



OPA 465–960 RKTB (c/w UC6) Air Cooled Packaged Units - Reverse Cycle - R410A Installation & Maintenance

1. GENERAL

Follow these instructions to ensure the optimum performance, reliability and durability.

Units must be installed in accordance with all national and regional regulations and bylaws. National Health and Safety regulations must be followed to avoid personal injuries.

The appropriate local permits must be acquired and adhered to.

Local regulations on maximum boundary noise need to be considered when positioning the unit.

GENERAL

2. INSTALLATION

Refer to dimension diagrams below (Fig.1) for minimum clearances. If multiple units are to be placed side-by-side then allow at least 2m between coil faces.

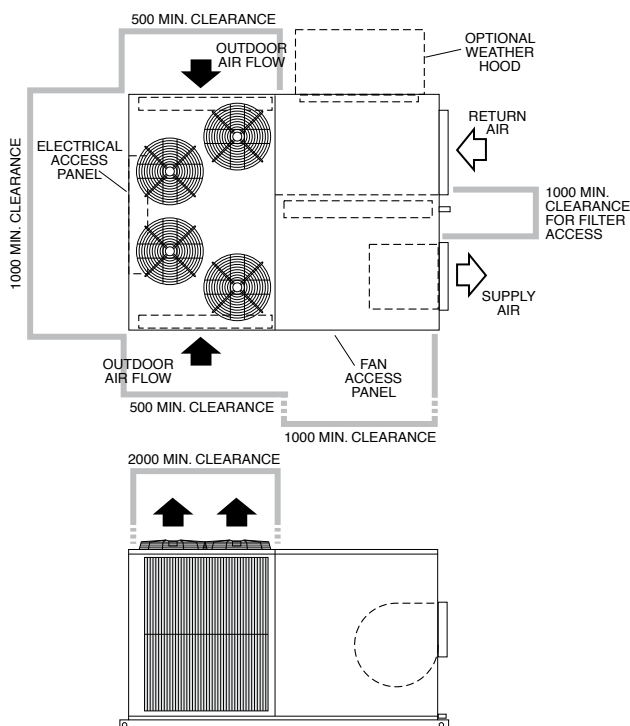


Figure 1.

2.1 Mounting

The unit should be fastened to a firm flat horizontal base using the holes supplied in the mounting channels. When the unit is being installed on a roof it is recommended that the unit is installed on a substantial structure with vibration isolating springs beneath the unit. These springs are not supplied with the unit.

Flexible duct connections are recommended between the supply and return ducts and the unit.

Unit is shipped with wooden blocks installed under the compressors. Ensure these blocks are removed from the compressor feet prior to starting the unit (not required for operation).

Factory filter slides are fitted. Access to the filter access door should be considered when designing return and supply air ductwork. Access to the filters can still be achieved by removing the return air access door, however it is imperative that the rubber insulating washers be refitted to the screws prior to replacing the panel.

2.2 Condensate Drain

The condensate drain should be 'U' trapped outside the unit. The trap should have a vertical height of at least 100 mm. The drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain pipe. (refer fig. 2)

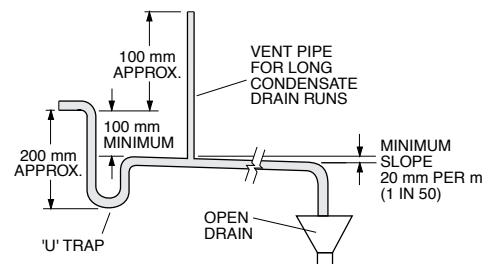


Figure 2.

INSTALLATION

3. REFRIGERATION SYSTEM

3.1 General

The OPA 465–960 models have two independent refrigeration circuits and two compressors to provide the flexibility and economy of two stage operation, i.e. utilising one or two circuits as conditions vary, plus the advantage of staggered starting.

Units are supplied with a UC6 service interface display fitted for ease of service, maintenance and trouble shooting. Operating pressures and status can be read from its various display screens (refer user manual).

Each refrigeration system has been charged with HFC-410A (R410A) refrigerant; refer wiring diagram specification table for amount. This charge is based on nominal capacity, nominal conditions and nominal airflow and is sufficient under these conditions to maintain a refrigerant superheat of approximately 6 Kelvin. If the unit is installed in subtropical or tropical conditions, has a high fresh air content or has been installed with maximum supply air quantity, the superheat should be checked and if found to be above 6 Kelvin, refrigerant may need to be added to the system to return the superheat to the factory required state. These readings should be taken with each stage operating independently and after the space has achieved conditions. The additional charge should be recorded for future reference.

3.2 Compressors

The compressors are directional scroll type. The compressor lubricant is polyolester oil (POE). Note, this oil absorbs moisture quickly if exposed to open air.

On commissioning, the compressors must be checked for correct rotation (refer Start Up Procedure). A time delay prevents simultaneous starting of the compressors.

3.3 Economiser (Option)

If the outdoor air temperature or heat (enthalpy) content preferably, is below that of the return air the fresh air damper opens and the return air damper closes to provide the first stage of cooling. The fresh air damper should return to minimum setting and the return air damper open before the compressors are allowed to operate to provide further cooling.

3.4 Setting Supply Air Flow

If the indoor air returning to the unit is regularly expected to be above 50%RH, then the coil face velocity should be limited to be 2.5 m/s or less (refer Air Handling graph on page 5).

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Select a fan speed that avoids water carry-over problems.

In a free blow or low resistance application, beware of exceeding the fan motor's full load amp limit (refer wiring diagram).

The indoor air fan motor is fitted with a factory set adjustable pitch pulley. Instructions for the adjustment of pulleys is included on the back page of the supplied Commissioning Sheet. One revolution of adjustment is equal to approx. 7% change in air volume flow rate.

4. WIRING

4.1 Electrical Requirements

Electrical work must be done by a qualified electrician.

DANGER LIVE ELECTRICAL CONNECTIONS. ONLY QUALIFIED PERSONS WHO ARE COMPETENTLY TRAINED SHOULD PERFORM SERVICE AND MAINTENANCE TASKS.

The unit must be wired directly from a distribution board by means of a circuit breaker or H.R.C. fuse, and a mains isolator provided - preferably close to the unit.

Note: DO NOT USE REWIRABLE FUSES.

The OPA unit is provided with a 24V ac control circuit thermostat (TZZ Optional), on/off switch and/or time clock, field supplied and fitted. The control transformer 240V primary is used for countries with 230-240V power supply. Alternatively control can be via a Modbus connection.

For countries with supply voltages 200-220V, change the primary voltage on the transformer to 208V.

Standard units are suitable for use with thermostats with either manual Heat/Cool selection or automatic changeover subject to the contact ratings of the thermostats.

A 24 hour power supply to the compressor crank case heaters is required, otherwise the warranty is void.

4.2 Unit Controller (UC6)

The temperzone Unit Controller 6 (UC6) combines the μ PC controller board from Carel plus an interface board to connect temperzone standard sensors and plugs. The UC6 receives requests such as "Unit On/Off", "Start 1 or 2 compressors", "Activate HEAT (Reverse

Cycle)" and transfers these requests to the outputs after enforcing safety timers. The UC6 ensures unit safety by continuously monitoring input signals such as pressures and temperatures. Beside the normal controls and unit safety the UC6 has many other functions, for example head pressure control, capacity control, superheat control, serial communications and more.

The Unit Controller provides system protection functions such as coil frost protection, de-icing, high head pressure and low suction pressure cut-out. It also protects against rapid cycling of the compressor(s) and loss of refrigerant. The UC6 regulates the superheat of the refrigeration system by controlling the position of an electronic expansion valve (EEV). Various methods of head pressure control (or limiting) are employed in temperzone units. The particular method used varies from model to model, but is also handled by the Unit Controller. In combination, these features deliver optimised performance across a wide operating temperature range.

As a result of the UC6's control of these inter-related functions, the outdoor fans may take some time to start rotating after each compressor start. They may also run on when the compressor stops. The fans will stop during a de-ice cycle and the speed will vary either smoothly, or in steps, in order to protect against excessively low or high head pressure.

Refer to temperzone for operation & fault diagnostics information OR www.temperzone.biz.

5. STARTUP PROCEDURE

5.1 Pre-Startup

1. Leave the external temperature controller on/off switch in the off position and close the unit's mains isolating switch. A four hour delay period is required to allow the crankcase heaters to drive any liquid refrigerant out of the compressor oil.
2. Check that the shipping blocks beneath each compressor have been removed and that each compressor is secure on its mounts
3. Check that all fan motors are free running.
4. Check that the thermostat is correctly wired to the unit and is set at the desired temperature.
5. Check that the air filters have been correctly installed if fitted.
6. Check air diffuser dampers are open.
7. Check and tighten all electrical connections.

5.2 Commissioning

Use the supplied Commissioning Sheet to help you complete the following procedure:

1. After the four hour delay period has crankcase heater thermostat has been reconnected.
2. Check the supply voltage between each phase and neutral.
3. Compressors fitted are directional. Check for correct rotation. If rotation is incorrect the compressor will not pump, be noisy, and will draw minimal current. To correct motor rotation, change the phasing at the main power terminal. If changing the phasing, check the indoor air fan then runs in the correct direction also.
4. Measure the current draw on each phase to the compressor motors and measure the current draw of each fan motor. Check all readings against the specified values in the wiring diagram.
5. Use the on board UC6 Service Interface display (if supplied) or fit R410A compatible gauges and measure the suction and discharge pressures of both refrigeration circuits.
6. Check that the outdoor air fan motors are running smoothly.
7. Test the operation of the reversing valve in cooling and heating mode (refer Commissioning Sheet).
8. Check the supply air flow at each outlet after commissioning of fans
9. Check the tightness of all electrical connections and sign the check label.
10. Touch up any outdoor unit paintwork damage to prevent corrosion

6. OPERATION

6.1 Remote on/off

The remote on/off function can be enabled or disabled by using the UC6 Service Interface (option).

When the function is enabled the remote on/off signal must connect to input **DI7**, signal return is **DIC1**. The remote on/off signal must be an external voltage free switched relay contact.

The unit is active when DI7 is connected to DIC1.

6.2 High pressure protection (HP)

If high pressure transducers are connected to inputs **HP1** and **HP2** then a compressor is switched off when the discharge line pressure reading exceeds 42.0bar.

Instead of high pressure transducers some systems may be fitted with high pressure switches. These also connect to inputs **HP1** and **HP2**. When a high pressure switch activates (electrical circuit opens) the compressor is stopped.

Similarly, if the condensing temperature reported by an outdoor coil temperature sensor (connected to **TS1** and **TS2**) reports a coil temperature above +66°C (cooling mode) the compressor is switched off.

The UC6 will automatically reduce capacity of a digital scroll compressor before the maximum value of 42bar / 66°C is reached.

When a compressor is stopped due to high pressure it is held off for a period of 3 minutes, after which it is allowed to restart (provided pressure has fallen well below the maximum).

If three consecutive trips occur then the unit will be "locked out". The trip counter is reset to 0 when there has been no compressor run request for longer than 60 minutes.

Display indication when protection is active - number 4 (flashing)

6.3 Loss of refrigerant protection (LOR)

When a compressor is running the UC6 continuously monitors the various temperatures. The controller software applies logic that enables it to determine whether the system has an adequate amount of refrigerant. Signals used for this check are mid-coil temperatures (**TS1**, **TS2**), suction temperatures (**ST1**, **ST2** and discharge line pressures (**HP1** and **HP2**, if present).

The check is not made during the first 5 minutes after a compressor is started to allow pressures and temperatures to settle.

If the compressor is a variable speed type or a digital scroll type then the check is made only when the capacity is at 100%.

When a compressor is stopped due to loss of refrigerant it is held off for a period of 3 minutes, after which it is allowed to restart.

If three consecutive trips occur then the unit will be "locked out". The trip counter is reset to 0 when there has been no compressor run request for longer than 60 minutes.

Display indication when protection is active - number 3 (flashing)

6.4 Indoor coil frost protection (FROST)

When the unit is cooling the evaporating temperature in the indoor coil must remain above -10°C (adjustable from -10°C to -2°C by using a UC6 service tool). If this temperature falls below the threshold then some amount of ice (frost) is likely to have formed on the indoor coil.

When indoor coil frost protection is activated the compressor is stopped for 15 minutes, after which it is allowed to restart.

If three consecutive trips occur then the unit will be "locked out". The trip counter is reset to 0 when there has been no compressor run request for longer than 60 minutes.

Display indication when protection is active - number 7 (flashing)

6.5 High discharge line temperature protection (HDT)

The controller monitors the discharge line temperature (inputs **DT1**, **DT2**) and should it rise above 110°C the compressor will be stopped.

When high temperature protection is activated the compressor is stopped for at least 3 minutes. The compressor is allowed to restart after 3 minutes provided that the discharge line temperature has fallen to below 100°C.

If three consecutive trips occur then the unit will be "locked out". The trip counter is reset to 0 when there has been no compressor run request for longer than 60 minutes.

Units with a variable compressor or digital scroll compressor will automatically reduce capacity before the discharge temperature rises close to the threshold.

Display indication when protection is active - number 9 (flashing)

6.6 Compressor lock-out

Certain faults (as outlined in the preceding paragraphs) can cause the unit to be "locked out" if they occur three consecutive times while the compressor-run request has remained active. When a unit is locked out the compressor is not allowed to start until the lock-out is manually reset. Lock-out protects the unit from repeatedly starting the compressor when a serious fault exists that requires the attention of a service technician.

When a unit is locked out the alarm relay output (**NO7**, **NC7**) will be active.

A unit that is locked out can be reset by either of the following two methods:

1. Remove mains power from the unit for at least 3 seconds, then restore power.
2. Use a UC6 service tool service tool to manually reset the lock-out condition.

Display indication when protection is active - letter F (flashing)

6.7 Sensor alarm

If the signal of a temperature sensor or pressure transducer is out of normal operating range the UC6 will generate an alarm. The sensor may be faulty, disconnected or short circuit.

Display indication temperature sensor alarm - number 5 (flashing)

Display indication pressure transducer alarm - number 6 (flashing)

7. TEST MODE

Test mode can only be activated when both compressors are OFF.

To start test mode press and hold down the push button on the lower board between 1 and 5 seconds.

In test mode each output is activated for 5 to 10 seconds, one output at a time. When test mode completes the unit automatically returns to normal operation.

Display indication during test mode - letter A

8. COMMISSIONING MODE

To start commissioning mode press and hold down the push button on the lower board between 10 and 15 seconds.

In commissioning mode all time delays are reduced to 1/10th their standard value to enable rapid diagnostic testing.

Commissioning mode automatically completes after 30 minutes and the unit will return to normal operation. Cycling mains power off and on again also ends commissioning mode.

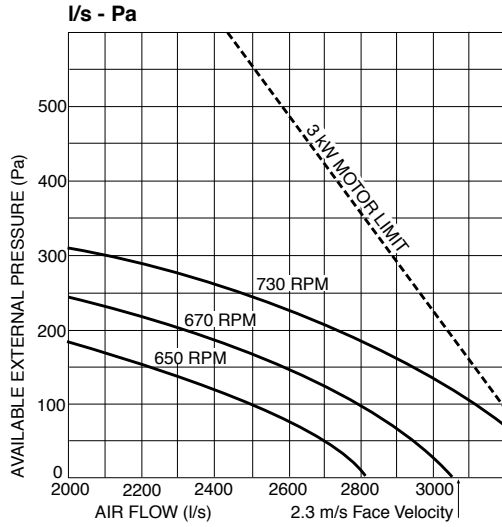
Display indication during commissioning mode - letter C

9. PERFORMANCE DATA

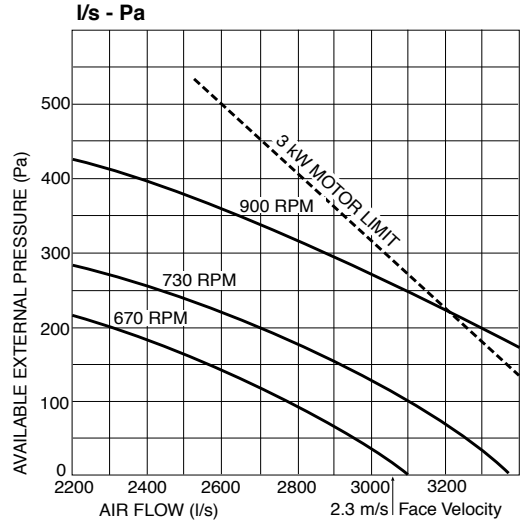
Air Handling

Note: Airflows are for a dry coil. Reduce airflow by 5% in high moisture removal conditions. In a free blow or low resistance application, beware of exceeding indoor fan motor's full load amp limit (refer wiring diagrams). As filters are optional, the fan air flows given are for units installed without filters.

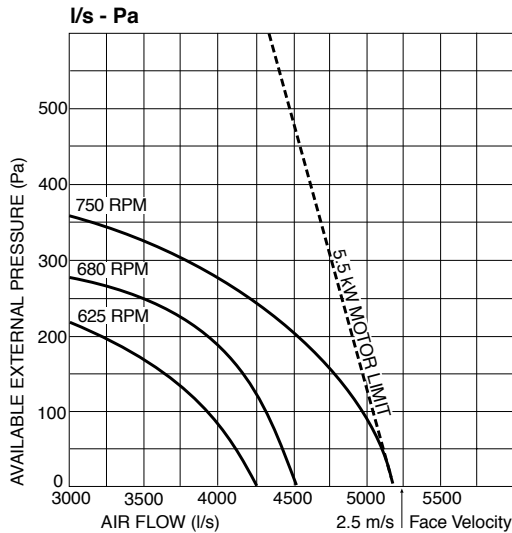
OPA 465



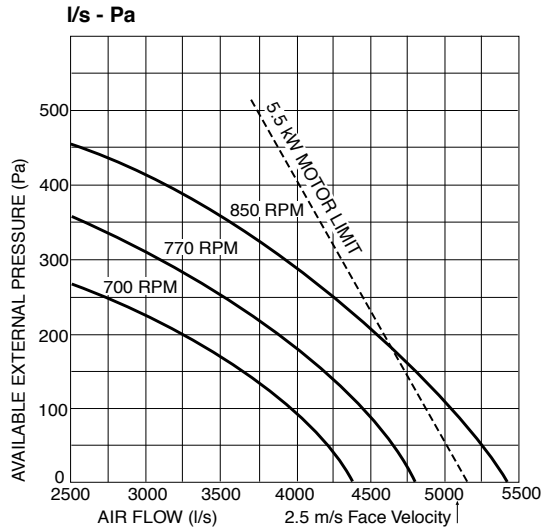
OPA 550



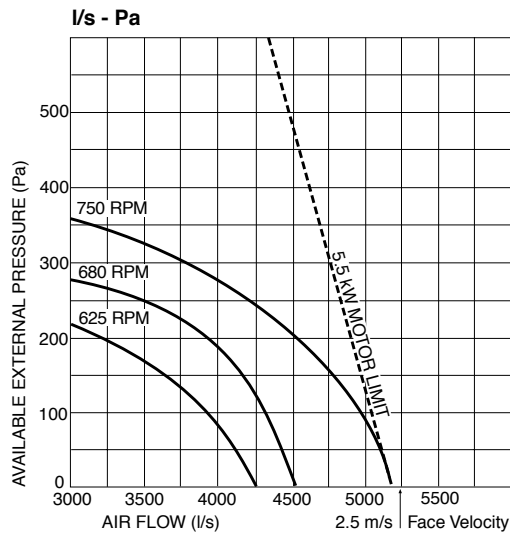
OPA 705



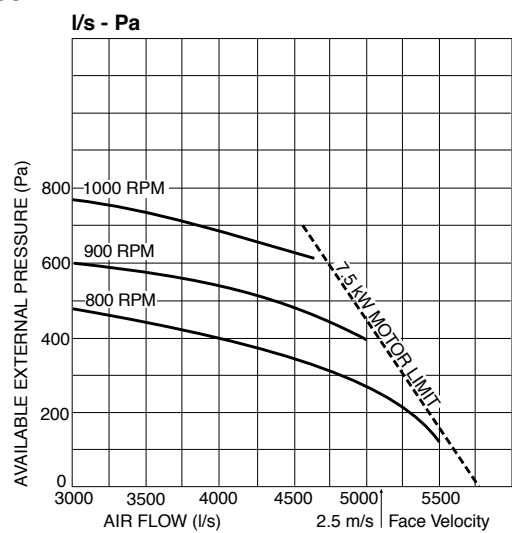
OPA 800



OPA 850/855



OPA 960

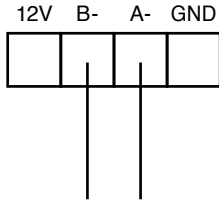


10. CONTROLS

10.1 Modbus Connections

The bridging wires should be screwed to terminals A and B separately and should be long enough to be used as the bridging cables between the 24 V hot terminal and compressors 1 and 2. If in the event a TZT is not used, they can stay there and not be of anyone's concern. If on the other hand a TZT with Modbus is used, the installing contractor will see the label and wires and then wire them to the 24 volt terminals.

RS485 Terminal on UC6



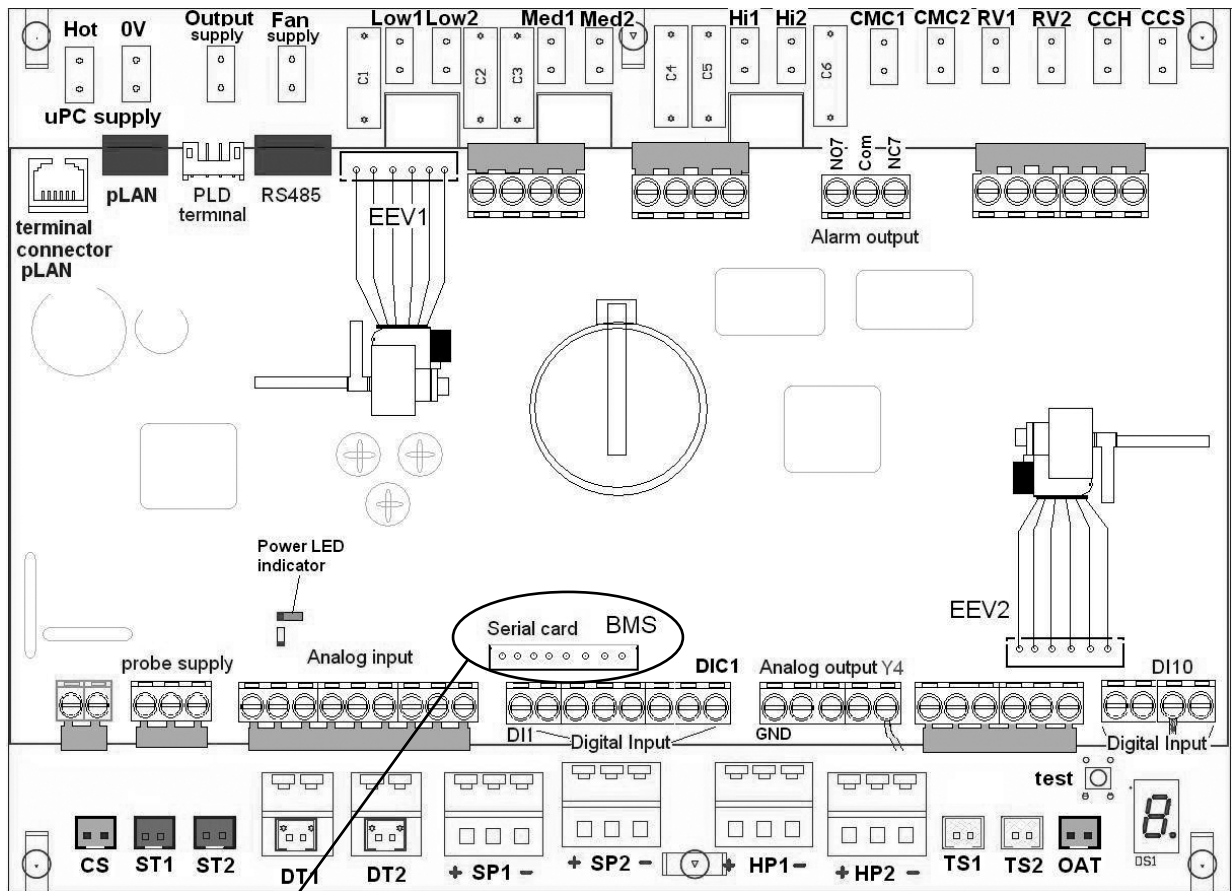
TZT Controller Installation

If a TZT-100 controller is used in Modbus format these cables should be wired to the following terminals on the low voltage input terminal strip.

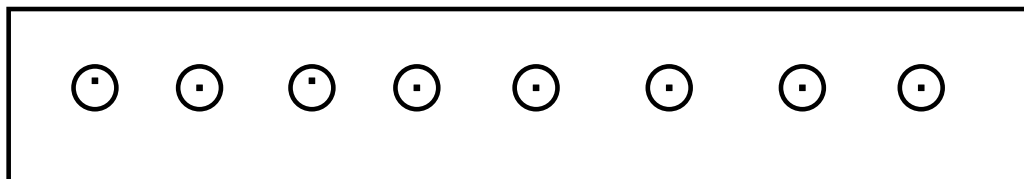
- 24V Hot terminal to Comp 1
- Comp 1 terminal to Comp 2 terminal

Please disregard this instruction if non-Modbus controllers are used.

Lower Board Connections



Serial Card BMS



CONTROLS

11. COMMUNICATION PORTS

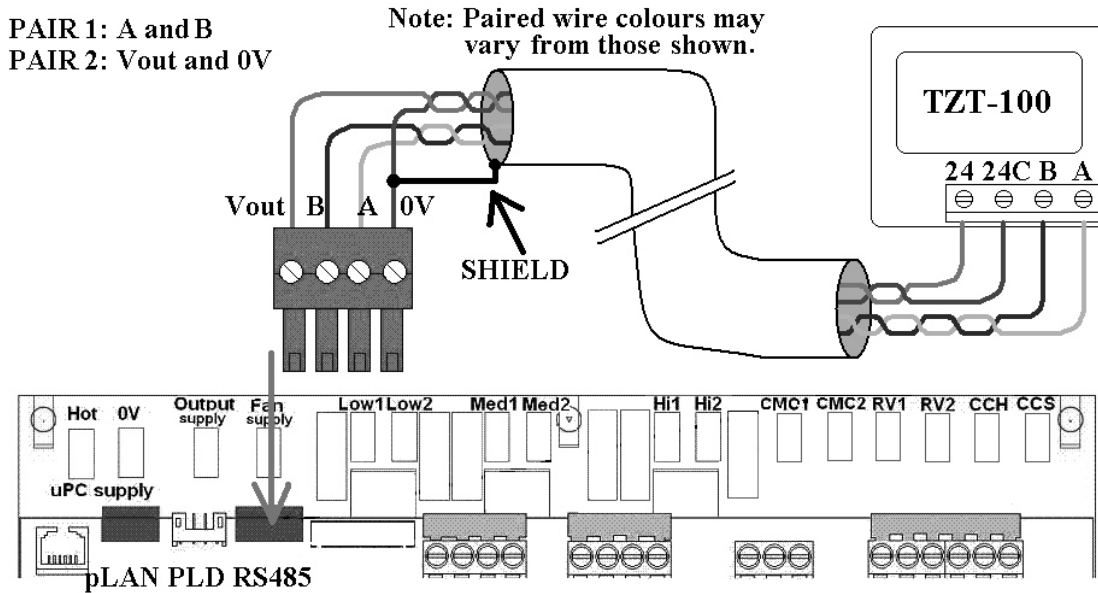
11.1 Several types of communication ports are available on the UC6.

COMM PORT	Signal	Notes
RS485 ¹	Modbus / CAREL RS485	Thermostat, Inverter
pLAN	UC6 service tool	Programmable graphic display
PLD ¹	Fieldbus (RS485 or TLan)	Supervisory System
BMS	Modbus RS485, or BACnet TCP/IP	Available only with additional plug-in module connected to the "BMS" connector (adjacent to the Digital Input connector).

Note 1: Connectors to the UC6 show R+/T+ for signal A, R-/T- for signal B.

11.2 Temperzone TZT-100 thermostat connection

The UC6 can connect directly to the temperzone TZT-100 thermostat using a shielded cable with two twisted pair wires suitable for RS485 serial communications. The drawing below shows connection details.



12. MAINTENANCE

WARNING HAZARDOUS VOLTAGE. ENSURE ALL POWER SUPPLIES ARE ISOLATED BEFORE PERFORMING MAINTENANCE. FAILURE TO ISOLATE POWER CAN LEAD TO SERIOUS INJURY.

12.1 Monthly

1. Check air filters, if fitted, and vacuum or wash clean as necessary.
2. Check condensate drain for free drainage.
3. Check compressor compartment for oil stains indicating refrigerant leaks.
4. Check system operating pressures and history using UC6 Service Interface display (option).

12.2 Three Monthly (or every 1200 hrs of operation)

Check the indoor unit's fan belt tension and adjust if necessary.

12.3 Six Monthly

1. Check the tightness of electrical connections.
2. Check the tightness of fans, motor mountings, pulleys and belt tension.
3. Check suction and discharge operating pressures using UC6 service interface display (if supplied) or fit R410A compatible gauges and measure the suction and discharge pressures of both

refrigeration circuits.

4. Check and or replace indoor air filters
5. Check condensate drain for free drainage.

12.4 Yearly

1. Check all refrigerant piping for chafing and vibration.
2. Check the operation of electric heaters, if fitted
3. Check air supply at all diffusers
4. Check for excessive noise and vibration and correct as necessary.
5. Check for insulation and duct damage and repair as necessary.
6. Check system operating pressures and history using UC6 Service Interface display (option).
7. Remove lint and dust accumulation from outdoor coil fins with soft brush or low pressure water spray.
8. Touch up any paintwork damage to prevent corrosion.

13. TROUBLESHOOTING

13.1 Room temperature varies significantly from its setting

- Unit may have been incorrectly sized for the building.
- Drafts from wrongly placed supply air diffusers or from the back of the wall plaque could be affecting the temperature sensor built into the wall plaque.
- Poor air circulation in the room can cause incorrect temperature readings.

13.2 Air conditioner does not seem to deliver the heating when most needed

- Heating capacity at design conditions may be incorrect. As the outside temperature falls, heat losses through the walls, floor and ceiling increase.
- Check the unit's brochure for information on the minimum/ maximum operating temperatures.

13.3 When heating, units have de-icing cycles built in to remove ice on the outdoor coil.

- This usually means reversing the cycle for a few minutes during which time there is no heating and in fact a little cooling can occur.

13.4 In a new building, why does it take some days before the air conditioning heat pump unit seems to work properly

- Many new buildings, especially a commercial

buildings, have a large amount of concrete and other structural materials that are generally cold and full of moisture. This is most evident in the winter when trying to heat the building from scratch.

13.5 Unit is leaking water

- Check the drain trap/vent/slope before moving on to
- Water carry-over : Reduce the maximum fan speed to the factory default setting.

13.6 Air conditioner runs excessively – the temperature remains too hot in summer or too cold in winter.

- Windows or doors may be opened to non conditioned areas.
- Keep doors to unconditioned areas closed.
- Leaves, papers or other items blocking air flow over the outdoor unit coil.
- Location of wall controller or remote temperature sensor is incorrect.
- Check for leaks in supply or return air ductwork.

13.7 Outdoor unit displays an error code:

- Refer to UC6 Controller label on the unit for operation & fault diagnostics information; model search 'UC6 - www.temperzone.biz

14. WARRANTY

Please refer to the separate warranty document supplied with the unit, or visit www.temperzone.biz for details.

Australia:

warranty@temperzone.com.au

spares@temperzone.com.au

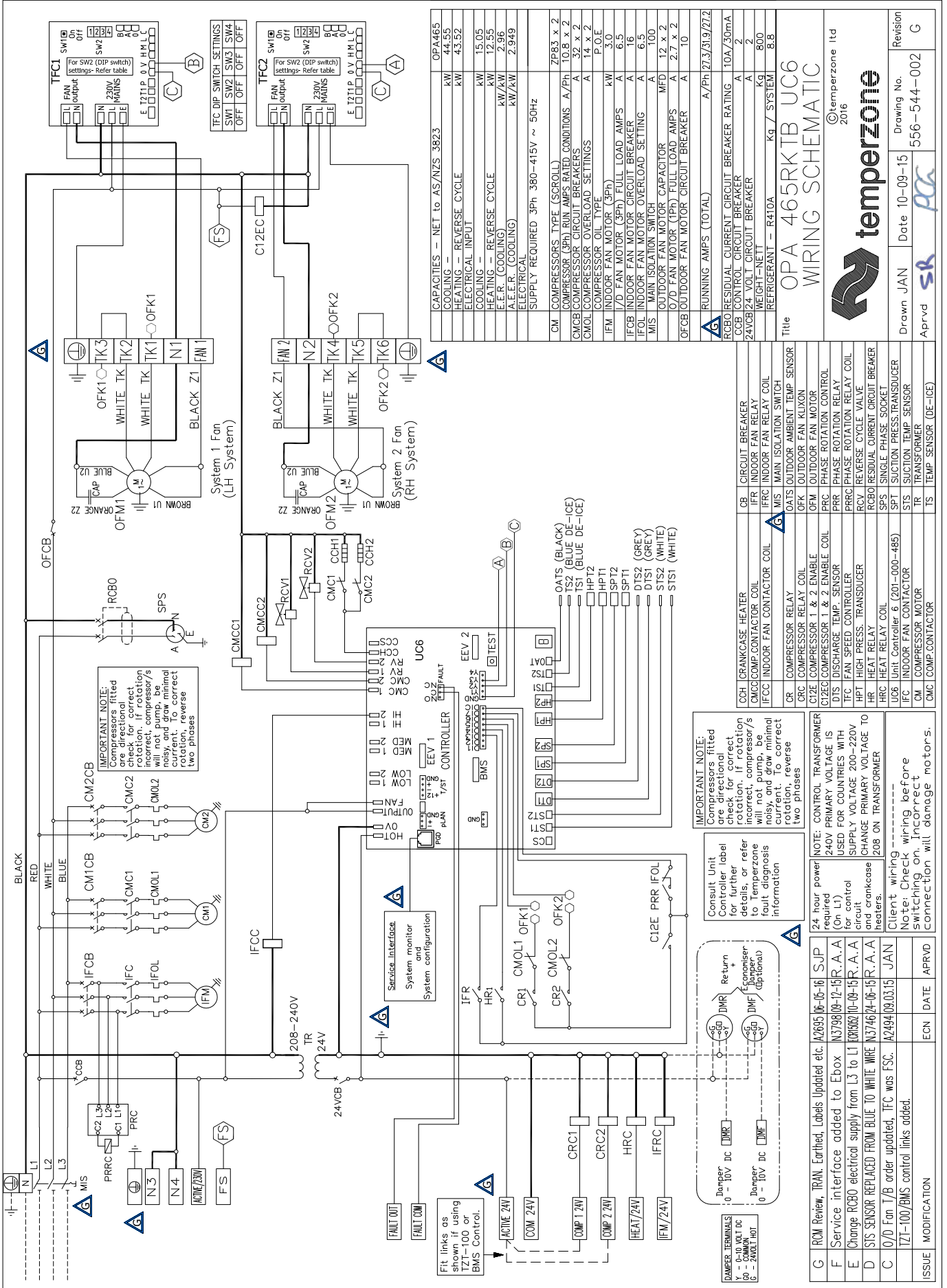
Telephone: 1800 21 1800

New Zealand:

customerservices@temperzone.co.nz

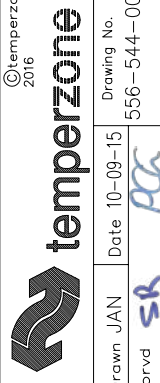
Telephone: 0800 TZWARRANTY

OPA 465RKTB



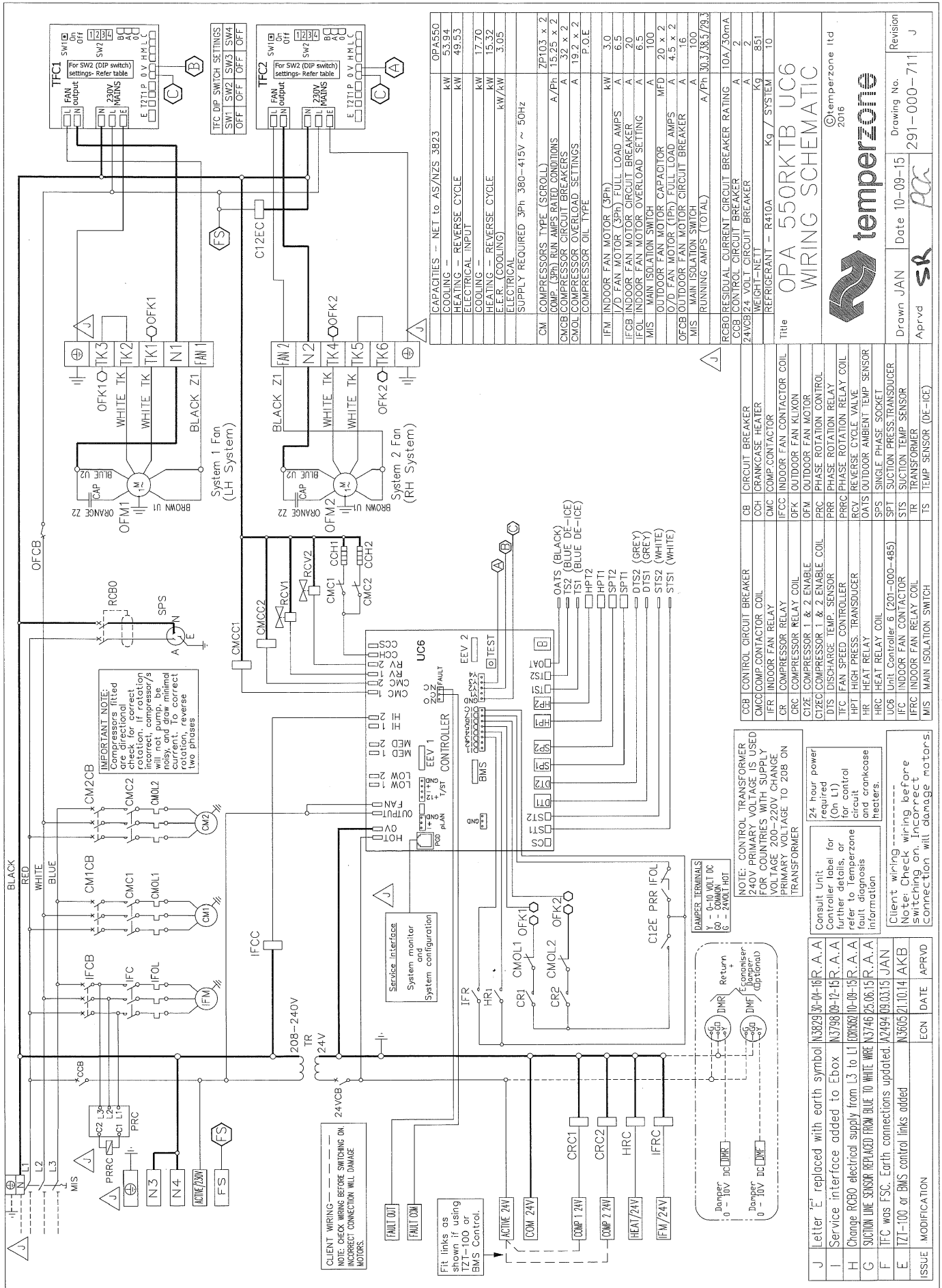
CAPACITIES - NET to AS/NZS 3823	
COOLING	44.55 kW
HEATING	43.52 kW
ELECTRICAL INPUT	
COOLING	15.05 kW
HEATING	12.55 kW
E.F.R. (COOLING)	2.96 kW/kW
E.F.R. (HEATING)	2.949 kW/kW
SUPPLY REQUIRED 3Ph 380-415V ~ 50Hz	
CM COMPRESSORS TYPE (SCROLL)	ZP83 x 2
COMPRESSOR (3Ph) RUN AMPS RATED CONDITIONS A/Ph	10.8 x 2
CMCB COMPRESSOR CIRCUIT BREAKERS	A 32 x 2
CMOL COMPRESSOR OVERLOAD SETTINGS	A 14 x 2
COMPRESSOR OIL TYPE	P.O.F
IFM INDOOR FAN MOTOR (3Ph)	3.0 kW
1/2 FAN MOTOR (3Ph) FULL LOAD AMPS	A 6.5
IFCB INDOOR FAN MOTOR CIRCUIT BREAKER	A 16
IFOL INDOOR FAN MOTOR OVERLOAD SETTING	A 6.5
MIS MAIN ISOLATION SWITCH	A 100
OUTDOOR FAN MOTOR CAPACITOR	MFD 12 x 2
O/D FAN MOTOR (1Ph) FULL LOAD AMPS	A 2.7 x 2
OFQB OUTDOOR FAN MOTOR CIRCUIT BREAKER	A 10
RUNNING AMPS (TOTAL)	A/Ph 27.3/31.9/27.2
RCBO RESIDUAL CURRENT CIRCUIT BREAKER RATING	10A/30mA
CCB CONTROL CIRCUIT BREAKER	A 2
24VDC/24 VOLT CIRCUIT BREAKER	A 2
WEIGHT-NETT	Kg 800
REFRIGERANT - R410A	Kg/ SYSTEM 8.8

Title	
OPA 465RKTB UC6	
WIRING SCHEMATIC	
©temperzone ltd 2016	
Drawn	JAN
Date	10-09-15
Aprvd	SR AG
Revision No.	556-544-002
Revision	G



ISSUE	MODIFICATION	ECN	DATE	APRVD
G	RCM Review, TRAN. Earthed, Labels Updated etc. A/2695 [05-05-16] SJP			
F	Service interface added to Ebox N3/98 [09-12-15] R.A.A			
E	Change RCBO electrical supply from L3 to L1 [06/02] 10-09-15 R.A.A			
D	SIS SENSOR REPLACED FROM BLUE TO WHITE WIRE N3/746 [04-06-15] R.A.A			
C	O/D Fan T/B order updated, TFC was FSC. A/2494 [09-03-15] JAN			
TZ1-100	BMS control links added.			

OPA 550RKTB



OPA 550RKTB UC6 WIRING SCHEMATIC

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2016

Drawn JAN Date 10-09-15 Drawing No. 291-000-711
Aprvd SR *ACC* J

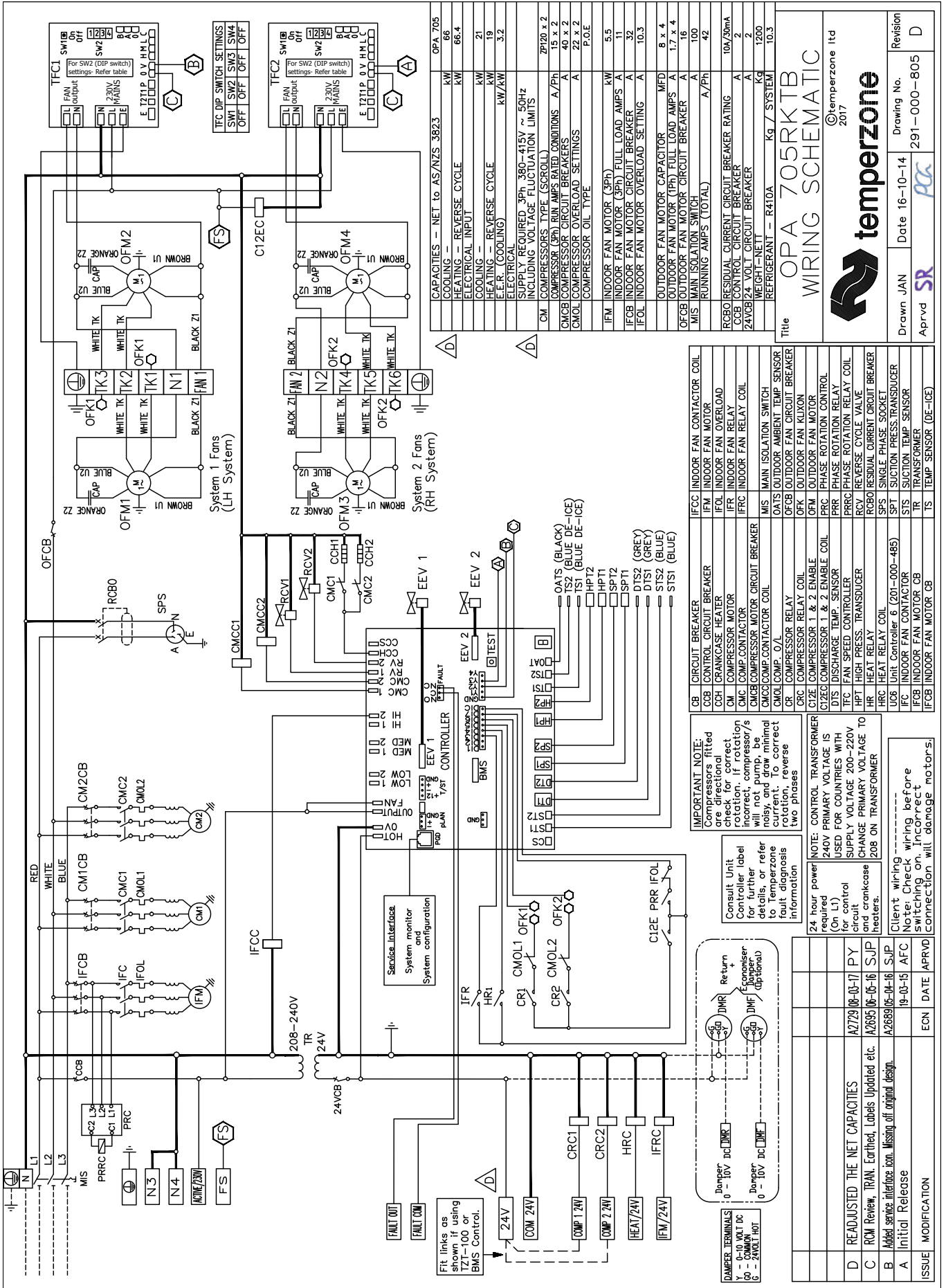
CB	CIRCUIT BREAKER
CCH	COMPRESSOR CONTACTOR
IFM	INDOOR FAN MOTOR
IFCB	INDOOR FAN MOTOR CIRCUIT BREAKER
IFOL	INDOOR FAN MOTOR OVERLOAD SETTING
MIS	MAIN ISOLATION SWITCH
OFM	OUTDOOR FAN MOTOR
OFCB	OUTDOOR FAN MOTOR CIRCUIT BREAKER
RCBO	RESIDUAL CURRENT CIRCUIT BREAKER
OCB	OUTDOOR CIRCUIT BREAKER
ICB	INDOOR CIRCUIT BREAKER
WEIGHT NET	Kg / SYSTEM
REFRIGERANT - R410A	Kg / SYSTEM

NOTE: CONTROLS TRANSFORMER 240V PRIMARY VOLTAGE IS USED FOR COUNTRIES WITH SUPPLY VOLTAGE 200-220V. CHANGE PRIMARY VOLTAGE TO 208 ON TRANSFORMER

24 hour power required for control (On LI) refer to Temperzone fault diagnosis and control console information

Client wiring before Note: Check wiring before switching on. Incorrect connection will damage motors.

J	Letter 'E' replaced with earth symbol	N3829	30-04-10	R.A.A
I	Service interface added to Ebox	N3798	09-12-15	R.A.A
H	Change RCBO electrical supply from L3 to L1	090660	10-09-15	R.A.A
G	SUCTION LINE SENSOR REPLACED FROM BLUE TO WHITE WIRE	N3746	25.06.15	R.A.A
F	IFC was FSC. Earth connections updated	N2494	09.03.15	JAN
E	TZ1-100 or BMS control links added	N3805	21.10.14	AKB
ISSUE	MODIFICATION	ECN	DATE	APRVD



OPA 705	66.4
COOLING — NET to AS/NZS 3823	66.4
HEATING — REVERSE CYCLE	21
ELECTRICAL INPUT	19
COOLING — REVERSE CYCLE	3.2
E.F.R. (COOLING)	15 x 2
SUPPLY REQUIRED 3Ph 380-415V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS	
CM COMPRESSORS TYPE (SCROLL)	ZPT20 x 2
COMPRESSOR (3Ph) RUN AMPS RATED CONDITIONS A / Ph	15 x 2
CMCB COMPRESSOR CIRCUIT BREAKERS	A 40 x 2
CMOL COMPRESSOR OVERLOAD SETTINGS	A 22 x 2
COMPRESSOR OIL TYPE	P.O.E
IFM INDOOR FAN MOTOR (3Ph)	5.5
INDOOR FAN MOTOR (3Ph) FULL LOAD AMPS	A 11
IFOL INDOOR FAN MOTOR CIRCUIT BREAKER	A 32
IFCB INDOOR FAN MOTOR OVERLOAD SETTING	A 10.3
OUTDOOR FAN MOTOR CAPACITOR	MFD 6 x 4
OUTDOOR FAN MOTOR (1Ph) FULL LOAD AMPS	A 1.7 x 4
OFMB OUTDOOR FAN MOTOR CIRCUIT BREAKER	A 16
MIS MAIN ISOLATION SWITCH	A / Ph 100
RUNNING AMPS (TOTAL)	A / Ph 42
RCBO RESIDUAL CURRENT CIRCUIT BREAKER RATING	10A/20mA
CCB CONTROL CIRCUIT BREAKER	A 2
24VCB/24 VOLT CIRCUIT BREAKER	A 10
WEIGHT—NET/IT	Kg 1200
REFRIGERANT — R410A	Kg Z SYSTEM 10.3

Title OPA 705RKTB
WIRING SCHEMATIC

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temperzone

Drawing No. 291-000-805
Revision D

Date 16-10-14
Aprvd SR
Drawing No. 291-000-805

CB	CIRCUIT BREAKER	IFCC	INDOOR FAN CONTACTOR COIL
CCB	CONTROL CIRCUIT BREAKER	IFM	INDOOR FAN MOTOR
CCM	CRANKCASE HEATER	IFOL	INDOOR FAN OVERLOAD
CM	COMPRESSOR MOTOR	IFR	INDOOR FAN RELAY
CMC	COMP. CONTACTOR	IFRC	INDOOR FAN RELAY COIL
CMCB	COMPRESSOR MOTOR CIRCUIT BREAKER	MIS	MAIN ISOLATION SWITCH
CMOL	COMP. O/L	OATS	OUTDOOR AMBIENT TEMP SENSOR
SR	COMPRESSOR RELAY	OFMB	OUTDOOR FAN MOTOR CIRCUIT BREAKER
CRC	COMPRESSOR RELAY COIL	OPK	OUTDOOR FAN KLIXON
CZEG	COMPRESSOR 1 & 2 ENABLE	PRC	PHASE ROTATION CONTROL
DTS	DISCHARGE TEMP. SENSOR	PRR	PHASE ROTATION RELAY
IFC	FAN SPEED CONTROLLER	PRRG	PHASE ROTATION RELAY COIL
HPT	HIGH PRESS. TRANSDUCER	RCV	REVERSE CYCLE VALVE
HR	HEAT RELAY	RCBO	RESIDUAL CURRENT CIRCUIT BREAKER
U06	Unit Controller 6 (201-000-485)	SPT	SINGLE PHASE SOCKET
IFC	INDOOR FAN CONTACTOR	SST	SUCTION PRESS. TRANSDUCER
IFCB	INDOOR FAN MOTOR CB	TR	TRANSFORMER
		TS	TEMP SENSOR (DE-ICE)

IMPORTANT NOTE:
Compressors fitted are directional. Check for correct rotation. If rotation is incorrect, compressors will not pump. Be careful to correct current. To correct rotation, reverse two phases.

Consult Unit Controller label for further details, or refer to Temperzone fault diagnosis information.

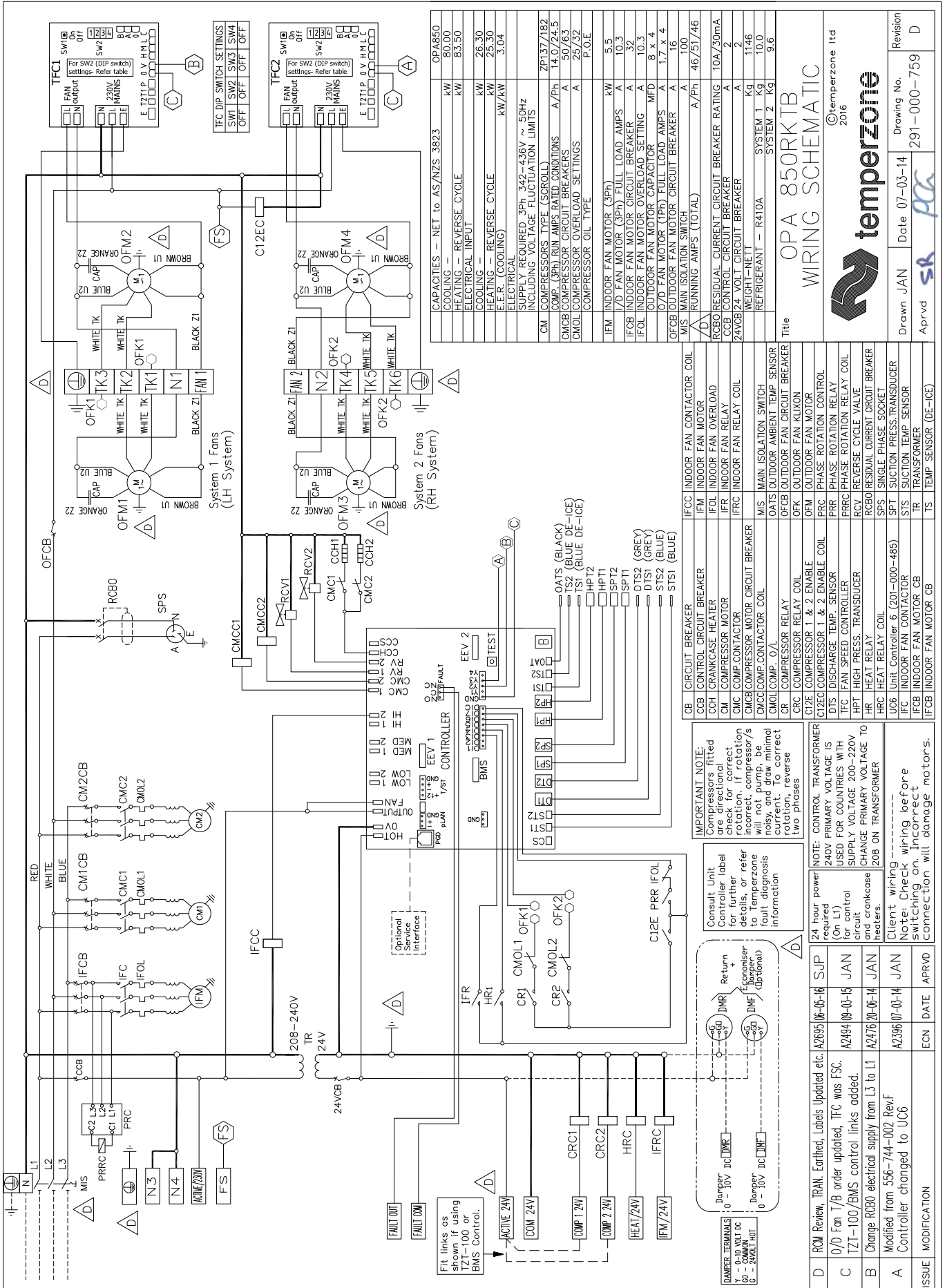
NOTE: CONTROL TRANSFORMER
240V PRIMARY VOLTAGE IS USED FOR COUNTRIES WITH SUPPLY VOLTAGE 200-220V. CHANGE PRIMARY VOLTAGE TO 208 ON TRANSFORMER.

24 hour power required (On L1) for control circuit. Read crankcase heaters.

Client wiring before switching on. Incorrect connection will damage motors.

Y	0-10 VOLT DC			
G	-24VOLT 10T			
<p>DAMPER TERMINALS</p> <p>0 - 10V DC DMRC Return</p> <p>0 - 10V DC DMF Damper (optional)</p>				
D	READJUSTED THE NET CAPACITIES	A2729 08-05-17	PY	
C	RCM Review, IRAN. Earthed, Labels Updated etc.	A2695 06-05-16	SJP	
B	Added service interface icon. Missing off original design.	A2689 06-04-16	SJP	
A	Initial Release	19-03-15	AFC	
ISSUE	MODIFICATION	ECN	DATE	APRVD

OPA 850RKTB



CAPACITIES - NET to AS/NZS 3823	OPA850
COOLING - REVERSE CYCLE	kW 80.00
HEATING - REVERSE CYCLE	kW 83.50
ELECTRICAL INPUT	
COOLING -	kW 26.30
HEATING - REVERSE CYCLE	kW 25.30
E.E.R. (COOLING)	kW/kW 3.04
SUPPLY REQUIRED 3Ph 342-436V ~ 50Hz	
INCLUDING VOLTAGE FLUCTUATION LIMITS	
CM COMPRESSORS TYPE (SCROLL)	ZPI37/182
COMP. (3Ph) RUN AMPS RATED CONDITIONS	A/Ph 14.0/24.5
CMCB COMPRESSOR CIRCUIT BREAKERS	A 50/63
CMOL COMPRESSOR OVERLOAD SETTINGS	A 25/32
COMPRESSOR OIL TYPE	P.O.E
IFM INDOOR FAN MOTOR (3Ph)	kW 5.5
IFD FAN MOTOR (3Ph) FULL LOAD AMPS	A 10.3
IFCB INDOOR FAN MOTOR CIRCUIT BREAKER	A 32
IFOL INDOOR FAN MOTOR OVERLOAD SETTING	A 10.3
IFM INDOOR FAN MOTOR CAPACITOR	MFD 8 x 4
OFD FAN MOTOR (1Ph) FULL LOAD AMPS	A 1.7 x 4
OFCB OUTDOOR FAN MOTOR CIRCUIT BREAKER	A 16
MIS MAIN ISOLATION SWITCH	A 100
RUNNING AMPS (TOTAL)	A/Ph 46.75/74.6
RCBO RESIDUAL CURRENT CIRCUIT BREAKER RATING	10A/30mA
CCB CONTROL CIRCUIT BREAKER	A 2
24VCB 24 VOLT CIRCUIT BREAKER	A 4
WEIGHT-NET	Kg 1146
REFRIGERANT - R410A	SYSTEM 1 Kg 10.0
	SYSTEM 2 Kg 9.6

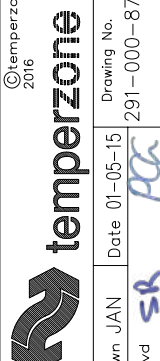
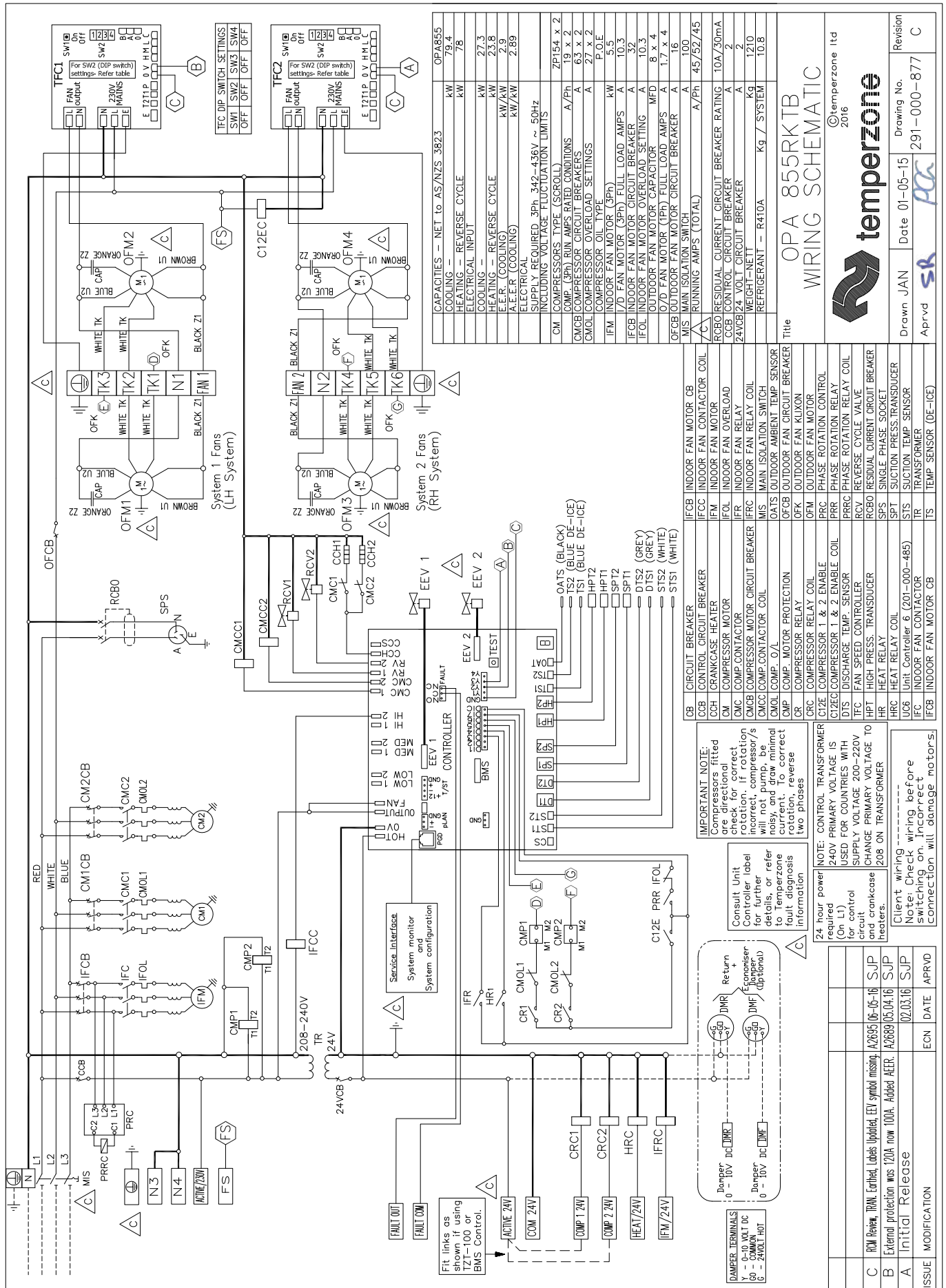
Title	
OPA 850RKTB	
WIRING SCHEMATIC	
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temperzone	
Drawn	JAN
Date	07-03-14
Aprvd	SK PCG
Revision	D
291-000-759	

IFCC	INDOOR FAN CONTACTOR COIL
IFM	INDOOR FAN MOTOR
IFOL	INDOOR FAN OVERLOAD
IFCB	INDOOR FAN CIRCUIT BREAKER
IFRC	INDOOR FAN RELAY
IFM2	INDOOR FAN MOTOR
IFM3	INDOOR FAN MOTOR
IFM4	INDOOR FAN MOTOR
IFM5	INDOOR FAN MOTOR
IFM6	INDOOR FAN MOTOR
IFM7	INDOOR FAN MOTOR
IFM8	INDOOR FAN MOTOR
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IFM97	INDOOR FAN MOTOR
IFM98	INDOOR FAN MOTOR
IFM99	INDOOR FAN MOTOR
IFM100	INDOOR FAN MOTOR

CB	CIRCUIT BREAKER
CCB	CONTROL CIRCUIT BREAKER
CCM	CRANKCASE HEATER
CM	COMPRESSOR MOTOR
CMC	COMP. CONTACTOR
CMCB	COMPRESSOR MOTOR CIRCUIT BREAKER
CMOL	COMPRESSOR OVERLOAD
CMOLCOMP	COMPRESSOR CONTACTOR COIL
CR	COMPRESSOR RELAY
CR1	COMPRESSOR RELAY 1
CR2	COMPRESSOR RELAY 2
C12E	COMPRESSOR 1 & 2 ENABLE COIL
C12C	COMPRESSOR 1 & 2 CONTROL COIL
IFC	INDOOR FAN CONTACTOR
IFC1	INDOOR FAN CONTACTOR 1
IFC2	INDOOR FAN CONTACTOR 2
IFC3	INDOOR FAN CONTACTOR 3
IFC4	INDOOR FAN CONTACTOR 4
IFC5	INDOOR FAN CONTACTOR 5
IFC6	INDOOR FAN CONTACTOR 6
IFC7	INDOOR FAN CONTACTOR 7
IFC8	INDOOR FAN CONTACTOR 8
IFC9	INDOOR FAN CONTACTOR 9
IFC10	INDOOR FAN CONTACTOR 10
IFC11	INDOOR FAN CONTACTOR 11
IFC12	INDOOR FAN CONTACTOR 12
IFC13	INDOOR FAN CONTACTOR 13
IFC14	INDOOR FAN CONTACTOR 14
IFC15	INDOOR FAN CONTACTOR 15
IFC16	INDOOR FAN CONTACTOR 16
IFC17	INDOOR FAN CONTACTOR 17
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IFC47	INDOOR FAN CONTACTOR 47
IFC48	INDOOR FAN CONTACTOR 48
IFC49	INDOOR FAN CONTACTOR 49
IFC50	INDOOR FAN CONTACTOR 50

IMPORTANT NOTE:	Compressors fitted are directional. Check for correct rotation. If rotation is incorrect, compressor/s may be noisy and draw minimal current. To correct rotation, reverse two phases.
Consult Unit Controller label for further details, or refer to Temperzone fault diagnosis information	
24 hour power required (On L1) for control and crankcase heaters.	
Client wiring before switching on. Incorrect connection will damage motor-s.	

D	ROM Review, TRAN, Earthed, Labels Updated etc.	A2/695/06-05-16	SJP
C	0/D Fan T/B order updated, TFC was FSC, TZ1-100/BMS control links added.	A2/494/09-03-15	JAN
B	Change RCBO electrical supply from L3 to L1	A2/476/20-08-14	JAN
A	Modified from 556-744-002 RevF Controller changed to UC6	A2/396/07-03-14	JAN
ISSUE	MODIFICATION	ECN	DATE
		APRVD	



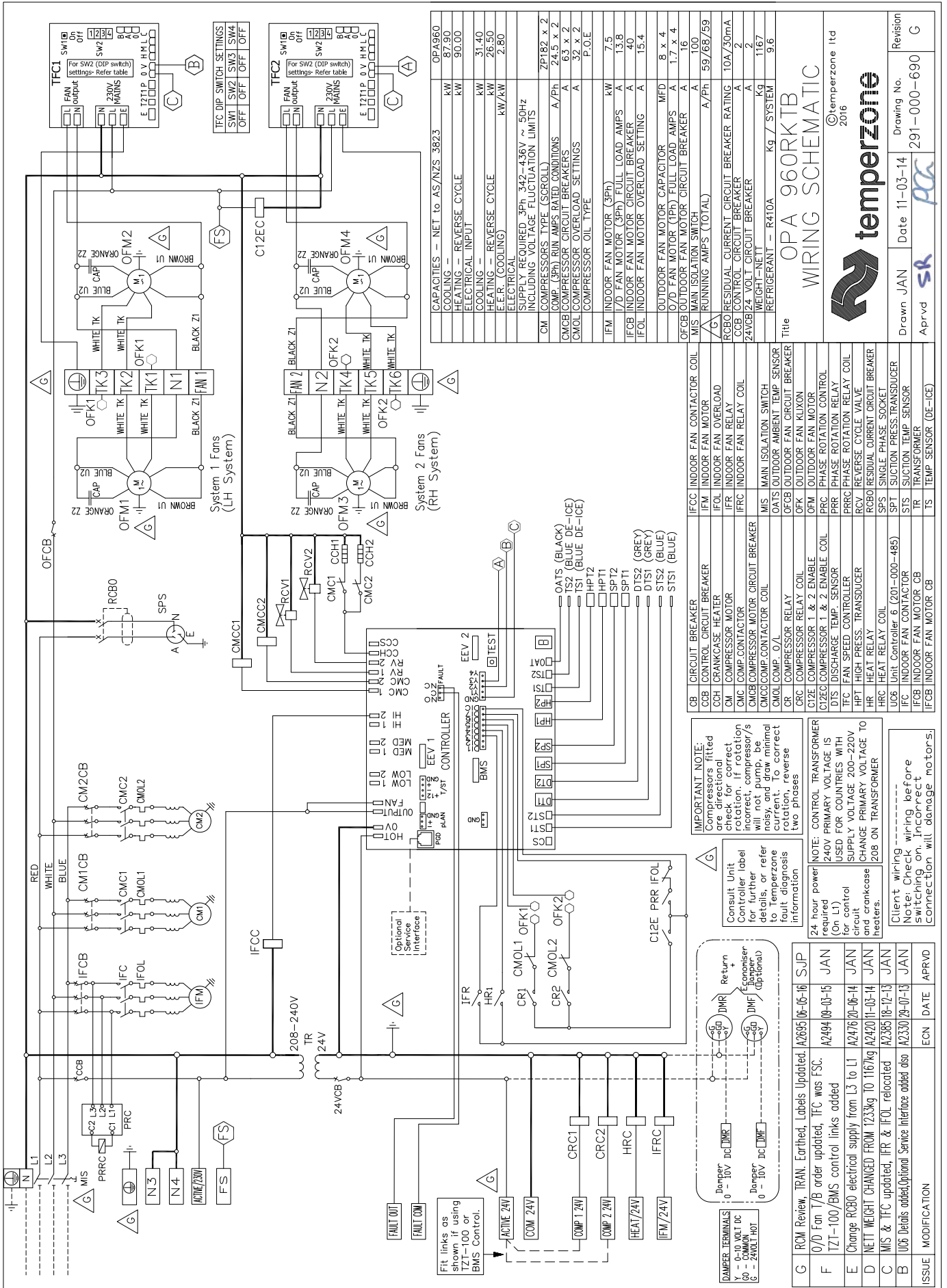
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OPA 855RKTB
WIRING SCHEMATIC

Drawn JAN Date 01-05-15
Aprvd SA
Revision No. 291-000-877
C

ISSUE	MODIFICATION	ECN	DATE	APPROV
C	RM Review, TBM, Entitled, Labels updated, ECV symbol missing, A2695 (05-05-16)	SJP		
B	External protection was 120A now 100A. Added AER.	A2689 (05.04.16)		
A	Initial Release		02.03.16	SJP

OPA 960RKTB



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OPA 960RKTB
WIRING SCHEMATIC

Revision No. 291-000-690
G

Drawn JAN Date 11-03-14
Aprvd SR

IMPORTANT NOTE:
Compressors fitted are directional check for correct rotation. If rotation incorrect, compressor/s will not pump, be noisy, and draw minimal rotation, reverse two phases

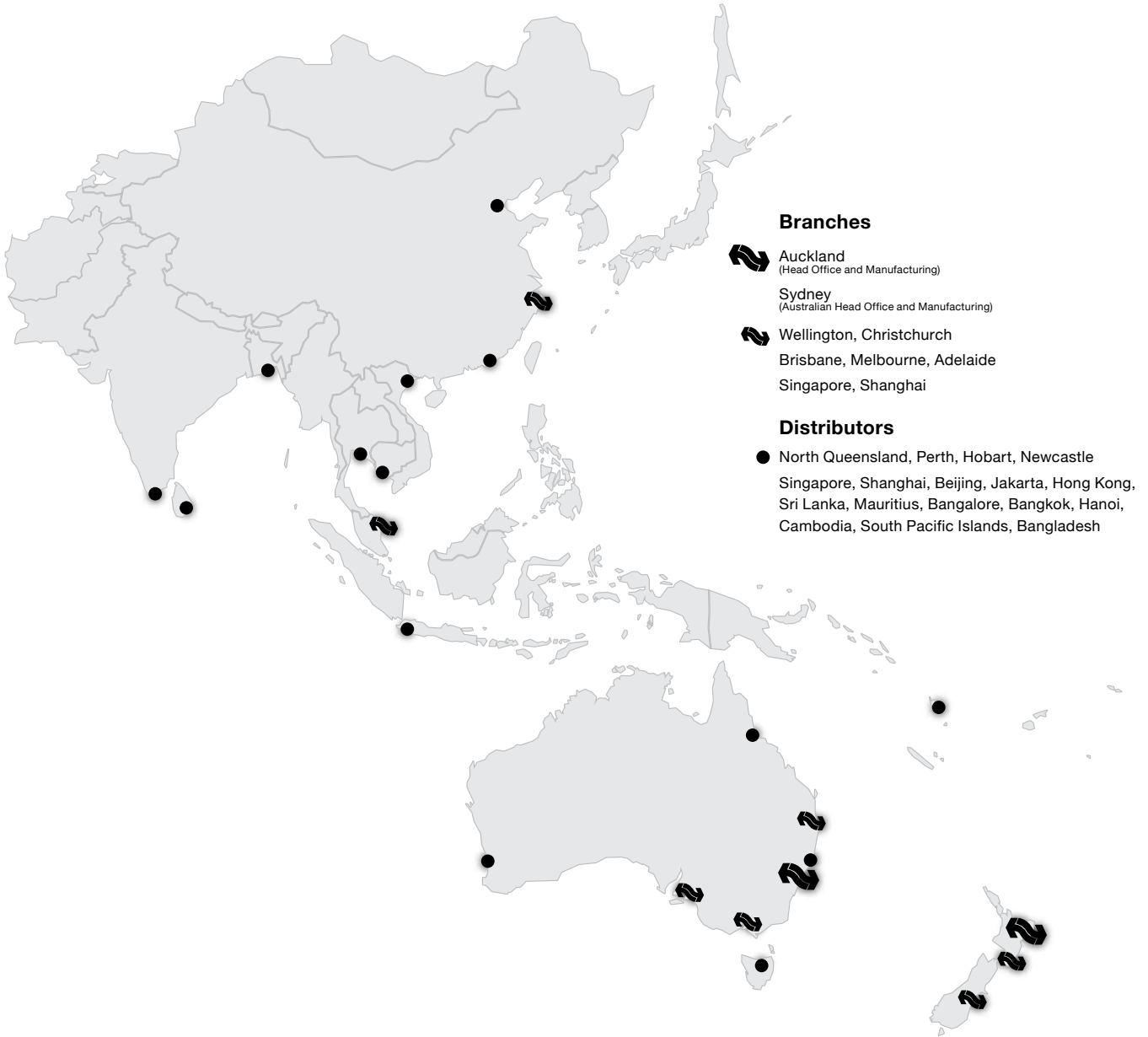
Consult Unit Controller label for further details, or refer to Temperzone fault diagnosis information

24 hour power required for control circuit and crankcase heaters.

NOTE: CONTROL TRANSFORMER 240V PRIMARY VOLTAGE IS USED FOR COUNTRIES WITH SUPPLY VOLTAGE 200-220V CHANGE PRIMARY VOLTAGE TO 208 ON TRANSFORMER

Client wiring -
Note: Check wiring before switching on. Incorrect connection will damage motors.

ISSUE	MODIFICATION	ECN	DATE	APRVD
G	RCM Review, TRAN. Earthed, Labels Updated, A2695	06-06-16	SJP	
F	O/D Fan T/B order updated, IFC was FSC, TZT-100/BMS control links added	A2494	09-03-15	JAN
E	Change RCBO electrical supply from L3 to L1	A2476/20-06-14	JAN	
D	NETT WEIGHT CHANGED FROM 1233kg TO 1167kg	A2420	11-03-14	JAN
C	MIS & IFC updated, IFR & IFOL relocated	A2385	18-12-13	JAN
B	UC6 details added/Optional Service Interface added also	A2330	29-07-13	JAN



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