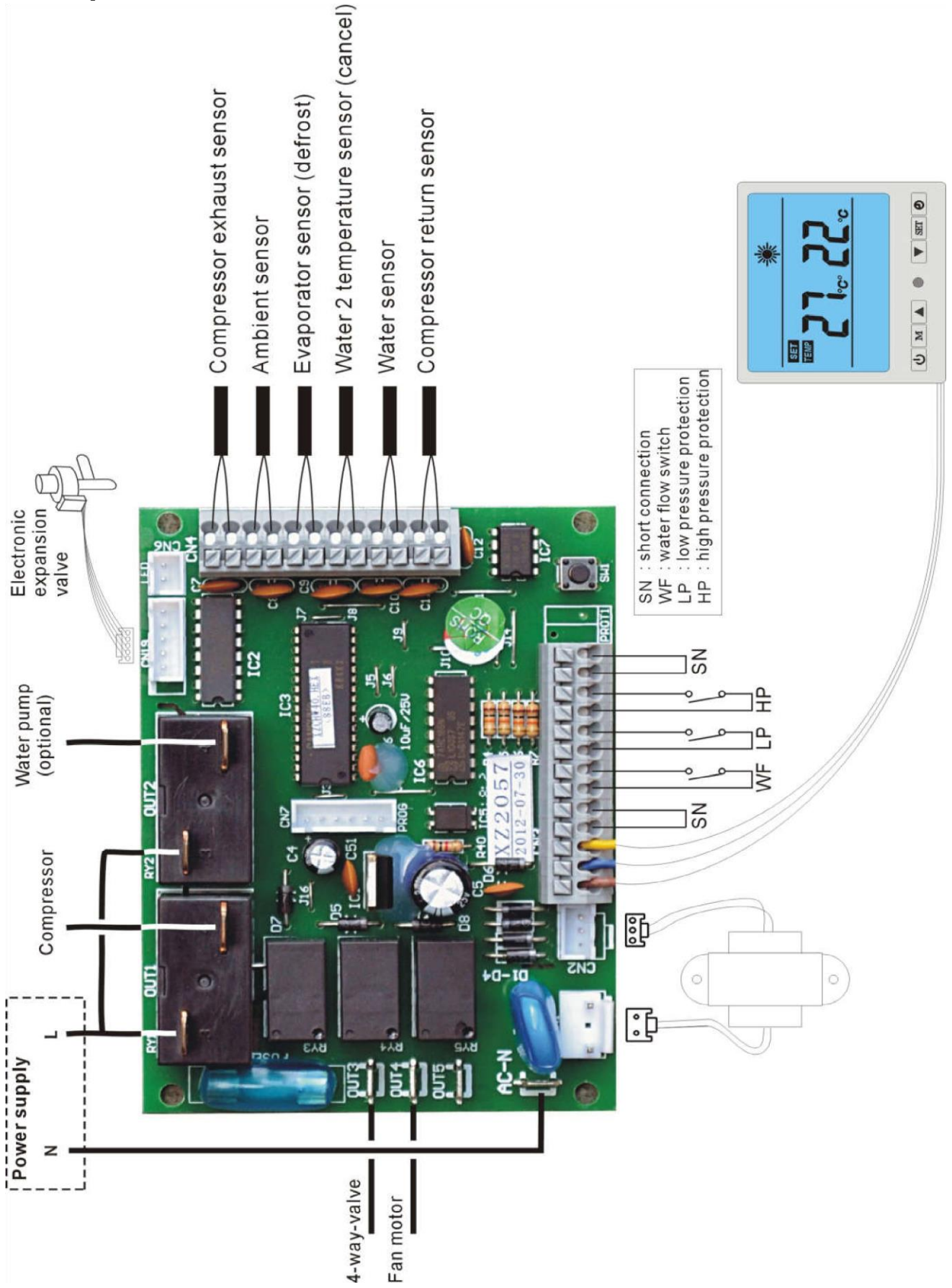
Code	Error	Analyze	Solution
EE 1	Water temperature sensor failure	Sensor fail. Sensor is disconnected, or short-circuit	Check the value of sensor and change it Check the wiring connection of sensor
EE 2	Ambient temperature sensor failure		
EE 3	Compressor exhaust temperature failure		
EE 4	Evaporator temperature sensor failure		
EE 5	Water 2 temperature sensor (cancel)		
EE 6	Compressor return sensor failure		
EE 7	Water flow protection	Insufficient water flow	
EE 8	Wire control communication error	Signal cable of wire control is loose	Check the connection of signal cable
EE 9	High pressure protection	protector is disconnected, or defective. Refrigerant pressure failure	Water temperature is too high Ambient temperature is too high Capillary is blocked Call a refrigerating engineer who will do the necessary controls of the circuit pressure
EE a	Low pressure protection	protector is disconnected, or defective. Refrigerant pressure failure	Capillary is blocked, refrigerant leakage Call a refrigerating engineer who will do the necessary controls of the circuit pressure
EEb	Compressor over-heat protection Compressor exhaust temperature is more than 105'c.	Environment problem Refrigerant leakage Capillary is half blocked	

Wiring diagram:



Wiring Diagram

Principle of Circuit board



Technical Sheet

Model		KP-50/300L	
Power supply		v/ph/hz	220-240/1/50
Rated heating capacity		kW	4
Rated power input		kW	1
Maximum power input		kW	1.54
Water production		L/h	73
Refrigerant			R32
Rated / Maximum current		A	4.5 / 8
Rated water temp. – heat pump heated		°C	60
Level against electric shock			I
Water-proof grade			IPX4
Heat pump unit	Net weight	kg	40
	Net size (L/W/H)	mm	900x310x550
Hot water cylinder	Net weight	kg	65
	Net size	mm	Ø 560X1812
	Water connection		G 3/4"
	TPR valve	kPa	850
Refrigerant connection pipes diameter		mm	Ø 6.35 & Ø 9.52
Operation temp. range		°C	-10 to +45
Noise		dB(A)	56

Test condition Heating: Ambient temp. (DB/WB): 20/15 °C, Water temp. (Initial/Final): 15/55 °C.

Water quality requirements

PH Value	6.5 – 8.0
Electrical Conductivity	< 200 $\mu\text{V}/\text{cm}$ (25°C)
Total Hardness	< 50 ppm
Sulfone Ion	No
Chloride Ion	< 50 ppm
Ammonia Ion	No
Sulphate Ion	< 50 ppm
Silicon	< 30 ppm
Iron	< 0.3 ppm
Sodium	No
Calcium Ion	< 50 ppm

Contact details

Calitec Hot Water Systems Limited

www.calitec.nz

ph. 0800 125 225

info@calitec.nz

Your local installer:

Warranty

Calitec Hot Water Systems are provided with a 5-year warranty on the outdoor unit and 20-year warranty on the stainless steel hot water cylinder, if installed through qualified installers.

Check out full Warranty Terms & Conditions of Calitec Hot Water Systems Ltd on www.calitec.nz.

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