

# Lo-Carbon Sentinel Kinetic Advance



- Touch screen controller
- Lightweight for easier installation
- Full summer bypass
- Wi-Fi connectivity option
- Wireless commissioning
- Pre-commissioning via USB
- App control option
- Left/Right handing through the controller
- Pre-heater option for cold climates
- Post-heater control option
- Developed and manufactured in the UK
- ISO ePM10 and ePM2.5 filter options
- Acoustic Enclosure option for reduced breakout noise
- Acoustic Top Box option for reduced in-duct noise



The award winning Sentinel Kinetic® Advance from Vent-Axia is the next generation of heat recovery ventilation systems. It is designed to offer the highest level of comfort and control available ensuring the best possible customer experience.

## A whole new experience

The highly sculpted interior surfaces, designed using the latest CFD techniques, ensures airflows are maximised through the unit, minimising noise and energy use. This feature alone provides an experience which we are confident will delight home owners and fulfil our ambition of providing the most discrete and efficient ventilation available.

With the widest range of options available, installers can now order a system that is tailored to their client's needs.

## Air Quality and Health

We have strived to make the Advance system the most flexible solution available on the market. Optimisation has been targeted in every aspect of the design to ensure that it really does improve quality of life. Whatever the outside environment, we have a method to help reduce air pollution from entering the living space. Our range of filter options, up to and including ePM2.5 (F7), ensures that even homes in heavily urbanised areas have the opportunity to filter out the impurities and help protect their family from respiratory issues.

## Low noise levels

The most common concern with home owners is that ventilation devices create noise. With Advance, absolute optimisation of every element does everything possible to minimise generation and transmission of both motor and airflow noise. We believe that we have one of the quietest units available. The Sentinel Kinetic Advance Acoustic Solution is also available for scenarios where noise is critical; an Acoustic Enclosure will reduce breakout noise and the Top Box will reduce in-duct noise at key frequencies.

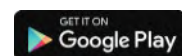
## Ventilation how you want it

We have spent our time considering every element of the ventilation control. Should you want to run the system at certain times and at certain speeds, all of the options are available for you. With a programmable controller, it is possible to boost the unit if required, for example during hot periods in the summer, or even reduce the speed if needed, perhaps when a baby is due to go to bed. Whatever the situation, Advance can be made to operate as needed.

At the same time, automatic functions such as frost protection and summer bypass even have a choice of algorithms designed to suit different climates and lifestyles.

## Controllability

With building services often hidden away in cupboards or in lofts we have developed a number of options for system control. From an App which provides instant access wherever you are, to full on-board touch screen controls, an option will be available to suit your needs.



## Airtight Buildings

Low energy buildings typically have very low leakage rates (below 3m<sup>3</sup>/(h.m<sup>2</sup>) at 50Pa). This reduces the effectiveness of the standard frost protection strategy which imbalances the airflows. For airtight buildings in cold climates it is advisable to use the Sp models with built-in pre-heater.

## SEC Class

Model	SEC Class
Advance S/SX	A+

## Model

Model	Stock Ref
Advance S	405215
Advance S with Acoustic Top Box & Enclosure	479550
Advance S with Acoustic Top Box	479549
Advance S with Acoustic Enclosure	479548
Advance SX	405216
Advance SX with Acoustic Top Box & Enclosure	479553
Advance SX with Acoustic Top Box	479552
Advance SX with Acoustic Enclosure	479551
Advance Sp LH	476808
Advance Sp RH	476809

## Accessories

Model	Stock Ref
Wifi Controller	409195
Docking Kit for Wired Controller	474491
Volt-free Expansion (Four additional inputs)	472697
Switched Live Expansion (Two additional inputs)	472699
0V - 10V Input Board (Two inputs)	472701
Acoustic Purge Fan	477988

## Spare Filters

Model	Stock Ref
ISO 45% Coarse (G3) (2 pack)	472667
ISO ePM10 50% (M5) Pollen Filter (1 pack)	472669
ISO ePM2.5 70% (F7) (1 Pack)	472671

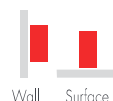
## SAP PCDB Test Results

SAP 2009			SAP 2012	
	Thermal Efficiency %	SFP (W/l/s)	Thermal Efficiency %	SFP (W/l/s)
K+1	93	0.38	93	0.39
K+2	93	0.38	92	0.46
K+3	92	0.42	91	0.55
K+4	92	0.50	91	0.70
K+5	91	0.58	90	0.85
K+6	91	0.68	89	1.07
K+7	90	0.82	89	1.31

## Model Range Overview

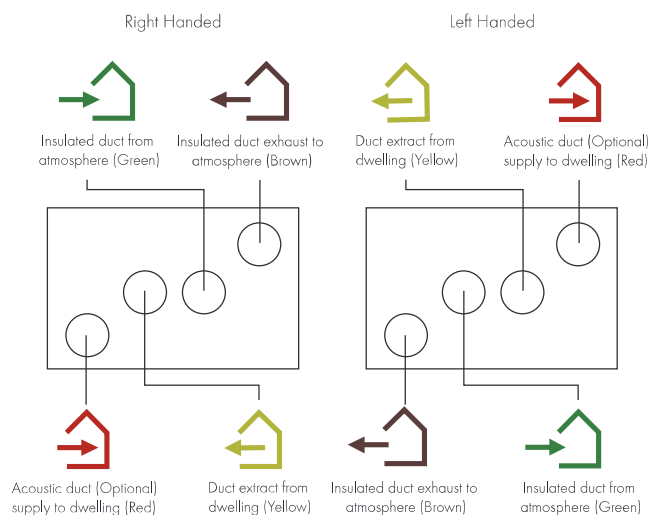
Models	Advance S	Advance SX	Advance Sp
Acoustic Enclosure	○	○	X
Acoustic Top Box	○	○	X
Sentinel Touch Screen Controller	✓	✓	✓
App Control	○	✓	○
App Commissioning	○	✓	○
Auto Summer Bypass	✓	✓	✓
Easy Access Filters	✓	✓	✓
ISO 45% Coarse (G3) Filter	✓	✓	✓
ISO ePM10 50%, ePM2.5 70% Filter Options	✓	✓	✓
Very Low Noise Levels	✓	✓	✓
Built-In Humidistat	✓	✓	✓
Active Frost Protection to -20°C	✓	✓	✓
Delay-On	✓	✓	✓
Clean Filter Indicator (Time)	✓	✓	✓
Clean Filter Indicator (Pressure)	X	✓	X
Fault Code Indicator	✓	✓	✓
Switched Live	✓	✓	✓
Volt Free	✓	✓	✓
0V - 10V Proportional Control	○	○	○
Lightweight	✓	✓	✓
22mm or 32mm Condensate Connection	✓	✓	✓
Left/Right Orientation Through Control	✓	✓	✓
PIN Number Lock	✓	✓	✓
Running Time Indicator	✓	✓	✓
External Pre-Heater Controller	○	○	○
External Post-Heater Controller	○	○	○
Built-In Pre-Heater	X	X	✓
Enthalpy Heater Exchanger	○	○	○
Fan Curve Flow	✓	✓	✓
Constant Volume	X	✓	X
Email Status Notifications	X	✓	X
Soft-Start Boost	✓	✓	✓

### Mounting Options



○ - Optional extra. Contact us for more information.

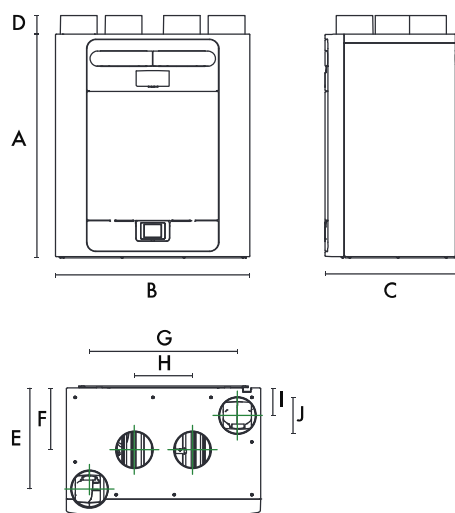
## Spigot Configuration



Hand-able through controller (except if pre-heater fitted)

## Dimensions (mm)

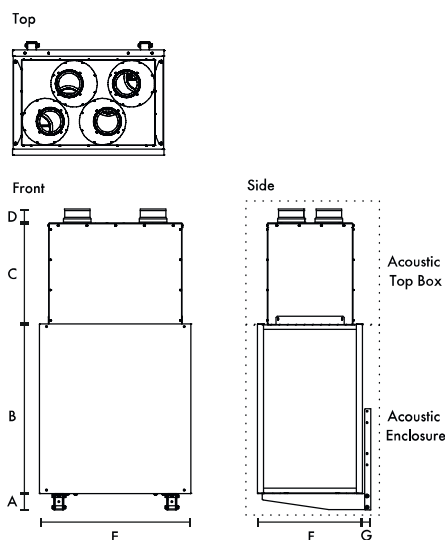
Unit



A	B	C	D	E	F	G	H	I	J	kg
760	660	443	63	343	210	503	197	93	125	27

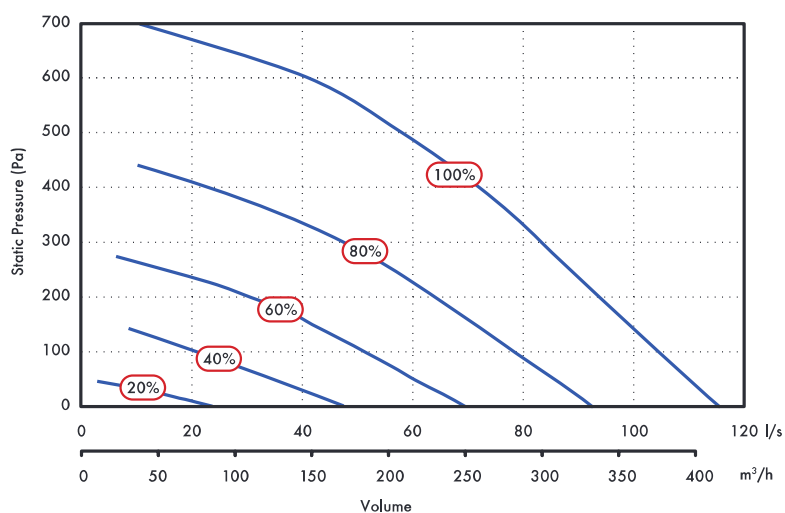
Packed weight: 32kg

## Acoustic Solution



A	B	C	D	E	F	G	kg	kg	Spigot
80	840	501	68	750	520	40	14	27	125

## Performance



## Sound Spectrum (Unit only)

		Octave Band (Hz) Sound Power Levels, dB								SPL dB(A)	
Speed	Test mode	63	125	250	500	1k	2k	4k	8k	LwA	@ 3m
20%	Supply	52.9	50.9	46.8	43.0	34.6	27.1	19.2	25.4	43.9	26.4
	Extract	50.3	49.0	36.0	31.5	23.6	16.1	18.9	25.3	36.4	18.9
	Breakout	34.6	34.8	35.7	34.9	29.6	25.1	21.0	25.3	36.0	15.5
40%	Supply	59.5	56.5	59.4	55.0	48.2	42.6	31.8	26.1	55.9	38.4
	Extract	51.9	51.3	50.4	41.2	35.0	25.3	19.8	25.4	44.8	27.3
	Breakout	40.2	42.6	46.5	45.4	41.0	36.2	25.5	25.3	46.5	26.0
60%	Supply	66.9	62.4	63.3	62.0	57.9	53.5	43.4	34.2	63.2	45.7
	Extract	60.6	60.3	54.2	49.5	44.4	36.2	27.9	26.3	51.7	34.2
	Breakout	45.5	49.8	52.5	53.1	49.7	46.7	36.2	26.9	54.5	34.0
80%	Supply	82.4	67.6	65.2	67.6	64.2	60.8	50.8	43.2	69.2	51.7
	Extract	75.5	68.6	59.3	56.0	48.3	44.2	36.9	31.3	58.6	41.1
	Breakout	59.2	55.0	56.8	60.0	55.4	53.9	44.1	33.4	61.0	40.5
100%	Supply	79.4	69.6	66.6	75.1	64.9	63.6	53.4	45.7	73.7	56.2
	Extract	72.4	70.5	60.5	56.4	49.8	46.3	39.0	33.4	59.5	42.0
	Breakout	63.0	57.1	58.5	63.7	56.8	55.9	46.4	36.2	63.5	43.0

## Sound Spectrum (Unit with Acoustic Solution)

		Octave Band (Hz) Sound Power Levels, dB								SPL dB(A)	
Speed	Test mode	63	125	250	500	1k	2k	4k	8k	LwA	@ 3m
20%	Supply	54.7	50.5	41.5	30.8	18.6	14.7	18.2	24.0	38.0	20.5
	Extract	54.8	41.7	31.4	20.2	15.2	13.8	18.3	24.3	31.9	14.4
	Breakout	36.6	47.3	38.0	24.7	19.3	16.6	19.1	23.6	34.0	13.5
40%	Supply	61.0	57.7	56.0	39.0	27.5	16.6	18.4	24.1	48.9	31.4
	Extract	55.7	50.8	44.6	26.8	19.1	15.0	18.2	24.0	39.2	21.7
	Breakout	55.9	55.2	48.2	35.5	29.9	20.9	20.4	25.3	42.6	22.1
60%	Supply	64.5	64.3	56.2	48.6	36.0	22.8	19.0	24.2	52.3	34.8
	Extract	59.4	57.3	46.6	36.0	25.6	17.4	18.6	24.5	43.9	26.4
	Breakout	43.5	60.5	49.5	43.5	39.0	32.0	23.8	23.7	47.6	27.1
80%	Supply	68.9	65.9	59.9	53.9	41.4	29.3	21.6	24.7	55.9	38.4
	Extract	63.1	69.3	52.6	43.0	33.4	23.7	20.2	24.6	54.5	37.0
	Breakout	48.3	69.8	52.7	48.3	44.7	39.8	33.2	25.9	57.1	36.6
100%	Supply	72.5	70.5	63.1	56.1	43.9	33.0	23.7	25.2	59.3	41.8
	Extract	70.3	61.9	56.2	45.4	36.6	28.0	22.9	24.6	51.5	34.0
	Breakout	54.3	67.1	63.3	51.3	47.9	43.9	38.5	28.7	57.7	37.2

Tested according to BS EN 13141-7:2010. Breakout quoted spherical. Supply and Extract quoted hemispherical. For in-duct data, end reflections are added based on the spigot size of the unit.

## Consultant's Specification

### Specification

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

The unit shall be fully insulated for thermal and acoustic performance and shall incorporate a counterflow multiplate heat exchanger with independently verified thermal efficiency up to 93%. The heat exchanger shall be protected by ISO 45% Coarse (G3) Grade filters on intake and extract air-flows. The unit shall have the facility to accommodate ISO ePM10 (M5) and ePM2.5 (F7) filters. The filters shall be accessible via tool-free access doors. The heat exchanger, motors, summer bypass and all other serviceable parts shall be accessible through the front of the unit.

Supply air to the room shall be pre-heated by the extract air via the integrated composite plastic counter-flow heat recovery cell. The Sentinel Kinetic shall automatically vary the ventilation rate via EC/DC motors, as it receives signals from optional or in-built sensor inputs. When a signal is received, the fans shall either vary their speed proportionally or on a trickle/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, with the ability to alter the spigot configuration via the on-board controller. The unit shall have a high efficiency composite plastic counter-flow heat exchanger, supply and extract filters (up to ISO ePM2.5 (F7)), automatic 100% 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, achieving an SFP as low as 0.38W/l/s (EN 308).

The unit shall have a heat exchanger cell with a thermal efficiency of up to 93% when tested to EN 308. This shall be protected by ISO 45% Coarse (G3) grade synthetic filters on supply and extract, with the option of ISO ePM10 (M5), ISO ePM2.5 (F7) or external carbon activated filters. The unit shall come with both a 22mm and 32mm connection for draining condensation.

The unit shall be constructed with a removable tool-free front panel which gives access to the removable on-board controller and other accessories. The EPS panel can then be removed with 4 screws allowing full maintenance access. This shall provide access to the following:

- ✓ Supply or extract fan
- ✓ Heat exchanger
- ✓ Access to the electrical connections

To reduce breakout noise, the MVHR unit shall be provided with an Acoustic Enclosure of steel construction lined with class 'O' acoustic foam. To reduce in-duct noise, the top of the MVHR shall be fitted with an Acoustic Top Box to provide attenuation to the 4 ducts of the unit. This Acoustic Top Box shall be of steel construction lined with acoustic class 'O' foam with the MVHR spigots linked to the Top Box via 4 separate attenuated ducts. The acoustic enclosure and top box shall each be independently tested for noise to BS EN 13141-7.

Access shall be provided for wiring termination and setup/commissioning. The backlit touch-screen user interface therein shall be removable for remote mounting if required. Filters shall be accessed via the two pull out drawers near the top of the unit.

Units shall be as manufactured by Vent-Axia Ltd.

### Standard Controls

The Sentinel Kinetic Advance shall incorporate the following functions integrally mounted through a touch-screen, adjustable controller fitted by the manufacturer: -

- ✓ Integral infinitely variable fan speed control on supply and extract.
- ✓ 6 speeds; 4 adjustable
- ✓ Left or Right hand spigot configuration, programmable by the on board controller
- ✓ Filter change wizard which stops the motors during filter replacement
- ✓ 0-10V proportional speed adjustment
- ✓ Volt free contacts
- ✓ 24V external sensor supply, eg PIR sensor
- ✓ Filter check facility adjustable in one month increments

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.
- ✓ WiFi connectivity for remote commissioning
- ✓ USB functionality for commissioning
- ✓ The unit shall incorporate an automatic 100% summer bypass damper which monitors internal and external temperatures to maintain the user comfort temperature (default 21°C) :
  - 'Evening Fresh' turns the unit to maximum speed with the bypass operational for 2 hours or until the user comfort temperature is reached (default 21°C).
  - 'Night Time Fresh' will run the unit on maximum speed with the bypass operational throughout the night or until the dwelling reaches minimum temperature (default 14°C).

Independently acoustically tested to BS EN 13141-7:2010

## Electrical Connection

