



VPA 120/160 RKTG

Packaged Reverse Cycle R410A Air Cooled Air Conditioner

Installation & Maintenance

GENERAL

This VPA unit must be installed in accordance with all national and local safety codes.

CONTROLLER

The unit is supplied with a TZT-100 Room Thermostat Controller.

INSTALLATION

Positioning

Refer to dimension diagram for minimum clearances. If multiple units are to be placed side-by-side then allow at least 2 m between coil faces.

Supply/Return Options

The unit is supplied with a top discharge supply air spigot that is sized to facilitate ease of alternative manufacturer's unit replacement. A second spigot is supplied that matches the Return Air spigot dimensions, for optional use.

Standard configuration is vertical supply and return air. Supply/Return air direction and alternative inlet/outlet positions are changeable on site.

Mounting

Fasten the unit down to a firm flat horizontal base using the four holes provided in the mounting rails.

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.

Condensate Drain

The condensate drain is 'U' trapped inside the unit. Direct the drain outlet to a suitable disposal site.

Air Filtration

Air filters are supplied, but if filters are to be installed upstream on the return air side of the unit, they should be sized twice the area of the return air spigot.

REFRIGERATION SYSTEM

General

The refrigeration system has been charged with R410A refrigerant. Tapping points are provided to measure discharge and suction operating pressures. Beware of high system pressures; use correct gauges.

Compressor

The compressor is digital scroll type. This has a variable capacity ability that enables closer control of room temperature.

The compressor lubricant is polyol ester oil (POE). Note, this oil absorbs moisture quickly if exposed to open air. On commissioning, the compressor must be checked for correct rotation (refer Start Up Procedure).

ELECTRICAL REQUIREMENTS

Electrical work must be done by a qualified electrician. The outdoor unit must be wired directly from a distribution board by means of a circuit breaker. A mains isolator is provided on the unit.

Note: DO NOT USE REWIRABLE FUSES.

Refer back page wiring diagram and separate document for TZT-100 Controller installation instructions.

Note: The TZT-100 Controller can automatically switch the indoor fan off during de-ice, if selected, therefore no additional wiring is required to achieve this result.

A 24 hour power supply to the crankcase heaters is required, otherwise the warranty is void.

CHECK TESTS

1. Leave the remote switch in the off position and close the mains isolating switch.
A four hour delay period is required to allow the crankcase heater to drive any liquid refrigerant out of the compressor oil.
2. Check that all fan motors are free running.
3. Check that the thermostat is correctly wired to the unit and is set at the desired temperature.
4. Check that the air filters, if any, have been correctly installed.
5. Check any supply air diffuser dampers are open.
6. Check the chosen electrical coverplate in the unit's base is replaced to prevent vermin getting under the unit.

START UP PROCEDURE

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

1. Switch on the unit after the four hour delay period for the crankcase heater has expired.

2. Check for correct rotation of the compressor. 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.
3. Check the supply voltage.
4. Measure the current draw on the compressor motor and on each fan motor. Check all readings against the specified values.
5. Fit R410A compatible gauges and measure the suction and discharge pressures.
6. Test the operation of the reversing valve by running the unit in both the heating and cooling mode.
7. Check that the motors are running smoothly.
8. Check the supply air flow at each outlet.
9. Touch up any outdoor unit paintwork damage to prevent corrosion.

UNIT CONTROLLER (UC7)

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. 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 UC's control of these inter-related functions, the outdoor fan may take some time to start rotating after each compressor start. It may also run on when the compressor stops. The fan 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 UC7 Controller label on the unit or www.temperzone.biz for operation & fault diagnostics information.

MAINTENANCE

Weekly For First Four Weeks

1. Check indoor 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 tightness of electrical connections.

MAINTENANCE (cont'd)

Six Monthly

1. Check the tightness of all fan and motor mountings.
2. Check tightness of electrical connections.
3. Check suction and discharge operating pressures.
4. Replace indoor unit air filters (if fitted).
5. Check condensate drain for free drainage.

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. Remove lint and dust accumulation from outdoor coil fins.

7. Touch up any outdoor unit paintwork damage to prevent corrosion.

NOTE

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

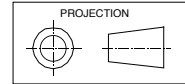
This pamphlet replaces the previous issue no. 3541 dated 09/15.
Wiring version C.

Dimensions (mm)

Note:

Standard configuration is vertical supply and return air. Supply/Return air direction and alternative inlet/outlet positions are changeable on site.

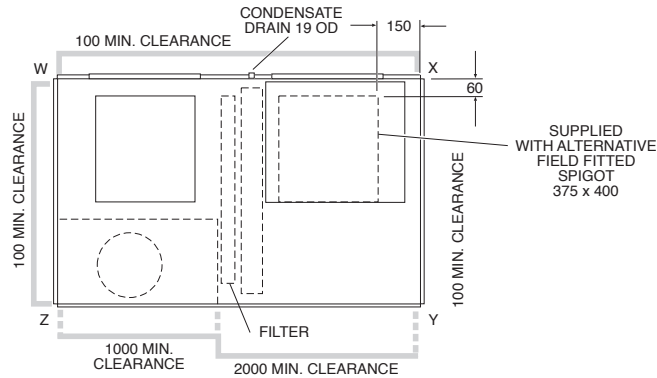
VPA 120/160 RKTG



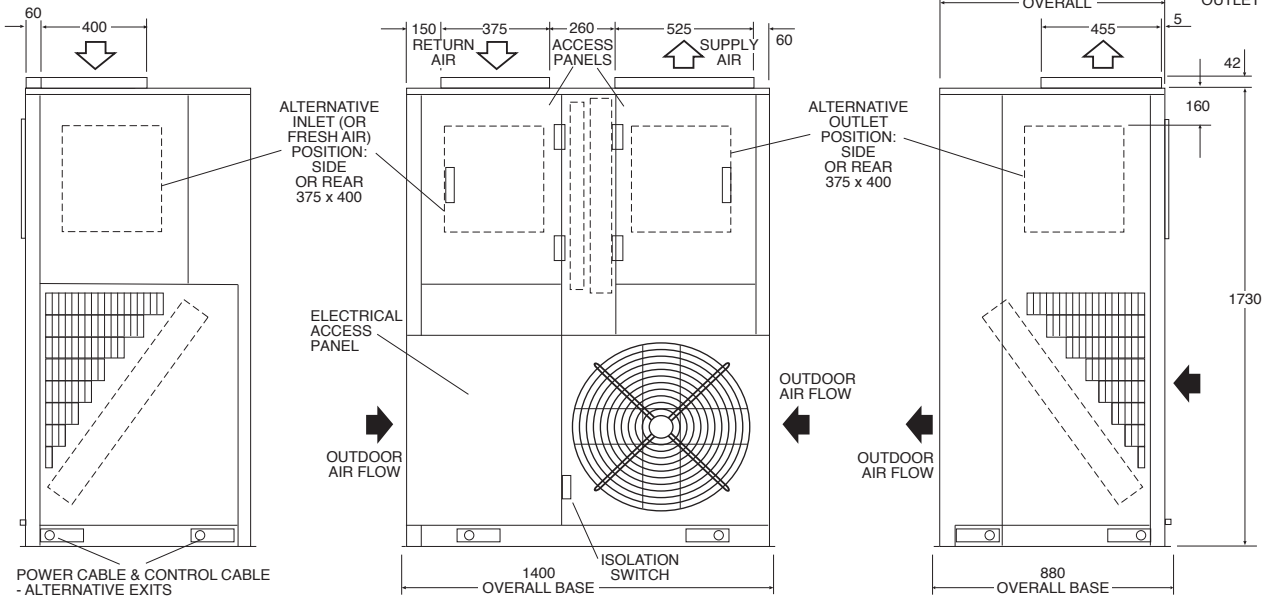
Not to Scale

POINT LOADS (kg)			
W	X	Y	Z
51	27	37	145

Net Weight 260 kg



SUPPLIED WITH ALTERNATIVE FIELD FITTED SPIGOT 375 x 400



POWER CABLE & CONTROL CABLE - ALTERNATIVE EXITS

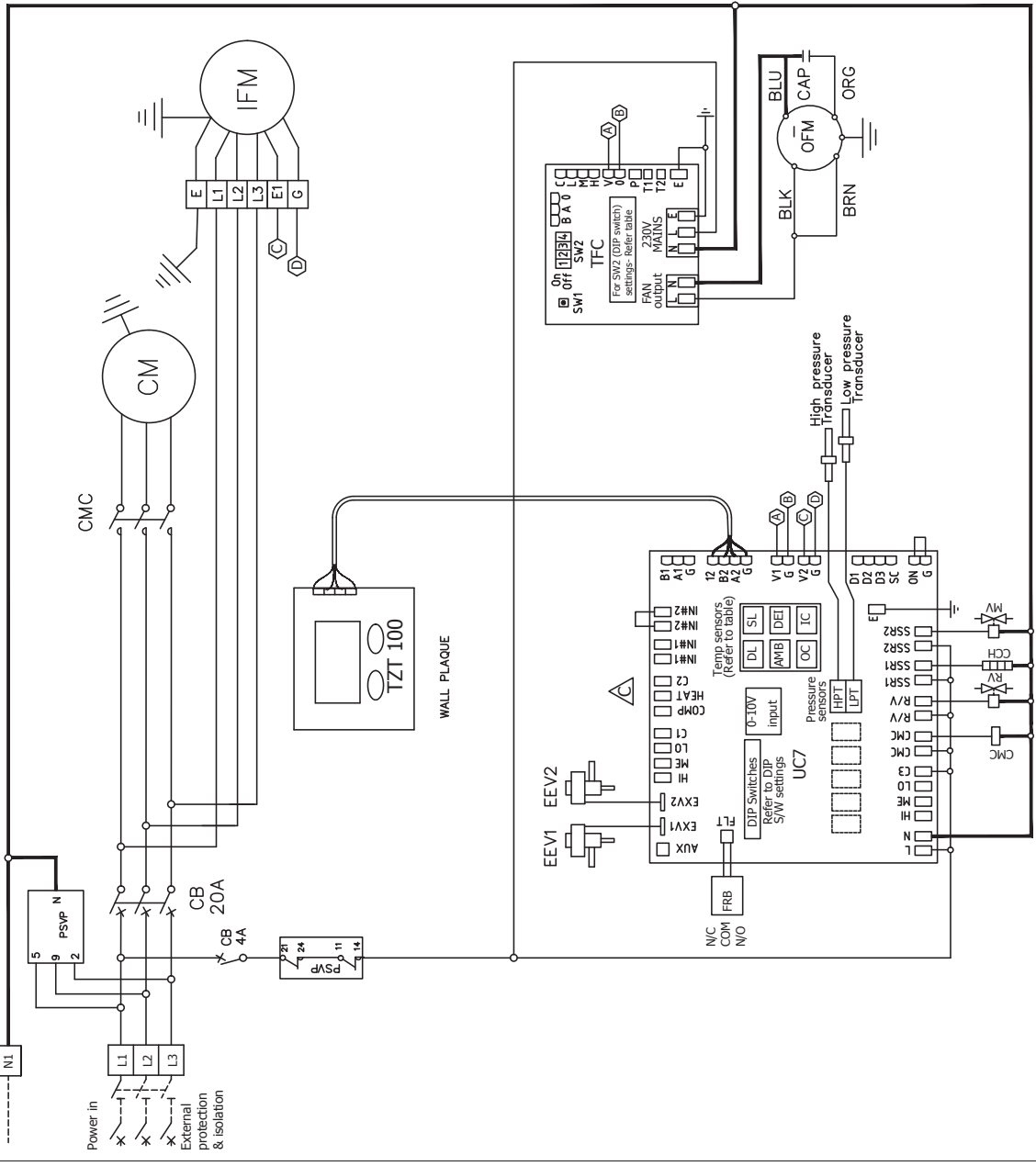
CAPACITIES – NET to AS/NZS 3823		VPA120	VPA160
COOLING –	kW	12.94	16.22
HEATING – REVERSE CYCLE	kW	13.39	15.25
ELECTRICAL INPUT @ 3PH 400V ~ 50Hz			
COOLING –	kW	4.38	5.2
HEATING – REVERSE CYCLE	kW	3.99	4.76
E.E.R. (COOLING)	kW/kW	2.954	3.119
A.E.E.R. (COOLING)	kW/kW	2.940	3.103
ELECTRICAL			
SUPPLY REQUIRED 3PH 380–415V ~ 50Hz			
COMPRESSOR (3PH) RUN AMPS RATED CONDITIONS	A/PH	6.7	7.1
INDOOR FAN MOTOR (3PH) FULL LOAD AMPS	A	3.3	3.3
OUTDOOR FAN MOTOR (1PH) FULL LOAD AMPS	A	2.3	2.7
OUTDOOR FAN MOTOR CAPACITOR	MFD	8	12
RUNNING AMPS (TOTAL)		9/7/7	10/8/8
MAXIMUM RUNNING CURRENT	A	10.5	16
WEIGHT – NETT			
REFRIGERANT – R410A	kg	230	230
COMPRESSOR TYPE : DIGITAL SCROLL	kg	6	6.5
OIL TYPE : POLYOLESTER (P.O.E.)			

Temperature Sensor		CB	CIRCUIT BREAKER	HR	HEAT RELAY
DL	Discharge	CCH	CRANK CASE HEATER	IFC	INDOOR FAN CONTACTOR
SL	Suction	CM	COMPRESSOR MOTOR	IFM	INDOOR FAN MOTOR
AMB	Ambient	CMC	COMP-MTR CONTACTOR	LP	LOW PRESSURE SWITCH
DET	Deice	COL	COMP. o/L	MS	MAIN SWITCH
OC	O/D Coil	CR	COMPRESSOR RELAY	MV	MODULATING VALVE
		DIR	DE-ICE RELAY	OFC	OUTDOOR FAN CONTACTOR
		EEV	ELECTRONIC EXP. VALVE	OFM	OUTDOOR FAN MOTOR
		FR	FAN RELAY	OUC	OUTDOOR UNIT CONTROLLER
		FRB	FAULT RELAY BOARD		
		TFC	FAN SPEED CONTROL	RV	REVERSE VALVE
		HC	HEAT CONTACTOR	PSVP	PHASE SEQUENCE VOLTAGE PROTECTION
		HP	HI PRESSURE SWITCH		

DIP SWITCH SETTINGS	UC7		TZT100		TFC	
	ON	OFF	ON	OFF	ON	OFF
DIP SWITCH No. 2	ON	OFF	ON	OFF	ON	OFF
3	ON	OFF	ON	OFF	ON	OFF
4	ON	OFF	ON	OFF	ON	OFF
5	ON	OFF	ON	OFF	ON	OFF
6	ON	OFF	ON	OFF	ON	OFF
7	ON	OFF	ON	OFF	ON	OFF
8	ON	OFF	ON	OFF	ON	OFF
9	ON	OFF	ON	OFF	ON	OFF
10	ON	OFF	ON	OFF	ON	OFF
11	ON	OFF	ON	OFF	ON	OFF
12	ON	OFF	ON	OFF	ON	OFF
13	ON	OFF	ON	OFF	ON	OFF
14	ON	OFF	ON	OFF	ON	OFF
15	ON	OFF	ON	OFF	ON	OFF
16	ON	OFF	ON	OFF	ON	OFF

PHASE SEQUENCE VOLTAGE PROTECTION SETTINGS
OVER VOLTS+10% UNDER VOLTS -10% OPERATING TIME 1 SEC.

WALL PLAQUE WIRING TO UC 7:
Term 24 TO 12, Term 24C TO G
Term B TO B2, Term A TO A2



This **VPA120-160RKTG**
WIRING SCHEMATIC

Drawn B.E.S. 10-10-12
Revision 291-000-296
Approved SR
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ISSUE	MODIFICATION	ECN/ECR	DATE	APRVD
A	UPDATED TO SUIT UC7 VER3	N3.4.59	26-02-14	B.E.S
B	VARIOUS CHANGES	1.50-4.3	18-09-15	B.E.S
C	Removed wires from comp and C2 due to UC7 version	N3.92.1	13-10-16	B.E.S

