Sentinel

Kinetic Advance MVHR

User Guide

Stock Ref. N°
405215 Advance S
405216 Advance SX

Vent-Axia

PLEASE RETAIN THESE INSTRUCTIONS WITH THE PRODUCT.

408652

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THE UNIT.

1. All wiring must be in accordance with the current IEE wiring regulations BS7671,or appropriate standards of your country. Installation should be inspected and tested by a suitably qualified person after completion.
2. The mains supply (voltage, frequency and phase) complies with the rating label.
3. The unit should be provided with a local double pole fused spur fitted with a 3A fuse having a contact separation of at least 3mm.
4. These units must be earthed.
5. Precautions must be taken to avoid the back-flow of gases into the building from the open flue of gas or other fuel-burning appliances.
6. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
7. Young children should be supervised to ensure that they do not play with the appliance.

Disposal

This product should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority for recycling advice.

Contents

UK Building Regulations (Part F) Declaration of Conformance

The Sentinel Kinetic conforms to the 2010 Building Regulations (Part F - Means of Ventilation) requirements for installed performance of a ducted mechanical extract fan when installed in accordance with the instructions in this document and the Domestic Ventilation Compliance Guide.

Product Description

The Vent-Axia **Sentinel Kinetic Advance models S & SX Mechanical Ventilation/Heat Recovery (MVHR)** is a heat recovery unit designed for the energy efficient ventilation of houses and similar dwellings, conforming to the latest requirements of the Building Regulations document F 2010.

The unit is designed for continuous 24 hour exhaust ventilation of stale moist air from bathrooms, toilets, utility rooms and kitchens. As the stale air is extracted, a heat exchanger within the unit transfers up to 93% of the waste air's room temperature, into the supply air entering the bedrooms and lounge. This design concept provides significant energy recovery on household heat costs, coupled with the optimum comfort conditions.

In addition, a Kinetic Advance SX unit maintains a constant airflow independent of change in system pressure.

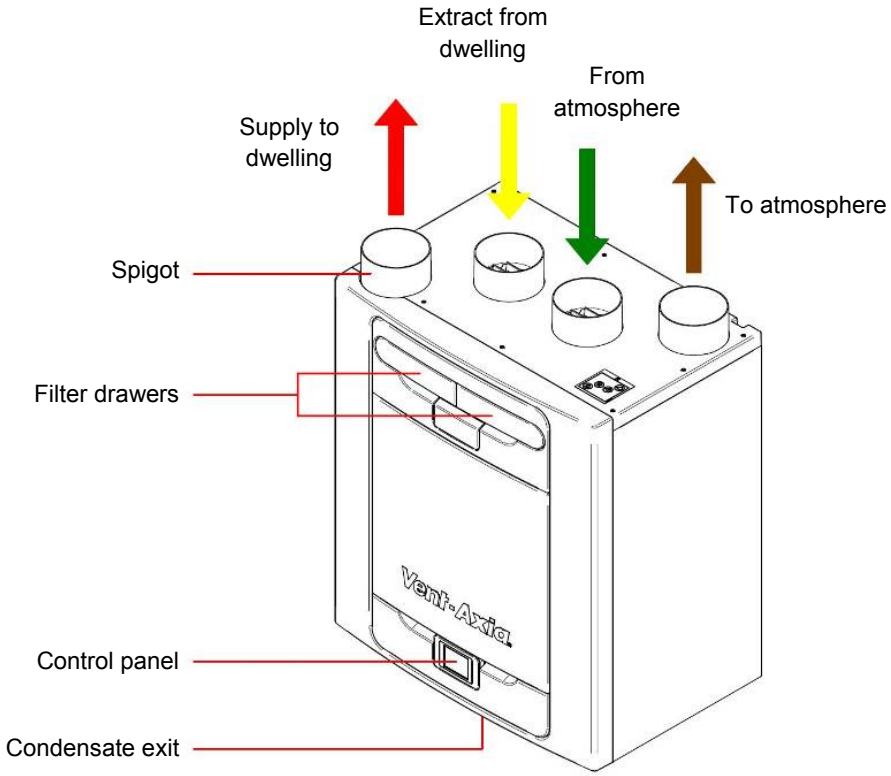


Figure 1: Sentinel Kinetic Advance with RH spigot configuration

Models

- **405215 Sentinel Kinetic Advance S**.
- **405216 Sentinel Kinetic Advance SX**.

Accessories

- **472703 WIFI Controller Accessory**

  The WIFI controller is a plug & play accessory that fits next to the Control module. This offers the user instant access to various functions and features for direct monitoring and control of the unit using a smart phone or tablet via the Vent-Axia app.

- **472693 Ventwise PCB Accessory.**

  The optional Ventwise controller has four inputs. These can be used for sensing 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.

- **472697 Input Switch PCB Accessory.**

  The optional Input Switch Accessory offers four volt free pairs of switch terminals for sensor inputs to allow boosting from a full range of Vent-Axia controllers e.g. humidistats, PIRs, and timers.

- **472699 LS2/3 PCB Accessory.**

  The optional LS2/3 Accessory offers two extra switched live inputs for boosting via light switches (220-240V ac) or Normal/Boost switche. This connection has the advantage of Delay and Over-run features. Delay enables prevention of boost airflow between 0 and 20 minutes, and Over-run enables boost airflow to continue after the light switch has been turned off for up to 30 minutes. This allows effective clearance of stale air or humidity.

- **472701 Analogue I/O PCB Accessory.**

  The Analogue I/O Accessory has two terminals with 0-24V outputs to allow 0V – 10V control by sophisticated controllers such as CO_2 sensors and proportional humidistats.

- **472695 Power heater PCB Accessory.**

  The optional Power heater PCB Accessory allows a means of control for any external pre heaters fitted to the unit.

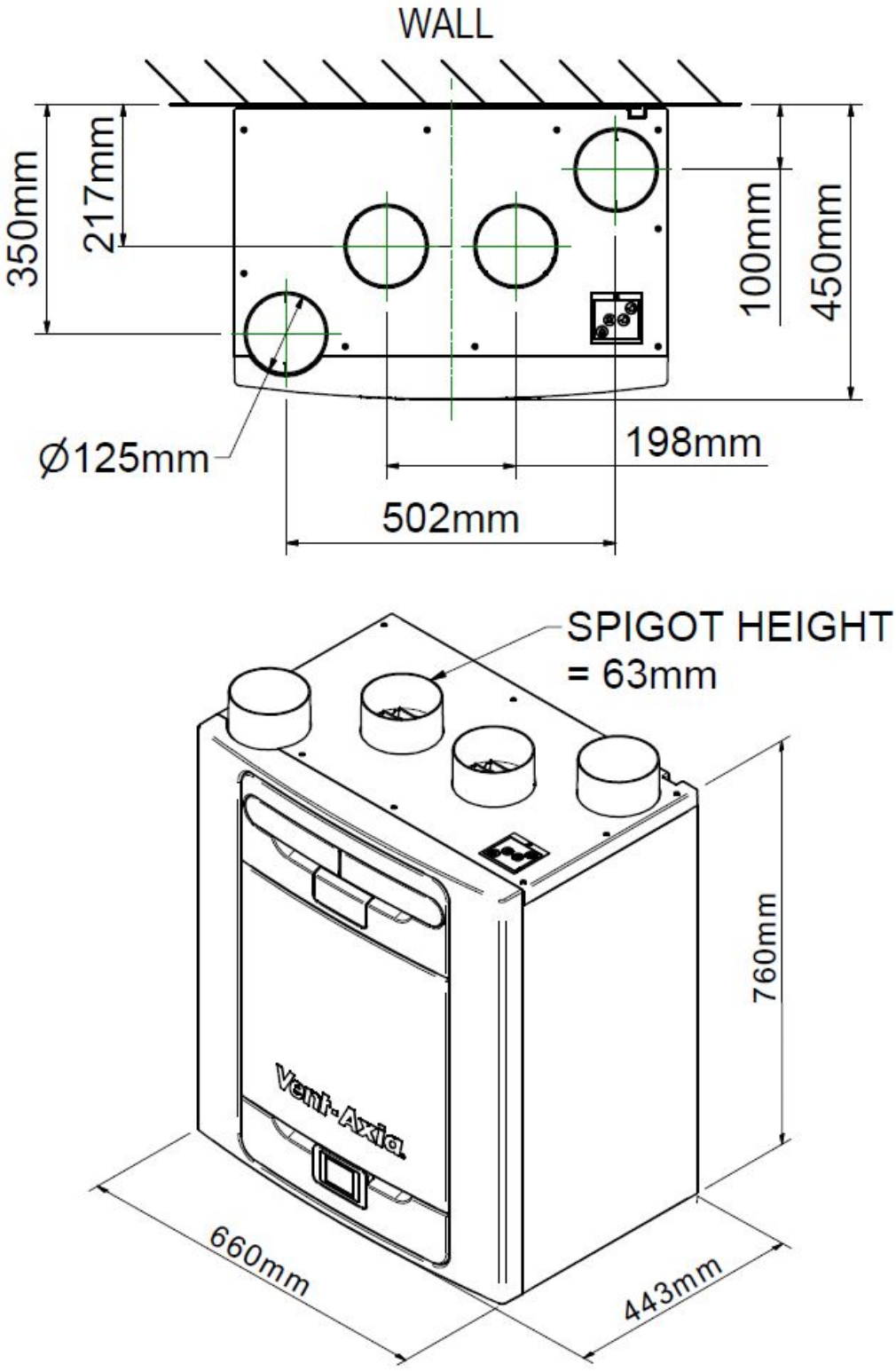
For these alternative control options, see www.vent-axia.com

Technical Specification

Performance	Sentinel Kinetic Advance S	**Sentinel Kinetic Advance SX**
Airflow	Maximum, FID, 115 l/s (414 m^3/h) Low default 20% Normal default 30% Boost default 50% Purge default 100%	 Low default 15 l/s (54 m^3/h) Normal default 25 l/s (90 m^3/h) Boost default 40 l/s (144 m^3/h) Purge default 90 l/s (324 m^3/h) @300pa
Sound levels (@ 3 m)	See website for full sound spectrum	See website for full sound spectrum
Power		
AC Voltage Input	220-240 V AC (single phase)	
AC Frequency Input	50 Hz nominal	
Supply Fuse	3 A (located in fused spur)	
Product Fuse	2 A (located on main PCB)	
Rated Power	190W (max.)	
Physical		
Height (excl. spigots)	760 mm	
Width	660 mm	
Depth	443 mm	
Weight	27 kg	
Spigot diameter	125 mm	
Condensate pipe diameter	22 mm or 32 mm	
Environmental		
IP Rating	IPX2	
Operating Temperature	-20°C to +45°C	
Air Intake Temperature	As above	
Operating Humidity	0% to 95% RH	
Storage Temperature	-20°C to +45°C	
Storage Humidity	0% to 95% RH	
Software Version	V7	

For all other technical details, please see the Product Catalogue or our website at www.vent-axia.com

Product Dimensions



Remove front cover (see page 21) to view Rating label.

(Label is positioned to the right of the controller).

Figure 2: Sentinel Kinetic Advance Dimensions

Sentinel Kinetic Advance Summer Bypass

The Sentinel Kinetic Advance includes a unique Summer Bypass (SBP) feature to provide energy-free cooling when the house temperature and ambient temperature allows.

Note that the volume of air provided by this ventilation system is a fraction of that required for space heating or space cooling and will not in itself be sufficient to cool a room. It will however, provide a contribution and make a difference.

Modes of operation

There are 4 Modes of Operation: Normal / Evening Fresh / Night Time Fresh and Off

Normal.

Airflow rate is determined by sensors, boost control and/or timed settings, otherwise it operates at normal rate.

If the room is warmer than the set (shown as "indoor") temperature (i.e. you need the room to be cooler) and the outdoor air is cooler than the actual room temperature (i.e. the outdoor air could cool your room) then the SBP will open and the unit will supply cooler air to your room.

Note that the above only applies whilst the outdoor air temperature is above 14 C (adjustable) in order to prevent cold draughts.

The set ("indoor") temperature should be set 2 or 3 degrees higher than the central heating thermostat and 2 or 3 degrees below any air conditioning thermostat if fitted. This will prevent any clash between the separate systems.

Evening Fresh.

Intended for use as the outdoor temperature cools in the evening, but reverts to Normal mode after a set time so that any increase in noise is avoided overnight.

The unit will go onto ‘Boost’ speed when the summer bypass opens and continue on this speed for five hours If the external minimum temperature is reached before the end of the purge period, the unit will revert to normal operating mode.

Air flow rate for ‘Boost’ speed is selected in the “GO TO MODE” screen

Night Time Fresh.

Intended for use as the outdoor temperature cools in the evening and continues through the night when cooling is a higher priority than any increase of noise. Note that the air noise in your system is influenced by the ducting design and layout and the size and type of vents used in the rooms. If improvements are required speak to your installer.

The unit will go onto ‘Boost’ speed when the summer bypass opens and continue on this speed until the external temperature is higher than the internal temperature and then revert to normal operating mode. If the external minimum temperature is reached before the end of the purge period the unit will revert to normal operating mode.

Air flow rate for ‘Boost’ speed is selected in the “GO TO MODE” screen.

Off

The summer bypass is switched off and will not provide energy free cooling.

Note: Pressing the Boost button during Evening Fresh and Night Time fresh modes will revert the unit to normal bypass mode.

Performance Data

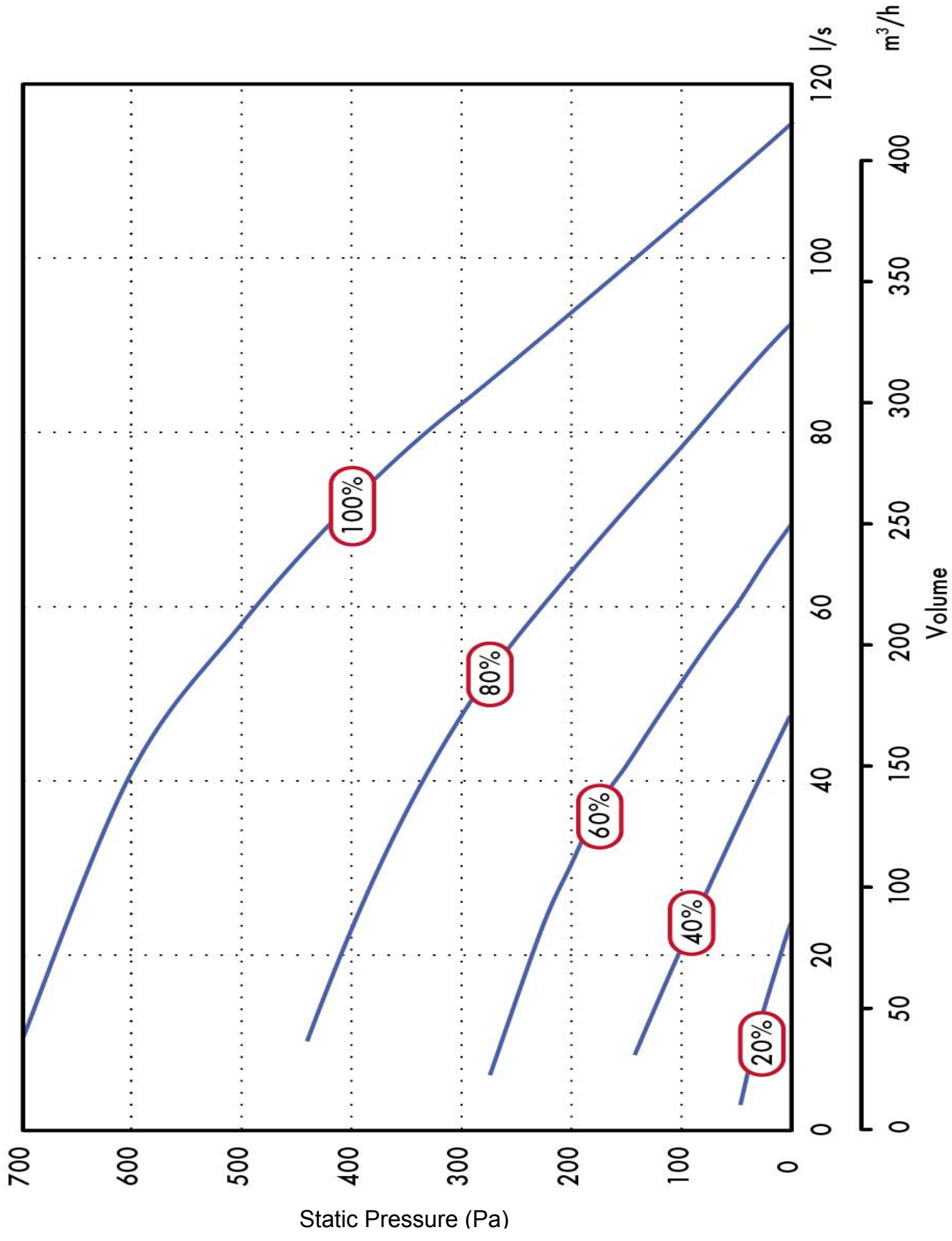


Fig 3 Sentinel Kinetic Advance Performance graph

Powering up the Unit

Switching On

To switch the unit on:

1. Switch on the power at the mains supply isolator feeding the unit.
2. Following switch-on, the fan motors will start and the Control Unit will display a start-up screen, described below

N.B. If you are intending to carry out work or maintenance inside the unit, switch off the power at the mains outlet supplying the unit before you remove the covers.

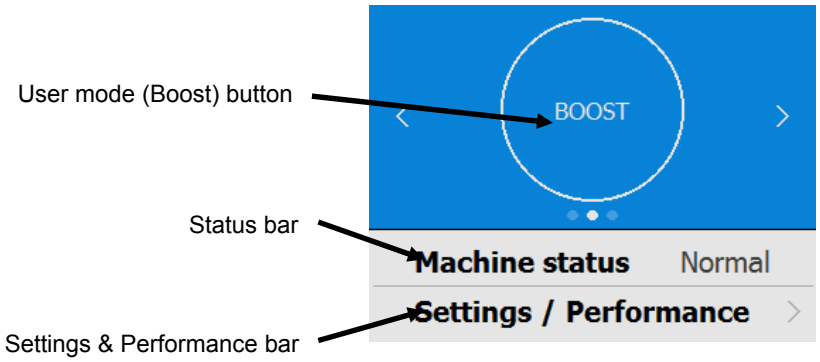
Switching Off

To switch the unit off:

3. Turn the power off at the mains supply isolator.

Control Unit Touch Screen Display

The Control Unit is located at the front of the Sentinel Kinetic Advance unit. The Control Unit provides the user interface for commissioning and monitoring purposes. The display is a resistive touchscreen with LED backlight, which is turned off to automatically after 5 minutes to minimise power consumption.



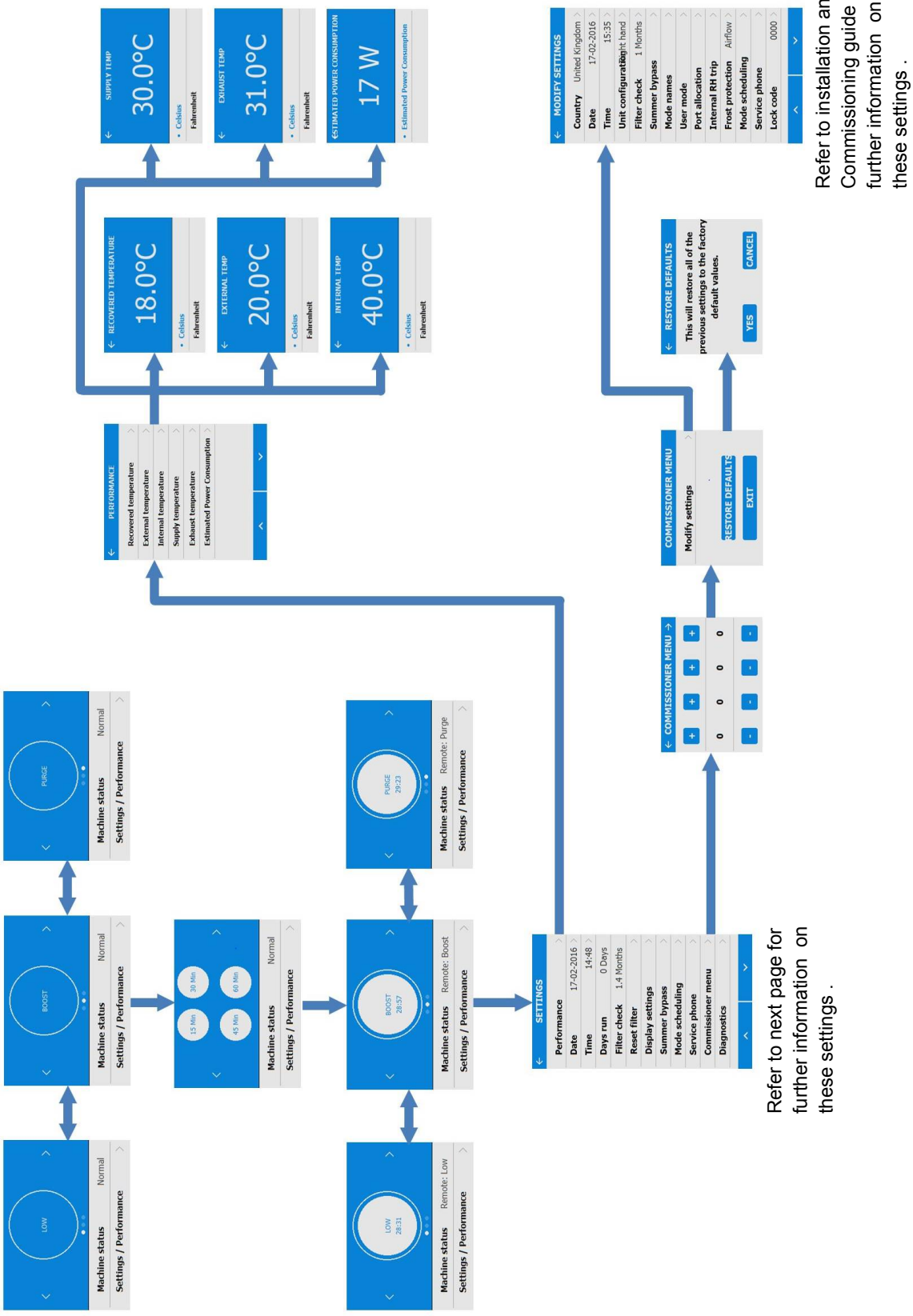
Navigate through the functions by pressing the symbols, adjust settings using the + - buttons. A symbol indicates that there are further screens related to a menu option. Select the option on the touchscreen to access the related screens.

Control Unit Start up Screen

Every time the unit is powered up, the start up screen appears as the software loads showing the display version.

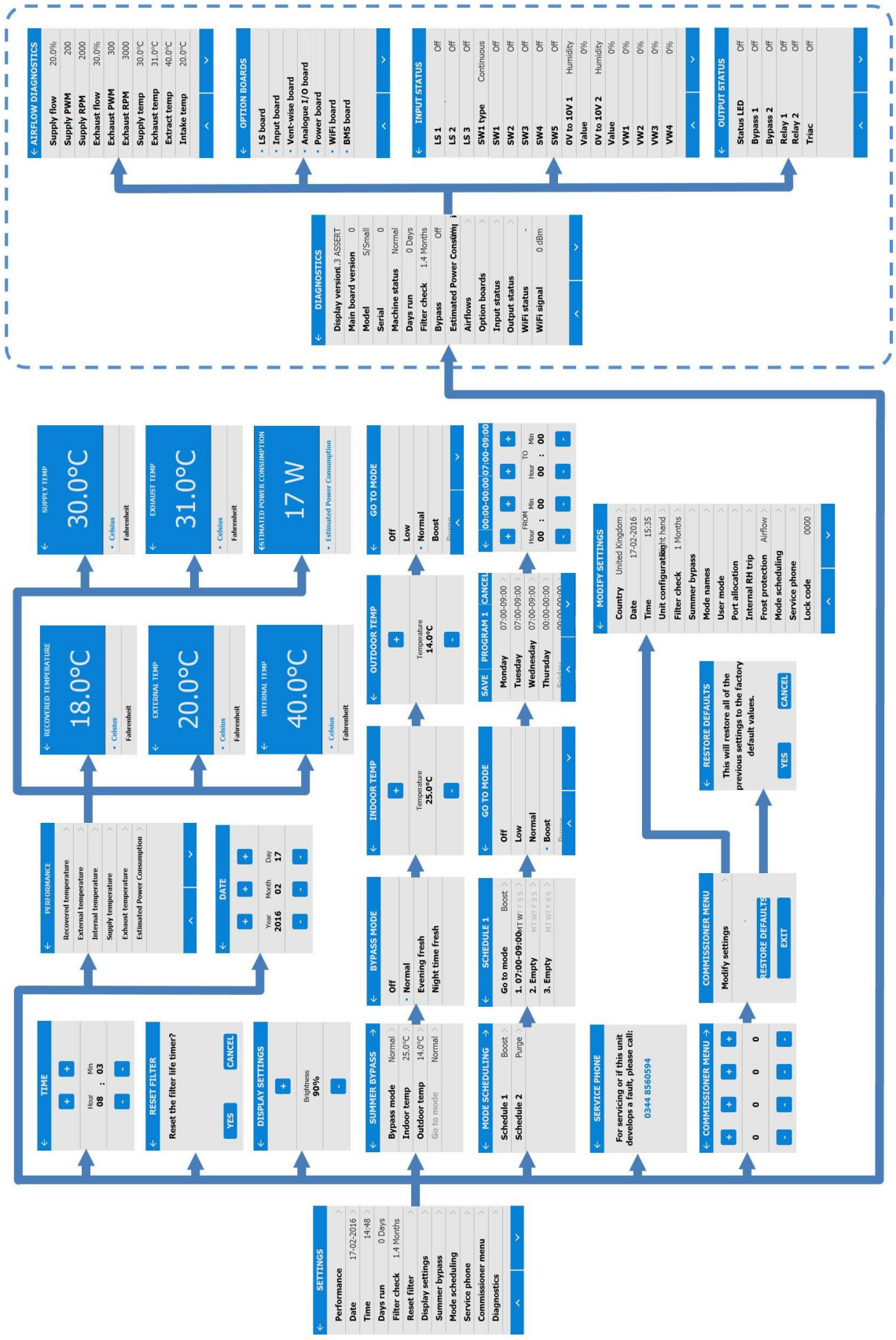
Control Unit Screens Summary

The following Control Unit screens are available for daily operation and monitoring of the unit.



Control Unit Screens Summary

The following Control Unit screens are available in the Settings / Performance section.



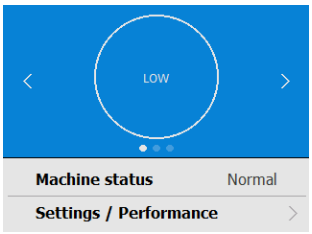
User controls

User Menu Home Screen

The user menu home screen, consists of a User Mode (BOOST) button, a Machine status bar, and a Settings / Performance bar.

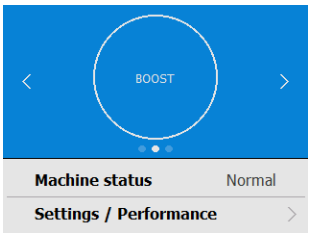
The Machine status scrolls through Mode of operation, Summer bypass status and Frost protection status.

Press Settings / Performance to access these menus.

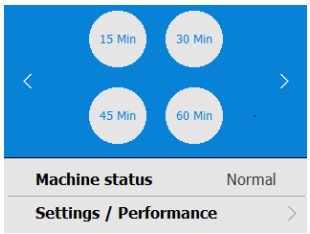


User Mode

Scroll through the pre-defined user modes (factory defaults are LOW, BOOST and PURGE) using the buttons either side of the User Mode button. Select the required function by pressing the centre button.

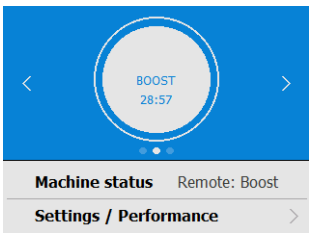


When a user mode is selected, select the duration by pressing the required button from the four options on the screen.



The button will appear white and the user mode will flash. A countdown clock will also appear showing the time remaining for the selected User Mode.

Pressing the User mode button again will cancel the User Mode and the unit will default back to Normal mode.

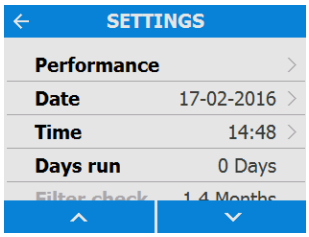


Settings and Performance

Settings

Scroll through the settings using the ^ & v buttons and select using > where applicable to access Language, Date, Time, Reset filter, Display settings, Summer Bypass, Mode Scheduling, Service phone, Commissioner Menu & Diagnostics.

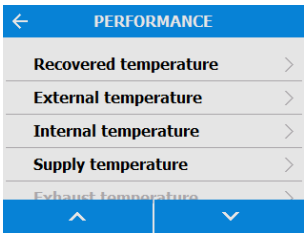
Days Run and Filter check are reported values and do not have editable parameters in this section.



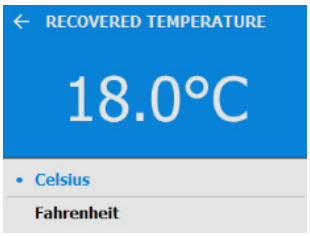
Performance

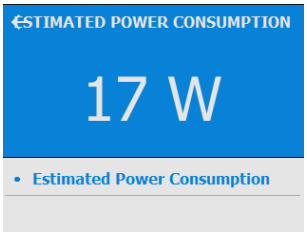
The performance menu shows key performance indicators such as recovered Temperature and Estimated power consumption.

Scroll through the list using the ^ & v buttons and select the required parameter.



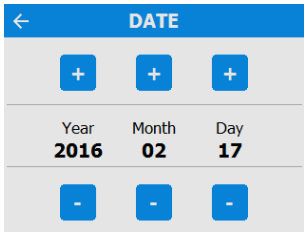
Each performance temperature can be shown in Celsius or Fahrenheit by pressing the required temperature.





Date

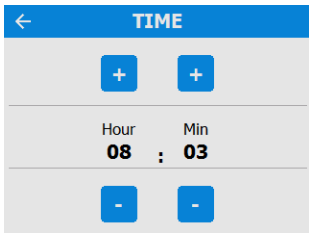
Change the date using the + / - buttons on the screen.



Time

Change the time using the + / - buttons on the screen.

Note: The clock is 24 hour

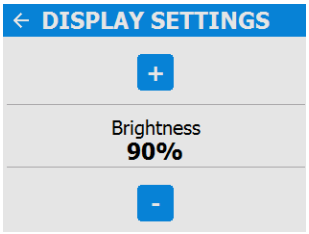


Reset Filter

After maintenance or replacement of the filters, the filter timer can be reset by pressing YES. Press CANCEL to return to the Settings Menu.

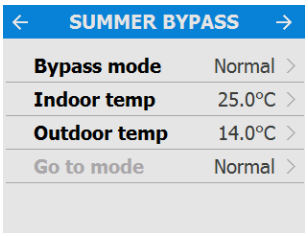
Display Settings

Change the brightness of the touch screen using the + / - buttons.

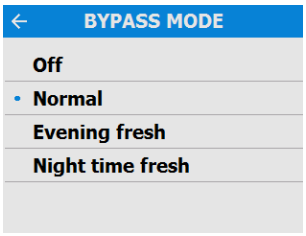


Summer Bypass

Adjust the summer bypass settings. Select each setting to adjust Bypass mode, indoor and outdoor temperatures and go to modes.

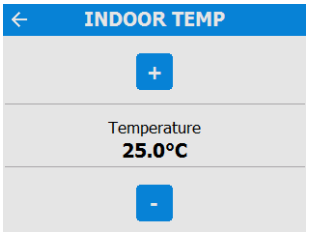


Select the required bypass mode. Details of each mode can be found on page 8.



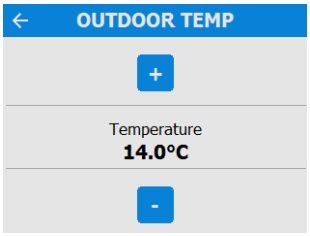
The indoor temperature setting is the maximum desired room temperature. This should be set to 3° above the central heating temperature.

Change the indoor temperature using the + / - buttons on the screen.



The outdoor temperature is the minimum air temperature that the bypass will permit. This is to prevent cold draughts.

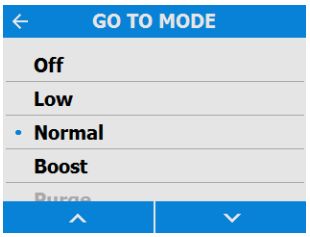
Change the outdoor temperature using the + / - buttons on the screen.



This is the mode the bypass will switch to when activated. Factory default is Normal for Normal bypass setting, and Boost for Evening fresh and Night time fresh setting.

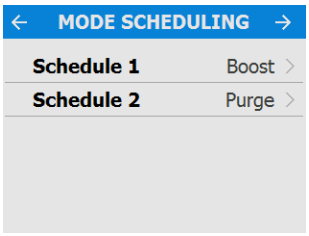
Scroll through the settings using the ^ & v buttons and select the Go To mode for each Bypass mode.

Note: Number of available modes may differ from image shown depending on bypass setting and the modes set in the commissioning process.

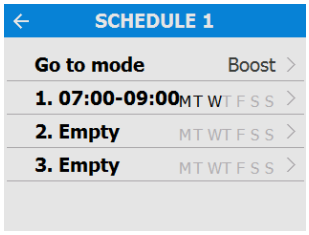


Mode Scheduling

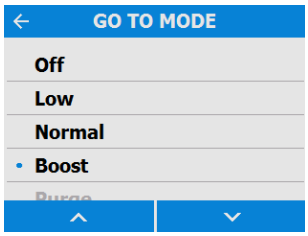
Use a schedule to set a Mode (Airflow setting) for a fixed, repeated period. For example, set Boost Mode every morning between 7:00am and 8:00am while cooking breakfast.



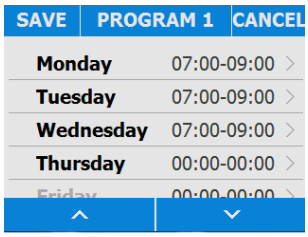
Select the Schedule to view the settings



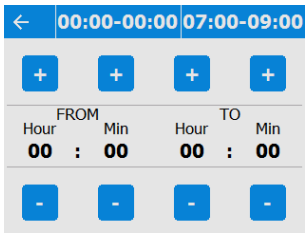
Scroll through the settings using the ^ & v buttons and select the Go To mode for each Schedule.



Scroll through the days of the week using the ^ & v buttons and select each day to be included in the Schedule program.



Adjust the start and finish times for each day using the + / - buttons. Press the top right of the banner (07:00-09:00) to copy the previous day setting, or the centre of the banner (00:00-00:00) to reset the day to zero



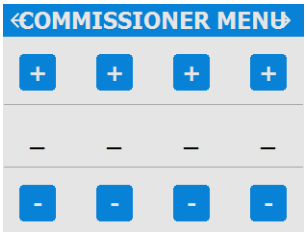
Service Phone

The service phone number can be entered by the installer and should be used if the unit displays a fault code, or to arrange routine servicing for the unit.

Commissioning Menu

Enter the lock code using the + / - buttons to access the Commissioner Menu.

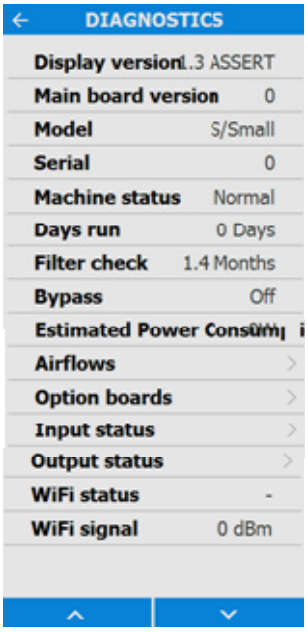
Note: the lock code is set by the installer and settings beyond this point should only be accessed and modified by a qualified installer.



Diagnostics

Scroll through the Diagnostics list using the ^ & v buttons to access the following information. Machine Status, Days Run, Filter Check, Bypass, Energy Consumption, Air flows, Option boards. Input status, Output Status, WiFi Status, WiFi signal.

Note: Optional upgrades may be necessary to view all information.



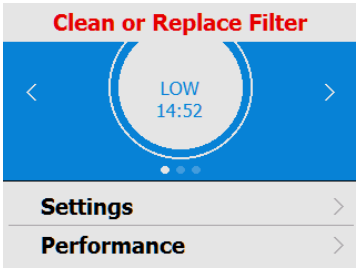
Default settings

Parameters	Settings
Commissioning Screens	
Country	United Kingdom
Language	English.
Date	Automatic - Factory set
Time	Automatic GMT/BST - Factory set
Unit configuration	Right Hand
Filter Check	12 months
Summer Bypass	Normal
Mode Names	Normal, Boost, Low, Purge
User Mode	
Boost Supply/Extract	50 %
Normal Supply/ Extract	30 %
Low Supply/Extract	20%
Purge Supply/Extract	100%
Internal RH Mode	On
Internal RH Setpoint	70%
Control Mode	Normal
Frost Protection	Airflow Mode
Mode schedule 1	All days set to 0:00 (on), 00:00 (off) – inactive
Mode Schedule 2	All days set to 0:00 (on). 00:00 (off) – inactive
Service Phone	Not Set
Set Lock code	0000
Indoor Temp	25 C
Outdoor Temp	14 C
Boost Over-run	Off
Boost Overrun set time	15
Boost Delay	Off
Boost Delay set time	00
LS1/LS2/LS3	User Mode 3 (Boost)
SW1/SW2/SW3/SW4/SW5	User Mode 3 (Boost)
Vent-Wise 1/2/3/4	User mode 3 (Boost) Load Pot (60 %) Time Pot (20 m)
Proportional 1/2	Humidity – Boost, Normal (60 %) *CO2 – Boost (2000 ppm), Normal (1000 ppm)* *Temperature – Boost (27 C, Normal (17 C)*

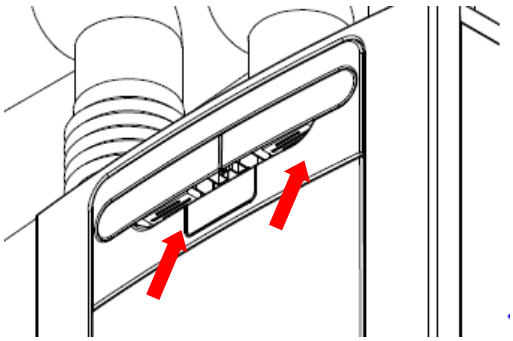
Filter Maintenance

Heat recovery units require regular maintenance. The Sentinel Kinetic has been designed to facilitate access to enable maintenance to be carried out easily.

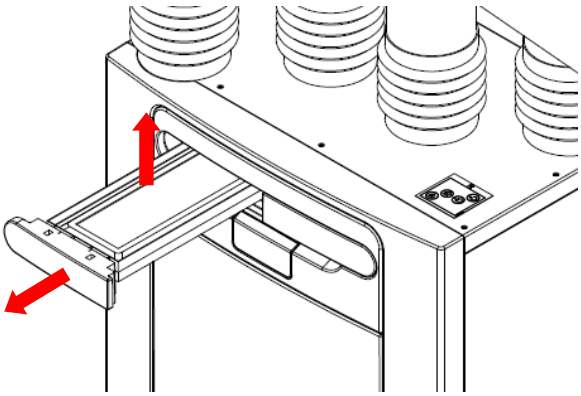
When the unit displays “Clean or replace filters”. This is a reminder to ensure that the filters are not so dirty that they are blocking the airflow or allowing dirt to pass through. The rate at which the filters become dirty will vary hugely depending on the environment and the activity within the property.



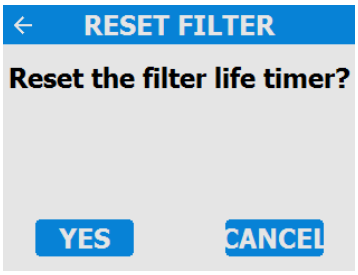
1. Open the filter drawers by pressing the finger plate firmly upwards and sliding the drawer out.



2. Lift each filter out and clean gently by tapping or carefully using a vacuum cleaner if necessary.
3. Replace the filters
4. Close the filter drawers, ensuring the latches have clicked back into the locked position.



5. After maintenance of the filters, the filter timer can be reset by going to Settings/Reset filter.



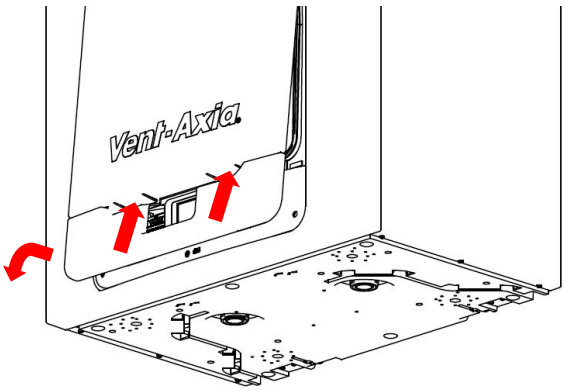
Periodic Maintenance

WARNING

THE FAN AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING MAINTENANCE.

Fan Filters

Check fan filters as described on the previous page.



Heat Exchanger Cell

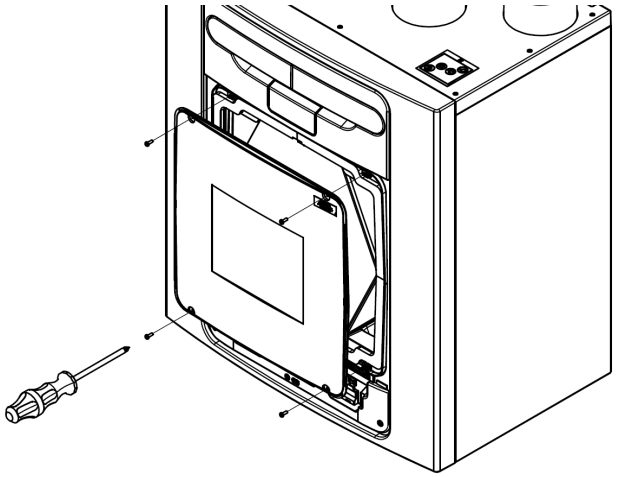
Step 1: Remove the outer cover by pressing the tabs either side of the control module and lifting the cover outwards from the bottom edge.

Step 2: Remove the inner door by undoing the 4 retaining screws.

Step 3: Slide the heat exchanger out from the unit.

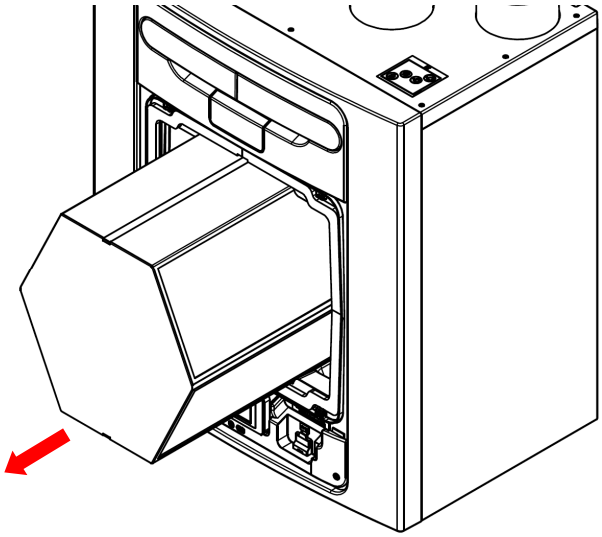
Step 4: Wash the outer cover and heat exchanger in warm water using a mild detergent (such as Milton Fluid) and dry thoroughly.

NOTE: Keep water away from all electrical components and wiring within the unit.



Motors

Inspect the motors for build-up of dust and dirt on the impeller blades, which could cause imbalance and increased noise levels. Vacuum or clean if necessary.



Condensate Drain

Check the condensate drain tube is secure and clear of debris. Clean if necessary. Ensure the trap is fully charged with water.

Fastenings

Check that all unit and wall-mount fastenings are sufficiently tight and have not become loose. Re-tighten if necessary.

Spares

The following spare parts may be ordered from Vent-Axia:

Part No	Description
472663	Main Power Board
472665	Control Module
472667	Filters G3, 2 per pack
472669	Filters M5, 1 per pack
472671	Filters F7, 1 per pack
472673	Motor Scroll Assembly
472675	Summer Bypass Motor Assembly
Advance S	
472685	Temperature/Humidity Sensor T1 (Intake air from outside)
472687	Temperature/Humidity Sensor T3 (Extract air from room)
Advance SX	
472685	Temperature/Humidity Sensor T1 (Intake air from outside)
472679	Temperature Sensor T2 (Supply air to room)
472687	Temperature/Humidity Sensor T3 (Extract air from room)
472683	Temperature Sensor T4 (Exhaust air to outside)
472689	Flow Sensor T1 (Intake air from outside)
472691	Flow Sensor T3 (Extract air from room)

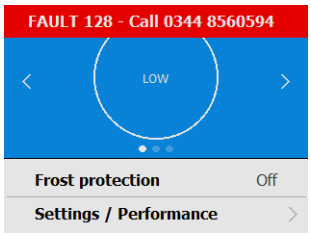
Diagnosing a Problem

In the event of a problem, always troubleshoot the unit according to:

- **Fault code** displayed on the Control Unit.
- **Fault LED** if connected.

If no indications are displayed, then troubleshoot problem according to the fault symptom as described in the following tables.

Service/Fault Code Screens

The Service screen is displayed, alternating with the Fault Code screen, when a fault has caused the unit to switch off and you must phone the telephone number displayed on the screen for assistance.	
The Fault Code screen is displayed, alternating with the Service screen, when a fault has occurred. Take note of the fault code when reporting a fault.	

For assistance contact the service provider and quote the fault code number and the product serial number which can be found behind the front cover.

Note that the fault code is not displayed until the fault has been present for 3 minutes.

The following fault codes numbers may be displayed.

Code numbers are added together if more than one fault is detected.

For example: Code 03 indicates that both left and right fans are not running.

Table 1: Fault Codes

Code	Problem
01	Left Fan Fault
02	Right fan Fault
04	Left Thermistor Fault
08	Right Thermistor Fault
16	Left Centre Thermistor Fault
32	Right Centre Thermistor Fault
64	Left Centre Temp/Humidity Sensor Fault
128	Right Centre Temp/Humidity Sensor Fault

Notes

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Sentinel kinetic Advance S Product fiche

Name:	Vent-Axia
Model ID (Stock Ref.) :	Kinetic Advance S - 405215
SEC Class	A+
SEC Value ('Average')	-43.70
SEC Value ('Warm')	-18.32
SEC Value ('Cold')	-88.78
Label Required? (Yes/No=Out of scope)	Yes
Declared as: RVU or NRVU/UVU or BVU	RVU/BVU
Speed Drive	Variable Speed
Type HRS (Recuperative, Regenerative, None)	Recuperative
Thermal Eff: [(%), NA(if none)]	91
Max. Flow Rate (m3/h)	410.4
Max. Power Input (W): (@Max.Flow Rate)	180
LWA: Sound Power Level (dB)	56.5
Ref. Flow Rate (m3/s)	0.07980
Ref. Pressure Diff. (Pa)	50
SPI [W/(m3/h)]	0.23
Control Factor & Control Typology: (CTRL/ Typology)	
Control Factor; CTRL	0.65
Control Typology	Local Demand Control
Declared: -Max Internal & External Leakage Rates(%) for BVUs or carry over (for regenerative heat exchangers only), -&Ext. Leakage Rates (%) for Ducted UVUs;	<5% Internal, <5% External
Mixing Rate of Non-Ducted BVUs not intended to be equipped with one duct connection on either supply or extract air side;	N/A
Position and description of visual filter warning for RVUs intended for use with filters, including text pointing out the importance of regular filter changes for performance and energy efficiency of the unit	Refer to User Instructions
For UVUs (Instructions Install Regulated Supply/Extract Grilles Façade)	N/A
Internet Address (for Disassembly Instructions)	www.vent-axia.com
Sensitivity p. Variation@+20/-20 Pa: (for Non-Ducted VUs)	N/A
Air Tightness-ID/OD-(m3/h) (for Non-Ducted VUs)	N/A
Annual Electricity Consumption: AEC (kWh/a)	1.65
Annual Heating Saved: AHS (kWh/a)	
AHS: Average	47.14
AHS: Warm	21.32
AHS: Cold	92.22

The Vent-Axia Guarantee

Applicable only to products installed and used in the United Kingdom. For details of guarantee outside the United Kingdom contact your local supplier.

Vent-Axia guarantees its products for two years from date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's option replaced, without charge, provided that the product:-

- Has been installed and used in accordance with the instructions given with each unit.
- Has not been connected to an unsuitable electricity supply. (The correct electricity supply voltage is shown on the product rating label attached to the unit).
- Has not been subjected to misuse, neglect or damage.
- Has not been modified or repaired by any person not authorised by the company.

IF CLAIMING UNDER TERMS OF GUARANTEE

Please return the complete product, carriage paid to your original supplier or nearest Vent-Axia Centre, by post or personal visit. Please ensure that it is adequately packed and accompanied by a letter clearly marked "Guarantee Claim" stating the nature of the fault and providing evidence of date and source of purchase.

The guarantee is offered to you as an extra benefit, and does not effect your legal rights

Vent-Axia

Head Office: Fleming Way, Crawley, West Sussex, RH10 9YX.

UK NATIONAL CALL CENTRE, Newton Road, Crawley, West Sussex, RH10 9JA
SALES ENQUIRIES: Tel: 0344 8560590 Fax: 01293 565169
TECHNICAL SUPPORT Tel: 0344 8560594 Fax: 01293 532814

For details of the warranty and returns procedure please refer to www.vent-axia or write to Vent-Axia Ltd, Fleming Way, Crawley, RH10 9YX

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