

System 4 MVHR for residential & commercial applications










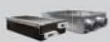






Vent-Axia offers a complete range of Mechanical Ventilation with Heat Recovery (MVHR) units for residential and commercial applications, including many that are recognised in the SAP Product Characteristics Database.

Lo-Carbon Sentinel Kinetic® Advance

The first of our new generation of MVHR systems incorporating a range of unique features. Offering units with wifi and App control options along with integrated digital controls for easy installation the range is designed with developers, specifiers and installers in mind. With over 93% efficiency and low specific fan powers down to 0.38 W/l/s; designers will see a reduction in their dwelling emission rate.

Vent-Axia®



	Lo-Carbon Sentinel Kinetic® Range Overview	50 - 53
	Lo-Carbon Sentinel Kinetic® BH MVHR Unit	54 - 57
	Lo-Carbon Sentinel Kinetic® FH MVHR Unit	58 - 61
	NEW Lo-Carbon Sentinel Kinetic® Advance MVHR Unit	62 - 65
	Lo-Carbon Sentinel Kinetic® Plus MVHR Unit	66 - 69
	Lo-Carbon Sentinel Kinetic® High Flow MVHR Unit	70 - 71
	Lo-Carbon Sentinel Kinetic® Cooker Hood MVHR Unit	72 - 75
	Lo-Carbon Sentinel Kinetic® Horizontal MVHR Unit	76 - 81
	Lo-Carbon Kinetic® Plus E MVHR Unit	82 - 85
	HR100R/RS Ducted MVHR Unit	86 - 87
	Integra Ducted MVHR Unit	88 - 89
	NEW Integra Plus EC Ducted MVHR Unit	90 - 91
	Sentinel Totus2 D-ERV	92 - 97
	Remote System Hood	98

Lo-Carbon Sentinel Kinetic Range Overview

- Manufactured in the UK
- Building Regulations ADF and ADL compliant
- Recognised in SAP PCDB
- Specific Fan Power down to 0.4 W/l/s
- Up to 94% heat recovery
- Fully automatic Summer bypass
- Horizontal and/or vertical duct outlets
- Integrated digital controller for simple and accurate commissioning
- Lightweight for easy installation
- External condensate connection
- Plug and play controls; Humidistat, Ventwise, Wireless Remote

The Sentinel Kinetic Range Incorporates:

- A wholehouse heat recovery system with up to 94% energy efficiency
- An easily accessible heat recovery cell protected by two removable G3 filters
- Two Lo-Carbon energy saving EC/DC fans which ensure long life (typically over double the life of AC motors) and lowest possible energy use
- Fully insulated construction with built-in condensation drain
- Specifically designed for new build constructions with a high level of insulation

The Lo-Carbon Sentinel Kinetic meets the latest requirements of the Building Regulations ADF and ADL for wholehouse system ventilation: System 4 - Continuous mechanical supply and extract with heat recovery. The Lo-Carbon Sentinel Kinetic models have 3 fully adjustable speeds and a purge setting (maximum flow). Provided with the unit is a digital controller that can be used to preset the speeds to any required airflow within the performance range.

Integral Humidity Sensor

The integral humidity sensor (models with H suffix) increases speed in proportion to relative humidity levels, saving energy and reducing noise. The sensor also reacts to small but rapid increases in humidity, even if the normal trigger threshold is not reached. This unique feature ensures adequate ventilation, even for the smallest wet room. The night time relative humidity setback feature suppresses nuisance tripping as humidity gradually increases with falling temperature.

Optional M5 Supply Filters

Kinetic B, BH & Cooker Hoods Filter

Stock Ref

444199

Kinetic Plus Range Filter

Stock Ref

444201

For sensors see Accessories & Controllers section.

Sentinel Control

The Sentinel controller is the most advanced system available, providing Demand Control Ventilation (DCV), minimising energy consumption and noise levels, and optimising ventilation performance. Sentinel controlled units may be set to operate fully automatically or with varying levels of manual intervention.

Building Management System (BMS) Options

There are two levels of BMS available: Basic Output and full Electronic BMS.

Basic Output provides a 5 volt output from the LED terminals on the controller. This output occurs whenever a message appears in the digital display, for example; 'Check Filters' or a fault code. The output can also be converted to volt-free with the addition of an optional Opto-Coupler.

Electronic BMS: A full range of two-way digital signals are available through the RJ11 connector on the control board. The BMS system provider will translate this signal to extract the desired data. Contact Vent-Axia to discuss your specific requirements.

LED Alarm

MVHR units are often installed in lofts or other locations where they are difficult to monitor. The optional remote LED alarm illuminates when any message is visible in the MVHR unit display panel. The LED alarm can be installed in a convenient location within the dwelling allowing end users to see that the unit requires attention.

Control Inputs

Five volt-free pairs of switch terminals for sensor inputs allow boosting from a full range of Vent-Axia controllers - humidistats, PIR, timers.

Two terminals with 0-24V outputs allow 0V to 10V proportional control by sophisticated controllers such as CO₂ sensors and proportional humidistats.

The optional Ventwise controller senses temperature rise in a bath/shower hot water supply and/or current in a cooker/hob electrical circuit to activate boost, ensuring additional ventilation when needed.

Switched-live for boosting via light switches (220-240 V AC) or manual Normal/Boost switches. This connection has the advantage of Delay-On and Delay-Off facility. Delay-On enables you to prevent the Boost airflow between 0 and 10 minutes, after a light switch has been activated. Delay-Off allows the Boost airflow to continue after a light switch is turned off to ensure effective clearance of humidity. This timer is adjustable between 0 and 25 minutes.

The units can be boosted incrementally via the on-board controller or the Wired Remote Controller: One press = 30 minutes, two presses = 60 minutes, three presses = continuous.

Optional Controls

LED Alarm with 15 metre cable

Stock Ref

448356

Wired Remote Controller with 15 metre cable

Stock Ref

443283

Wireless Enable Kit (includes one switch)

Stock Ref

441865

Additional Wireless Boost Switch

(max 3 switches)

Stock Ref

437827

Ventwise Controller (also requires sensors, see Accessories & Controllers section)

Stock Ref

441780

Purge Setting

The unit can be set to maximum flow (100%) by pressing and holding the Boost button on the unit itself or optional wired controller for 5 seconds. Purge will continue for two hours unless cancelled by pressing the Boost button again.

Summer Bypass

An internal damper operates when the external temperature is below the internal temperature, and the internal temperature is too high.

The bypass opens and allows the cooler outside air to help cool the dwelling.

Normal mode: Fans run on Normal speed with bypass open until the internal dwelling temperature falls below the set 'Indoor' (maximum desired) temperature.

Evening Purge mode: The fans run on Boost speed until the internal temperature falls below the set 'Indoor' temperature. If, after five hours the internal temperature is still above the set 'Indoor' temperature, the unit will switch down to normal speed for the remainder of the 'bypass open' period.

Night-time Purge mode: As Evening Purge, except that the unit will continue on Boost speed until the internal air temperature reaches the 'Outdoor' temperature set point (Default 14°C). This mode gives pre-cooling of the dwelling for the following day.

In Evening and Night Time Purge modes, the user can turn off the boost function by pressing the Boost button.

A Summer Bypass can make a contribution to reducing internal temperatures but is not a substitute for appropriate design and construction.

Frost Protection

In order to prevent frost forming inside the unit in winter conditions, the Kinetic range employs a sophisticated frost protection strategy that modifies the airflows ensuring heat recovery continues down to -20°C. Below this temperature, the units will operate as 'extract only' fans. If balanced ventilation is required at low temperatures, a duct pre-heater should be used.

System Cooker Hood Range

System canopy hoods are a motorless hood with extract being provided by the MVHR unit. When the Boost button on the canopy is activated, the MVHR unit goes to boost setting and the summer bypass opens preventing cooking by-products entering the heat exchanger cell. SELV hoods allow the distance between the hood and an electric hob to be reduced from 650mm to 550mm.



Model	Stock ref
White	407509
Aluminium	407206
White SELV	474790
Aluminium SELV	474791

Wired Remote Controller

Standard with horizontal units, optional extra with vertical units. Supplied with 15 metres of cable (max length), the Wired Remote Controller duplicates all the features of the on-board control panel, allowing commissioning, diagnosis and user control. Flush mounting, suitable for a single gang pattress box 16mm deep.



Model Range Overview

Sentinel Kinetic Range

Kinetic E Range



Model Ranges	Sentinel Kinetic Range					Kinetic E Range										
	Lo-Carbon Sentinel Kinetic			Lo-Carbon Sentinel Kinetic F	Lo-Carbon Sentinel Kinetic Plus	Lo-Carbon Sentinel Kinetic High Flow	Lo-Carbon Sentinel Kinetic Cooker Hood	Lo-Carbon Sentinel Kinetic Horizontal			Lo-Carbon Kinetic Plus E					
Models	V	B	BH	F	Plus	High Flow	CH	200ZP/ ZPH	300ZH	200Z/ZH /ZMH*	Plus E					
Auto Summer Bypass		✓	✓	✓	✓	✓	✓	✓	✓	✓						
Easy Access Filters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Very Low Noise Levels	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Integral Cooker Hood							✓									
Built-In Humidistat			✓	✓	✓	✓	✓	✓								
Kitchen Cupboard Installation	✓	✓	✓													
Max Airflow @ 100Pa	68	68	68	79	117	185	68	37	81	50	117					
Frost Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Delay-On	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Wired Remote Control	○	○	○	○	○	○	○	✓	✓	✓						
Wireless Boost	○	○	○	○	○	○	○	○	○	○						
Clean Filter Indicator (Time)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Fault Code Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Potentiometer Adjustment											✓					
Sentinel Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Switched Live	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Volt Free Contact	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
0V - 10V Proportional Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
BMS Input/Output	✓1	✓1	✓1	✓1	✓1	✓1	✓1	✓1	✓1	✓1	✓1					
Lightweight	✓	✓	✓	✓	✓	✓					✓					
External Condensate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Horizontal Duct Option	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Horizontal (Slab) Installation								✓	✓	✓						
Left/Right Orientation	✓	✓	✓	✓	✓	✓	✓				✓					
Ventwise Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
PIN Number Lock	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Running Time Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Enthalpy Heater Exchanger		○	○	○	○	○										
Mounting Options	 Wall Surface			 Wall Surface		 Wall Surface		 Wall Surface		 Wall		 Slab			 Wall Surface	

○ - Denote Optional, 1- Seek technical advice from Vent-Axia. *ZMH rectangular spigot model.

Sentinel Demand Control

The Lo-Carbon Sentinel Kinetic Range can be used with a wide range of optional Vent-Axia controllers and sensors. Ranging from integral humidistats, through wireless controllers to wired remote sensors.

Wired Remote Controller

- Standard with horizontal units, optional extra with vertical units
- Supplied with 15 metres of cable (max length), the Wired Remote Controller duplicates all the features of the on-board control panel, allowing commissioning, diagnosis and user control
- Flush mounting, suitable for a single gang pattress box 16mm deep



Stock Ref
443283

Wireless Transmitter Controller Receiver Kit

- Manual boost
- Adjustable overrun timer
- Easy wireless installation
- Reduces installation time
- Future proof - add more controllers at any time



Stock Ref
441865

Wireless Transmitter Controller

- Additional controller for 441865
- A maximum of 4 controllers can be used per system
- Can be connected to other accessories (eg Humidistat) to send a boost signal wirelessly



Stock Ref
437827

Ambient Response Humidity Sensor

- Pullcord override and neon indicator
- Changeover relay switch
- Operating range: 30% - 90%RH
- Ambient operating temp. 5°C to 40°C
- 220-240V AC
- Will fit single gang box for surface mounting



Stock Ref
563550

Ecotronic Humidity Sensor

- Set Point adjustable
- Maximum switching load 1 amp inductive
- Pullcord override indicator
- Ambient operating temp. 0°C to 40°C
- Supply voltage 220-240V



Stock Ref
563532

Air Quality Sensor

- Ambient operating temp. 0°C to 50°C
- Min - Max mode or direct damper control
- Surface mounted
- 1 - 25 min O/R timer
- Supply voltage 220-240V



Stock Ref
563506

Normal Boost Switch

- A single gang switch to boost from low to high speeds on heat recovery systems
- 85 x 85 x 10mm (H x W x D)



Stock Ref
455213

Visonex PIR Sensor

- Fits any UK single gang mounting box
- Adjustable timer overrun (5-25 mins)
- Range of detection up to 10 metres
- Designed to meet IP43
- Ambient operating temp. range 0°C to 50°C



Stock Ref
459623

CO₂ + Temp Room Sensor

- 240V DC
- 0 - 2000ppm CO₂ working range
- 0 - 50°C working range
- Auto-calibrating NDIR CO₂
- Thin film platinum temperature sensor for high accuracy



Stock Ref
433257

Ventwise

- Automatically boosts fan when temperature of the supply pipe to a shower or bath increases
- Automatically boosts fan when electric hob is switched on
- Can be used in conjunction with manual override input
- Adjustable overrun timer
- 3 sensor inputs



Stock Ref
441780

Momentary Push Switch

- Compatible with Sentinel Kinetic range, the momentary switch boosts the unit for 30 minutes
- 85 x 85 x 10mm (H x W x D)



Stock Ref
448929

Normal Boost Switch with Light Indicator

- Single gang switch with LED illumination when in the Boost condition
- 85 x 85 x 10mm (H x W x D)



Stock Ref
449060

Normal Boost Switch - Stainless Steel

- A single gang switch to operate normal/boost functions on MVHR systems
- Brushed stainless steel finish
- 90 x 90 x 18 (H x W x D)



Stock Ref
437320

Isolator Relay Controller

- Allows fan unit to be isolated from other mains circuit when used with TIM2 trickle/boost switch or light switch control



Stock Ref
442030

Lo-Carbon Sentinel Kinetic Plus

- Recognised in SAP PCDB
- Ultra quiet
- Horizontal duct option for space-saving installations
- High airflow, ideal for student accommodation clusters
- Unique folding filter for removal when access is restricted
- Integrated digital controller for simple and accurate commissioning
- Lightweight for easy installation
- Plug and play controls; Humidistat, Ventwise, Wireless Remote
- BMS connectivity
- LS inputs (Light Switch)
- Volt-free inputs
- Self diagnosis for simplified fault finding
- Adjustable delay On/delay Off timer



Increased Performance

The Sentinel Kinetic Plus benefits from the latest high efficiency, backward curved impeller design, ensuring the lowest possible energy consumption, ultra quiet operation and an exceptional performance range covering small one bed apartments to the largest of houses.

Care Homes & Student Accommodation

The Sentinel Kinetic Plus is ideal for larger homes and multiple occupancy units such as care homes and student accommodation. Capable of 400m³/hr at 150Pa, the unit can extract from up to ten bathrooms and a communal kitchen while still achieving almost 90% heat recovery. The fully automatic capability of the Kinetic range means that adequate ventilation is always achieved.

The Kinetic's BMS capability is also ideal for those commercial applications where landlords or property managers want to monitor and optimise building performance and maintenance. The Kinetic BMS can provide status information and its self diagnostics can report if any fault is found.

Spigot Options

Spigots may be re-positioned to give horizontal connection or a combination of vertical and horizontal connection.

Optional 180mm/200mm spigots can simplify connection in commercial installations where larger diameter duct work has been used.

Quick Change Filter

As many systems are placed within cupboards the unique filter design folds as you remove it to ensure easy access in restricted spaces.

Integral Humidity Sensor

The integral humidity sensor increases speed in proportion to relative humidity levels, saving energy and reducing noise. The sensor also reacts to small but rapid increases in humidity, even if the normal trigger threshold is not reached. This unique feature ensures adequate ventilation, even for

the smallest wet room. The night time relative humidity setback feature suppresses nuisance tripping as humidity gradually increases with falling temperature.

Models

Model	Stock Ref
Kinetic Plus B Right	443028
Kinetic Plus B Left	443028L

Accessories

Model	Stock Ref
Wired Remote Controller	443283
Wireless Enable Kit	441865
Wireless Transmitter Controller	437827
Ventwise Controller	441780
LED Alarm with 15m cable	448356
Opto-coupler for volt-free bms connection	447340
Kinetic Spare Filters 2 pk.	443351
M5 Pollen Filter	444201
180mm/200mm Spigot Kit (One per pack)	446523
Anti vibration mounts	68MP033G

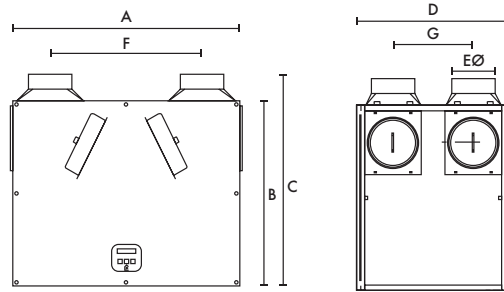
SAP PCDB Test Results

	Thermal Efficiency %	SFP (W/l/s)
K+1	91	0.51
K+2	91	0.40
K+3	90	0.41
K+4	90	0.45
K+5	90	0.53
K+6	90	0.60
K+7	90	0.70

SEC Class

Model	SEC Class
Kinetic Plus B	A+

Dimensions (mm)

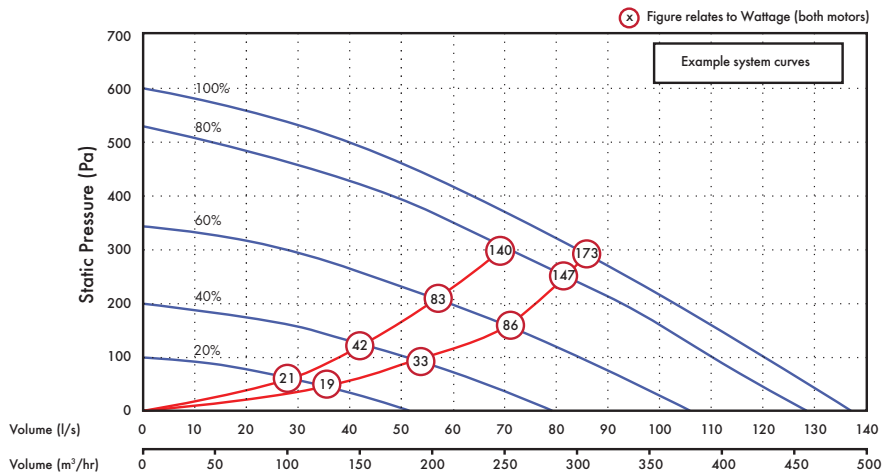


A	B	C	D	EØ	F	G
785	635	722	550	150	520	275

Weight: 24kg

Performance

Fan speeds are fully adjustable within the performance range.



Sound Data

Unit setting	Test mode	Octave band, Hz, dB SWL								SPL dB(A) at 3m
		63	125	250	500	1k	2k	4k	8k	
20%	Supply	54.4	60.9	50.6	45.9	34.3	23.6	19.1	24.5	30.8
	Extract	48.4	56.7	43.7	35.9	21.4	16	18.7	24.5	24.8
	Breakout	42.6	40.2	39.6	38	31.1	24.3	19.4	24.6	17.6
40%	Supply	61.6	64.6	58.4	55.5	45.9	37.2	24.7	25.1	38.3
	Extract	54.9	62.2	51.5	44.8	32.1	24.1	19.7	24.6	31.3
	Breakout	51.1	49.3	48.9	45.9	41.3	35.7	26.7	25.6	26.5
60%	Supply	67.5	67.5	73.2	62.4	53.4	47.5	33.5	28.3	48.7
	Extract	62.5	61.7	60.1	51.1	39.2	32.1	23.2	24.8	36.5
	Breakout	54.9	53	58.4	55.1	49.7	43.9	35.4	31.9	35.3
80%	Supply	70.5	71.1	73.8	66.5	58.3	53.2	39.7	33.3	50.8
	Extract	68.4	65.9	71.8	55.6	43.6	37.1	27.3	25.5	46.3
	Breakout	59.2	56.8	63.6	57.3	54.2	49	41	37.5	39.3
100%	Supply	72.8	73.1	75.2	70.4	61.6	56.6	44.2	37.6	53.4
	Extract	71.7	69	71.8	57.4	45.7	39.9	30.9	26.6	46.6
	Breakout	61.2	58.8	67.9	59.6	56.7	52.2	44.4	41.2	42.6

Tested according to BS EN 13141-7:2010. Breakout quoted spherical. Supply and Extract quoted hemispherical.

Consultant's Specification

Operation

The supply and extract ventilation unit shall be as Sentinel Kinetic Plus as manufactured by Vent-Axia and shall be sized as indicated on the drawings and shall be in accordance with the particular specification.

Supply air to the room shall be pre-heated by the extract air via the integrated composite plastic counterflow heat recovery cell. The Sentinel Kinetic Plus shall automatically vary the ventilation rate via EC/DC motors, as it receives signals from one of the optional interconnected sensors.

When a signal is received, the fans shall either vary their speed proportionally or on a trickle and boost principle.

The unit shall have the facility to commission the supply and extract fans individually via in-built minimum and maximum speed adjustment, or alternative wired remote control unit. The fans themselves shall have independent, infinitely variable speed control.

Unit Specification

The unit shall be manufactured with an ABS outer case construction, and incorporate a reversible core to allow for left or right hand mounting.

The unit shall have a high efficiency composite plastic counterflow heat exchanger, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls with fascia mounted failure indication.

The unit shall have low energy, high efficiency EC/DC fan/motor assemblies with sealed for life bearings. The impellers shall be high efficiency backward curved centrifugal type.

The unit shall have a heat exchanger cell with a thermal efficiency of up to 92% when tested to EN 308. This shall be protected by G3 grade synthetic filters on supply and extract. Complete with a condensate drip tray and drain connection.

The unit shall be constructed with a removable Core allowing full maintenance access. The removable Core shall provide access to the following:

- ✓ Supply and extract filter
- ✓ Heat exchanger
- ✓ Access to the electrical connections

Access shall be provided for wiring termination and setup/commissioning. The backlit LCD user interface therein may be duplicated for remote mounting if required. Units shall be as manufactured by Vent-Axia Ltd.

Sound tested to BS EN 13141-7:2010

Standard Controls

All Sentinel Kinetic units shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer:

- ✓ Integral infinitely variable fan speed control on supply and extract
- ✓ Integral min/max ventilation control/set point
- ✓ Integral BMS input/output interfaces - control and status indication
- ✓ Heating interlocks
- ✓ 0-10V proportional speed adjustment
- ✓ Volt free contacts
- ✓ 24V sensor supply
- ✓ Integral on/off or trickle boost function from remote switch, e.g. PIR occupancy detector

- ✓ Fully automatic summer bypass
- ✓ Switched Live input with adjustable 'delay-on' feature
- ✓ Fan failure or component failure indicated via individual fault code display
- ✓ Running time counter
- ✓ Control panel PIN number lock
- ✓ Automatic frost protection effective to -20°C
- ✓ The unit shall incorporate an integral humidity sensor with the following features:
 - Ambient Response; Raises the humidity trigger point as dwelling temperature reduces
 - Rapid Response: Monitors the rate of change in humidity and triggers increased airflow even if the humidity trigger threshold is not reached
 - Proportional Response; Incrementally increases the fan speed to reduce noise and reduce energy consumption
- ✓ The unit shall be controlled by the 'Sentinel' control devices (enablers and sensors) as detailed in the schedule or on the drawings.
- ✓ Tool free filter access

Mounting Option

