AIREDALE

air conditioning for every environment

Ecotel® Outdoor

Telecom Unit
Upflow VTCU
5kW - 8kW

TECHNICAL MANUAL

ISO 14001
EMS52086

ISO 9001
FM00542

About Airedale Products & Customer Services

WARRANTY, COMMISSIONING & MAINTENANCE

As standard, Airedale guarantees all non consumable **parts only** for a period of **24 months**, variations tailored to suit product and application are also available, please contact Airedale for full terms and details.

To further protect your investment in Airedale products, we have introduced Airedale Service, who can provide full commissioning services, comprehensive maintenance packages and service cover 24 hours a day, 365 days a year (UK mainland). For a free quotation contact our Airedale Service or your local Sales Engineer.

All Airedale products are designed in accordance with EU Directives regarding prevention of build up of water, associated with the risk of contaminants such as Legionella.

Where applicable, effective removal of condensate is achieved by gradient drainage to outlets and where used, humidification systems produce sterile, non-toxic steam during normal operation.

For effective prevention of such risk it is necessary that the equipment is maintained in accordance with Airedale recommendations.

CAUTION **Warranty cover is not a substitute for Maintenance. Warranty cover is conditional to maintenance being carried out in accordance with the recommendations provided during the warranty period. Failure to have the maintenance procedures carried out will invalidate the warranty and any liabilities by Airedale International Air Conditioning Ltd.**

SPARES

A spares list for 1, 3 and 5 years will be supplied with every unit and is also available from our Spares department on request.

TRAINING

As well as our comprehensive range of products, Airedale offers a modular range of Refrigeration and Air Conditioning Training courses, for further information please contact Airedale.

Contents

General Description

UNIT IDENTIFICATION

UPFLOW - ECOTEL OUTDOOR UNIT	
VTCU	Upflow Outdoor Telecom Communication Unit
5 - 8	Model Sizes (Nominal kW)
Example	**Model VTCU5**

INTRODUCTION

This self-contained packaged air conditioning unit is purpose built for Outdoor Telecom applications, including cabins, shelters and base stations and is available in 2 model sizes. The unit is internally mounted adjacent to an internal wall.

Supplied as 1 phase electrical supply as standard with 3 phase available as an optional extra.

The unit is capable of providing 1 stage of DX mechanical cooling and options for 0-100% free-cooling and 1 stage of electric heat.

As standard the unit controller offers an additional energy saving feature by reducing the evaporator fan speed at low room temperatures.

Each unit is pre charged with R407C, factory piped, wired to current EU standards, performance, leak and function tested prior to despatch.

The unit is despatched pre commissioned and factory set (refer to ***Factory Settings*** section) ready for offering up to the services.

CE DIRECTIVE

CE Airedale certify that the equipment detailed in this manual conforms with the following EC Directives:

Electromagnetic Compatibility Directive (EMC)	**89/336/EEC**
Low Voltage Directive (LVD)	**73/23/EEC**
Machinery Directive (MD)	**89/392/EEC in the version 98/37/EC**
Pressure Equipment Directive (PED)	**97/23/EC**

To comply with these directives appropriate national & harmonised standards have been applied. These are listed on the Declaration of Conformity, supplied with each product.

STANDARD FEATURES

Construction

Unit cabinets are manufactured from galvanised sheet steel coated with epoxy baked powder paint to provide a durable and weatherproof finish.

Standard unit colour is Grey (RAL 7035).

Cabinets are lined internally with fire resistant foam (UL94 VO) for thermal and acoustic insulation.

Vandal proof fixings are employed to all externally removable service panels.

All maintainable components are accessed by removal of a side panel. The compressor is housed in a dedicate enclosure providing acoustic benefits.

General Description

STANDARD FEATURES

Evaporator

Large surface area coil(s) positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tubes with mechanically bonded aluminium fins.

The cooling coil is mounted over a full width stainless steel condensate tray.

Factory pressure tested to 40Bar.

Condenser

Large surface area coil(s) positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tubes with mechanically bonded aluminium fins.

Factory pressure tested to 40Bar.

Fan & Motor Assembly

Evaporator Fan

Units utilise backward curved, direct drive centrifugal fan with motor which is statically and dynamically balanced for quiet operation. Impellers and casings are galvanised for protection against corrosion.

The fan motor has in-built thermal overload protection.

Direct drive fan assemblies require minimal maintenance unlike the traditional belt and pulley type in areas such as belt dust, slippage/realignment and replacement.

Fan speed, airflow and external static pressure are controlled by the use of a manually adjustable voltage controller via the microprocessor display keypad which maintains optimum performance and offers easy on site adjustment.

Condenser Fan

The unit utilises sickle bladed axial flow fan for the benefit of low noise characteristics. The unique external rotor motor design allows the use of a low power output single phase speed controllable motor to power the fan.

The fan motor has in-built thermal overload protection.

Airflow Switch

An adjustable differential pressure switch initiates an alarm and disables the fan in the event of a fan or motor failure.

Compressor

Hermetic scroll compressors fitted as standard with:

- Compressor(s) are mounted to the unit via the use of vibration isolators
- Internal thermal motor protection
- Housed in a dedicated compressor compartment

Refrigeration

Each refrigeration circuit features as standard:

- Externally equalised thermostatic expansion valve (TEV)
- Sight glass
- Filter drier
- Low pressure switch - automatic reset
- High pressure switch - automatic reset
- Precharged with R407C

} Refer to ***Controls - High/Low Pressure Trip*** for further details

Filters
Re-Circulating

Synthetic disposable pleated panel filters in a rigid frame to BS EN 779 - G4.

General Description

STANDARD FEATURES

Electrical

The control panel contains the necessary compressor starter contactors, sub circuit protection, volt free contacts for a common alarm and mains terminals. The panel is situated within the cabinet and can be removed for essential maintenance of other components within the unit. The electrical control panels are wired to the latest European standards and codes of practice.

The unit control panel is located on the side of the unit behind a lift off access panel:

Standard supply 230V / 1PH + N / 50Hz.

Controls

Units are fitted with the AIRETronix microprocessor controller which offers powerful analogue and digital control to meet a wide range of monitoring and control features including a real time clock and a communication port plus networking and BMS connections.

An optional 4 x 20 character backlit LCD display keypad assembly is used to view the unit status and allow operator adjustment.

The unit is capable of providing 1 stage of DX mechanical cooling and options for 0-100% free-cooling and 1 stage of electric heat.

For full details, please refer to the ***Controls*** section.

Return Air Grille

A punched plate is supplied loose for on site fitting.

OPTIONAL EXTRAS - GENERAL

Epoxy Coated Coils

In atmospheres where high corrosion is anticipated epoxy coated aluminium finned coils can be supplied for the evaporator and condenser sections.

Electric Heating

Finned electric heating element(s) complete with overheat cut out protection.

Mains Electric Isolator

The isolating device is supplied internally panel mounted.

High Efficiency Filter Re-Circulating

Synthetic disposable pleated panel filters in a rigid frame to BS END 779 - F5.

High Ambient

To enable operation in high ambient up to 45°C an increased surface area condenser is fitted.

Low Noise Kit

Incorporates staged condenser and evaporator fan speeds with head pressure control.

The compressor(s) are fitted with an acoustic jacket offering a reduction in sound levels.

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General Description

OPTIONAL EXTRAS - GENERAL

Outside Air Damper	The unit is fitted with an electrically controlled, modulating damper capable of supplying 100% fresh air into the room as free-cooling. During free cooling only, the damper may be automatically modulated to any position to allow mixing of the return air and outside air before being supplied to the conditioned space. The outside air damper offers free cooling whenever outdoor ambient is 2°C less than cabin temperature. The damper has a manual operation facility. The minimum set point for the fresh air damper is fully adjustable via the optional display keypad. Complete with fresh air filter offering course filtration for outside. Wire framed synthetic cleanable filters to BS EN 779 - G2.
Double Deflection Discharge Air Grille	Anodised aluminium construction, to manually adjust direction of airflow. Supplied loose for on site fitting.
Fixing Tool	The unit may be supplied with a tamperproof fixing tool.
48VDC Emergency Power Operating System	This option utilises a 48VDC control circuit. If mains power should fail the clients own UPS or battery system will maintain the 48VDC control Circuit, enabling the 48VDC evaporator fans and damper to provide 'Free Cooling'.
Electronic Soft Start	An electronic soft starter can be fitted to each compressor. Soft starting a compressor motor reduces the effects of high starting torque surges. Available in single and 3 phase.
3 Phase Unit	If required, units can be supplied as 400V / 3PH + N / 50Hz.
Maintenance 13A Socket	Single 13A socket for unit maintenance only.
Head Pressure Control	Head Pressure is maintained by a factory fitted, pressure transducer, head pressure controller which varies the speed of the condenser fan(s) to provide optimum control under varying ambient conditions.
Phase Sequence Relay 3 Phase Units Only	A phase failure relay can be fitted to shut down the system, upon sensing abnormality in the 3 phase sequence.
Alternative Refrigerant	For applications outside the EU, units can be supplied for use with R22, please specify at time of order.
Export Packing	Units can be supplied packed inside a wooden crate or case to provide additional protection during transportation, (not required for container delivery).

General Specification

MECHANICAL DATA

VTCU			5	8
Capacity				
Nom Cooling Total	(1)	kW	6.14	7.94
Nom Cooling Sensible	(1)	kW	5.93	7.14
EER	(2)		2.66	2.58
Capacity Steps		%	0 & 100	0 & 100
Dimensions				
H x W x D		mm	1716 x 775 x 451	1716 x 775 x 451
Weights				
Operating		kg	165	190
Construction				
Material / Colour			Galvanised Sheet Steel, Epoxy Baked Powder Paint- Light Grey (RAL 7035)	
Evaporator			Rifled Copper Tubes / Aluminium Fins - Air Cooled	
Quantity			1	1
Face Area		m²	0.178	0.178
Discharge			Horizontal	
Condenser			Rifled Copper Tubes / Aluminium Fins - Air Cooled	
Quantity			1	1
Face Area		m²	0.33	0.33
Discharge			Horizontal	
Fan - Evaporator			Backward Curved Centrifugal	
Quantity / Motor Size		kW	1 x 0.23	1 x 0.23
Diameter		mm	355	355
Nominal Airflow		m³/s	0.41	0.41
Maximum Speed		rpm	1430	1430
Fan - Condenser			Axial	
Quantity / Motor Size		kW	1 x 25	1 x 25
Diameter		mm	450	450
Nominal Airflow		m³/s	0.9	0.9
Maximum Speed		rpm	1400	1400
Compressor			Scroll	
Quantity			1	1
Oil Charge Volume (Total)		l	1.0	1.1
Oil Type			Polyol Ester	
Refrigeration			Single Circuit	
Refrigeration Control			Thermostatic Expansion Device (TEV)	
Refrigerant Type			R407C	
Charge (Total)		kg	1.33	2.43
Filtration - Re-Circulating			Disposable - BS EN 779 - G4	
Quantity			1	1
OPTIONAL EXTRAS				
High Ambient				
Capacity				
Nom Cooling Total		kW	6.31	8.20
Nom Cooling Sensible		kW	6.02	7.26
EER			3.08	2.85
Dimensions				
H x W x D		mm	1716 x 775 x 451	1916 x 775 x 451
Weight				
Operating		kg	185	210
Refrigeration				
Refrigeration Charge (Total)		kg	2.35	3.18
Condenser				
Face Area		mm²	0.33	0.45
High Efficiency Filter - Re-Circulating			Disposable - BS EN 779 - F5	
Outside Air Damper				
Fresh Air Filter			Cleanable - BS EN 779 - G2	
Electric Heating (Total)		kW	2.5	2.5

(1) Nominal Cooling Duties based on 27°C, 40% RH and 35°C ambient.
(2) EER is the Total DX duty ÷ compressor input power.

General Specification

ELECTRICAL DATA

VTCU			5	8
Unit Data	(1)			
Nominal Run Amps		A	11.2	17.1
Maximum Start Amps		A	49.8	102.8
Recommended Mains Fuse		A	20	32
Max Mains Incoming Cable Size		mm²	2.5	4.0
Mains Supply			230V / 1PH + N / 50Hz	
Controls Circuit		VAC	24	24
Evaporator Fan - per Fan				
Quantity			1	1
Motor Rating		kW	0.23	0.23
Full Load Amps		A	1.20	1.20
Locked Rotor Amps		A	3.60	3.60
Condenser Fan - per Fan				
Quantity			1	1
Motor Rating		kW	0.25	0.25
Full Load Amps		A	1.10	1.10
Locked Rotor Amps		A	3.30	3.30
Compressor - per Compressor				
Nominal Run Amps		A	8.40	14.30
Locked Rotor Amps		A	47.00	100.00
Motor Rating		kW	1.70	3.08
Type of Start			Direct on Line	
OPTIONAL EXTRAS				
3 Phase Supply				
Electrical Supply Data				
Nominal Run Amps		A	5.75	8.00
Maximum Start Amps		A	26.80	48.80
Recommended Mains Fuse		A	10	16
Max Mains Incoming Cable Size		mm²	2.50	2.50
Mains Supply			400V / 3PH + N / 50Hz	
Compressor				
Nominal Run Amps		A	2.95	5.20
Locked Rotor Amps		A	24.00	46.00
Electric Heating				
Stages of Heat			1	1
Number of Elements			1	1
Rating (Total)		kW	2.5	2.5
Unit Run Amps with Electric Heating		A	12.6	17.1
Electronic Soft Start				
Compressor				
Locked Rotor Amps 1Ph	(2)	A	25.9	55.0
Locked Rotor Amps 3Ph	(2)	A	15.6	29.9
48VDC Emergency Power				
Evaporator Fan - Per Fan				
Motor Rating		A	0.38	0.38
Full Load Amps		A	7.90	7.90
Locked Rotor Amps		A	27.70	27.70

(1) Based on 27°C, 40% RH and 35°C ambient.
(2) 3Ph Electronic Soft Start based on 40% Reduction In compressor starting current against direct on line starting currents.
1Ph Electronic Soft Start based on 45% Reduction In compressor starting current against direct on line starting currents.

Performance Data

COOLING DUTIES

DX Mechanical Cooling

Standard Unit

Cooling Capacity		Ambient							
	Air On	25°C		30°C		35°C		40°C	
	ºC db/ % RH	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
	22 / 50	6.16	5.45	5.52	5.01	4.92	4.57	4.36	4.15
VTCU5	24 / 45	6.51	5.99	5.92	5.54	5.36	5.11	4.84	4.69
	27 / 40	7.15	6.79	6.63	6.36	6.14	5.93	5.66	5.52
	22 / 50	8.71	6.93	7.66	6.31	6.67	5.72	5.76	5.13
VTCU8	24 / 45	9.08	7.57	8.07	6.94	7.13	6.33	6.25	5.74
	27 / 40	9.76	8.39	8.82	7.76	7.94	7.14	7.11	6.53

High Ambient Unit

Cooling Capacity		Ambient							
	Air On	30°C		35°C		40°C		45°C	
	ºC db/ % RH	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
	22 / 50	5.94	5.22	5.29	4.77	4.68	4.33	4.12	3.91
VTCU5	24 / 45	6.26	5.72	5.66	5.27	5.10	4.83	4.57	4.41
	27 / 40	6.83	6.46	6.31	6.02	5.81	5.60	5.33	5.18
	22 / 50	8.05	6.48	7.02	5.87	6.06	5.28	5.17	4.70
VTCU8	24 / 45	8.43	7.10	7.45	6.47	6.53	5.87	5.68	5.28
	27 / 40	9.12	7.89	8.20	7.26	7.34	6.65	6.53	6.05

Free Cooling

Cooling Capacity		Ambient				
	Air On ºC db/ % RH	10°C TC (kW)	12.5°C TC (kW)	15°C TC (kW)	17.5°C TC (kW)	20°C TC (kW)
	22 / 50	6.02	4.77	3.51	2.26	-
VTCU5	24 / 45	7.03	5.77	4.52	3.26	2.01
	27 / 40	8.53	7.28	6.02	4.77	3.51
	22 / 50	6.02	4.77	3.51	2.26	-
VTCU8	24 / 45	7.03	5.77	4.52	3.26	2.01
	27 / 40	8.53	7.28	6.02	4.77	3.51

TC = Total Cooling SC = Sensible Cooling

1 All data is based on nominal conditions, standard airflows.

OPERATING LIMITS

Return Air Temperature	+16°C to +30°C
Outdoor Temperature - Standard	-20°C to +40°C
Outdoor Temperature - High Ambient	-20°C to +45°C

Sound Data

METHOD OF SOUND MEASUREMENT

Measurement of Sound Data

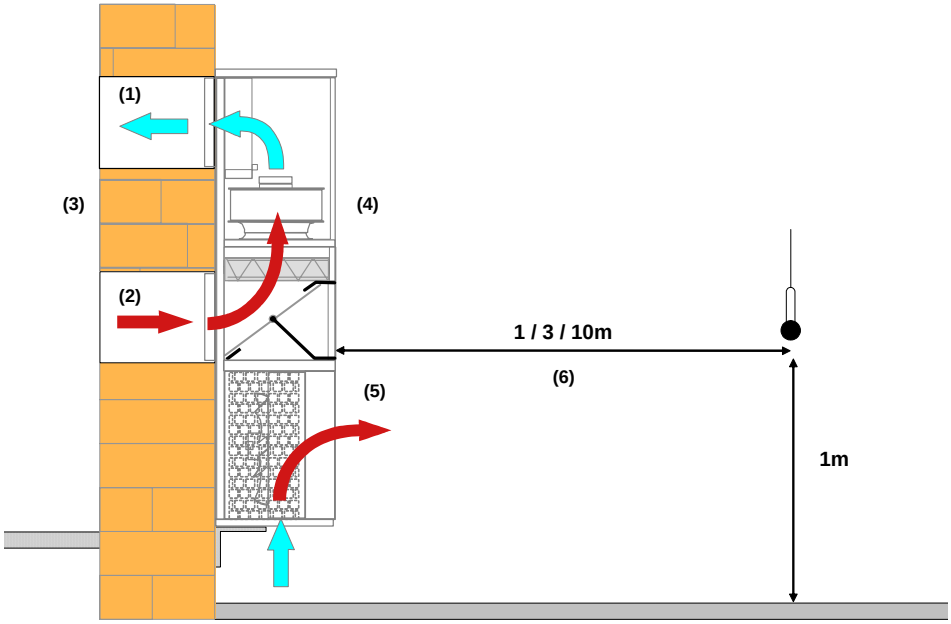
All sound data quoted has been measured in the third-octave band limited values, using a Real Time Analyser calibrated sound intensity meter in accordance with BS EN ISO9614 Part 1 : 1995.

All Sound Power Levels quoted are calculated from measured sound intensity according BS EN ISO9614 Part 1 : 1995.

Sound Pressure Levels calculated from sound power using the semi-hemispherical method according to BS EN ISO11203 : 1996.

If the equipment is placed adjacent to a reflective wall, values may vary to those stated, typically by an additional 3dB(A) for each side added.

dB(A) is the overall sound level, measured on the A scale.



(1) Supply Air
(2) Return Room Air
(3) Inside Air
(4) Outside Air
(5) Condenser Air Exhaust
(6) External Measurement

SOUND DATA

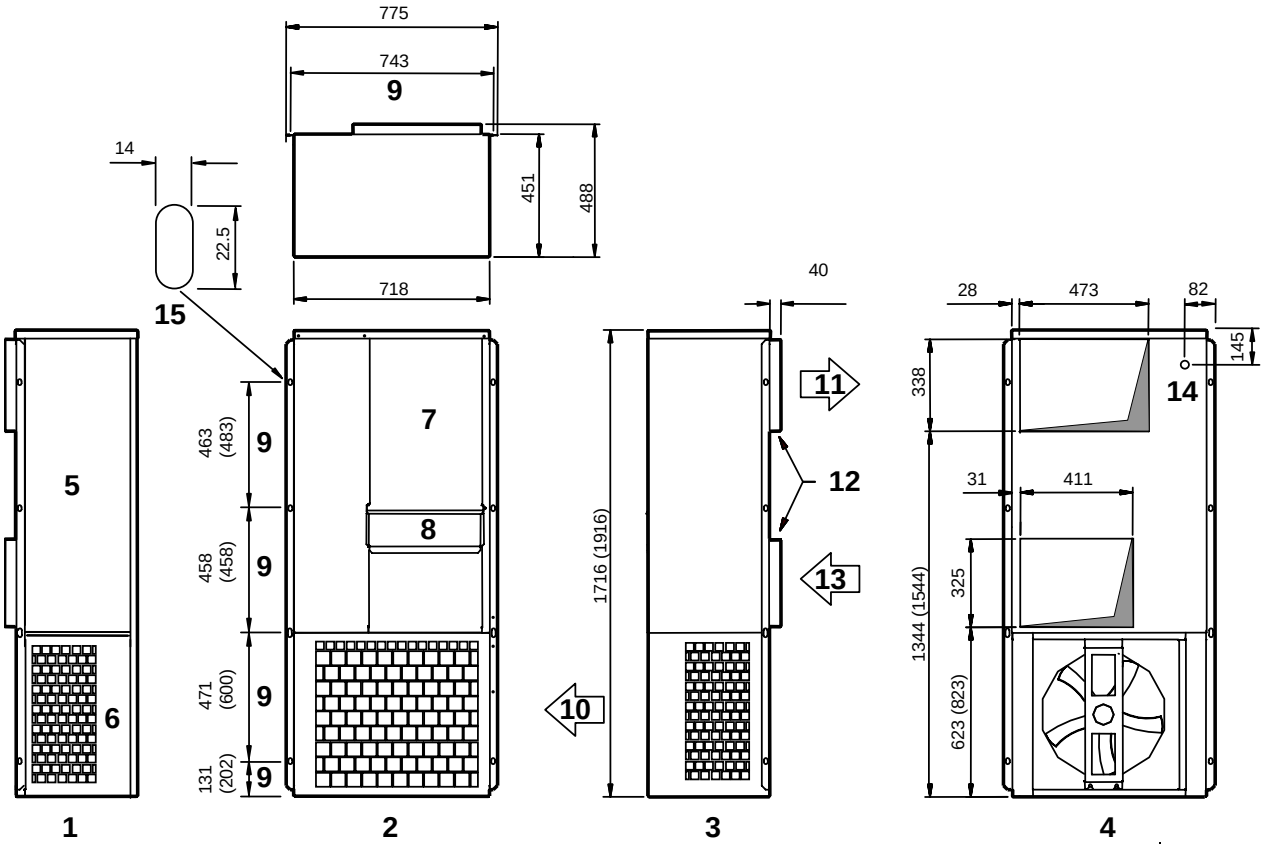
	Sound Measurement	Overall dB(A)
VTCU5 - 8 DX Mechanical Cooling	Power	78
	Pressure @ 1m	73
	Pressure @ 3m	64
	Pressure @ 10m	53
VTCU5 - 8 (2) Low Noise Option	Power	72
	Pressure @ 1m	67
	Pressure @ 3m	57
	Pressure @ 10m	47
VTCU5 - 8 Free Cooling	Power	47
	Pressure @ 1m	45
	Pressure @ 3m	35
	Pressure @ 10m	25

(1) All sound data measured at nominal conditions.
(2) This option utilises fan speed regulation to indoor and outdoor fans and a compressor acoustic jacket.

Dimensional Data

DIMENSIONS (MM)

VTCU 5 - 8
Figures in brackets represent VTCU8 with High Ambient option.



1 Left Side View
2 Front View
3 Right Side View
4 Rear View
5 Access panel - Controls, Compressor & Damper Actuator
6 Access panel - Exhaust Fan
7 Access panel - Supply Fan
8 Access panel - Filters
9 Fixing Bracket Slot Centres
10 Condenser Air Exhaust
11 Supply Air
12 Wall Spigots
13 Return Air
14 Incoming Customer Mains
15 Fixing Slot for M10 bolt x 8

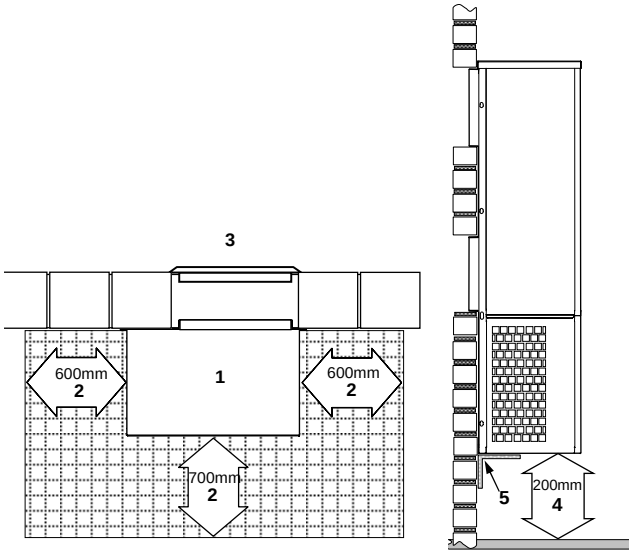
WEIGHTS (kg)

		Standard	High Ambient Option
VTCU5	mm	165	185
VTCU8	mm	190	210

Installation Data

POSITIONING

- This small footprint unit is relatively tall. Care should be taken during handling and lifting, that the unit is well supported and properly balanced.
- Where a cavity wall exists between AHU and conditioned space, a wall sleeve will be required. (Supplied by others).



1 Top View
2 Minimum Service Area
3 Leave Unobstructed
4 Minimum void to allow free airflow
5 3"cabin mounted angle iron (not supplied)

MOUNTING

CAUTION **Units MUST be supported by a 3"cabin mounted angle iron (not supplied).**

DRAINAGE

A 19mm ID condensate drain hose is provided. Terminates internally to the unit.

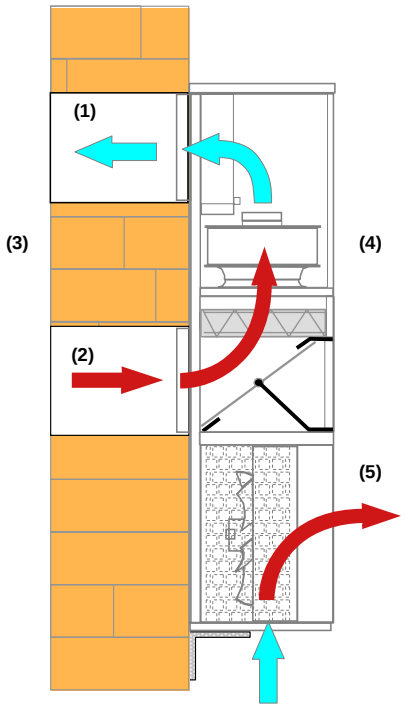
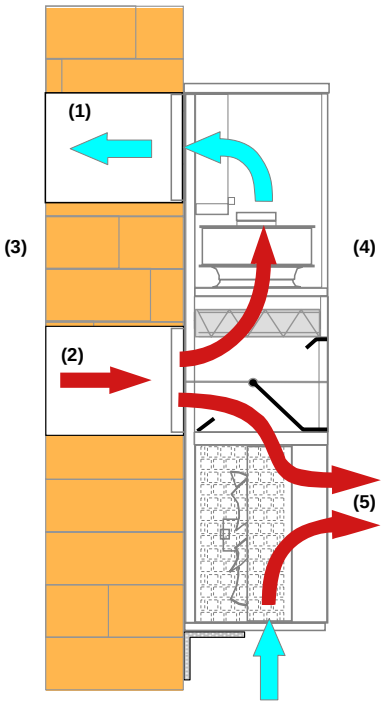
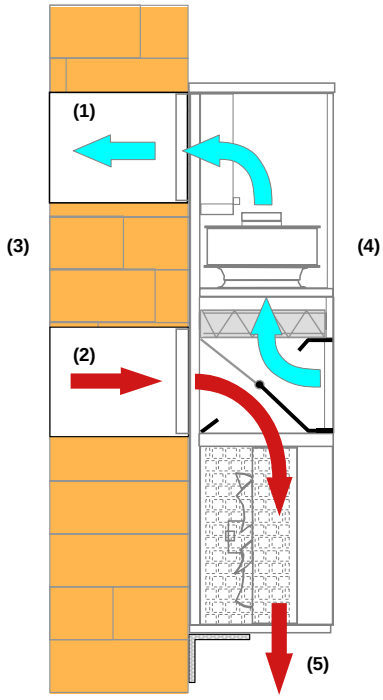
Ensure the condensate drain is clear of obstructions and is free flowing.

All drain pipework operating under gravity should be sloped away from the equipment and the gradient should be made as steep as possible. Suitable rodding positions should be incorporated particularly if the run is long in accordance with any Local codes and general good piping practice.

The unit condensate drain trap is located in the compressor enclosure and is accessible through the unit side panel. The condensate trap requires filling to be fully effective. Water should be added to the drain until water discharges from the condensate outlet.

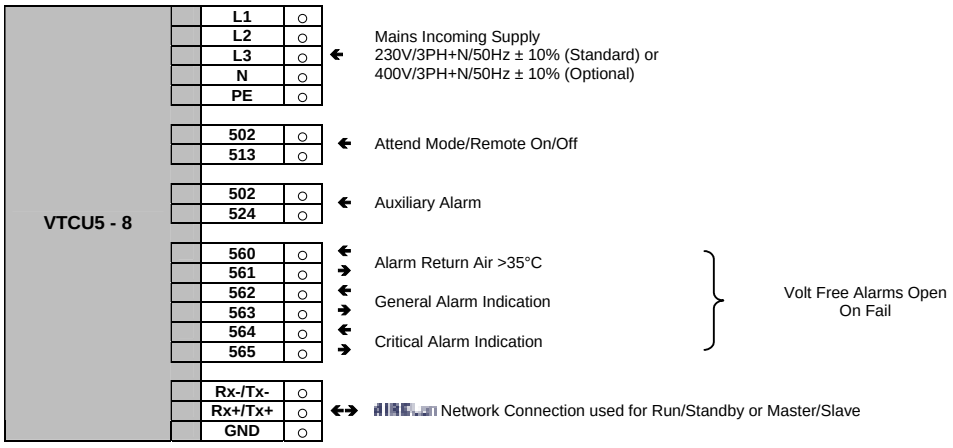
Design Data

UNIT OPERATION

DX Mechanical Cooling Operation	Combined DX Mechanical Cooling Operation & Free Cooling Operation	Free Cooling Operation
		

(1) Supply Air
(2) Return Room Air
(3) Inside Air
(4) Outside Air
(5) Condenser Air Exhaust

INTERCONNECTING WIRING



AIRETronix Controls

GENERAL

As standard the units are supplied with an AIRETronix microprocessor controller, which may be connected to an optional 4x20 back-lit LCD remote display keypad.

The AIRETronix microprocessor controller can be linked together locally to provide run/standby operation. Windows based supervisor software is also available for local or remote networking. This modular approach provides great flexibility while at the same time reducing installation and maintenance costs.

The optional display keypad features a simple array of keys to navigate through the in built menus. For remote mounting.

The AIRETronix microprocessor controller has been specifically designed to provide the control information necessary to operate the unit in an energy efficient manner.

The unit will operate in 1 of 4 modes:

1 Free Cooling (Optional)- using outside air only
2 Free Cooling (Optional) and DX Mechanical Cooling - using outside air and DX Mechanical cooling
3 DX Cooling - mechanical cooling with room return air
4 Electric Heating (Optional Extra)

TEMPERATURE CONTROL

The microprocessor senses the Return Air conditions and maintains them by controlling cooling and heating (optional) outputs accordingly.

The microprocessor monitors and displays (via optional display/keypad) the following measured parameters:

- Return Air Temperature
- Exterior Air Temperature
- Evaporator Coil Temperature
- Compressor 1 (2) Liquid Line Pressure (Head Pressure Control Option)
- Attend Mode or Remote On/OFF (Optional)
- Overheat Cut-Out (Electric Heat Option)
- Airflow Switch
- Filter Switch (Timed)
- Compressor 1 MCB (Optional)
- Condenser Fan MCB (Optional)
- Evaporator Fan MCB (Optional)
- Compressor 1 Low Pressure Switch
- Compressor 1 High Pressure Switch (Optional)
- Auxiliary Alarm (Smoke/Fire/Panel Interlock)

AIRETronix Controls

ALARM HANDLING

An alarm will be generated under the following conditions:

- Room Air Temperature out of limits or faulty probe
- Exterior Air Temperature out of limits or faulty probe
- Frost Protection or faulty probe
- Compressor 1 (2) Liquid Line Pressure out of limits or faulty probe (Head Pressure Control option)
- Overheat Cut-out tripped (Electric Heat option)
- Air Flow Switch tripped
- Filter Switch tripped
- Compressor 1 (2) MCB tripped (Optional)
- Condenser Fan MCB tripped (Optional)
- Evaporator Fan MCB tripped (Optional)
- Compressor 1 (2) Low Pressure Switch tripped
- Compressor 1 (2) High Pressure Switch tripped
- Auxiliary Alarm tripped (Smoke/Fire/Panel Interlock)

A **Visual** alarm will be triggered at the optional display/keypad.

High/Low Pressure Trip

To prevent nuisance tripping, the switches will automatically reset 3 times within a 24 hour period. Within the same 24 hour period, a further trip will signal the controller to disable the compressor and create an alarm. The alarm will require manual reset.

ALARMS LOG

The controller logs and allows viewing of the last 100 conditions recorded in descending chronological order through the optional keypad display.

STANDARD FEATURES

Compressor Anti-Cycle Control

Automatic compressor protection via the microprocessor.

Evaporator Fan Speeds

Varying speeds can be configured for heating, 1 DX stage, free cooling and speed at temperature setpoint.

Hours Run

Calculates hours run of major components.

Filter Change Alarm

Filter change is managed by the AireTronix software, and is based on fan(s) hours run with an alarm being generated when the pre-set run time limit has been exceeded. The set-point value can be adjusted to suit each application and is factory set to 2000 hours.

Maintenance Overrides

Allows testing of major components.

AIRETronix Controls

OPTIONAL EXTRAS

User Friendly Display Keypad

The display / keypad monitors temperatures, alarm, hours run and adjust setpoints.

Available fitted or for initial commissioning and set up hand held, **please specify at order**.

The default screen shows the unit status and room condition (°C/RH %) without the need for interrogation and an easy to navigate menu structure for further interrogation and adjustment.

Password Protection

When fitted with the optional display keypad, the control system integrity can be maintained by restricting access with a password PIN number.

CAUTION **IMPORTANT: To change the PIN number, please contact Airedale at time of order with the preferred 4 digit number.**

Real Time Clock

When fitted with the optional display keypad, a real time clock card can be fitted to the AIRETronix microprocessor to provide date and time stamping on alarms. Occupied and unoccupied set points can also be configured for temperature, humidity and head pressure control settings.

Remote On/Off

Terminals for interlocking are provided to enable or disable the unit remotely.

Head Pressure Control and Condenser Fan Speed Controller

Each refrigerant circuit is fitted with condenser pressure transducers and a modulating condenser fan speed controller to allow the designed head pressure to be monitored and maintained under varying ambient conditions. Condenser fan speed control settings are input via the display keypad.

Networking

A Local Area Network (AIRELan) can be used to connect upto 6 units to offer intercommunication and Duty/Standby or Master/Salve control. This also allows the connection of computers, printers and modems on the same communications ring. For further details, please contact Airedale Controls.

AIRETronix Controls

OPTIONAL FEATURES

Duty Rotation Networked units can be configured to duty rotate, providing equal hours run of fans and compressors.

Attend/Occupancy Mode To allow reduction of evaporator fan speed during 'Attend Mode' and to allow reduction of airflow during low temperature conditions (< 10°C conditioned space temperature).

BMS Interface Card Enables AIRETronix Controlled units to be interfaced with most BMS, factory fitted, please contact Airedale.

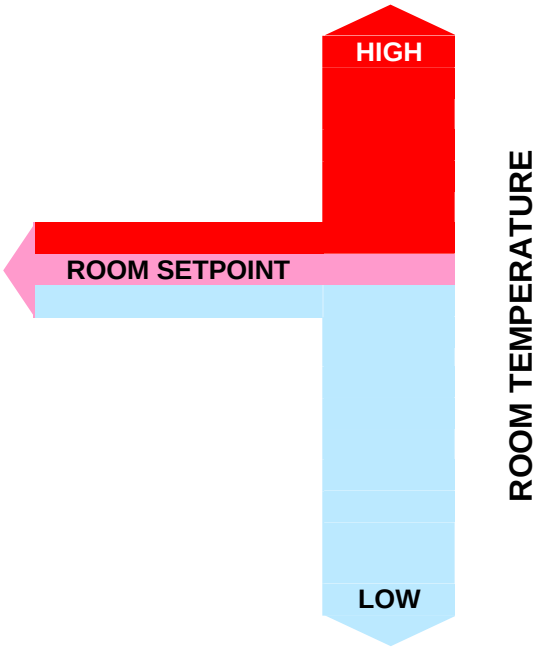
A wide range of protocols can be accommodated through the use of interface devices. Available as a standard option are: ModBus/Jbus, Carel and Trend.

For interfaces such as SNMP, LonWorks, Metasys and BACnet, please contact Airedale.

GSM Modem Kit Allows remote alarm monitoring by sending alarm text messages to a nominated mobile phone, factory set.

AIRETronix Controls

OPERATION



ALARM

STAGE 2 COOLING — Free Cooling damper 100%, if outside air temperature is 2°C below room temperature. Compressor ON.

STAGE 1 COOLING — Free Cooling damper modulates 0-100%, if outside air temperature is 2°C below room temperature.

Free Cooling damper CLOSED. Evaporator fan ON.

Free Cooling damper CLOSED. Evaporator fan running at reduced speed.

STAGE 1 HEAT — Free Cooling damper CLOSED. Evaporator fan ON. Electric heat Stage 1 ON.

LOW LIMIT CUT OFF — Free Cooling damper CLOSED. Evaporator fan running at reduced speed.

ALARM

FACTORY SETTINGS

	Conditioned Space Temperature	Unit Operation
VTCU5 - VTCU8	Less than 18°C	Damper is closed
	Between 18°C and 21°C	Fresh air damper modulates
	23°C	Circuit 1 (5kW & 8kW cooling) is active
	35°C	Over temperature alarm is generated

1 The damper also assists mechanical cooling when the outdoor air is less than 2°C below the return air temperature.
2 When the outdoor ambient is below 13.5°C the DX Cooling will not operate.
3 When conditioned area is below 14°C the evaporator fans will switch off to conserve energy.
4 All microprocessor settings are adjustable via the user display.

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A MODINE Company

PART NO:	ISSUE	DATE
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Airedale Departmental Contact Details:

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