



INSTALLATION & OPERATION MANUAL



CS & CS-GEN2

COMMERCIAL POOL HEAT PUMP SERIES



Contents

1. Introduction	2
2. Unit Dimensions.....	3
3. Safety Instructions	4
4. Installation.....	4
4.1 System Installation	4
4.2 Location of Installation	5
4.3 Airflow Clearances	5
4.4 Adequate Water Flow.....	6
4.5 Rubber Feet	6
4.6 Drainage & Condensation	6
4.7 Plumbing	6
4.8 Electrical Connection	6
4.9 Initial Start-up	7
5. Operation	8
5.1 The Controller	8
5.2 Operating Functions.....	8
5.2.1 Using the HELP Button.....	8
5.2.2 Starting & Shutting Down	8
5.2.3 Switching Modes	8
5.2.4 System State Checking	9
5.2.5 Changing Temperature.....	9
5.2.6 Clock Setting	9
5.2.7 Timer Settings	9
5.2.8 Keyboard Lock.....	11
5.2.9 Malfunction Display	11
6. Troubleshooting	12
6.1 Error Codes.....	13
7. Appendix.....	14
7.1 Cable Specifications.....	14
7.2 Parameter Table	14
7.3 Wiring Diagrams.....	15
8. Maintenance	22
8.1 Energy Saving Tips	22
9. Warranty	23

1. Introduction

This manual contains information relating to the installation, troubleshooting, operation, and maintenance of this EvoHeat unit. Instructions in this manual must always be followed. Failure to comply with these recommendations will invalidate the warranty. Should you have any questions or require technical support, call the EvoHeat office on 1300 859 933 to speak to our team.



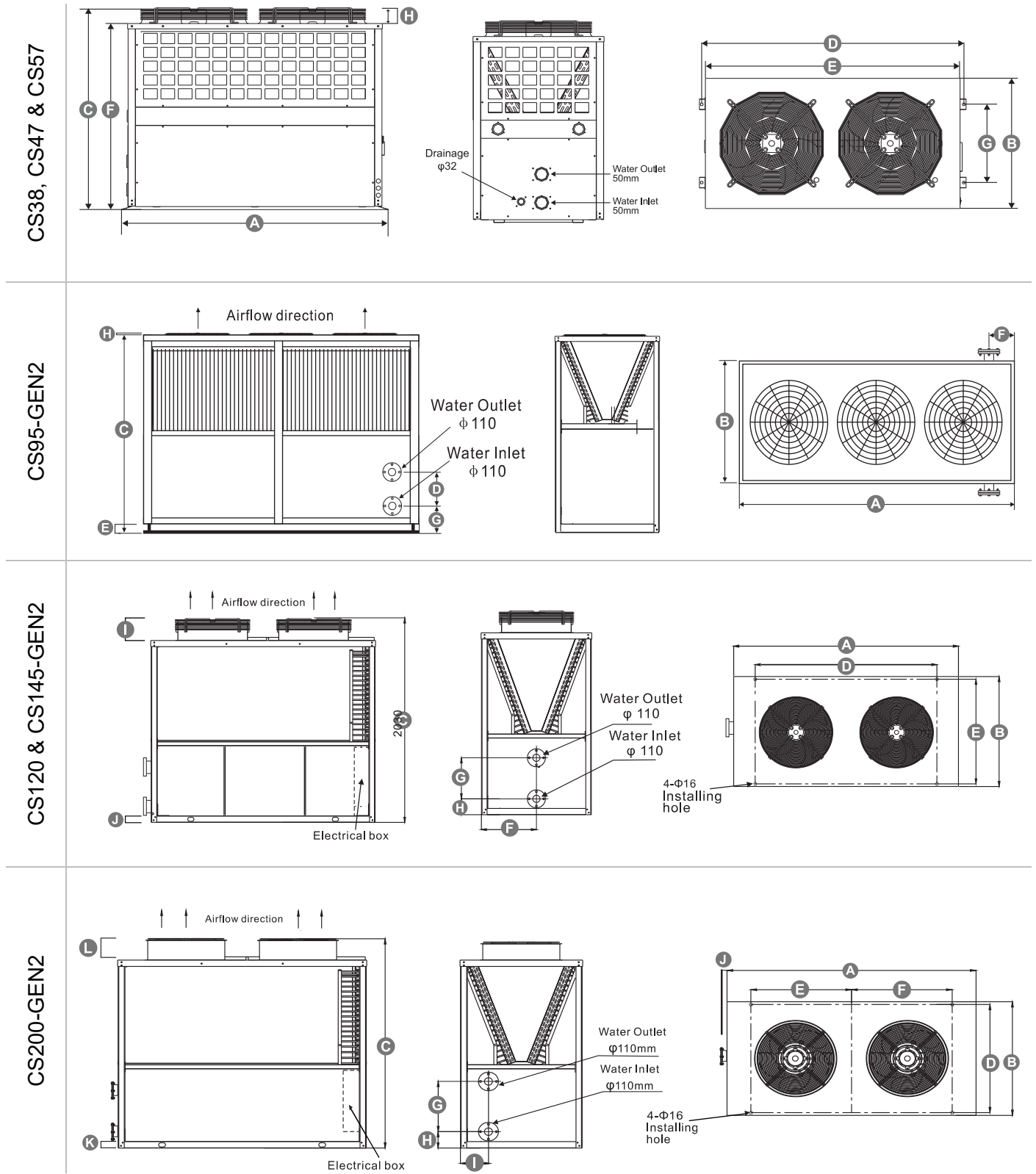
The EVO CS & CS-GEN2 commercial heat pump is the most efficient way to heat a commercial pool regardless of size or location. Our commercial heat pumps are ideal for sports and leisure centres, aquaculture, agriculture, water parks, hotels, resorts, apartments and office builds – there is no job in the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

TECHNICAL DATA		CS38	CS47	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	A	13.8	19.12	25.1	40	46	60	80.1
Compressor type		Scroll						
Refrigerant		R410A						
Refrigerant charge	g	4000	4800	5200	9600	13000	16000	24000
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 at 1M	dB(A)	61	61	61	61	62	63	67
Unit dimensions (mm)	L	1490	1490	1490	2170	2175	2175	2180
	W	735	735	735	1070	1070	1070	1070
	H	1200	1200	1200	1920	2030	2030	2060
Weight packed	kg	270	300	300	679	694	709	940
Weight unpacked	kg	252	254	260	632	648	664	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



Unit: mm	A (L)	B (W)	C (H)	D	E	F	G	H	I	J	K	L
CS38, 47 & 57	1490	735	1200	1464	1422	1060	480	140				
CS95-GEN2	2170	1070	1920	240	183	174	160	9				
CS120 & 145-GEN2	2175	1070	2030	1800	1020	530	400	155	200	63		
CS200-GEN2	2180	1070	2060	1020	900	900	450	160	136	50	80	249

3. Safety Instructions



Installation, repair, or relocations must only be done by a fully qualified technician. If done incorrectly there is a number of hazards that can occur including fire, electric shock, water leakage and injury.

- A circuit breaker must be installed for the unit.
- Ensure the unit has a good power connection and earthing to avoid the risk of electrical shocks.
- Maintenance and operation must be carried out according to the recommended time and frequencies, as stated in this manual.
- The unit must be stored in a room without any continuously operating ignition sources (for example: open flames, an operating gas appliance)
- Do not pierce or burn the unit.
- If the supply cord is damaged, it must be replaced by a qualified service agent.
- This appliance must be installed in accordance with national wiring regulations.

WARNING

THIS PRODUCT CONTAINS A BUTTON BATTERY

If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours.

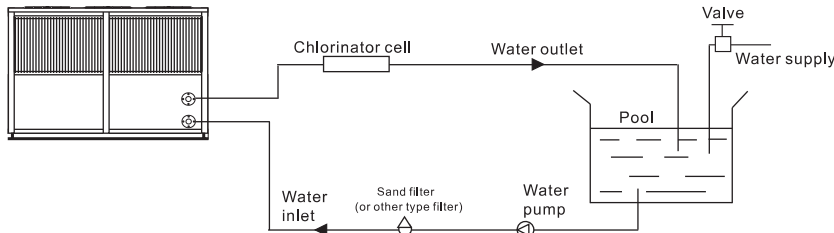
Keep batteries out of reach of children.

If you think batteries may have been swallowed or placed inside any part of the body, seek immediate medical attention.

- Before obtaining access to terminals all supply circuits must be disconnected.
- Use supply wires suitable for 75°C
- 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.
- If the supply cord is damaged, it must be replaced.
- Use genuine standard spare parts only.

4. Installation

4.1 System Installation



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

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 and is operational 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 & Airflow | Adequate Water Flow & Plumbing | Correct Electrical Connection & Supply |
|----------|----------------------|--------------------------------|--|

4.2 Location of Installation

Evo recommend the heat pump should ONLY 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 Evo unit should be installed: | <ul style="list-style-type: none"> - At least 3.5m away from the water's edge. - No greater than 7.5m from the water's edge (to avoid heat loss from the piping). - On a flat level surface as close as possible to the pool |
|-----------------------------------|---|

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.

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

If a suitable outdoor location is unavailable please contact EvoHeat for specialist technical advice.

The casing of this unit is made from high quality durable stainless steel, however if it is intended to be installed in a coastal or corrosive saltwater environment; regular application of an anticorrosive surface protectant to all exposed metals and fixings is recommended.

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.

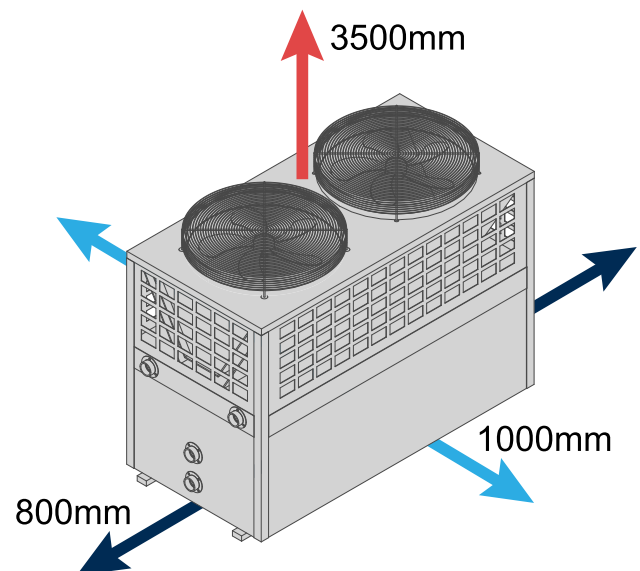
Installing the heater indoors or in an enclosed space will result in very poor performance and can in extreme cases damage the heater. Ensure the heater is installed in a well-ventilated area with plenty of fresh air, a minimum gap between walls/fences etc of:

- 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.

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.



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.

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. Note: A 32mm Male threaded adapter is NOT supplied with the heat pump.



4.7 Plumbing

The 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.


CS38, CS47 & CS57: These units come supplied with a barrel union that screws into the heat exchanger. The barrel union has a 50mm PVC plumbing connection.

Ensure pipework connecting to the inlet/outlet unions is appropriately supported, any movement in this pipework can caused the rubber O-ring to pinch and leak.

CS95, CS120, CS145 & CS200: These units have a 100mm flange connection.

For systems in extremely cold climates where winterizing is necessary, give serious consideration to adding a quick coupler fitting at the unit inlet and outlet connections to allow easy draining of unit.

4.8 Electrical Connection

 Always use a suitably qualified Electrician to perform any electrical work, they must read the manual before connecting.

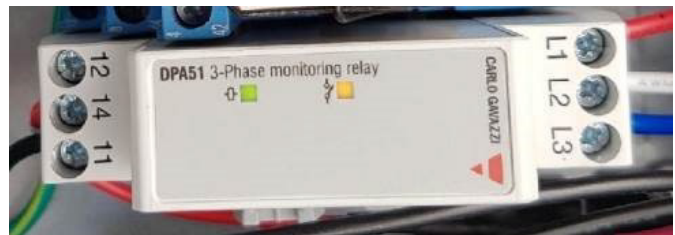
Ensure all cabling, circuit breakers, and protections are of a suitable size and specification in accordance with electrical wiring legislation for the heater being installed. Ensure to check that there is adequate voltage and current available at the heater connection to run the unit.

Voltage range should be 220-240 volts for single phase, and 380-415 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.



NOTE: Correct phase connection is important with 3 phase heaters. 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.



4.9 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:

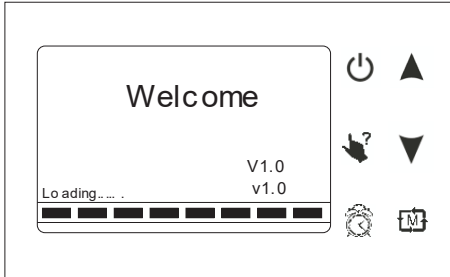
1. Turn on your filter pump. Check for water leaks and verify flow to and from the pool.
2. Turn on the electrical power supply to the unit, then press the key ON/OFF of wire controller, it should start after several seconds.
3. After running a few minutes make sure the air leaving the top of the unit 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 The Controller



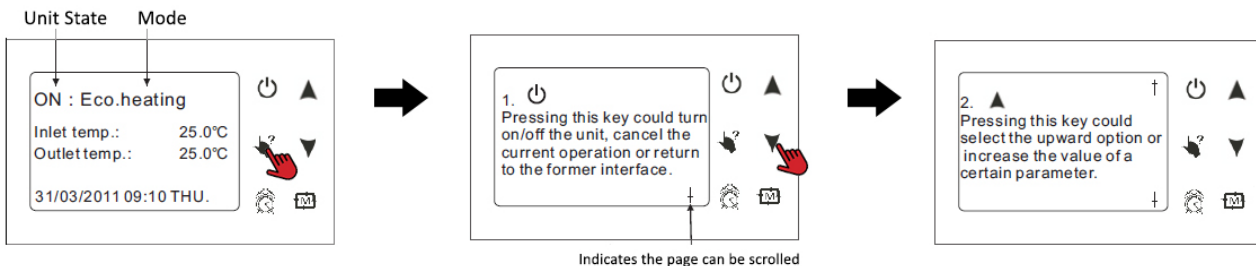
	ON/OFF	Press this button to start up/shut off the unit, cancel current operation or go back to previous interface.
	HELP	Press this button to check button function of system state.
	MODE	Press this button to change the current mode, page up or confirm current operation.
	CLOCK	Press this button to set 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 Operating Functions

5.2.1 Using the HELP Button

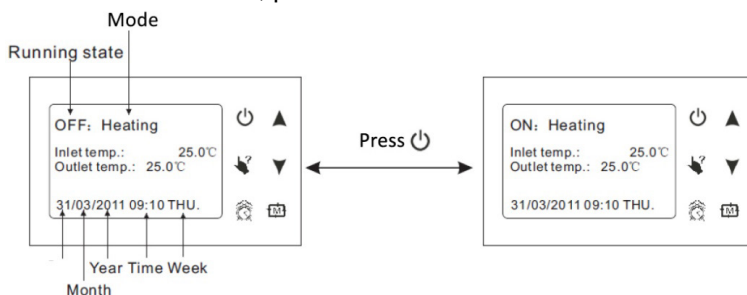
You can use at any interface and it will explain the buttons & functions of the current interface. To exit the help interface, simply press the **ON/OFF** button.

*EXAMPLE: Press **HELP** at the Main Interface*



5.2.2 Starting & Shutting Down

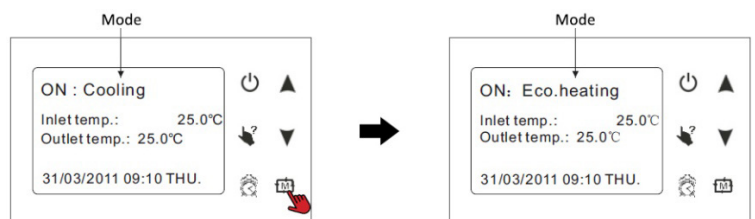
To turn on/off the unit, press the **ON/OFF** button for 1 second. The screen will display as following for each state:



5.2.3 Switching Modes

At the main interface, you can switch between the modes of cooling, economic heating, heating & rapid heating by pressing .

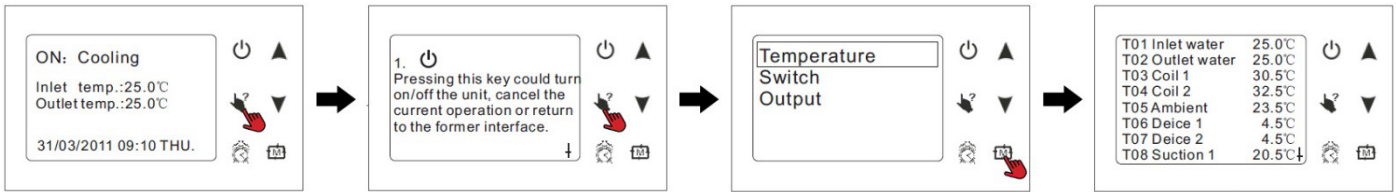
Example: Switch from Cooling mode to Economic Heating



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

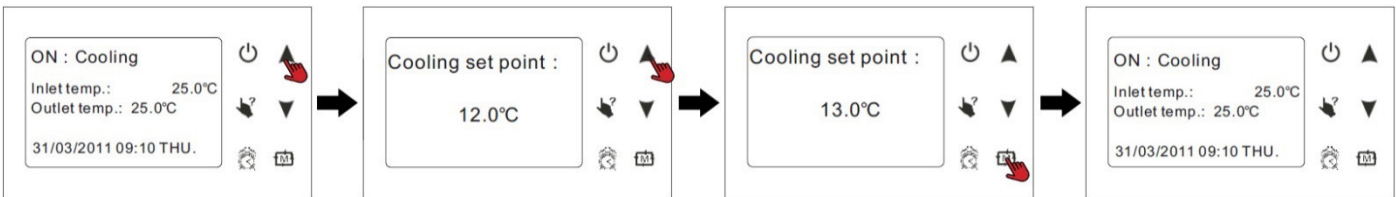
5.2.4 System State Checking

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



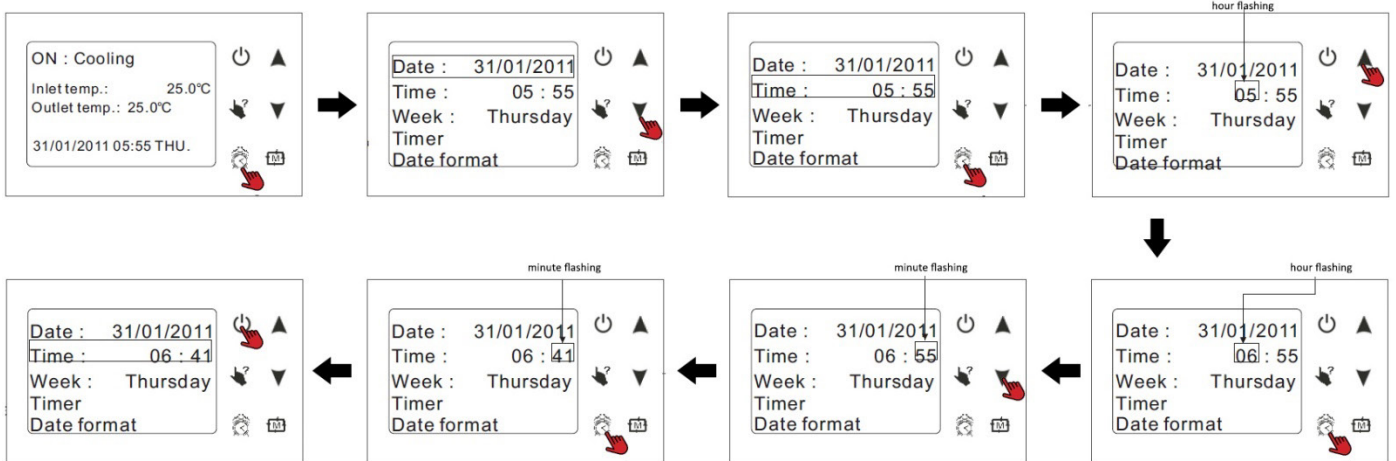
5.2.5 Changing Temperature

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 of setting a timer is much the same as adjusting the Clock settings.

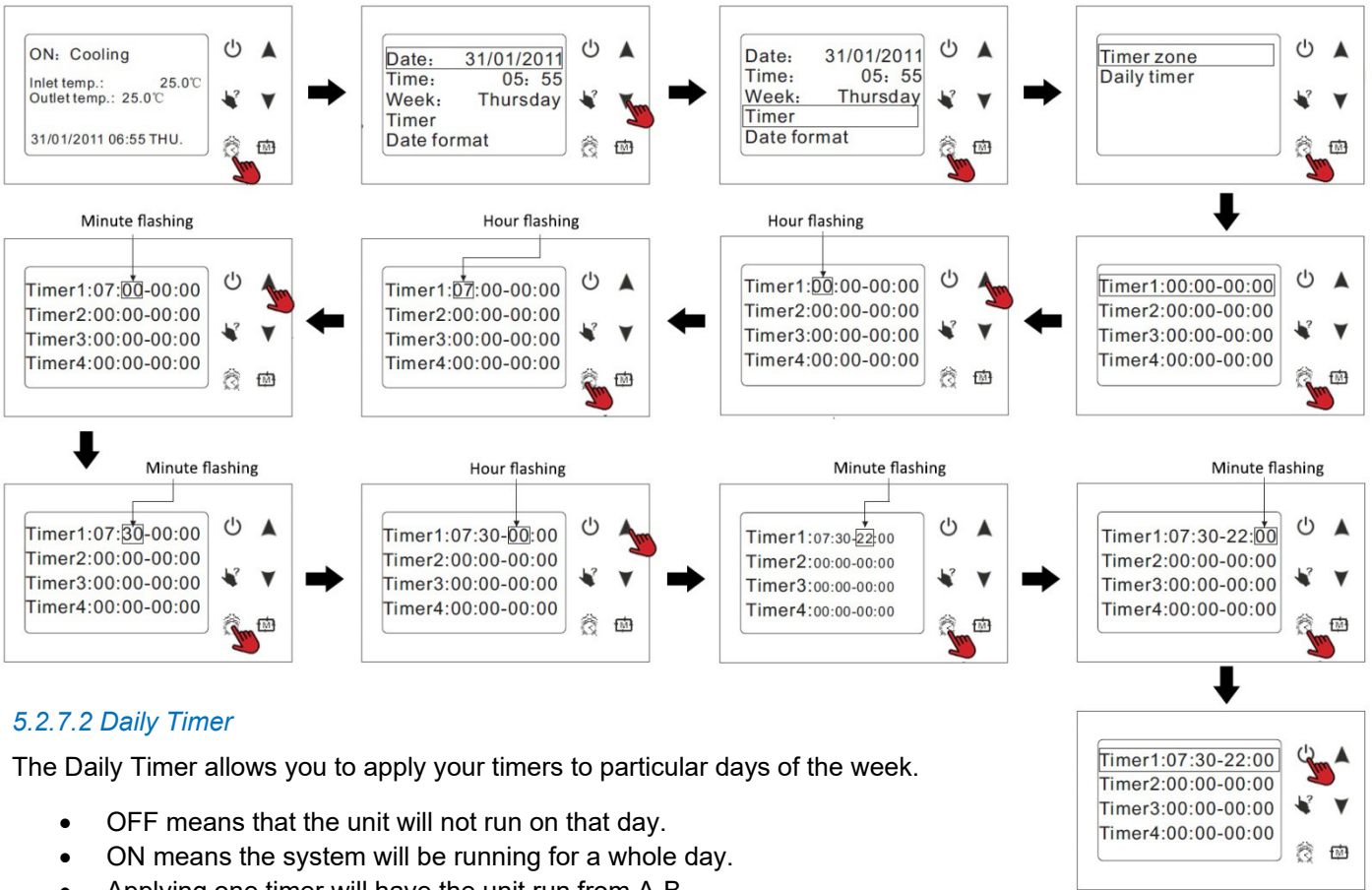
To cancel and return to the previous menu, press the **ON/OFF** button.

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



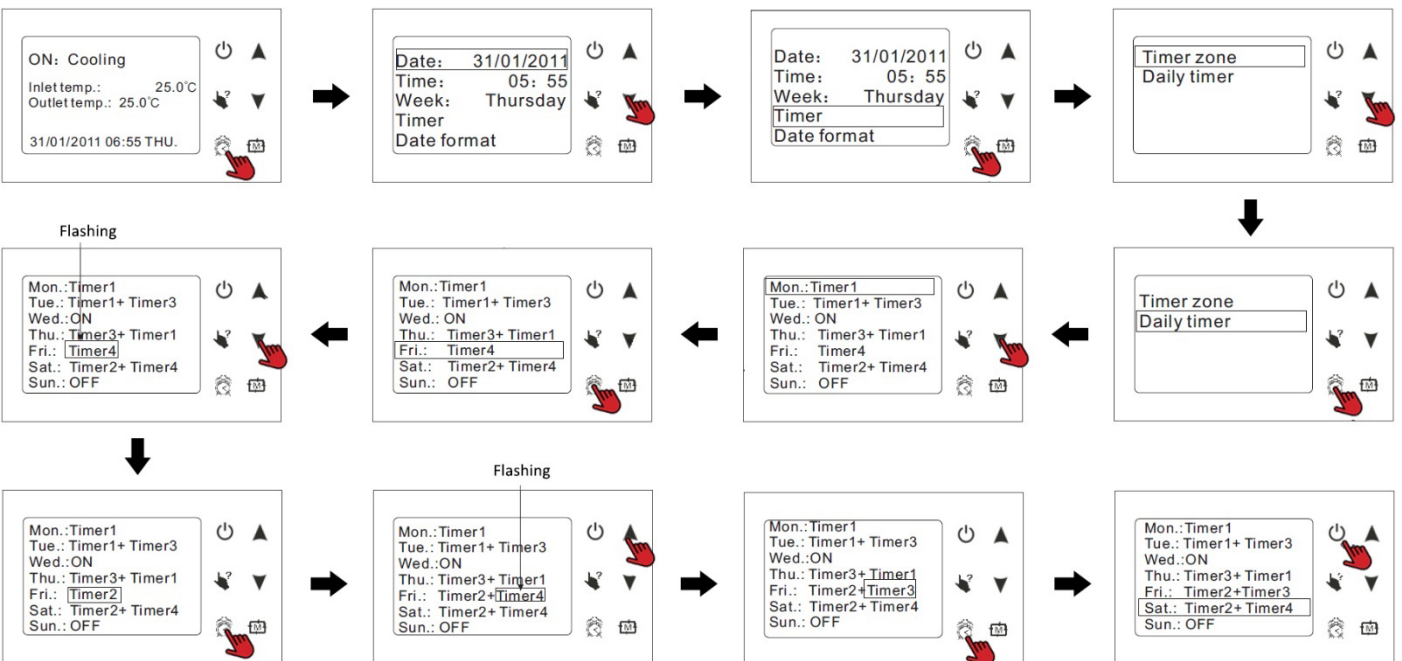
5.2.7.2 Daily Timer

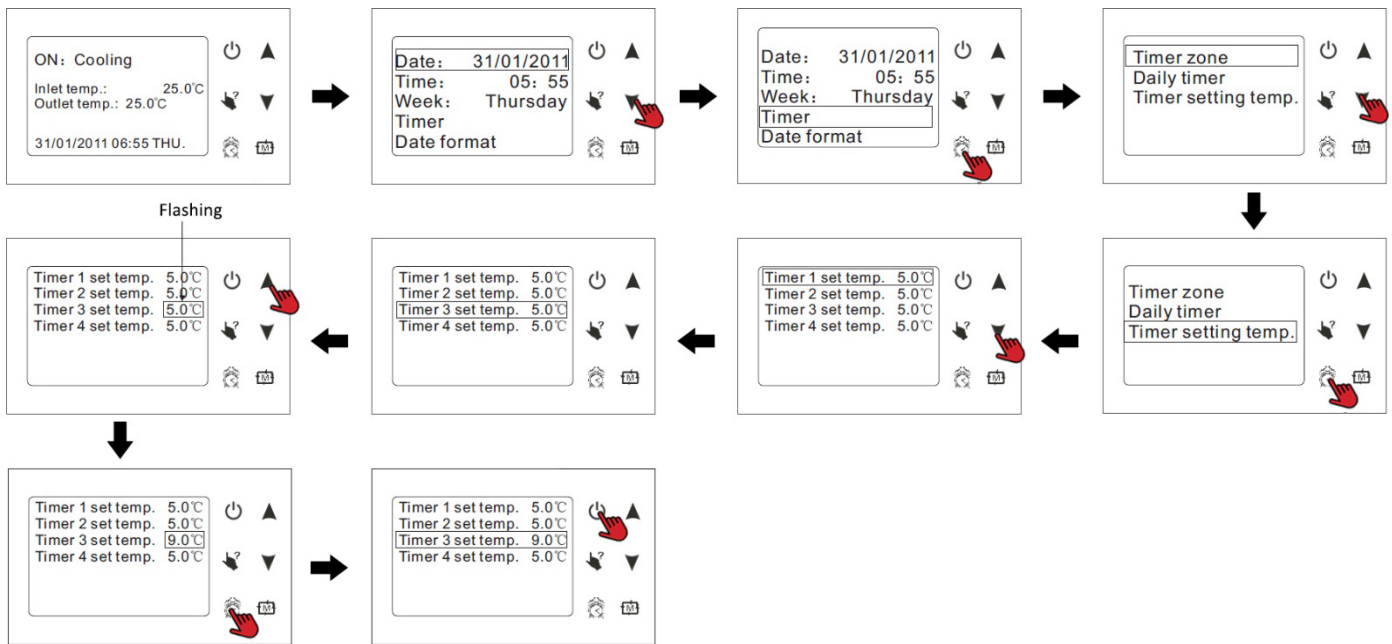
The Daily Timer allows you to apply your timers to particular days of the week.

- 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.



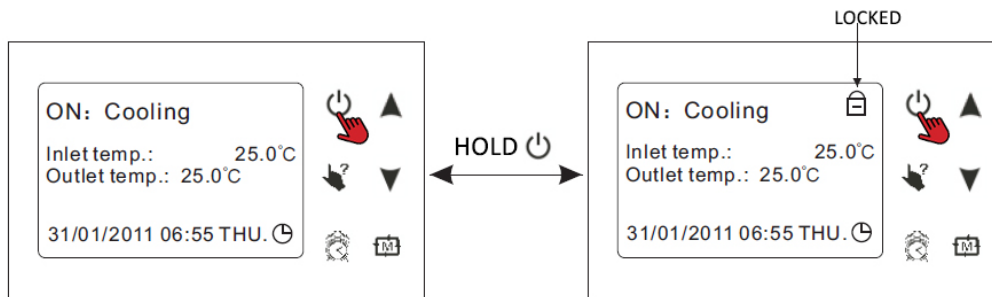


5.2.8 Keyboard Lock

You may wish to lock the keyboard to prevent unauthorised users from adjusting settings. When the keyboard is locked, a small lock symbol will be displayed on the screen.

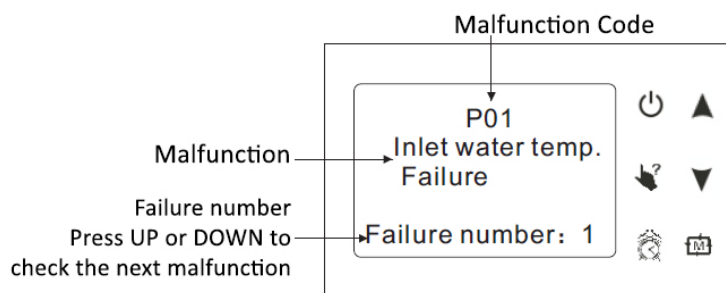
- To lock: from the main menu, hold the **ON/OFF** button for 5 seconds.
- To unlock: from the main menu, hold the **ON/OFF** button for 5 seconds.

. 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

HEAT PUMP NOT 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.

DOES YOUR HEAT PUMP HAVE AN ERROR MESSAGE ON THE SCREEN?

If yes, refer to the error code table 19.

IS THE HEAT PUMP SET TO RUN AT THE CORRECT TIME & 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.

IS THE CURRENT POOL/SPA WATER TEMP HIGHER THAN THE SET TEMP ON THE CONTROLLER?

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

HEAT PUMP IS RUNNING BUT NOT HEATING, CHECK THE FOLLOWING:

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.

IS THE FAN FUNCTIONING?

If not contact EvoHeat tech support on 1300 859 933



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.

IF THE 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.

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.

- Turn the heater off & 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.

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
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

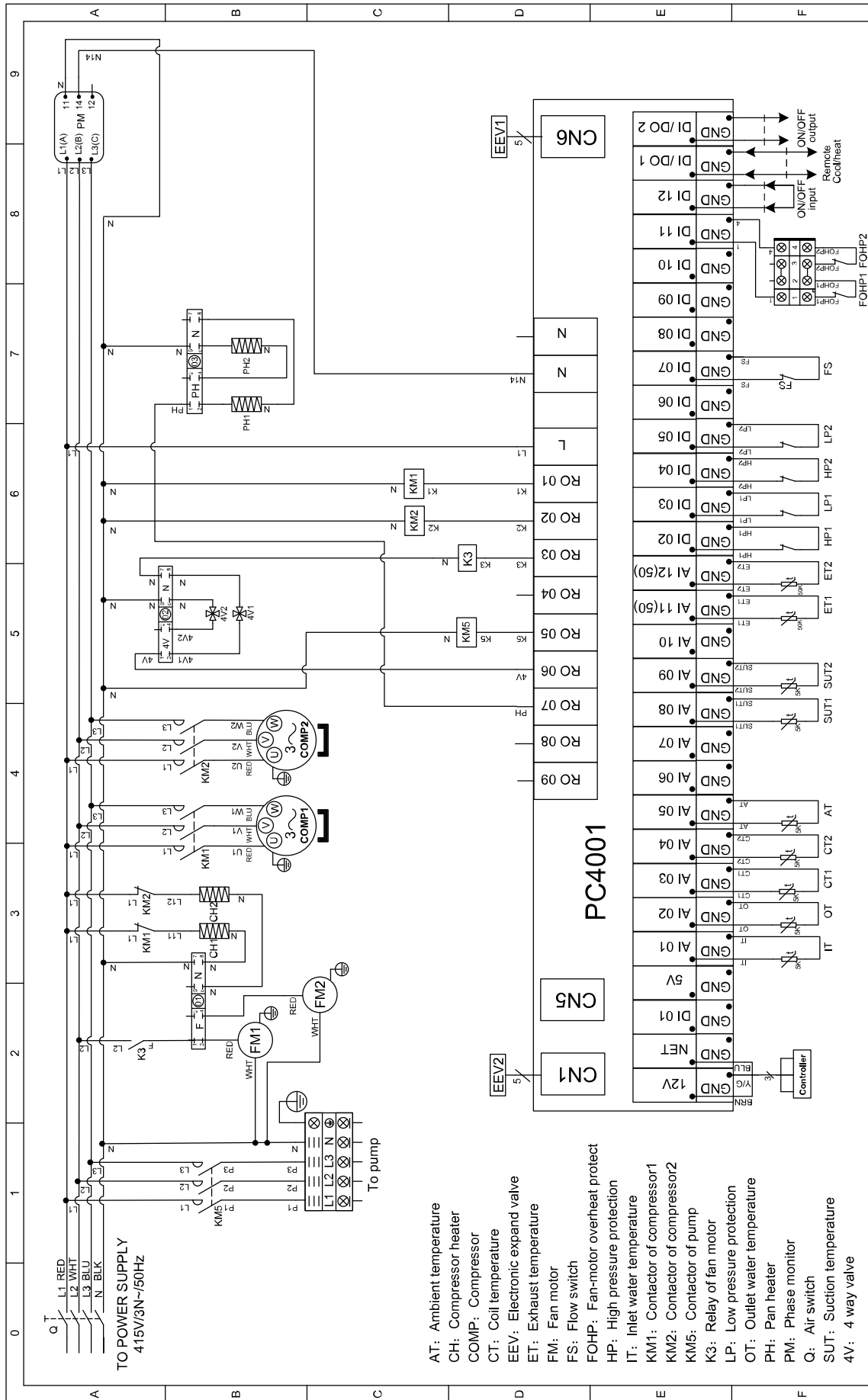
Single Phase Unit					
Nameplate maximum current	Phase line	Earth line	MCB	Creepage Protector	Signal Line
No more than 10A	2 x 1.5mm ²	1.5mm ²	20A	30mA less than 0.1 sec	n x 0.5mm ²
10~16A	2 x 2.5mm ²	2.5mm ²	32A		
16~25A	2 x 4mm ²	4mm ²	40A		
25~32A	2 x 6mm ²	6mm ²	40A		
32~40A	2 x 10mm ²	10mm ²	63A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

Three Phase Unit					
Nameplate maximum current	Phase line	Earth line	MCB	Creepage Protector	Signal Line
No more than 10A	3 x 1.5mm ²	1.5mm ²	20A	30mA less than 0.1 sec	n x 0.5mm ²
10~16A	3 x 2.5mm ²	2.5mm ²	32A		
16~25A	3 x 4mm ²	4mm ²	40A		
25~32A	3 x 6mm ²	6mm ²	40A		
32~40A	3 x 10mm ²	10mm ²	63A		
40~63A	3 x 16mm ²	16mm ²	80A		
63~75A	3 x 25mm ²	25mm ²	100A		
75~101A	3 x 25mm ²	25mm ²	125A		
101~123A	3 x 35mm ²	35mm ²	160A		
123~148A	3 x 50mm ²	50mm ²	225A		
148~186A	2 x 70mm ²	70mm ²	250A		
186~224A	2 x 95mm ²	95mm ²	280A		

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

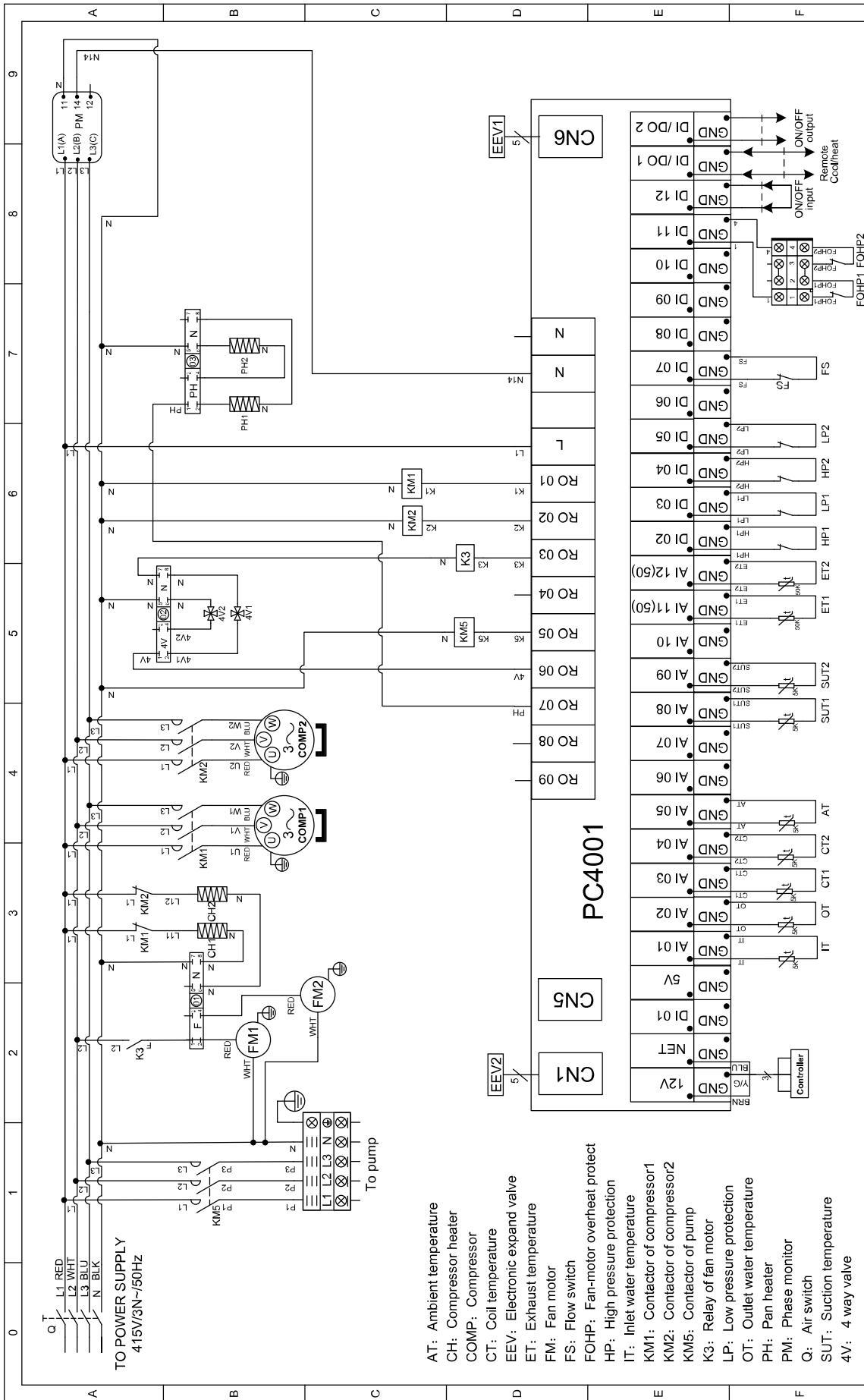
7.3 Wiring Diagrams



- 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
- HP: High pressure protection
- IT: Inlet water temperature
- KM1: Contactor of compressor1
- KM2: Contactor of compressor2
- KM5: Contactor of pump
- K3: Relay of fan motor
- LP: Low pressure protection
- OT: Outlet water temperature
- PH: Phase heater
- PM: Phase monitor
- Q: Air switch
- SUT: Suction temperature
- 4V: 4 way valve

CODE: 20121207-0005

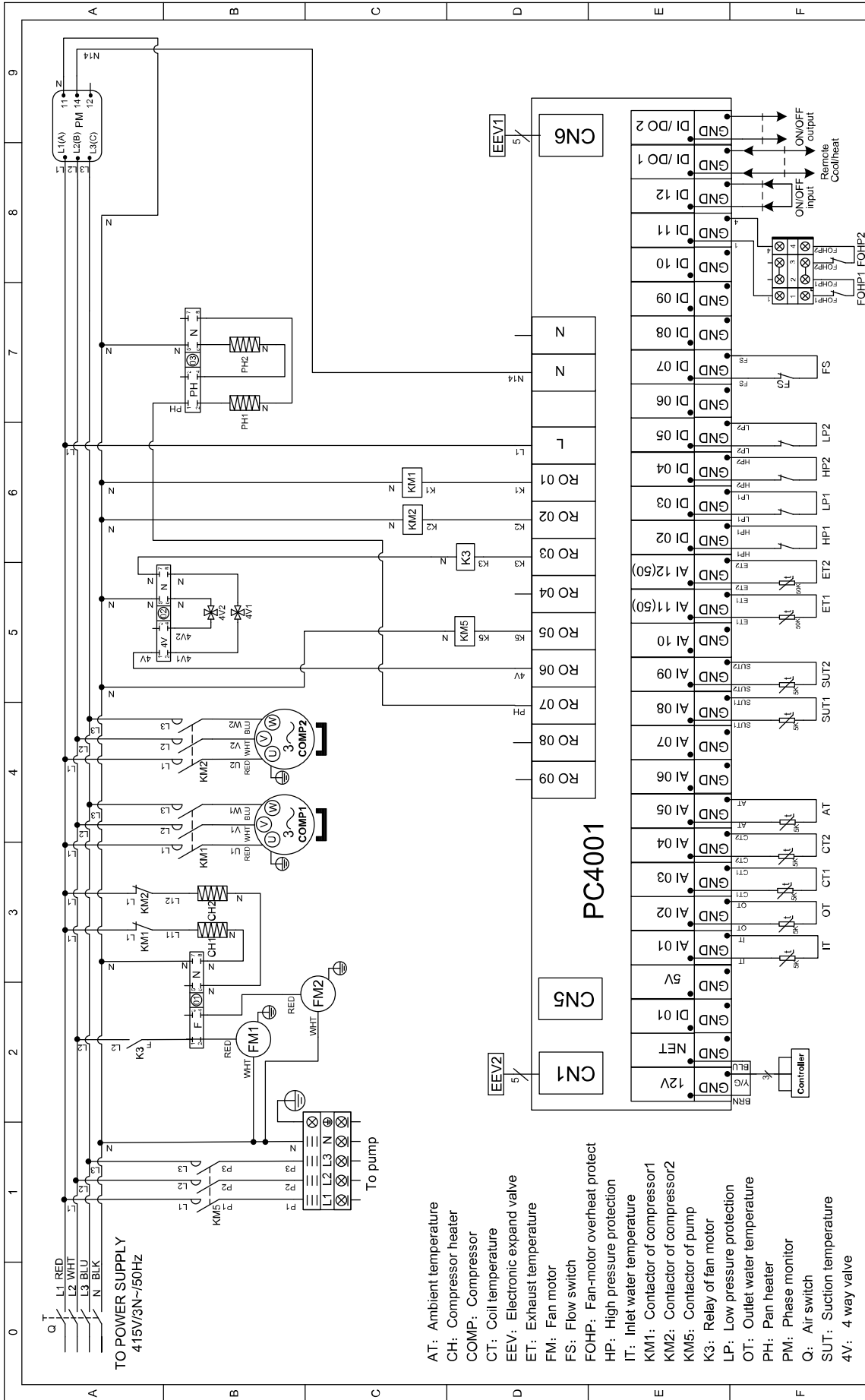
CS38



- 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
- HP: High pressure protection
- IT: Inlet water temperature
- KM1: Contactor of compressor1
- KM2: Contactor of compressor2
- KM5: Contactor of pump
- K3: Relay of 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

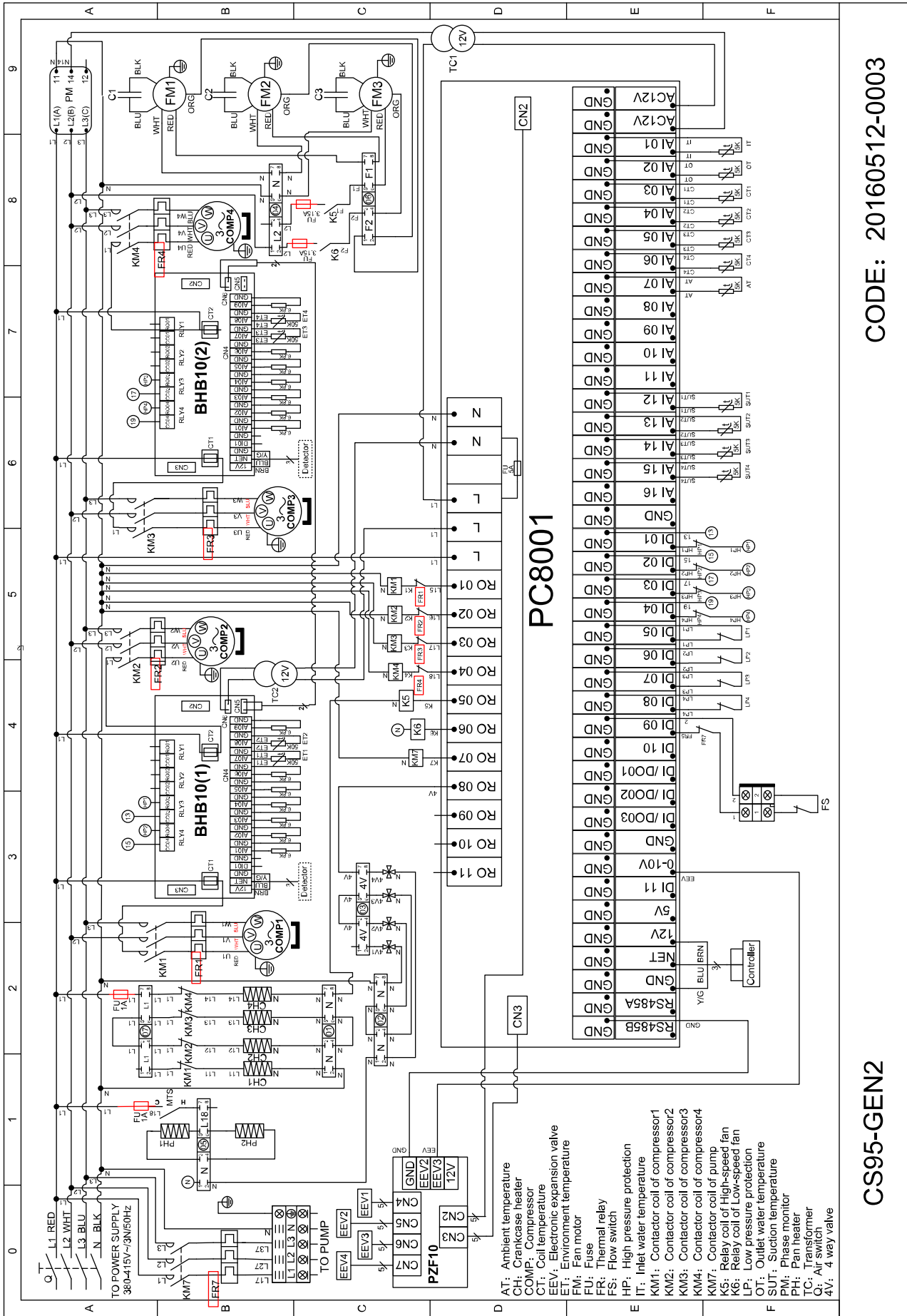
CODE: 20121207-0005

CS47



CODE: 20121207-0005

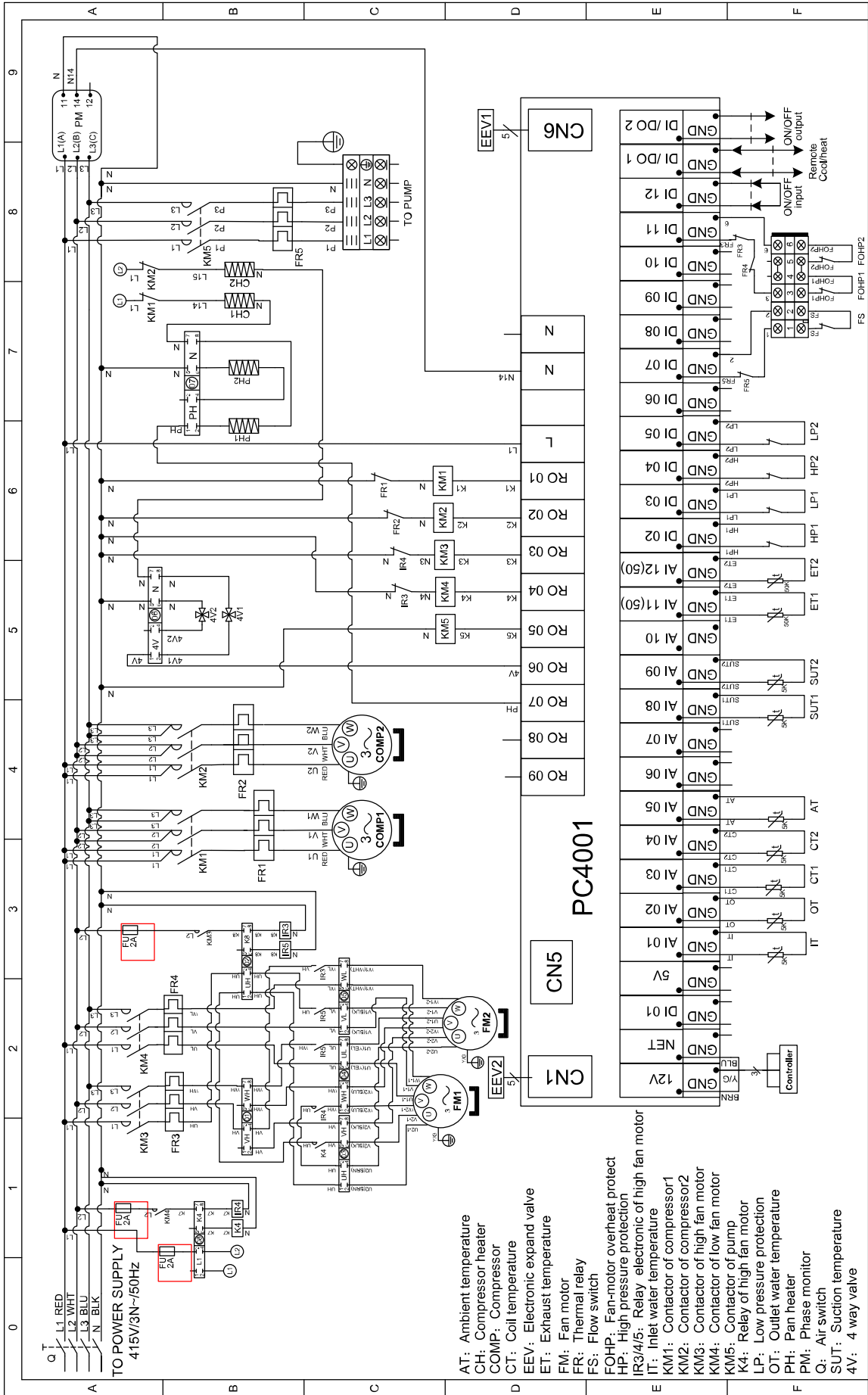
CS57



- AT: Ambient temperature
- CH: Crankcase heater
- COMP: Compressor
- CT: Coil temperature
- EEV: Electronic expansion valve
- ET: Environment temperature
- FM: Fan motor
- FU: Fuse
- FR: Thermal relay
- FS: Flow switch
- HP: High pressure protection
- IT: Inlet water temperature
- KM1: Contactor coil of compressor1
- KM2: Contactor coil of compressor2
- KM3: Contactor coil of compressor3
- KM4: Contactor coil of compressor4
- KM7: Contactor coil of pump
- K5: Relay coil of High-speed fan
- K6: Relay coil of Low-speed fan
- LP: Low pressure protection
- OT: Outlet water temperature
- SUT: Suction temperature
- PM: Phase monitor
- PH: Pan heater
- TC: Transformer
- 4V: 4 way valve

CODE: 20160512-0003

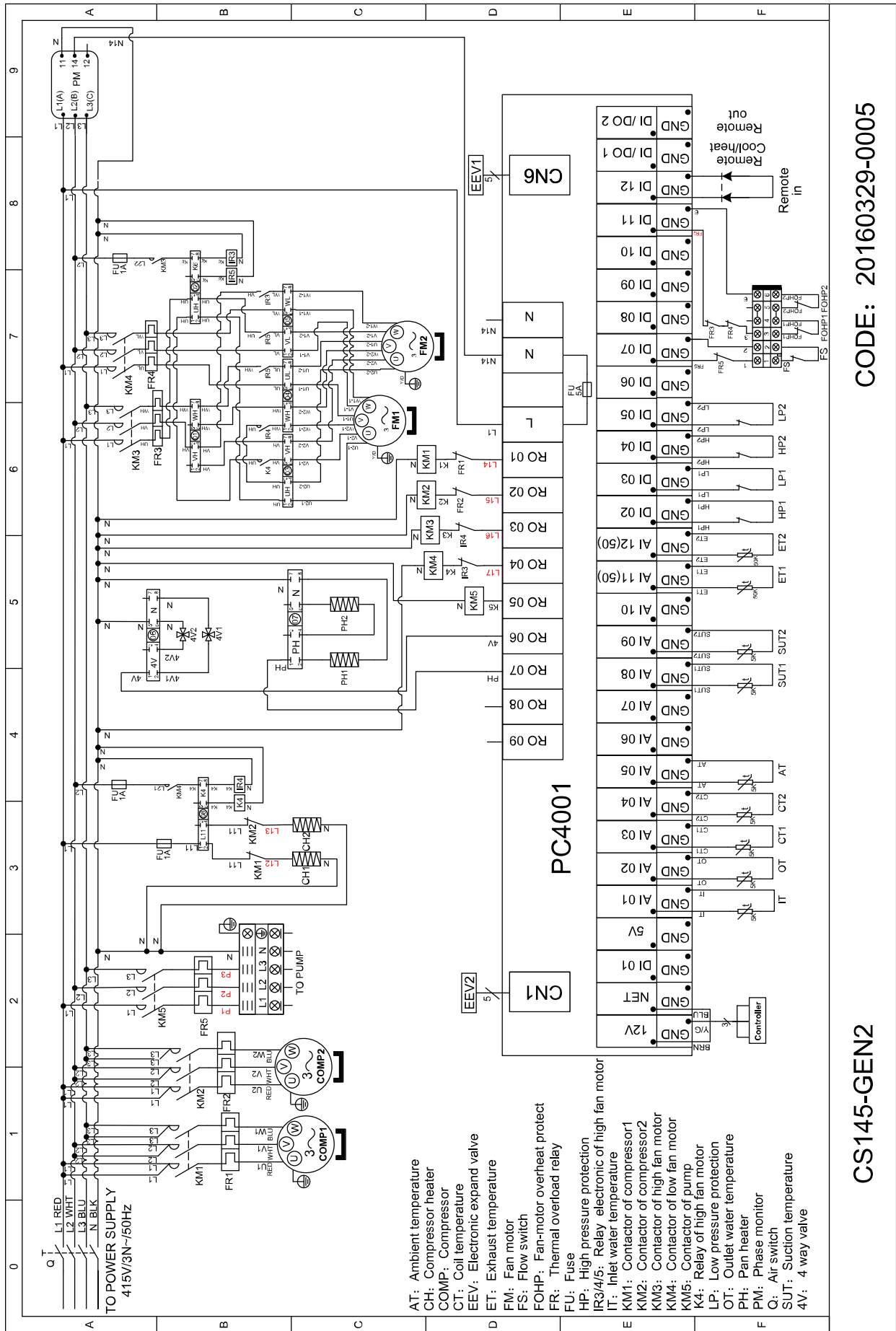
CS95-GEN2



- 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

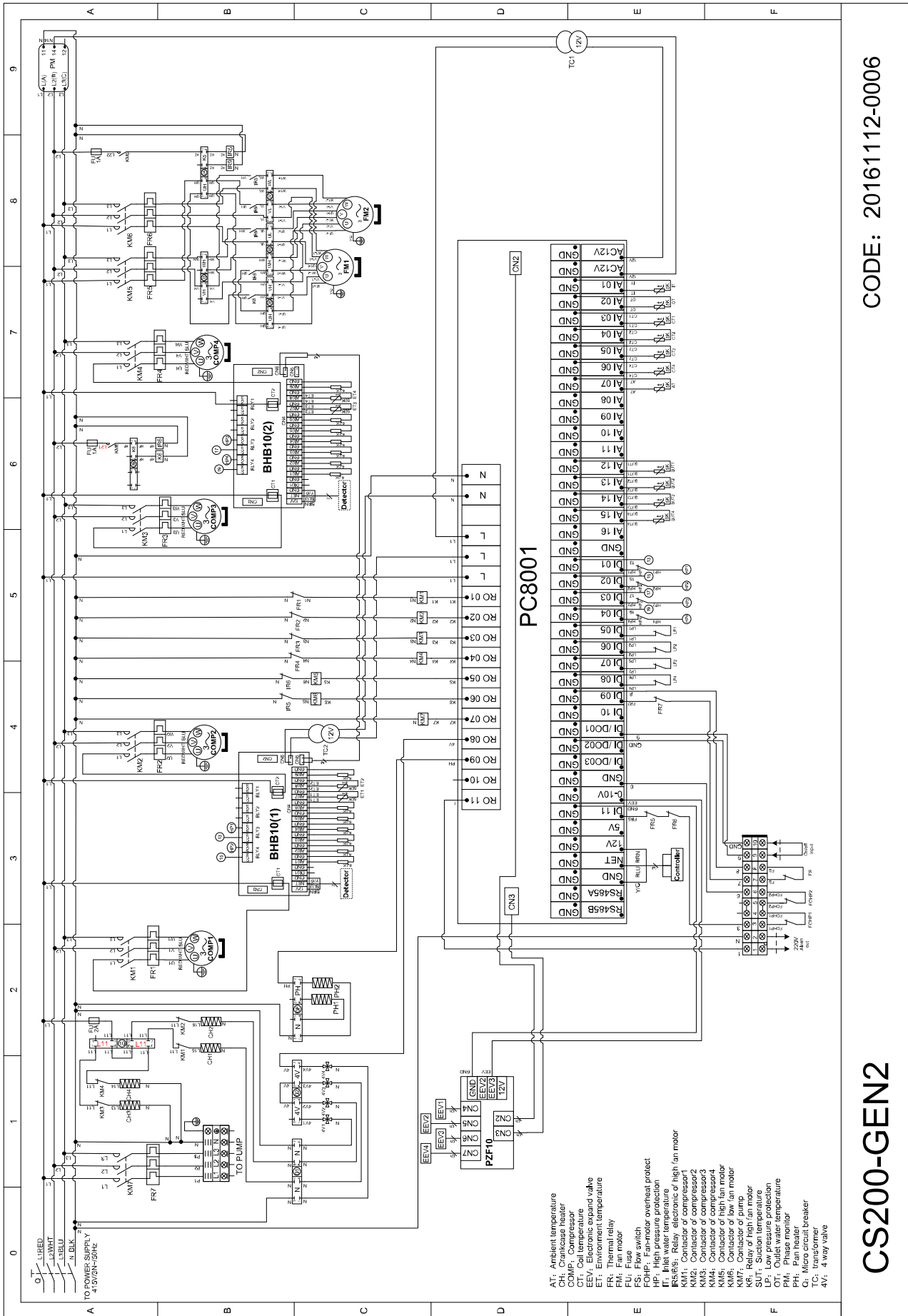
CS120-GEN2



CODE: 20160329-0005

CS145-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



- AT: Ambient temperature
- CH: Crankcase heater
- COMP: Compressor
- CO: Coil
- EEV: Electronic expand valve
- ET: Environment temperature
- FR: Thermal relay
- FM: Fan motor
- FU: Fuse
- FU: Fuse switch
- FOHP: Fan motor overheat protect
- HP: High pressure protection
- IT: Inlet water temperature
- IR5/6: Relay electronics of high fan motor
- KM1: Contactor of compressor
- KM2: Contactor of compressor
- KM3: Contactor of compressor
- KM4: Contactor of compressor
- KM5: Contactor of high fan motor
- KM6: Contactor of low fan motor
- KM7: Contactor of pump
- KST: Relay of high fan motor
- SUT: Station temperature
- LP: Low pressure protection
- OT: Outlet water temperature
- PH: Phase monitor
- PH: Phase monitor
- Q: Microcircuit breaker
- TC: transformer
- 4V: 4 way valve

CODE: 20161112-0006

CS200-GEN2

8. Maintenance



DO I NEED TO GET MY UNIT SERVICED?

It is recommended that you get your EvoHeat unit serviced 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.

Check the water inlet/outlets often for leaks. You should avoid the condition of no water or air entering into the system, as this will influence unit's performance and reliability.

You should clear the pool/spa filter regularly to avoid damage to the unit as a result of the dirty or clogged filter.



WHAT SHOULD I BE CHECKING REGULARLY?

The area around the unit should be dry, clean and well ventilated. Make sure there is nothing blocking the airflow of the heater e.g. Leaf litter.

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.

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

8.1 Energy Saving Tips

If pool water is allowed to cool significantly, it may take several days to return to the 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.

- 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



Refer to the EvoHeat website for warranty details

<https://evoheat.com.au/warranty-terms/>

REGISTER YOUR WARRANTY



EvoHeat highly recommend customers 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/>

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) Damage resulting from any animal or creature (including vermin, reptiles and insects)
 - c) Rust or damage to exterior coatings, materials, and cabinet caused by corrosive atmosphere or weather/environmental conditions.
 - d) When serviced by an unauthorised person without the permission of Evo Industries.
 - e) When a unit is installed by an unqualified person.
 - f) When failure occurs due to improper or incorrect installation.
 - g) Where failure occurs due to failure of any other equipment connected in relation with the EvoHeat unit (e.g. power supply, water pump etc.).
 - h) Where failure occurs due to improper maintenance or misuse (refer Operating Instructions).
 - i) Where the unit has not had its three-year general maintenance service performed by a certified plumber. Proof of this service will be required for warranty claims beyond three years.
 - j) 'No Fault Found' service calls where the perceived problem is explained within the operation instructions.
 - k) Costs associated with delivery, handling, freighting, or damage to the product in transit.
 - l) Where the unit has been relocated from its originally installed location.
4. If warranty service is required, you should:
 - a) Contact Evo Industries Australia on 1300 859 933 or via our Contact page on our website.
 - b) Provide a copy of your receipt as proof of purchase.
 - c) Have completed the online Service Request Form via the website www.evoheat.com.au/service-request/
5. Onsite technical service is available within the normal operating area of your Evo Authorised Service Agents. 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.