



CS & CS GEN-2

Installation & Operation Manual



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1. Introduction

This manual contains all the necessary information in regard to the installation, troubleshooting, operation and maintenance of this unit. Ensure instructions in this manual are adhered to at all times. Failing to comply with these recommendations will invalidate the warranty.



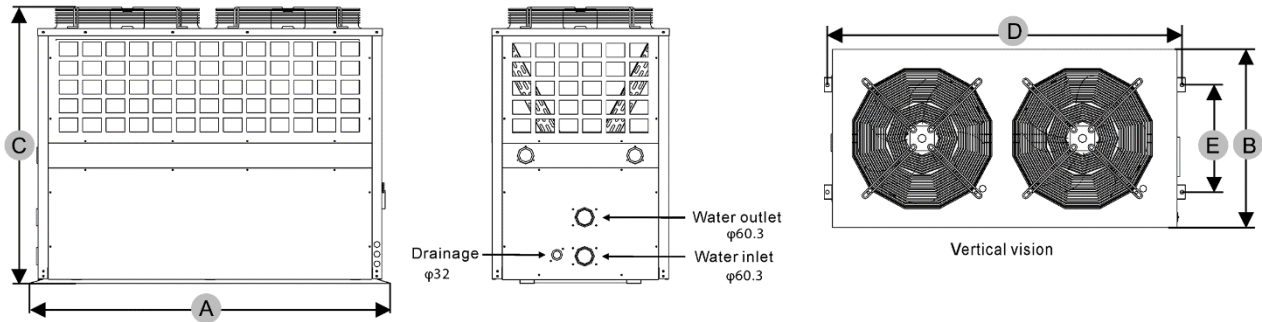
The EVO CS & CS-GEN2 commercial heat pump is the most efficient way to heat a commercial pool regardless of size or location. Our commercial heat pumps are ideal for sports and leisure centres, aquaculture, agriculture, water parks, hotels, resorts, apartments and office builds – there is no job in the field too big for the EVO CS Series!

| MODEL | EVO CS38 | EVO CS47 | EVO CS57 | CS95-GEN2 | CS120-GEN2 | CS145-GEN2 | CS200-GEN2 |
|--|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| Heat output at 24°C air/26°C water (kW) | 38 | 47 | 57 | 95 | 120 | 145 | 190 |
| Heat output at 15°C air/26°C water (kW) | 31.1 | 39.7 | 48.1 | 72.5 | 103 | 120 | 160 |
| Cooling output at 35°C air/30°C water (kW) | 21.6 | 28.2 | 36 | 64 | 80 | 97 | 119 |
| C.O.P. at 24° C air | 5.3 | 5.05 | 5.14 | 5.49 | 5.7 | 5.69 | 5.79 |
| Power input at 24 deg air (kW) | 7.16 | 9.3 | 11.1 | 17.3 | 21 | 25.5 | 32.8 |
| Power supply | 380-415/3/50 | | | | | | |
| *Max running current AMPS per phase | 13.8 | 19.12 | 25.1 | 40 | 46 | 60 | 80.1 |
| Compressor type | Scroll | | | | | | |
| Refrigerant | R410A | | | | | | |
| PVC water connection (mm) | 50 | 50 | 50 | DN 110 | DN 110 | DN 110 | DN 110 |
| Water flow rate (L/min) | 200 | 250 | 325 | 483 | 583 | 1033 | 1000 |
| Noise dB(A) at 1M | 61 | 61 | 61 | 61 | 62 | 63 | 67 |
| Unit dimensions L/W/H (mm) | 1490/735 /1200 | 1490/735 /1200 | 1490/735 /1200 | 2170/1070 /1920 | 2175/1070 /2030 | 2175/1070 /2030 | 2180/1070 /2060 |
| Weight packed/unpacked (kg) | 270/252 | 300/254 | 300/260 | 679/632 | 694/648 | 709/664 | 940/908 |

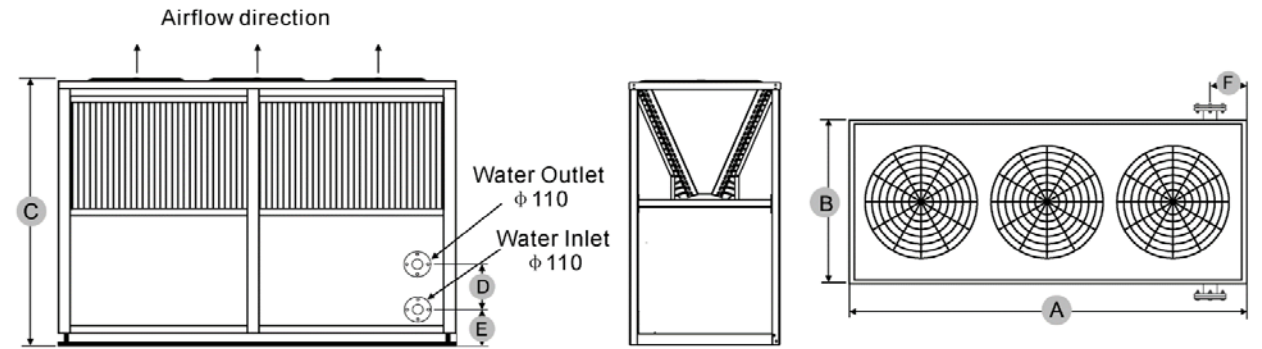
*Running current max: 43°C ambient heat /29°C in cooling mode. The data above is based on the EVO heat pump only, it does not include auxiliary devices. Product specification information provided above is correct at the date of printing, this data may change without notice. Please speak with an EvoHeat Specialist for the most current product specifications.

2. Unit Dimensions

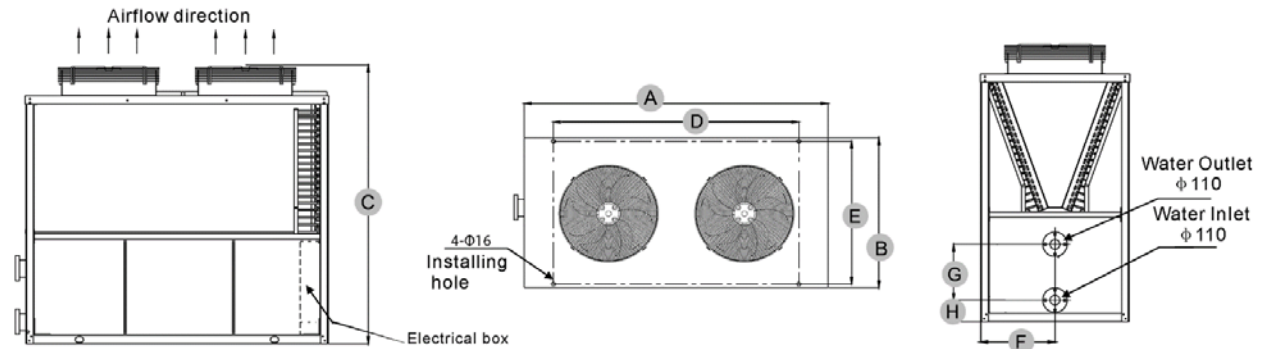
CS38,
CS47 &
CS57



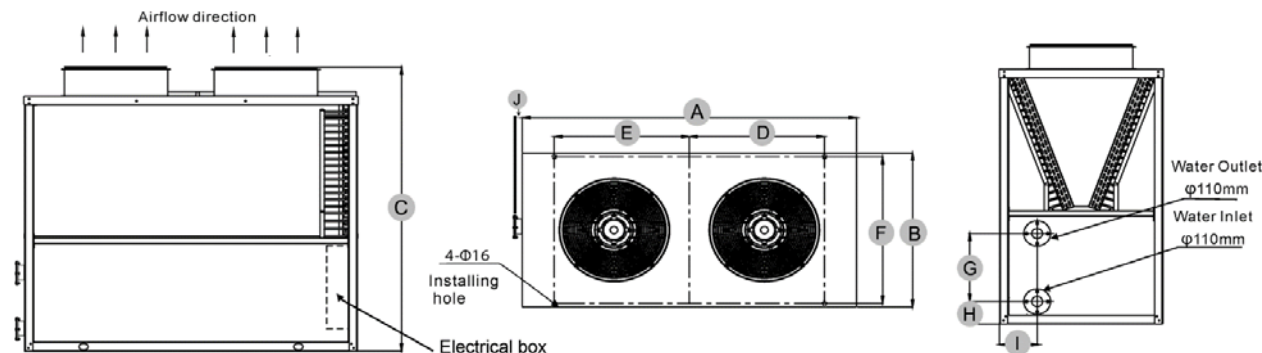
CS95-
GEN2



CS120-
GEN2 &
CS145-
GEN2



CS200-
GEN2



| CS | A (L) | B (W) | C (H) | D | E | F | G | H | I | J |
|-------------|-------|-------|-------|------|------|------|-----|-----|-----|----|
| 38, 47 & 57 | 1490 | 735 | 1200 | 1464 | 480 | | | | | |
| 95 | 2170 | 1070 | 1920 | 240 | 160 | 174 | | | | |
| 120 & 145 | 2175 | 1070 | 2030 | 1800 | 1020 | 530 | 400 | 155 | | |
| 200 | 2180 | 1070 | 2060 | 900 | 900 | 1020 | 450 | 160 | 136 | 50 |

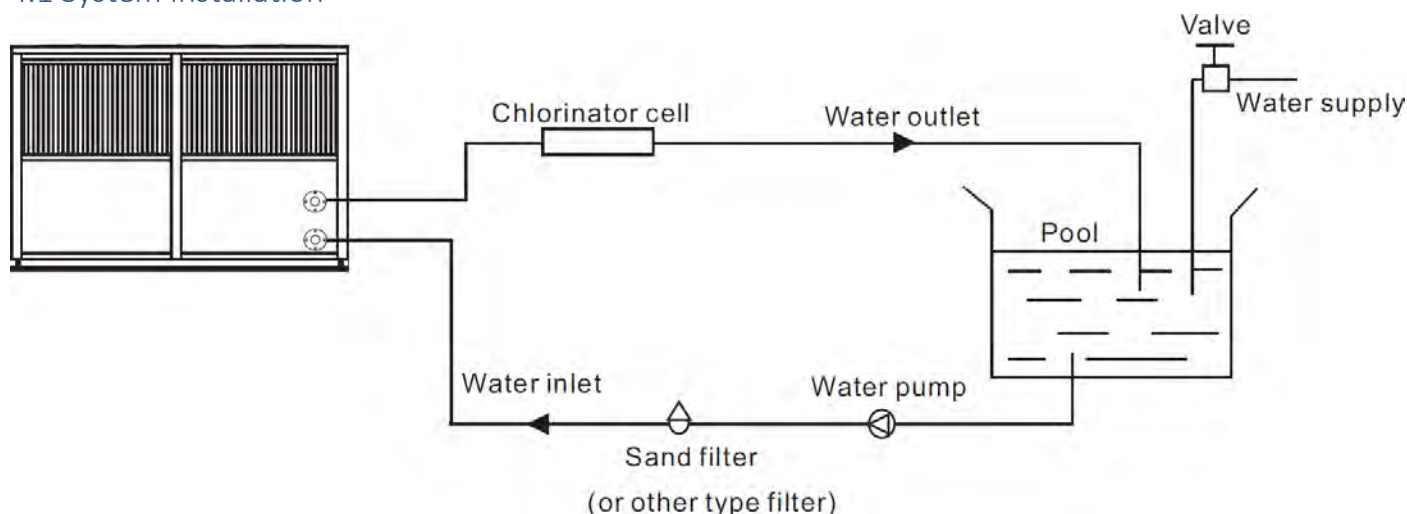
3. Safety Instructions

- Installation, repair or relocations must be done by a fully qualified person and not by the customer. If done incorrectly it may cause fire, electric shock, water leakage and other hazards.
- Maintenance and operation must be carried out according to the recommended time and frequencies, as stated in this manual.
- To avoid risk of electrical shock, the unit must have a good power connection and earthing.
- If the supply cord is damaged, it must be replaced.
- Use genuine standard spare parts only.
- When an abnormality (smell of burning, etc.) occurs, stop the unit and disconnect the power or turn off the breaker. If the unit continues to be operated in an abnormal condition, it may cause a fire or hazards.
- Do not insert fingers or objects into the fans or evaporator of the unit.
- The unit is equipped with an over-load protection system. After a previous stoppage, the unit will not start for at least 3 minutes.
- For unit cleaning or maintenance, switch off and disconnect the power of the unit.
- Do not install the unit near flammable gas or spray flammable substances near it.
- Ensure the heat pump is installed on a strong and stable platform.
- A circuit breaker must be installed for the unit.
- Use supply wires suitable for 75°C

* Caution: Single wall heat exchanger, not suitable for potable water connection.

4. Installation

4.1 System Installation



The schematic diagram is for reference only. Please check the water inlet/outlet label on the heat pump while plumbing the unit.

INSTALLATION ITEMS

EvoHeat only provide the main EvoHeat unit and EvoHeat accessories; other items in the illustration above should be provided by the user or the installer.

EVOHEAT ACCESSORIES – DO NOT THROW AWAY

All EvoHeat units are provided with rubber feet, controller and leads for the controller– do not throw them away as they are required as part of the installation.

CHECK HEATER CONDITION ON ARRIVAL

Check the heater packaging upon delivery for any obvious signs of damage. Inform your supplier IMMEDIATELY if there is any evidence of rough handling. When the heater has been removed from the packaging check the refrigerant gauge on the front panel of the unit. The gauge should be showing a pressure of approx 10-20 on the outside red band – any less than this figure means there may be a leak in the refrigerant system, and you should immediately contact your EvoHeat Dealer.

General installation information disclaimer: Install your EVOHEAT heat pump in accordance with the procedures in the product manual. Always check that your installation will comply with local building and council regulations.

IMPORTANT: EvoHeat heat pumps MUST be connected by a licensed electrician. Under no circumstances should an unlicensed person attempt to install or repair an EvoHeat heat pump themselves. Heater electrical installation undertaken by an unlicensed installer will void the warranty. Correct installation is required to ensure safe and efficient operation of your pool heater.

Before installation it is very important to ensure 5 variables are carefully checked to allow the unit to operate correctly.

- Location
- Clearances & Air Flow
- Adequate water flow & plumbing
- Correct electrical connection & supply

4.2 Location Recommendations

Installation and service must be performed by a qualified installer.

Evo recommend the heat pump should be installed in an outdoor location with appropriate ventilation. Installing the heater indoors without adequate ventilation, or in a poorly ventilated enclosed space, will result in very poor performance and can, in extreme cases, damage the heater. Ensure the heater is installed in a well-ventilated area with plenty of fresh air.

Evo recommend the heat pump should ONLY be installed in a location with appropriate ventilation.

If installing the heater on an existing pump/filtration system, the heater must be installed AFTER the filter and BEFORE the chlorinator/sanitizer.

The heat pump should be installed on a flat level surface as close as possible to the pool.

The Evo pool heat pump should be installed with a minimum clearance of at least 3.5m to the water's edge. Furthermore, EvoHeat recommend installing the heat pump no greater than 7.5 meters away from the water's edge due to heat loss from the piping.

A rough estimate of heat loss over a 30m pipe run can be as high as 600 Watts per hour per 5 degrees of temperature difference between the air/ground and the pool water. These losses need to be taken into account over long distances and piping may need to be insulated to reduce heat leakage.

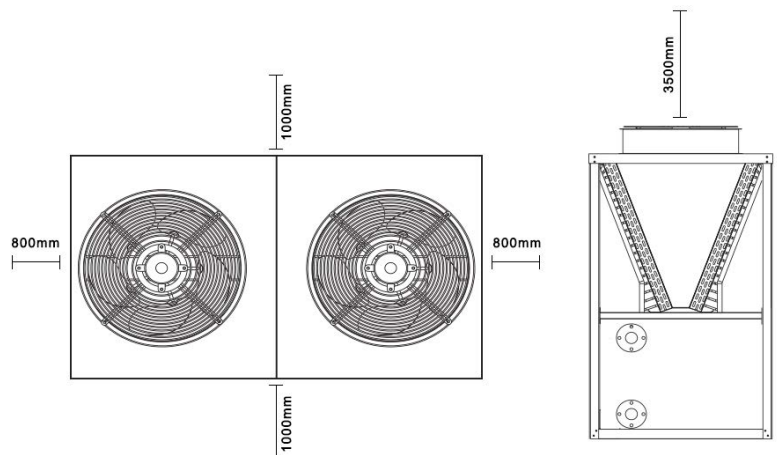
The heat pump should be installed a maximum of 5m below the water level of the pool/spa. If further than 5M please discuss with your EvoHeat specialist for the best advice.

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 excessive amounts of rainwater mixed with debris from the roof to be forced through the unit. A water deflector may be needed to protect the heat pump.

4.3 Airflow Clearances

The heat pump unit needs continuous fresh air whilst running. The heater draws up to 47000 m³/h ambient air through the sides and discharges through the top fan cowl.

Installing the heater indoors or in an enclosed space will result in very poor performance and can in extreme cases damage the heater. Ensure the heater is installed in a well-ventilated area with plenty of fresh air, a minimum gap between walls/fences etc of 1000mm on the sides, 800mm on the ends and a 3500mm overhead clearance.



When units of a similar height are placed side by side, EvoHeat recommend a 1500mm clearance between units.

*Fan discharge distance can be reduced by adding a Plenum to alter the air flow direction. Contact EvoHeat or a HVAC specialist for further advice. If you do not have a location with these suggested clearances, please contact our EvoHeat Tech Support Specialist to discuss appropriate installation locations.

Leave sufficient space for unobstructed airflow into and out of the heater. Do not locate the heater in an enclosed area, or the discharged cold air will recirculate into the unit and consequently lower the heating efficiency as well as possible icing up.

If you do not have a location with these suggested clearances, please contact our EvoHeat Tech Support Specialist to discuss appropriate installation locations.

4.4 Adequate Water Flow

All EVOHEAT heat pumps have a factory preset internal water flow switch. If there is insufficient water flow the heater will not operate.

It is CRITICAL that there is sufficient water flow to the unit. Incorrect water flow can cause a loss of efficiency and possible damage to the unit. Optimal water flow rates are listed in the EvoHeat manual. It is imperative that water flow is kept as close as possible to these flow rates. Correct water flow not only offers optimal heater performance, but may also prevent possible damage to your heater.

Before connecting the heater to the plumbing, all piping must be thoroughly flushed to ensure no debris can enter the heater. Failure to remove pipe debris can jam or damage the flow switch and may cause damage to the heater. When cleaning the pool it is advisable to turn off your heater as restricted water flow may cause the heater to shut down and indicate low water flow fault (E03 error) or high pressure fault (E01 Error).

IMPORTANT: A Variable speed pump or bypass valve and plumbing MUST be fitted to allow water flow to be adjusted through the heater. Do not direct connect a water pump with higher flow than required to the heat pump.

4.5 Rubber Feet

All EvoHeat units are provided with rubber feet which EvoHeat highly recommend being installed. The rubber feet help reduce vibration of the unit and help provide a space below the heat pump to install the drainage barbs.

4.6 Drainage & Condensation

Whilst the heater is operating, water in the air condenses on the fins of the evaporator. During times of high humidity, the condensate may be several litres per hour. This may give the impression that the heater is leaking, however this is a normal function of heat pumps. The heat pump can also automatically activate the reverse cycle defrost feature when required which increases condensation produced.

Ensure CS series heat pumps are installed level so condensate is not allowed to pool at one end of the condensate tray!

Ensure CS-GEN2 series units are installed level to evenly distribute condensate through the two drainage holes on the condensate pan, located at either end of the heat pump!

The condensate water captured will discharge from the heat pump through one end, typically where the heat pumps Inlet/Outlet connections are located. The condensate discharges from the heat pump through a 32mm female threaded connection. Ensure condensate is plumbed away from the heat pump to an appropriate location, ideally a drain. Please Note: A 32mm Male threaded adapter is NOT supplied with the heat pump.



4.6 Plumbing

The Swimming Pool Heat Pumps exclusive rated flow titanium heat exchanger requires no special plumbing arrangements except bypass (please set the flow rate according to the nameplate). The water pressure drop is less than 10kPa at max.

Flow rate: Since there is no residual heat or flame Temperatures, the unit does not need copper heat sink piping. PVC pipe can be run straight into the unit.

Location: Connect the unit in the pool pump discharge (return) line downstream of all filter and pool pumps, and upstream of any chlorinators, ozonators or chemical pumps.

Standard model have slip glue fittings which accept 40 mm PVC pipe for connection to the pool or spa filtration piping. By using a 50 NB to 40NB you can plumb 40NB.

Give serious consideration to adding a quick coupler fitting at the unit inlet and outlet to allow easy draining of unit for winterizing and to provide easier access should servicing be required.

4.7 Electrical Connection

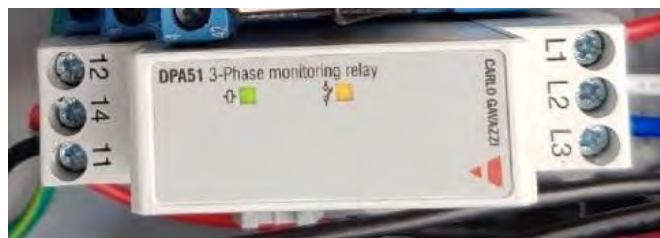
IMPORTANT: Always use a qualified Electrician to perform any electrical work. A licensed electrician must read the information before connecting.

Ensure the power cable and circuit breaker are of a suitable size for the heater being installed. Also check that there is adequate voltage and current available at the heater connection to run the unit.

Voltage range should be 220-230 volts for single phase, and 380-400 volts for 3 phase units. Voltage ranges outside these parameters will cause heater damage and void your warranty.

1. Ensure power is disconnected during installation or service.
2. Always comply with the national and local electrical codes and standards.
3. Ensure electrical cable size is adequate for heater requirements at the installation location.
4. The heater must be equipped with a circuit breaker and isolation device.
5. Circuit breaker must be installed between the heater and the water circulation pump if the water pump is hard-wired into the heater. Please note recommended circuit breaker sizes make no allowance for a water pump hard wired into the heater.
6. The unit must be well earthed. Remove the front panel to access the electrical connection terminals of the heater. The electrical wiring diagram is affixed to the inside of the front panel.

Correct phase connection is important with 3 phase heaters. NOTE: if 2 lights are showing on the 3 PHASE relay monitor this means the EvoHeat heat pump has been wired correctly (one orange light and one green light). If only one light is showing, the phases are out of rotation and need to be rotated to get the correct phase rotation.



4.8 Initial Start-up

Note: in order for the unit to heat the pool or spa, the filter pump must be running to circulate water through the heat exchanger.

After installation is completed, follow the steps below:

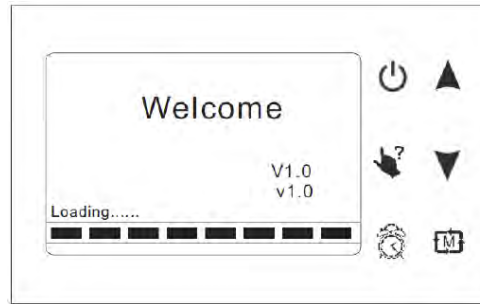
1. Turn on your filter pump. Check for water leaks and verify flow to and from the pool.
2. Turn on the electrical power supply to the unit, then press the key ON/OFF of wire controller, it should start after several seconds.
3. After running a few minutes make sure the air leaving the top of the unit is cooler (between 5-10 °C)
4. With the unit operating turn the filter pump off. The unit should also turn off automatically.
5. Allow the unit and pool pump to run 24 hours per day until desired pool water temperature is reached. (Note: this may take up to several days depending on the initial water temperature and the size and location of the pool). When the water-in temperature reaches the set temperature the unit will shut off. The unit will now automatically restart (as long as your pool pump is running) when the pool temperature drops more than 1°C below the 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 5-minute countdown is completed. Power interruptions during the delay period will have no effect on the 3-minute countdown.

5. Operation

5.1 Main Controller Interface



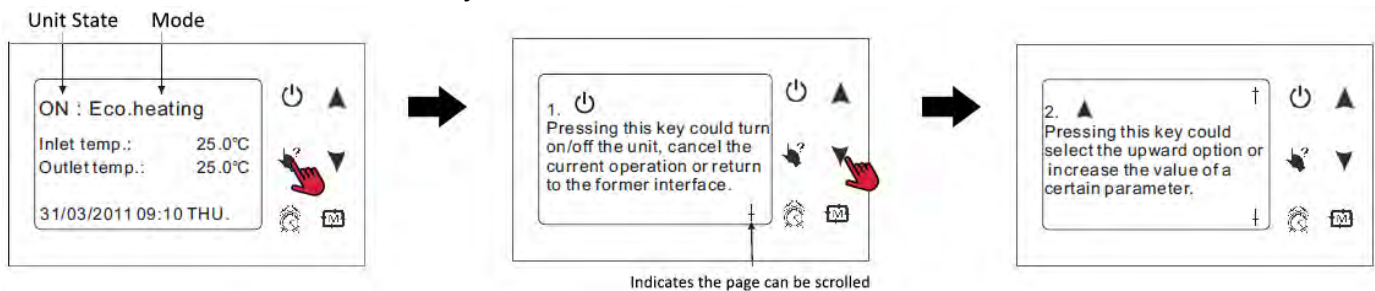
| Button | Name | Function |
|--------|--------|---|
| | ON/OFF | Press this button to start up/shut off the unit, cancel current operation or go back to previous interface. |
| | HELP | Press this button to check button function of system state. |
| | MODE | Press this button to change the current mode, page up or confirm current operation. |
| | CLOCK | Press this button to set the clock or turn the timer on/off. |
| | UP | Press this key to select the upwards option or increase the parameter value. |
| | DOWN | Press this key to select the downwards option or decrease the parameter value. |

5.2 Functions of the Controller

5.2.1 Using the HELP Button

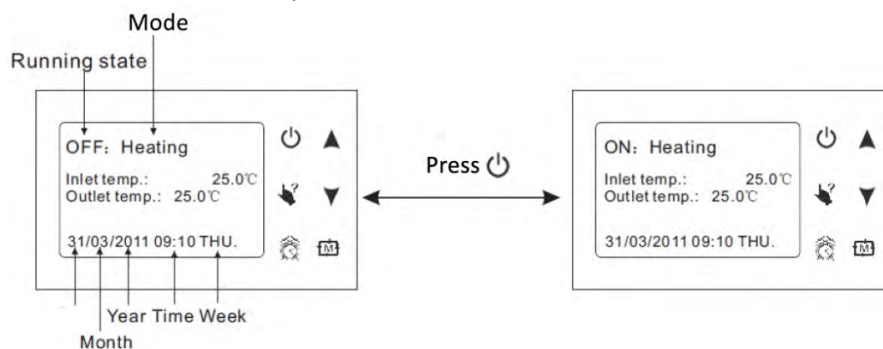
You can use at any interface and it will explain the buttons & functions of the current interface. To exit the help interface, simply press the ON/OFF button.

EXAMPLE: Press HELP at the Main Interface



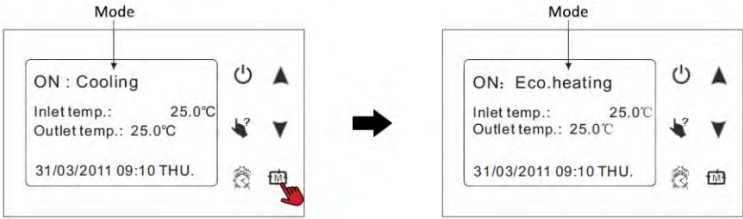
5.2.2 Starting & Shutting Down

To turn on/off the unit, press the ON/OFF button for 1 second. The screen will display as following for each state:



5.2.3 Switching Modes

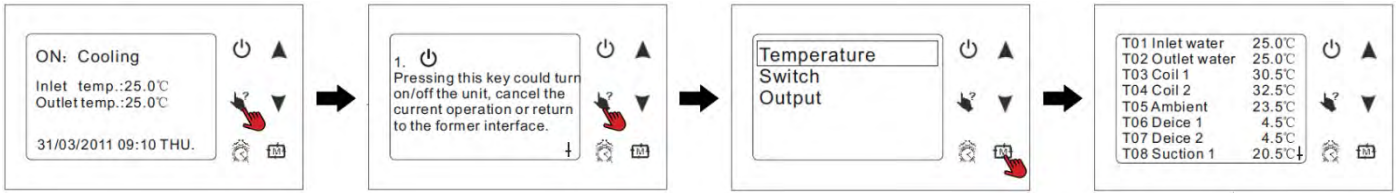
At the main interface, you can switch between the modes of cooling, economic heating, heating & rapid heating by pressing . Example: Switch from Cooling mode to Economic Heating



Note: The operation of mode is invalid if the unit you purchase is heating only or cooling only.

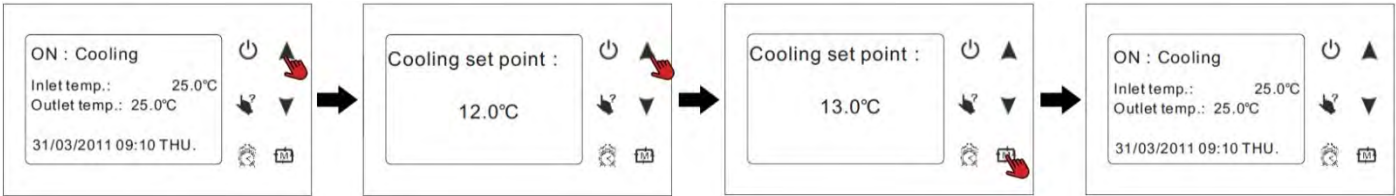
5.2.4 System State Checking

At any interface you can enter the system working state by pressing TWICE, then using the UP and Down arrow keys to highlight the required parameter, then press to enter. To exit, press the ON/OFF button



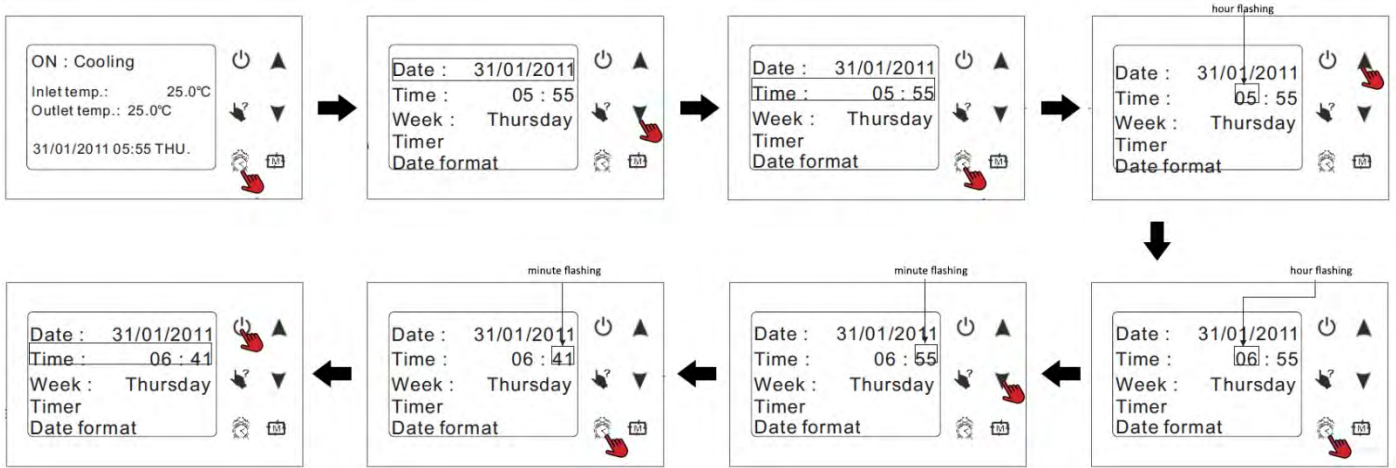
5.2.5 Changing Temperature

At the main interface, press the UP or DOWN key to adjust the temperature setting as desired. Once complete, press the button to save the settings and exit. Press the ON/OFF button to exit without saving settings. Refer to the Parameter Table to set relevant temperature.



5.2.6 Clock Setting



At the main interface press to enter the clock setting interface. Select the parameter you wish to change and press to make the parameter begin flashing which indicates it can be changed. Press the UP or DOWN keys to change the parameter value, then press to save. Press the ON/OFF button to return to the main menu.



*Note: If there is no operation after 10 seconds, it will return to the main menu and changes will automatically be saved.
To change the date, the same process is followed.*

5.2.7 Timer Settings

Four timer periods can be set according to your needs.

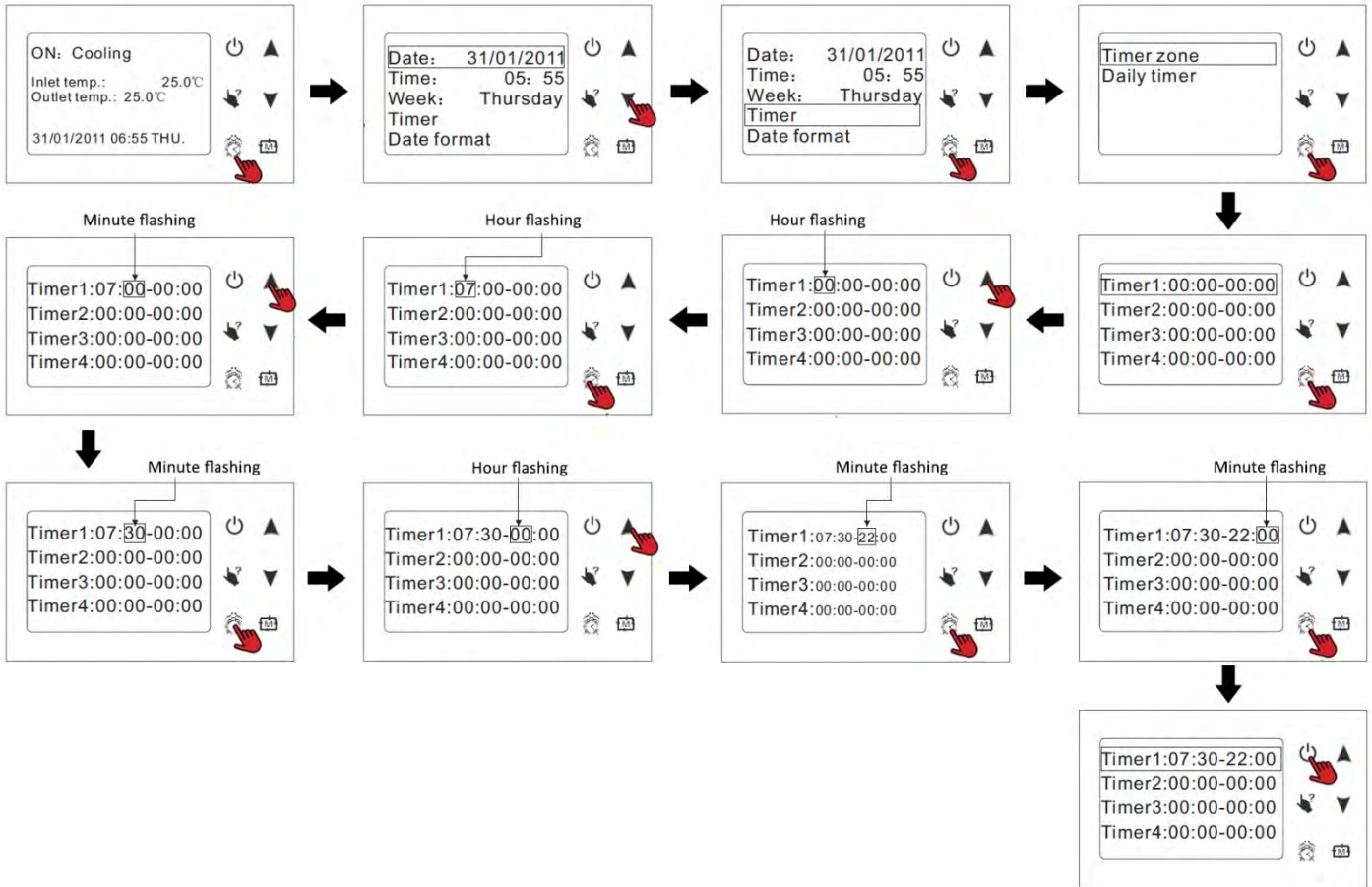
From the main interface, press  to enter the timer setting, press DOWN to select Timer, then press  to enter the timer setting interface. The process is much the same as adjusting the Clock settings. To cancel and return to the previous menu, press the ON/OFF button.

5.2.7.1 Timer

Each timer has an ON value when the unit will turn on an OFF value when the unit will turn off (00:00-00:00).

These timers are required for the Daily Timers & Temperature Timers to work.

Example: TIMER1 Unit is on at 7:30am – and off at 10pm



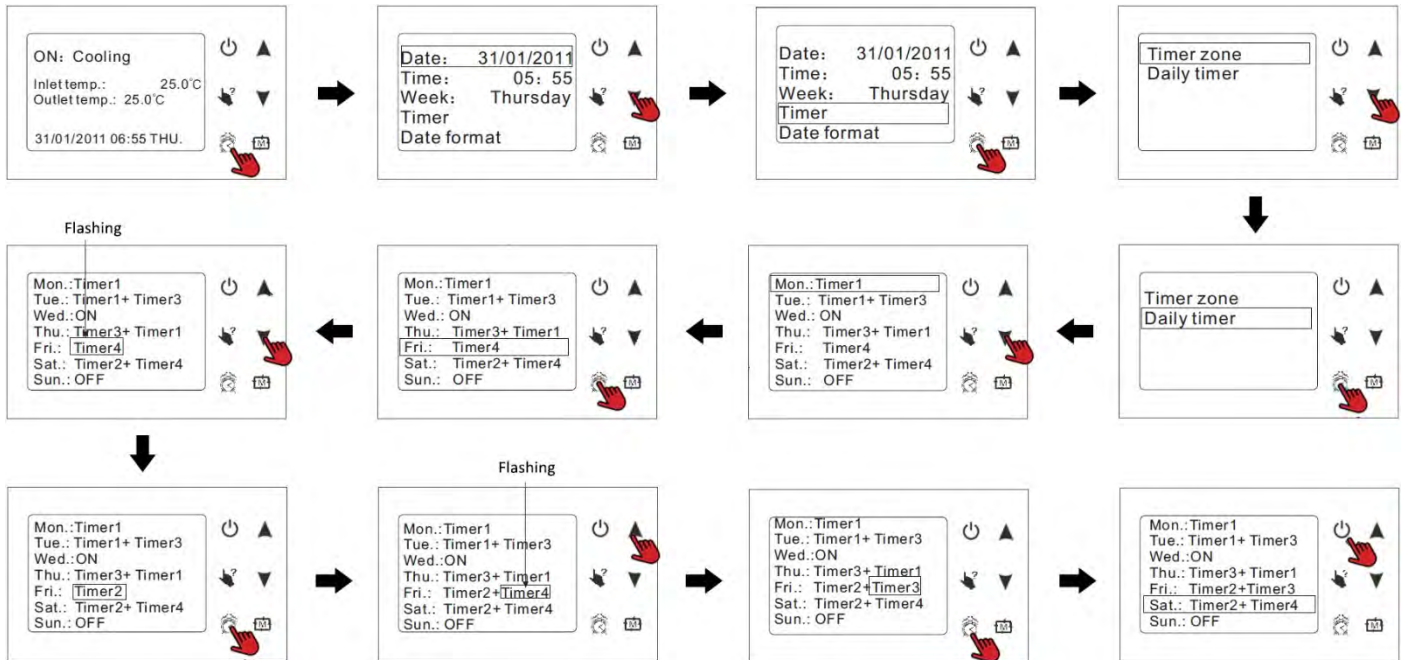
5.2.7.2 Daily Timer

The Daily Timer allows you to apply your timers to particular days of the week.

- OFF means that the unit will not run on that day.
- ON means the system will be running for a whole day.
- Applying one timer will have the unit run from A-B.
- Applying two timers will mean the unit runs from A-B, then C-D.

Example: Setting the operation on Friday to run two different timers.

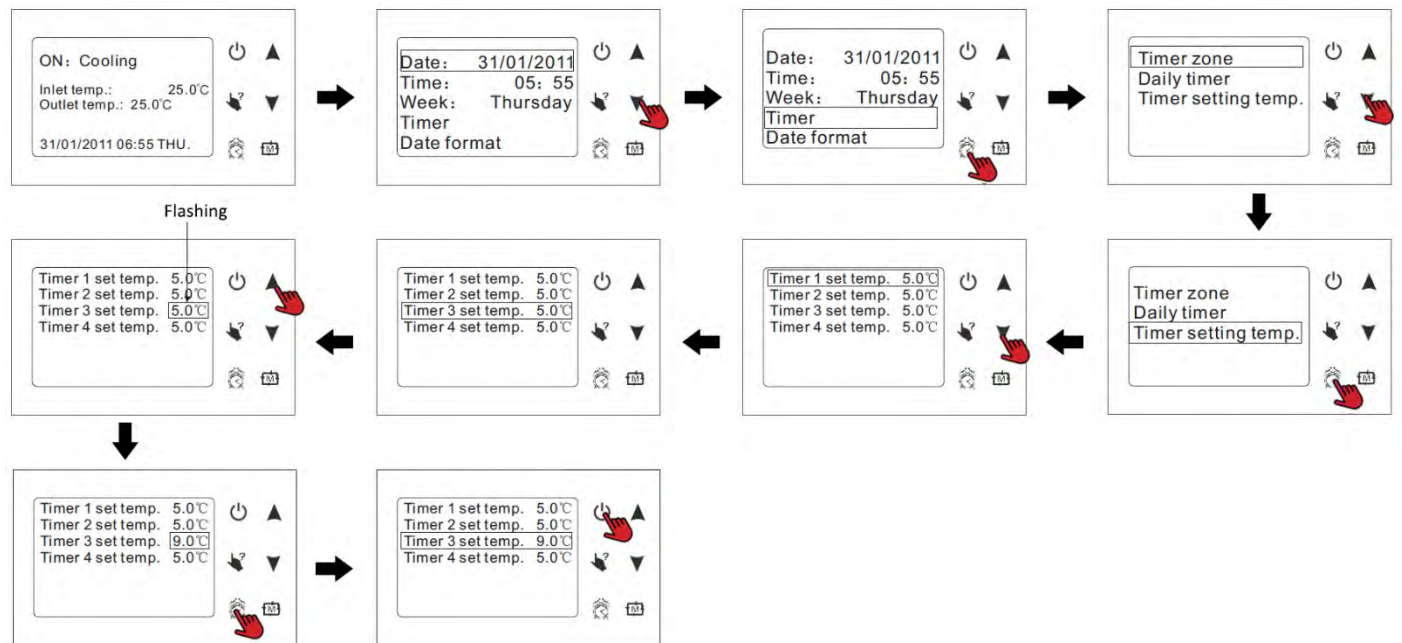
If the Timer2 were 8am-10am & Timer 3 were 1pm-5pm, the unit would operate or stop accordingly.



5.2.7.3 Temperature Timer

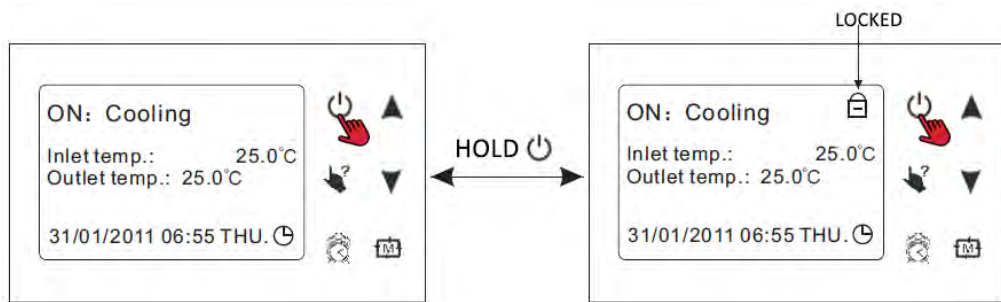
The temperature timer will adjust the temperature as desired for your set Timer periods.

Example: If Timer 3 was set for 1pm – 5pm on a Monday, the unit would operate to the set temperature during the timeframe on the Monday.



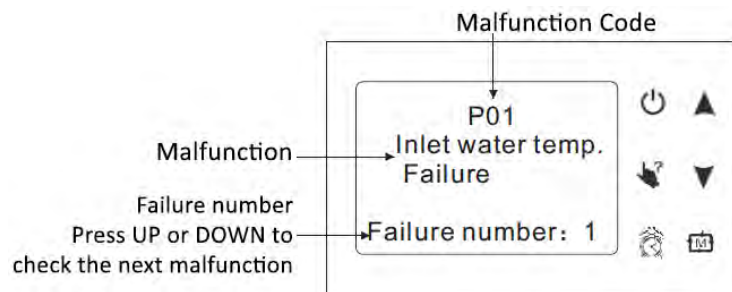
5.2.8 Keyboard Lock

To lock the controller after adjusting settings, at the main interface hold the ON/OFF button for 5 seconds. The keyboard will be locked and display a lock symbol on the screen. To unlock the screen, hold the ON/OFF button for 5 seconds. *Note: If the unit is in alarm state, the keyboard lock is automatically removed.*



5.2.9 Malfunction Display

If a fault occurs, there will be a malfunction code showing on the controller screen. Refer to the Malfunction Table (9.9) to find out the failure cause and solutions.



6. Troubleshooting



EvoHeat have developed a YouTube Channel where you will find useful videos regarding the CS Controller usage. www.youtube.com/evoheat

IF YOUR HEAT PUMP ISN'T WORKING, CHECK THE FOLLOWING...

- ***Is the screen of control panel lit?***

If not, make sure the electrical wires and cables are correctly connected and the power is on. Ensure any circuit breaker devices are set to the ON position and press the ON button on your controller. Check your controller cable is plugged in and is not damaged. If the unit has been shut off or the power has been interrupted the heater will not restart for a 5-minute period to protect the compressor. Wait 5 minutes before attempting a restart.

- ***Is there enough water flow?***

If the screen displays a water flow related error check the water flow. Is the water pump in operation and the system free of debris that may cause a blockage? Disconnect pool cleaners to ensure proper water flow.

- ***Is the current pool/spa water temperature higher than the set temperature on the controller?***

If so the unit will not operate until the pool/spa water temperature falls below the set temperature on the controller.

- ***Is your heat pump set to run at the correct time and date?***

Please check your current timing or temperature modes on your controller – you may have programmed the unit to turn on at a different time.

- ***Does your heat pump have an error message on the screen?***

If yes, refer to the error code table 19.

IF YOUR HEAT PUMP IS RUNNING BUT NO HEATING, CHECK THE FOLLOWING...

- ***Is the fan functioning?***

If not contact EvoHeat tech support on 1300 859 933

- ***Is the air discharged from the top of the fan noticeably cooler than the ambient temperature?***

If not, check the refrigerant gauge on the bottom panel of the heater. Another way to determine if the heater is working correctly is to look at the controller's screen and check to see if the WATER OUT temp is higher than the WATER IN temp. Check also the INLET WATER TEMP is lower than the HEAT TEMP set point.

If the gauge shows less than 0.8MPa contact EvoHeat tech support to check the refrigerant system.



Example of empty (loss of refrigerant)



Example of normal
(Note: can vary based on ambient temperature)

Ensure sufficient fresh airflow around the unit as per installation instructions.

Make sure cold air discharged does not recycle back through the heater. Check the condenser fins. If they are dirty or blocked use a low flow garden hose only (Pressurised water may cause damage to the heater).

- The unit will periodically defrost when the ambient air temperature is lower than 8 degrees C.

IF YOUR HEAT PUMP IS RUNNING CONTINUOUSLY, CHECK THE FOLLOWING...

- Check the set temperature is at your desired level and that the pool water temperature is at or below this set point.
- Alternatively, this could be a possible electrical component failure – contact EvoHeat tech support on 1300 859 933

IF YOUR HEAT PUMP HAS WATER APPEARING AROUND THE BASE OF THE UNIT, CHECK THE FOLLOWING...

The water appearing around the base of your heat pump could be condensation or a possible water leak. To determine, check the following:

- Check the discharge for the presence of chlorine.

If the water has no chlorine then it is condensation and is it normal – see drainage and condensation for more information. If the water has chlorine, it is a water leak and you need to contact EvoHeat tech support on 1300 859 933. Or...

- Turn the heater off and run the water pump continuously for a period of 2-4 hours.

If the water dries out, then it was condensation – see drainage and condensation for more information. If there is a continuous leak contact EvoHeat tech support on 1300 859 933.

DRAINAGE & CONDENSATION

Whilst the heater is operating, water in the air condenses on the fins of the evaporator. In the instance of high humidity, the condensate may be several litres per hour. This may give the impression that the heater is leaking, however this is a normal function of heat pumps.

The heater will automatically activate reverse cycle or de-icing mode when required which also increases condensate discharge. This normally occurs at temperatures below 8°C. The condensate water will discharge through the base of the heater. As an option a pipe can be connected to the drain on the base of the unit to direct condensate water to an appropriate location.

NOTE: A quick way to verify that the water is condensation is to shut off the unit and keep the pool pump running. If the water stops running out of the basepan, it is condensation. AN EVEN QUICKER WAY IS TO TEST THE DRAIN WATER FOR CHLORINE – if there is no chlorine present, then it's condensation.

6.1 Error Codes

| CODE | FAILURE | REASON | SOLUTION |
|------|--|--|---|
| | Power on | | |
| | Normal working | | |
| P01 | Inlet temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp. sensor |
| P02 | Outlet temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp. sensor |
| P04 | Ambient temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P15 | System 1 coil temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P25 | System 2 coil temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P35 | System 3 coil temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P45 | System 4 coil temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P17 | System 1 absorb temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P27 | System 2 absorb temp sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P37 | System 3 absorb temp sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P47 | System 4 absorb temp sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P19 | System 1 anti-freezing temp sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P29 | System 2 anti-freezing temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P39 | System 3 anti-freezing temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P49 | System 4 anti-freezing temp. sensor failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P191 | Using side system 1 anti-freeze temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P291 | Using side system 2 anti-freeze temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P391 | Using side system 3 anti-freeze temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P491 | Using side system 4 anti-freeze temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P151 | System 1 coil inlet temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P251 | System 2 coil inlet temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P351 | System 3 coil inlet temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| P451 | System 4 coil inlet temp failure | The temp sensor is broken or short circuit | Check or change the temp sensor |
| E05 | System protection | The protection system has failed | Check each protection point of the system |
| E08 | Communication Failure | Communication failure between wire controller and main board | Check the wire connection between remote wire controller and main board |
| E11 | High pressure 1 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E21 | High pressure 2 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E31 | High pressure 3 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E41 | High pressure 4 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E12 | Low pressure 1 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E22 | Low pressure 2 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E32 | Low pressure 3 Protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E42 | Low pressure 4 protection | The high-pressure switch is broken | Check the pressure switch and cold circuit |
| E03 | Water flow failure | No water/little water in water system | Check the pip water flow and water pump |
| E04 | Electrical-heat over heat failure | Electrical-heat is over heat | Check or change electrical-heat |

| CODE | FAILURE | REASON | SOLUTION |
|------|--|--|---|
| E06 | Water-inlet and outlet temp. difference | Water flow is not enough and low differential pressure | Check the pipe water flow and whether the water system is jammed or not |
| E06 | System 1/2/3/4 anti-freeze protection | Water flow is not enough and low differential pressure | Check the pipe water flow and whether water system is jammed or not |
| E171 | The system 1 use side anti-freezing protection | Water flow is not enough | Check the pipe water flow and whether the water system is jammed or not |
| E271 | The system 2 use side anti-freezing protection | Water flow is not enough | Check the pipe water flow and whether the water system is jammed or not |
| E371 | The system 3 heat source side anti-freezing protection | Water flow is not enough | Check the pipe water flow and whether the water system is jammed or not |
| E471 | The system 4 heat source side anti-freezing protection | Water flow is not enough | Check the pipe water flow and whether the water system is jammed or not |
| E19 | The primary anti-freezing protection | The ambient temp is low | / |
| E29 | The secondary anti-freezing protection | The ambient temp is low | / |

7. Appendix

7.1 Cable Specifications

Single Phase Unit

| Nameplate maximum current | Phase line | Earth line | MCB | Creepage Protector | Signal Line |
|---------------------------|------------------------|--------------------|------|------------------------|------------------------|
| No more than 10A | 2 x 1.5mm ² | 1.5mm ² | 20A | 30mA less than 0.1 sec | n x 0.5mm ² |
| 10~16A | 2 x 2.5mm ² | 2.5mm ² | 32A | 30mA less than 0.1 sec | |
| 16~25A | 2 x 4mm ² | 4mm ² | 40A | 30mA less than 0.1 sec | |
| 25~32A | 2 x 6mm ² | 6mm ² | 40A | 30mA less than 0.1 sec | |
| 32~40A | 2 x 10mm ² | 10mm ² | 63A | 30mA less than 0.1 sec | |
| 40~63A | 2 x 16mm ² | 16mm ² | 80A | 30mA less than 0.1 sec | |
| 63~75A | 2 x 25mm ² | 25mm ² | 100A | 30mA less than 0.1 sec | |
| 75~101A | 2 x 25mm ² | 25mm ² | 125A | 30mA less than 0.1 sec | |
| 101~123A | 2 x 35mm ² | 35mm ² | 160A | 30mA less than 0.1 sec | |
| 123~148A | 2 x 50mm ² | 50mm ² | 225A | 30mA less than 0.1 sec | |
| 148~186A | 2 x 70mm ² | 70mm ² | 250A | 30mA less than 0.1 sec | |
| 186~224A | 2 x 95mm ² | 95mm ² | 280A | 30mA less than 0.1 sec | |

Three Phase Unit

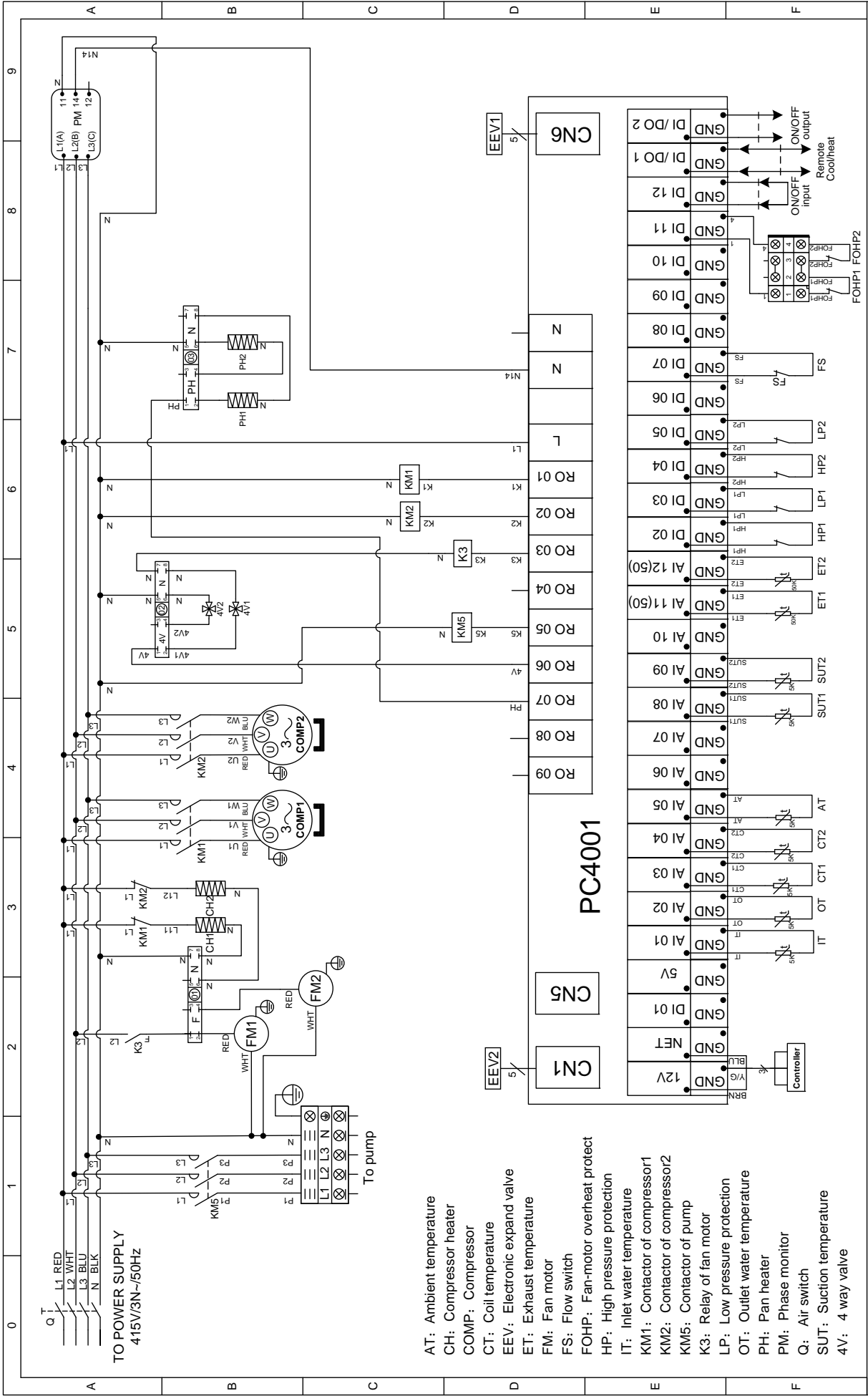
| Nameplate maximum current | Phase line | Earth line | MCB | Creepage Protector | Signal Line |
|---------------------------|------------------------|--------------------|------|------------------------|------------------------|
| No more than 10A | 2 x 1.5mm ² | 1.5mm ² | 20A | 30mA less than 0.1 sec | n x 0.5mm ² |
| 10~16A | 2 x 2.5mm ² | 2.5mm ² | 32A | 30mA less than 0.1 sec | |
| 16~25A | 2 x 4mm ² | 4mm ² | 40A | 30mA less than 0.1 sec | |
| 25~32A | 2 x 6mm ² | 6mm ² | 40A | 30mA less than 0.1 sec | |
| 32~40A | 2 x 10mm ² | 10mm ² | 63A | 30mA less than 0.1 sec | |
| 40~63A | 2 x 16mm ² | 16mm ² | 80A | 30mA less than 0.1 sec | |
| 63~75A | 2 x 25mm ² | 25mm ² | 100A | 30mA less than 0.1 sec | |
| 75~101A | 2 x 25mm ² | 25mm ² | 125A | 30mA less than 0.1 sec | |
| 101~123A | 2 x 35mm ² | 35mm ² | 160A | 30mA less than 0.1 sec | |
| 123~148A | 2 x 50mm ² | 50mm ² | 225A | 30mA less than 0.1 sec | |
| 148~186A | 2 x 70mm ² | 70mm ² | 250A | 30mA less than 0.1 sec | |
| 186~224A | 2 x 95mm ² | 95mm ² | 280A | 30mA less than 0.1 sec | |

If the unit is to be installed outdoors, ensure that a UV resistant cable is used.

7.2 Parameter Table

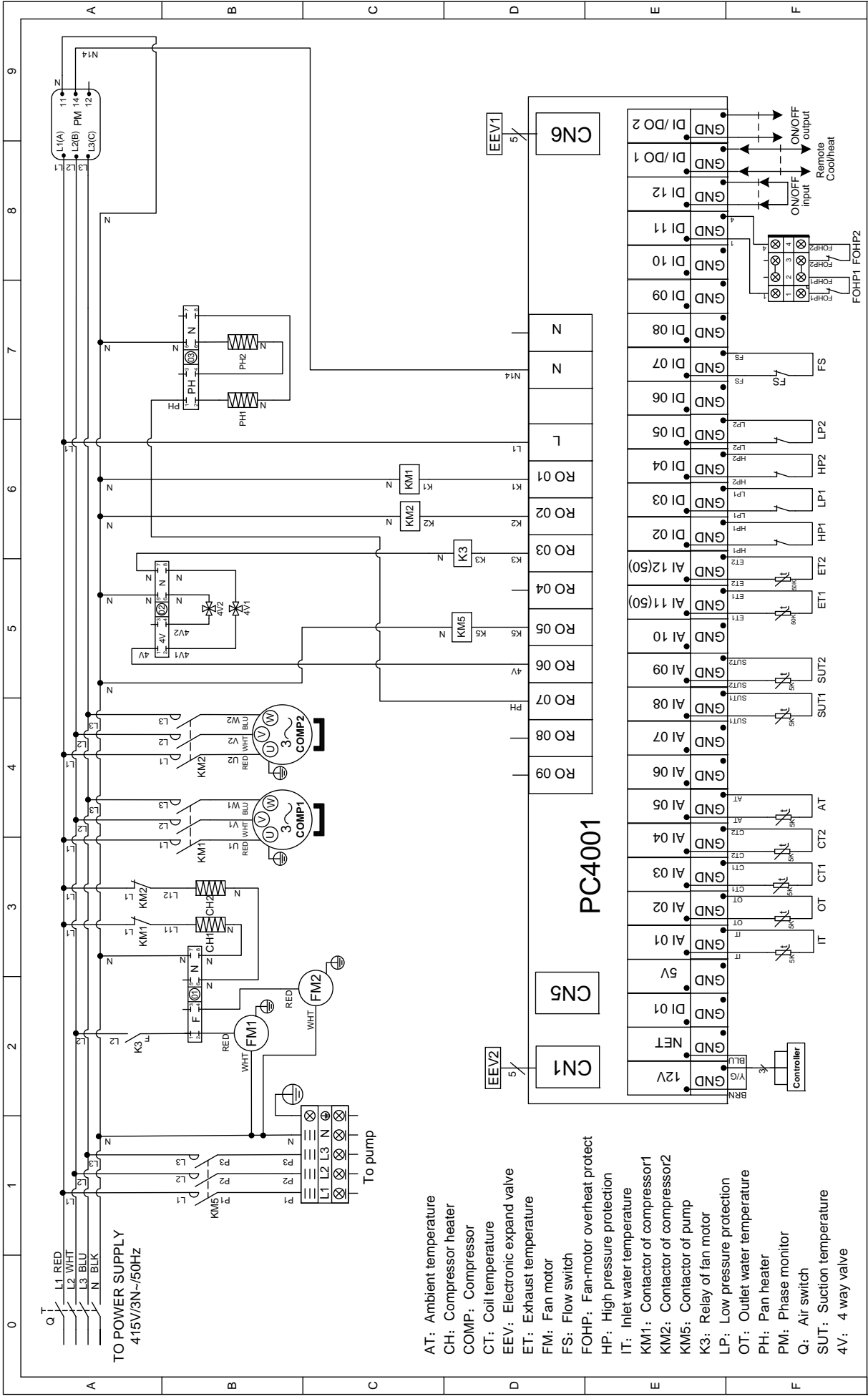
| Meaning | Default | Remarks |
|---|---------|------------|
| Set-point of cooling target temperature | 27°C | Adjustable |
| Set-point of heating target temperature | 27°C | Adjustable |
| Set-point of auto mode target temperature | 27°C | Adjustable |

7.3 Wiring Diagrams



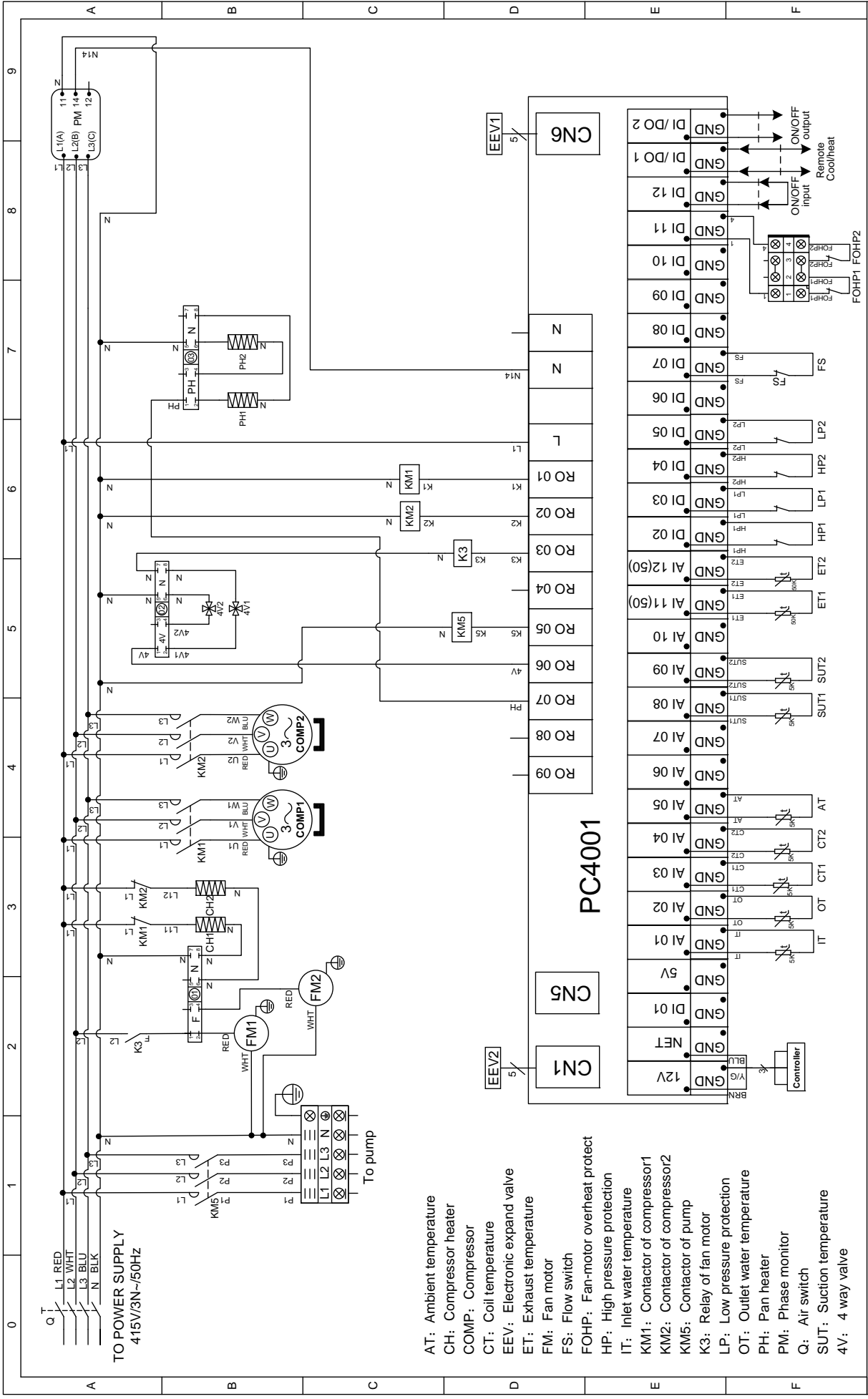
CODE: 20121207-0005

CS38



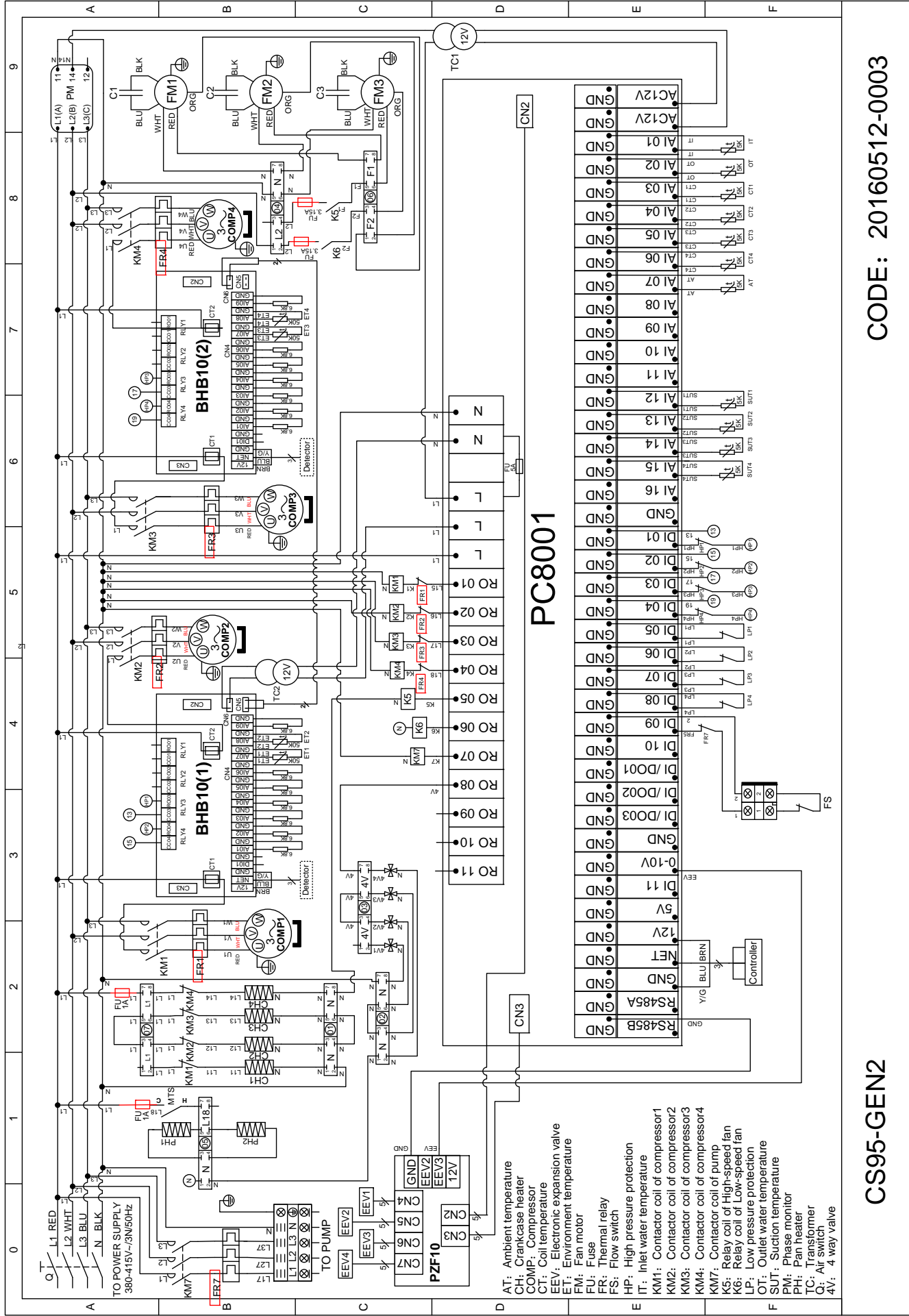
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CS47



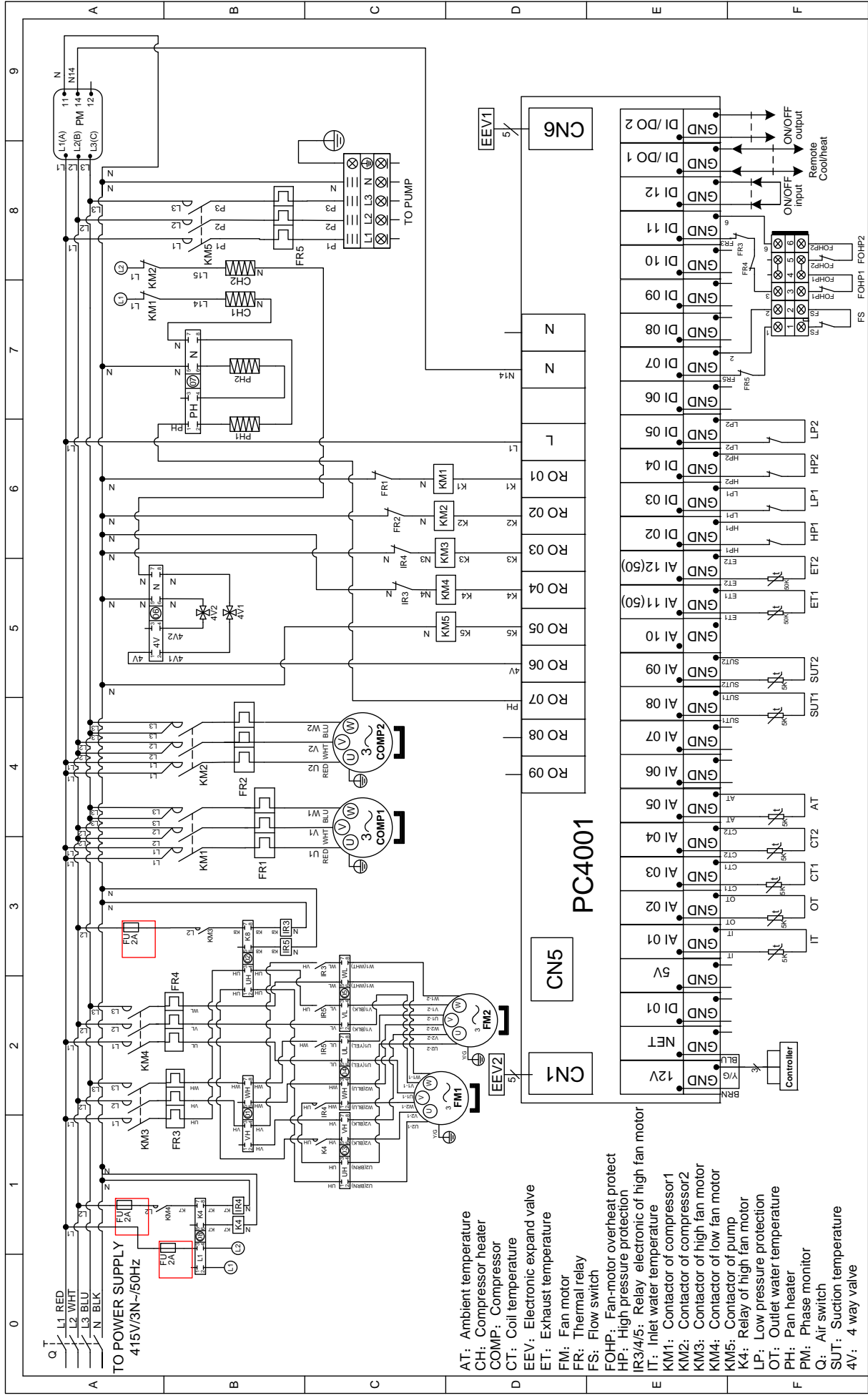
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CS57



CODE: 20160512-0003

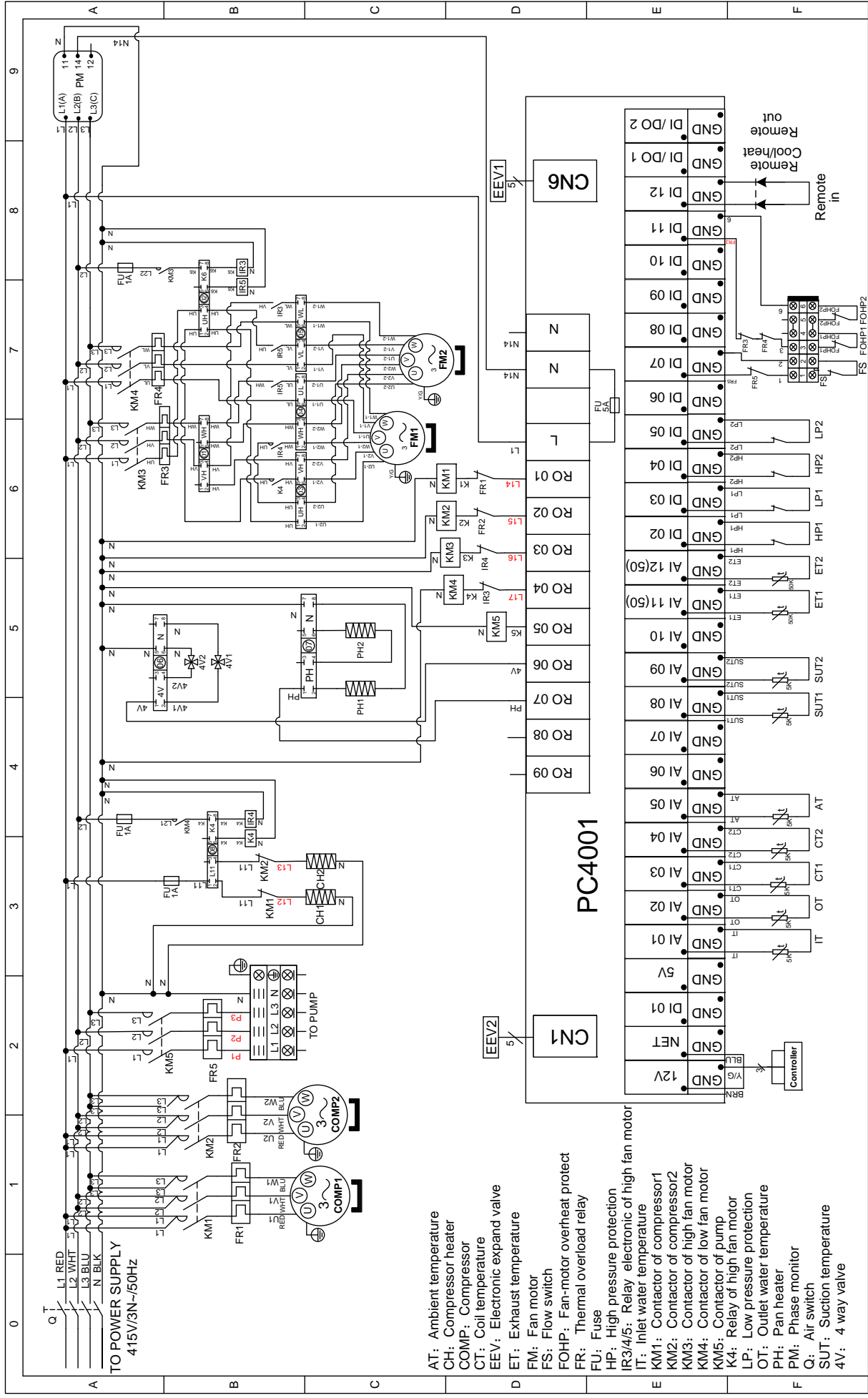
CS95-GEN2



- AT: Ambient temperature
- CH: Compressor heater
- COMP: Compressor
- CT: Coil temperature
- EEV: Electronic expand valve
- ET: Exhaust temperature
- FM: Fan motor
- FR: Thermal relay
- FS: Flow switch
- FOHP: Fan-motor overheat protect
- HP: High pressure protection
- IR3/4/5: Relay electronic of high fan motor
- IT: Inlet water temperature
- KM1: Contactor of compressor1
- KM2: Contactor of compressor2
- KM3: Contactor of high fan motor
- KM4: Contactor of low fan motor
- KM5: Contactor of pump
- K4: Relay of high fan motor
- LP: Low pressure protection
- OT: Outlet water temperature
- PH: Pan heater
- PM: Phase monitor
- Q: Air switch
- SUT: Suction temperature
- 4V: 4 way valve

CODE: 20160512-0004

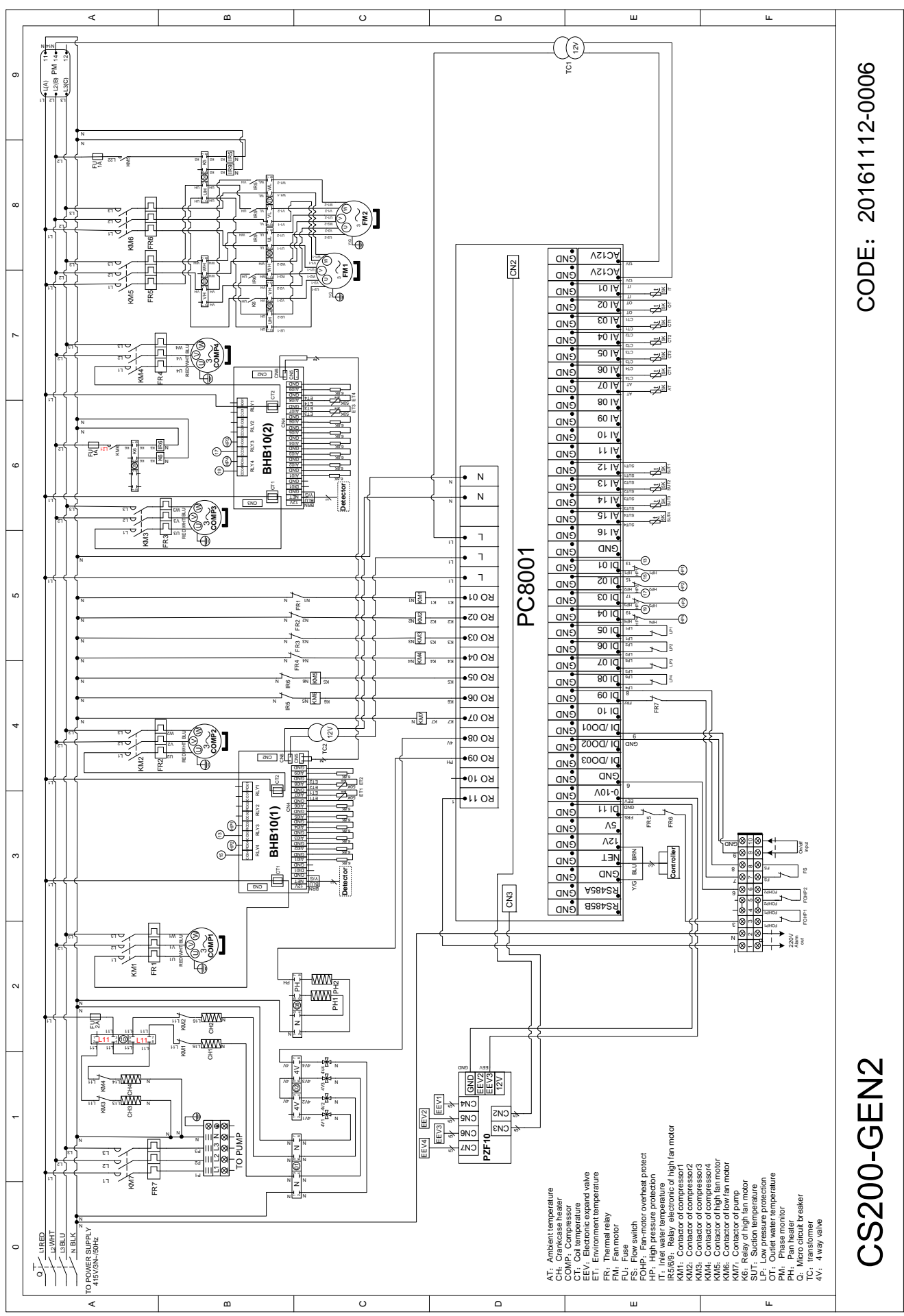
CS120-GEN2



- AT: Ambient temperature
- CH: Compressor heater
- COMP: Compressor
- CT: Coil temperature
- EEV: Electronic expand valve
- ET: Exhaust temperature
- FM: Fan motor
- FS: Flow switch
- FOHP: Fan-motor overhear protect
- FR: Thermal overload relay
- FU: Fuse
- HP: High pressure protection
- IR3/4/5: Relay electronic of high fan motor
- IT: Inlet water temperature
- KM1: Contactor of compressor1
- KM2: Contactor of compressor2
- KM3: Contactor of high fan motor
- KM4: Contactor of low fan motor
- KM5: Contactor of pump
- K4: Relay of high fan motor
- LP: Low pressure protection
- OT: Outlet water temperature
- PH: Pan heater
- PM: Phase monitor
- Q: Air switch
- SUT: Suction temperature
- 4V: 4 way valve

CODE: 20160329-0005

CS145-GEN2



8. Maintenance

DO I NEED TO GET MY UNIT SERVICED?

It is highly recommended that you get your EvoHeat unit serviced at least once a year by your local certified air conditioning or refrigeration technician. If your unit is located in a coastal area, more frequent maintenance may be necessary.

During the service, they will check the operational pressures of the refrigeration system and give the unit and fins a good clean to ensure maximum performance.

DO WE HAVE RECOMMENDED SERVICE AGENTS?

EvoHeat have a large database of recommended service agents. Please contact EvoHeat tech support on 1300 859 933 for your local service agent details.

SHOULD I CHECK MY UNIT REGULARLY?

We recommend you check your unit regularly to avoid potential issues and damage to your heat pump.

WHAT SHOULD I BE CHECKING REGULARLY?

Ensure that there is water flowing through the heat pump. If there is air or small amounts of water entering into the heat pump it will negatively influence the unit's performance and reliability.

The area around the unit should be dry, clean and well ventilated. Make sure there is nothing blocking the airflow of the heater. Check the condensate pans regularly and clear any leaf litter or debris that may gather there.

Check the power supply and cable connection often, should the unit begin to operate abnormally, switch it off and contact the qualified technician

I AM LOCATED IN A SUB-ZERO CLIMATE, WHAT SHOULD I DO WITH MY UNIT?

Discharge all water in the water pump and water system, so that freezing of the water in the pump or water system does not occur. You should discharge the water at the bottom of water pump if the unit will not be used for an extended period. You should check the unit thoroughly and fill the system with water fully before using it for the first time after a period of time.

8.1 Energy Saving Tips

If your pool water is allowed to cool significantly, it may take several days to return to the desired swimming temperature. For weekend use, it is more economical to maintain the pool water temperature at or near your desired swimming temperature.

If you do not plan to use your pool for a prolonged period, then you might choose to turn the heat pump completely off or decrease the temperature setting of the control several degrees to minimize energy consumption.

TIPS

- Use an accurate pool thermometer. A difference of 2°C, between 26°C and 28°C, will significantly increase energy consumption.
- Carefully monitor the water temperature of your pool in the summertime. You can reduce heat pump usage due to warmer air temperatures.
- When the pool is not used for long periods, turn off the heat pump.
- Where possible, shelter the pool from prevailing winds with well-trimmed hedges or other landscaping, cabanas, or fencing.
- Always use a high-quality pool cover when practical. Besides providing a valuable water saving feature, a pool cover will dramatically reduce heat loss and reduce your pool heating running costs by up to 70%!

9. Warranty



Please refer to the EvoHeat website for warranty details

- Australia: www.evoheat.com.au
- South East Asia: www.evoheat.com.sg

1. Warranty terms are from date of purchase.
2. This warranty excludes any defect or injury caused by or resulting from misuse, abuse, neglect, accidental damage, improper voltage, vermin infestation, incompetent installation, any fault not attributable to faulty manufacture or parts, any modifications which affect the reliability or performance of the unit.
3. This warranty does not cover the following:
 - a. Natural Disasters (hail, lightening, flood, fire etc.)
 - b. Rust or damage to paintwork caused by a corrosive atmosphere
 - c. When serviced by an unauthorized person without the permission of Evo Industries
 - d. When a unit is installed by an unqualified person
 - e. Where a unit is incorrectly installed
 - f. When failure occurs due to improper or faulty installation
 - g. Failure due to improper maintenance (refer Operating Instructions)
 - h. 'No Fault Found' service calls where the perceived problem is explained within the
 - i. Costs associated with delivery, handling, freight, or damage to the product in transit.
4. If warranty service is required you should:
 - a. contact Evo Industries Australia on 1300 859 933 or via our Contact page on our web site
 - b. provide a copy of your receipt as proof of purchase
 - c. have completed the online warranty registration or provide a completed warranty card.
5. Onsite technical service is available within the normal operating area of your Evo Industries authorized Service Centre. Service outside this area will incur a traveling fee.
6. Unless otherwise specified to the purchaser, the benefits conferred by this express warranty and additional to all other conditions, warranties, rights and remedies expressed or implied by the Trade Practices Act 1974 and similar consumer protection provisions contained in legislation of the States and Territories and all other obligations and liabilities on the part of the manufacturer or supplier and nothing contained herein shall restrict or modify such rights, remedies, obligations or liabilities.

Warranty Registration

EvoHeat highly recommend customers to complete their warranty details online to ensure efficient warranty claim processing.

To register your warranty, scan our QR Code or head to our website and fill in the Warranty Registration Form: <https://evoheat.com.au/warranty-registration/>



Updated 01/09/21