SmartVent balance

# HOME VENTILATION SYSTEMS

## the expert's choice

## Installation Instructions

The expert's guide to installation for a healthier home

SmartVent balance

**PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE COMMENCING INSTALLATION.**

## IMPORTANT SAFETY INFORMATION

1. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

2. Do not install this product in areas where the following may be present or occur:
   - Excessive oil or a grease laden atmosphere.
   - Corrosive or flammable gases, liquids or vapours.
   - Subject to direct water spray from hoses.
   - Ambient temperatures higher than 40°C and lower than -20°C .
   - Possible obstructions that may hinder access to or removal of the unit.

3. All wiring must be in accordance with national wiring rules, or appropriate standards of your country. Installation should be inspected and tested by a suitably qualified person after completion.

4. The unit should be provided with a local insulation double pole switch having a contact separation of at least 3mm.

5. These units must be earthed.

6. Exhaust fans may adversely affect the safe operation of appliances burning gas or other fuels (including those in other rooms) due to back flow of combustion gases. These gases can potentially result in carbon monoxide poisoning. After installation of an exhaust fan such as a partition fan or a duct fan the operation of flued gas appliances should be tested by a competent person to ensure that back flow of combustion gases does not occur.

7. 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.

8. Children should be supervised to assure that they do not play with the appliance.

## INSTALLATION GUIDANCE

1. The installer is responsible for the installation and electrical connection of the sentinel system on site. It is the responsibility of the installer to ensure that the equipment is safely and securely installed and left only when mechanically and electrically safe.

2. All regulations and requirements must be strictly followed to prevent hazards to life and property, both during and after installation, and during any subsequent servicing and maintenance.

3. The unit's condensate drain must be connected to the building's wastewater drainage system.

4. Certain applications may require the installation of sound attenuation to achieve the sound levels required.

5. The unit must not be connected directly to a tumble drier.

6. The supply and exhaust valves must be fully opened prior to commissioning.

7. The supply air must be drawn from the exterior of the property.

8. The unit should be allowed to stabilise during commissioning for a minimum period of 5 minutes when changing between boost and normal speeds.

9. Ensure that the unit's external grilles are a minimum of 1500mm apart. The exhaust grille should be located at least 600mm away from any flue outlet. The inlet grille should be located 2000mm away from any flue outlet.

10. This product and associated duct installation should be carried out in accordance with the domestic ventilation compliance guide.

### 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

## SmartVent Balance BAL225 and BAL405

The **SmartVent Balance** range are heat recovery units designed for the energy efficient ventilation of houses and similar dwellings.

The units are designed for continuous 24 hour exhaust ventilation of stale moist air from bathrooms, toilets and kitchens. As the stale air is extracted, a heat exchanger within the unit transfers up to 90% of the heat into the supply air entering the bedrooms and lounge.

Units are available with the condensate drain on the right or left hand side.

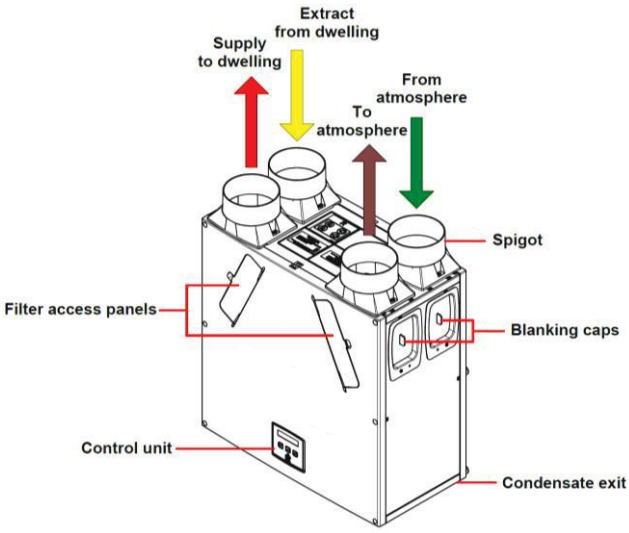



*Fig 1: SmartVent Balance BAL225*

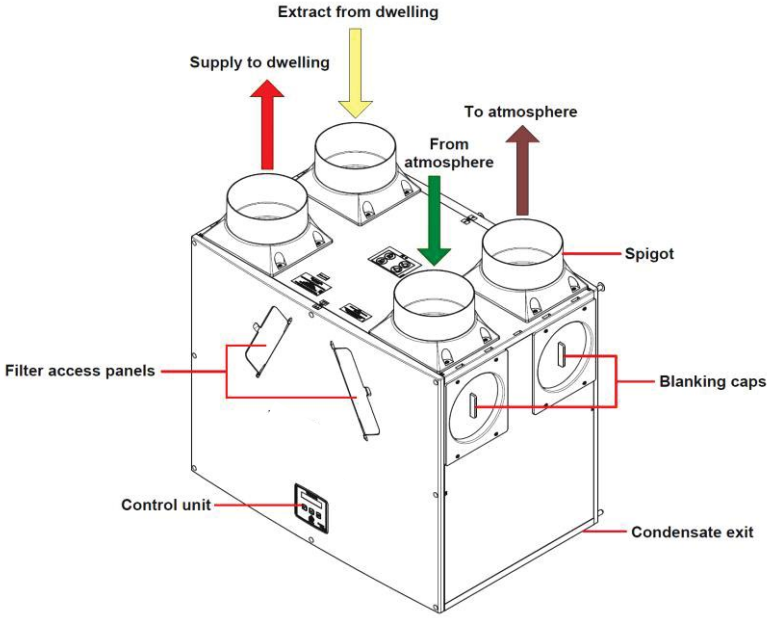



*Fig 2: SmartVent Balance BAL405*

## Models

- **BAL225** - right handed with summer bypass
- **BAL405** - right handed with summer bypass and integral humidity sensor

## Technical Specifications

| Performance | BAL225 | BAL405 |
|---|---|---|
| **Airflow** | **Maximum, FID, 290 $m^3/h$** | **Maximum, FID, 500 $m^3/h$** |
| | **Low** default 20% | **Low** default 20% |
| | **Normal** default 30% | **Normal** default 30% |
| | **Boost** default 50% | **Boost** default 50% |
| | **Purge** 100% | **Purge** 100% |
| | (commissioning graphs - page 6) | (commissioning graphs - page 7) |
| **Sound Levels** | 20 dB(A) (normal) | 24 dB(A) (normal) |
| **(@ 3 m)** | 36 dB(A) (boost) | 34 dB(A) (boost) |
| **Power** | | |
| **AC Voltage Input** | 220-240V AC (single phase) | |
| **AC Frequency Input** | 50Hz nominal | |
| **Supply Fuse** | 3A (located in fused spur) | |
| **Product Fuse** | 2A (located on main PCB) | |
| **Rated Power** | 150W (max.) | 190W (max.) |
| **Physical** | | |
| **Height (excluding spigots)** | 550 mm | 630 mm |
| **Width (excluding spigots)** | 550 mm | 776 mm |
| **Depth** | 285 mm | 524 mm including filter flap hinge protrusion |
| **Weight** | 15 kg | 24 kg |
| **Spigot diameter** | 125 mm | 150 mm |
| **Condensate pipe diameter** | 22 mm | |
| **Environmental** | | |
| **IP Rating** | IP22 | |
| **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** | V39 | |

## Dimensions

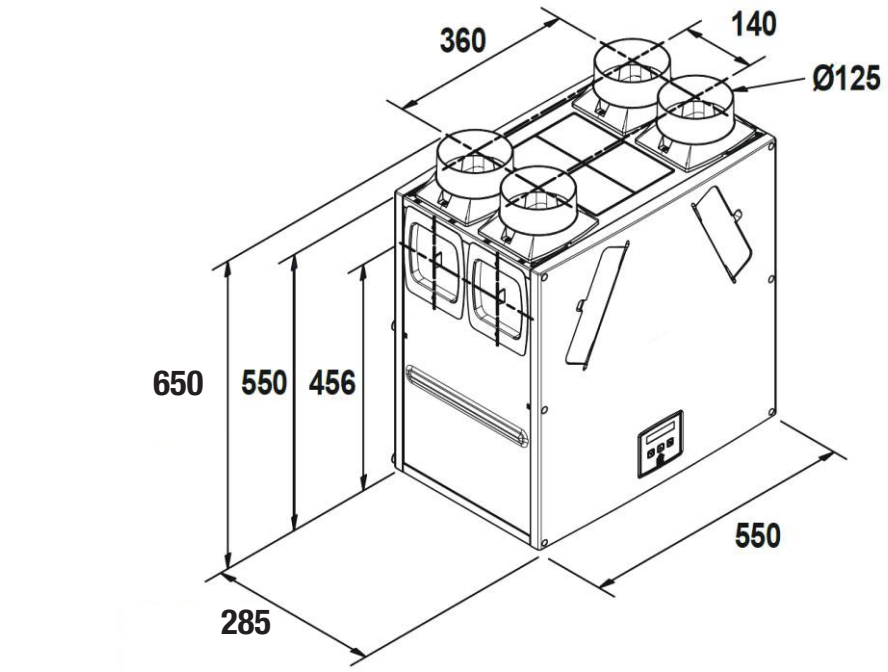



*Figure 5: SmartVent Balance BAL225 Dimensions*

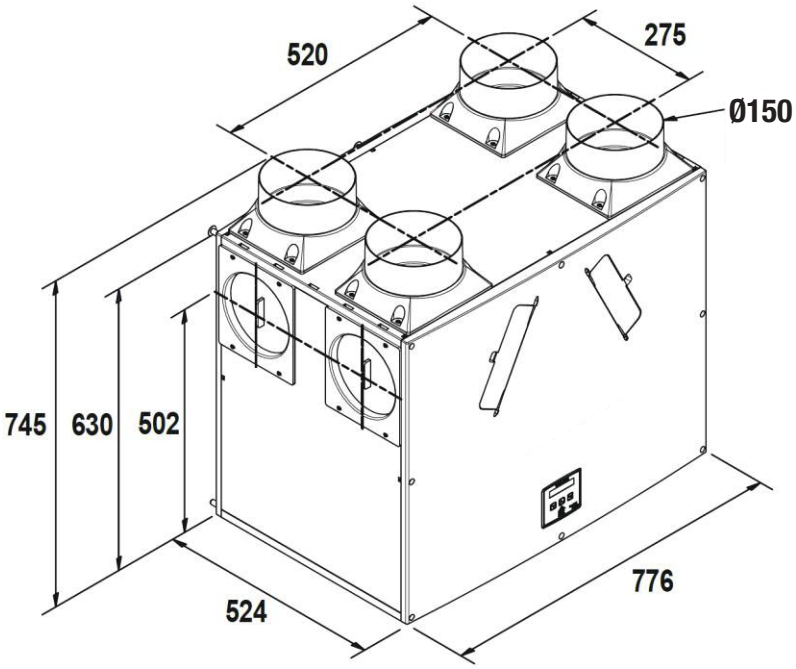
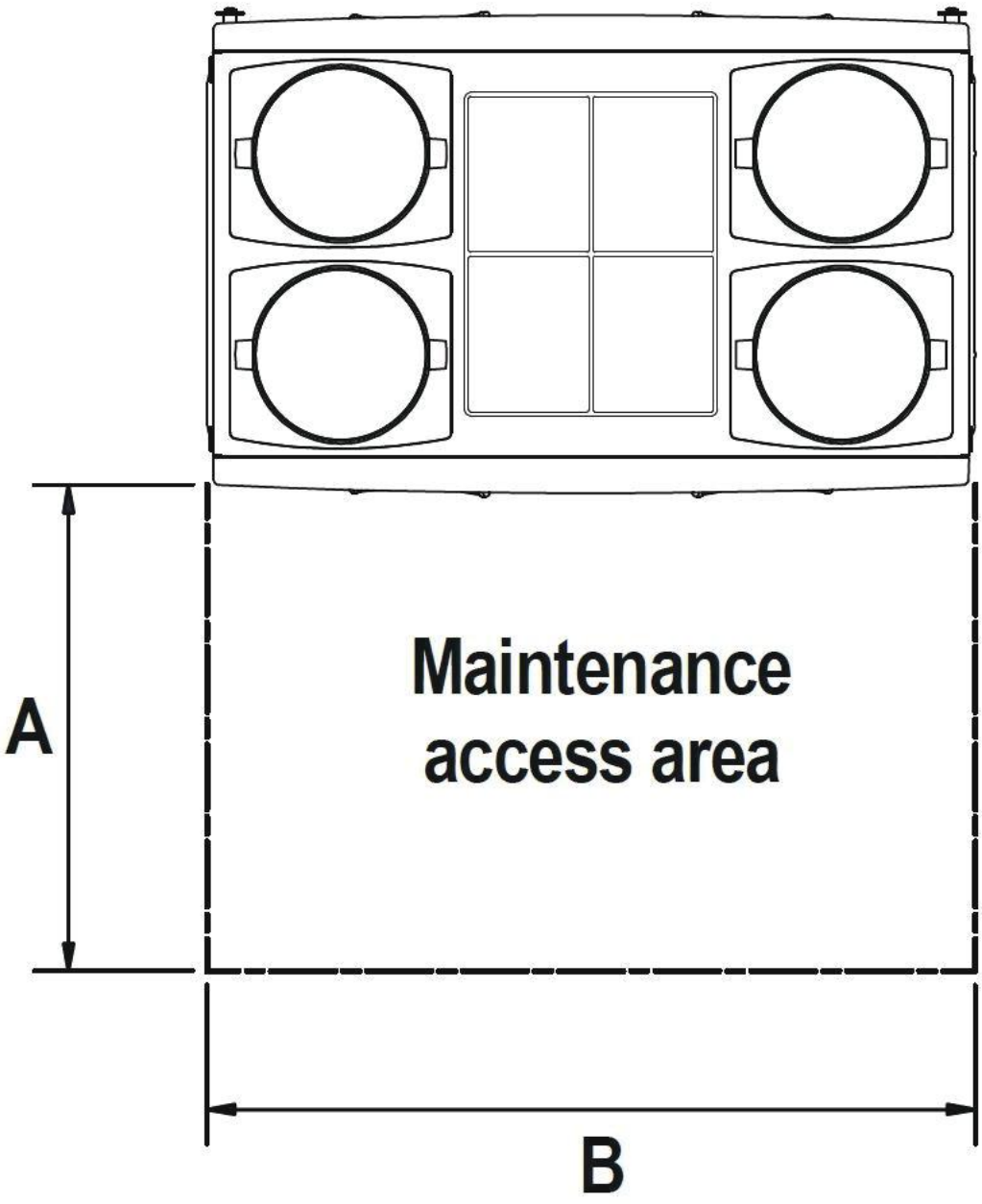


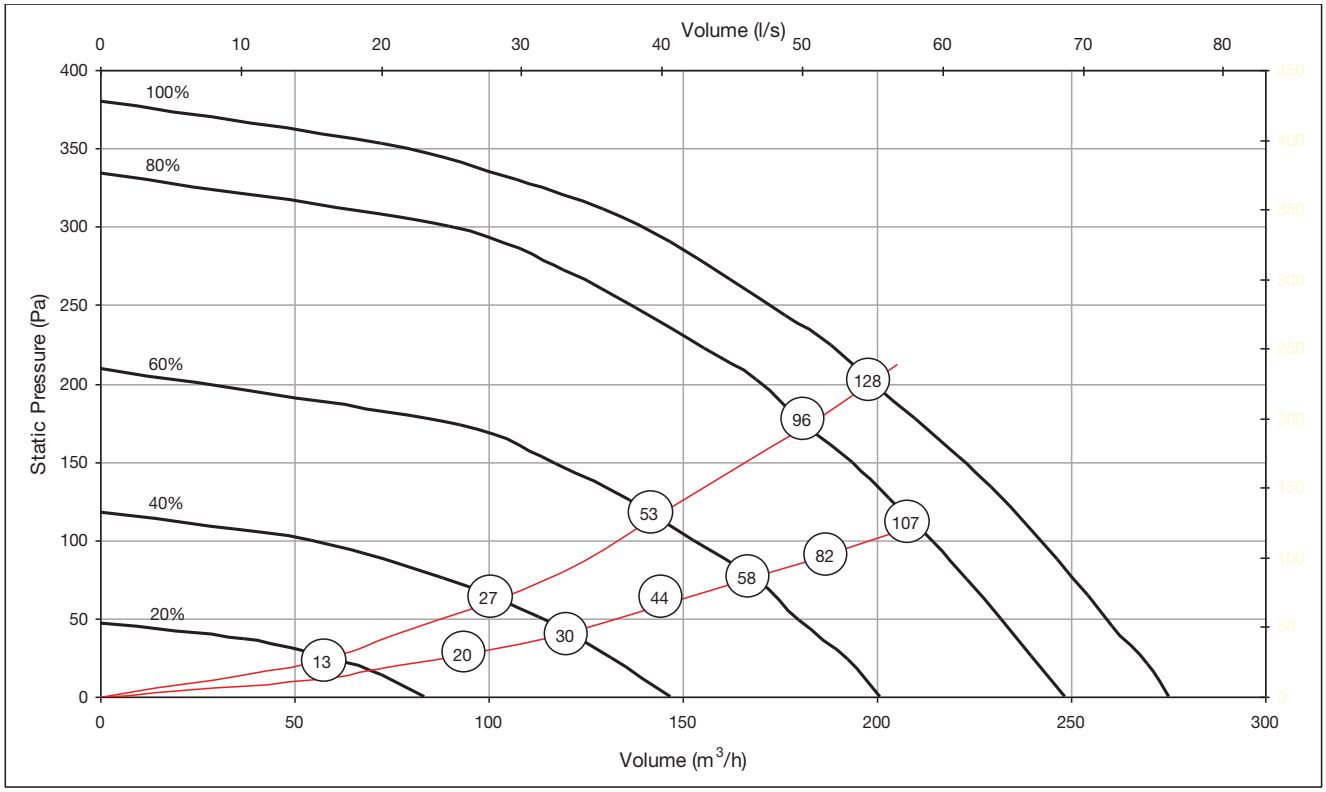

*Figure 6: SmartVent Balance BAL405 Dimensions*



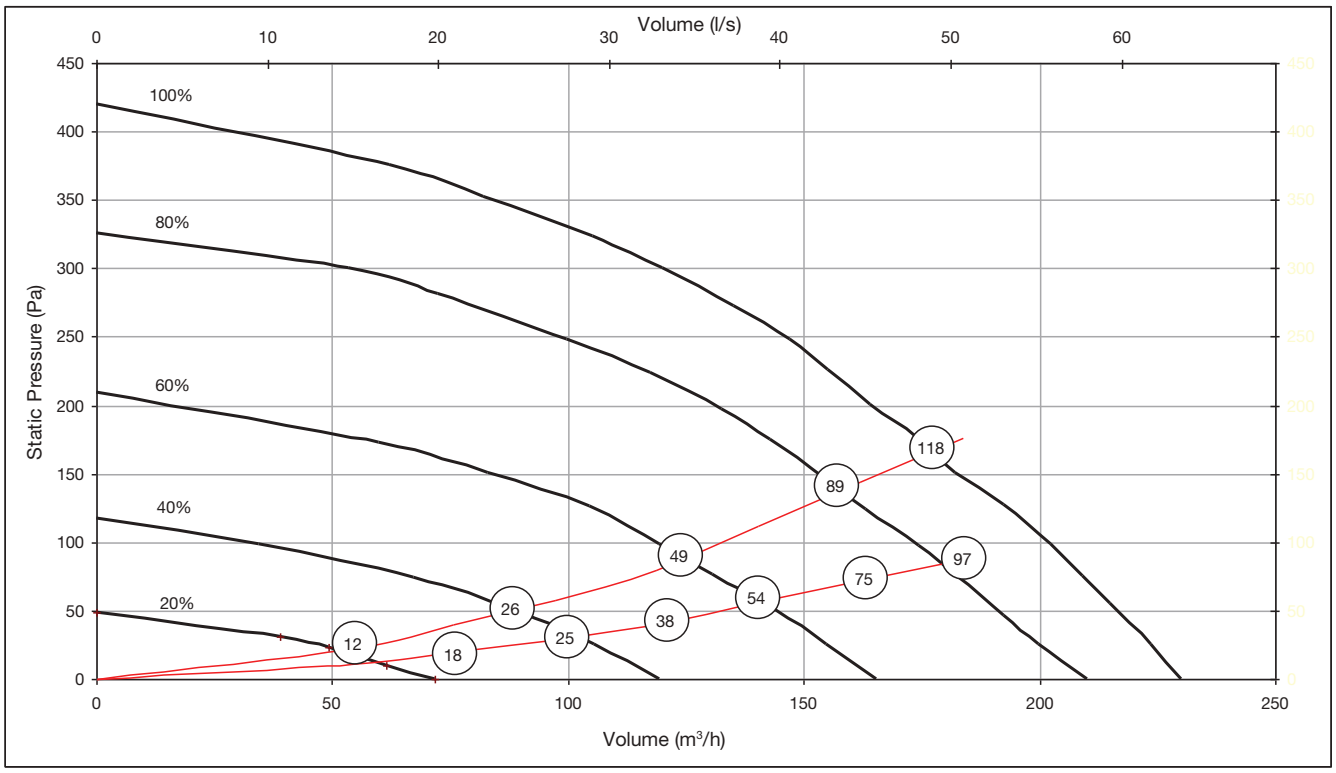

| ACCESS AREA DIMENSIONS | | |
|---|---|---|
| DIMENSION | BAL225 | BAL405 |
| A | 300 | 540 |
| B | 560 | 780 |

*Minimum maintenance access area required in front of SmartVent Balance units.*

## SmartVent Balance BAL225 Performance graph for Vertical Discharge

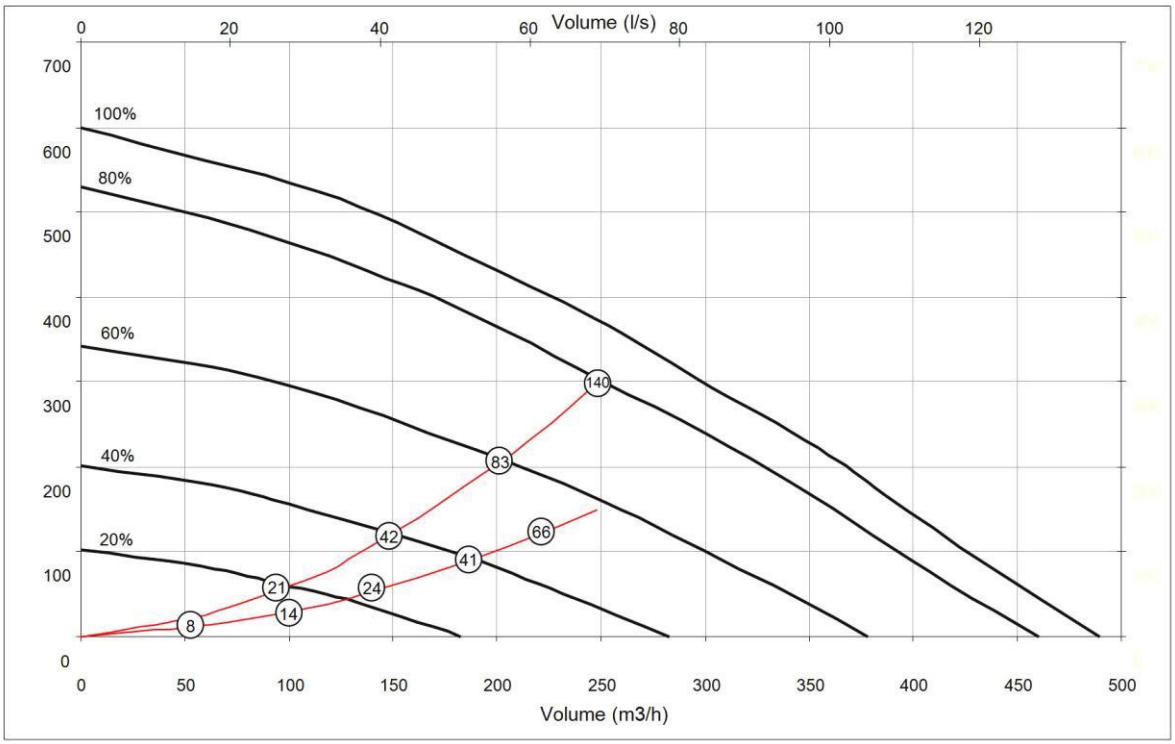



## SmartVent Balance BAL225 Performance graph for Horizontal Discharge




*Note: Graph shows 2 typical system curves with total unit input power in Watts.*

## SmartVent Balance BAL405 Performance graph for Vertical and Horizontal Discharge




*Note: Graph shows 2 typical system curves with total unit input power in Watts.*

# Installation

**NOTE:**

**We advise installers to fix all mains and sensor wiring along with any internal accessories prior to fixing the SmartVent Balance unit in position, leaving approximately 500 mm tails to allow for internal routing.**

**If the orientation of the condensate exit (and the atmosphere spigots) would be better suited on the left of the unit, the front control unit and the rear cable inlet plate can be swapped over to allow the unit to be installed in the opposite orientation.**

## Before Installation of the Unit

### Inspect the Unit

When taking delivery of the unit, check the items delivered against the enclosed delivery note. Inspect the unit for damage in transit. If in doubt, contact Customer Services. Each box contains a SmartVent Balance unit and an accessory pack containing wall brackets, condensate drain link pipe, pipe clips and product documentation.

### Lift and Move the Unit Safely

On page 7 check the weight of the unit that you are installing. Always use appropriate lifting techniques and appliances when moving heavy equipment.

### Check Site Requirements and Safety Notices

Check that the physical and environmental conditions for the site meet, or exceed, the requirements detailed in the *Technical Specification* on page 3.

Read and observe the safety notices listed in *Warnings and Safety* Information on page 2.

## Unit Installation

The wall should have sufficient strength to support the unit.

Take into consideration the position of the electrical services and the condensate drain.

Ensure there is adequate access for installation, operation and maintenance.

It is recommended that a local disconnection mains and sensor terminal box is installed within 1m of the unit to facilitate future maintenance.

The unit MUST always be mounted vertically with ducting exiting vertically or horizontally. Do not use this unit as a support for any other equipment.

**If installing in a cold void for optimum performance insulate the unit**

## Vertical Discharge Condensate Installation

**Note**

The 22mm diameter condensate pipe is suitable for standard 22mm plastic push-fit fittings and can be connected vertically underneath the unit or horizontally at the rear.

To install the vertical discharge condensate:

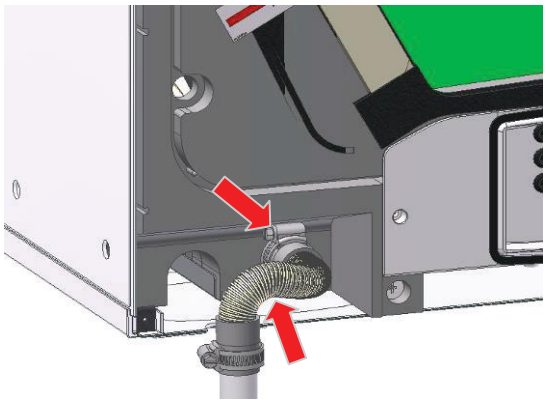
1. For vertical discharge, remove the rear cover and locate the condensate stub at the rear of the unit.

2. Remove the black cap from the end of the condensate stub at the rear of the unit.

3. If not already fitted, fit the flexible condensate pipe and secure with worm drive clip

   The condensate pipe can be attached with a worm drive clip to a 22mm vertical pipe.

   Fit a 'U' bend condensate drain having a minimum of a 60mm water seal or a HepVo valve to the building's foul water drainage system and ensure there is a minimum 3 degree fall to allow condensate drainage.



4. Go to Spigot Installation on page 12.

## Horizontal Discharge Condensate Installation

To install the condensate horizontal discharge:

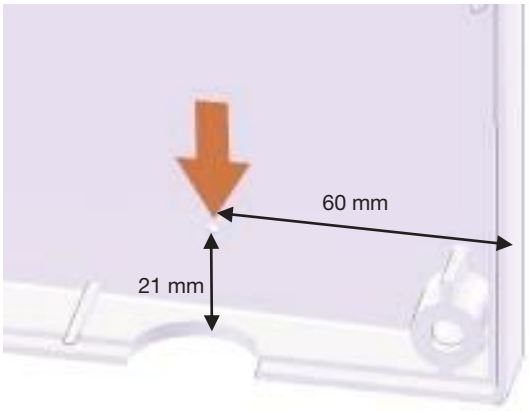
1. For horizontal discharge, remove the front cover and locate the condensate stub at the front of the unit.

2. Remove the black cap from end of condensate stub at the front of the unit.

3. On the BAL225 drill a diameter 32mm hole where shown, right.

   On the BAL405 drill a diameter 32mm hole using the indent provided in the moulding as a guide.

   The hole is a clearance hole for a diameter 22mm pipe and so may vary a little from this guidance.



4. **N.B. SEE “WALL MOUNTING” on page 12 for information on marking out the wall for the position of the condensate drain and wall mounting brackets.**

   Fit Vertical discharge 32mm waste pipe (fitted with 22 / 32mm reducer).

   Fit a ‘U’ bend condensate drain having a minimum of a 60mm water seal or a HepVo valve to the building’s foul water drainage system and ensure there is a minimum 3 degree fall to allow condensate drainage.

5. Fit the flexible condensate pipe to a 22mm diameter x 280mm long condensate pipe with worm drive clip.

6. Fit pipe assembly into waste pipe and secure to condensate spigot with worm drive clip.


**N.B. Always insulate condensate pipe if installing in a cold void**

## Spigot Installation

Air entry/exit spigots may be fitted on either the top or the side of the unit for vertical or horizontal entry or exit. Attach the spigots, depending on the space available for the ducting and orientation of the unit. Always fit the blanking caps to the entry or exit hole not in use to ensure the correct airflow into and out of the unit.

Note: SmartVent Balance BAL405 units have spigots suitable for either 150 mm diameter ducting or for 180mm diameter ducting. The 180mm diameter spigots come complete with self adhesive foam adaptors to enable it to be used with either 180mm diameter ducting or 200mm diameter ducting. These foam adaptors are to be fixed to the outside of the spigot for 200mm diameter ducting. High Flow units are supplied with 180mm spigots, an accessory pack of four self adhesive foam adaptors (part no. 409761) is available for use with 200mm ducting.

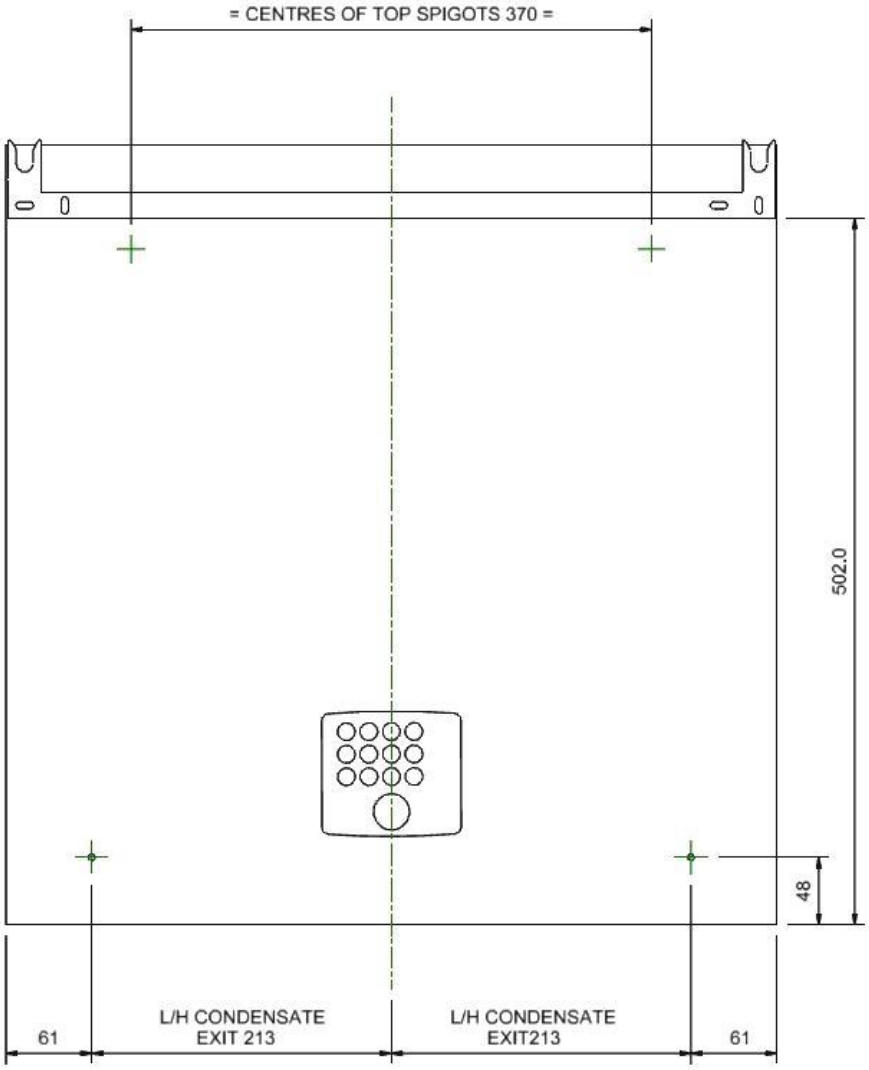
To move the spigots:

1. Remove the spigot by unscrewing the screw(s) securing it to the chassis. Then pull the spigot firmly from the entry/exit hole.
2. Remove the blanking cap by unscrewing the screw(s) securing it to the chassis. Then pull the blanking cap firmly from the entry/exit hole.
3. Swap over the spigot with the removed blanking cap.
4. Insert the spigot into the entry/exit hole and secure with the retaining screw(s).
5. Insert the blanking cap into the entry/exit hole and secure with the retaining screw(s).

**N.B. Before finally fixing the unit into position it may be more convenient to make the electrical connections; including the mains connections and any wiring for sensor(s) or switch(es).**

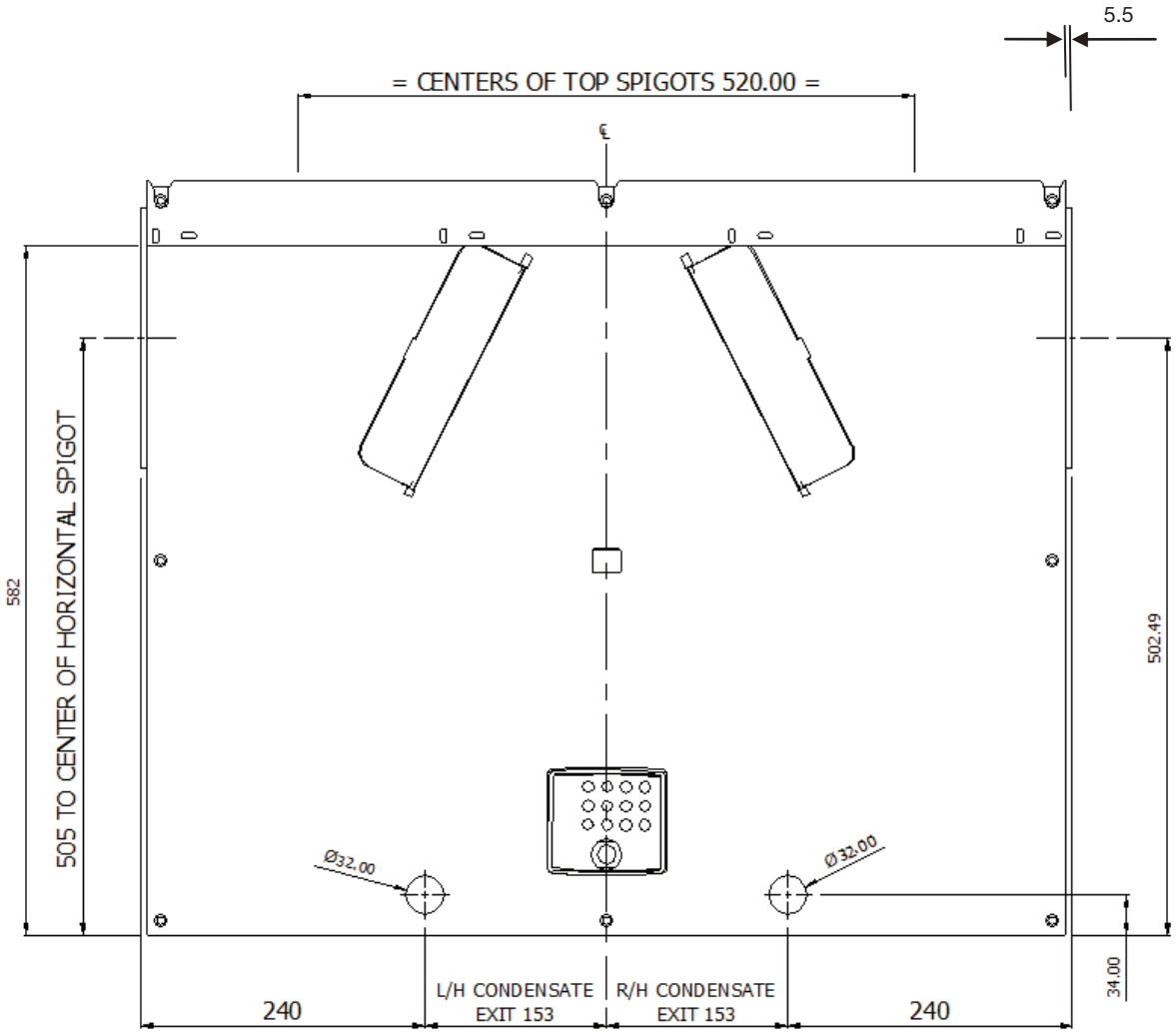
## Wall Mounting BAL225

1. Refit the front and rear covers if they have been removed.
2. Ensure four off wall bushes are fitted to the rear cover across the middle and upper screws.
3. Mark the condensate and wall bracket positions.
4. Fit the stand-off feet in place (supplied in the accessory bag).
5. Fit metal wall bracket (supplied) to the wall using appropriate fixings.
6. Lift unit and locate the wall bushes onto the wall brackets. The unit should now be physically installed in its intended operating location.
7. Ensure that the condensate drain is connected as described on page 9.


= CENTRES OF TOP SPIGOTS 370 =
502.0
48
61
L/H CONDENSATE
EXIT 213
L/H CONDENSATE
EXIT213
61

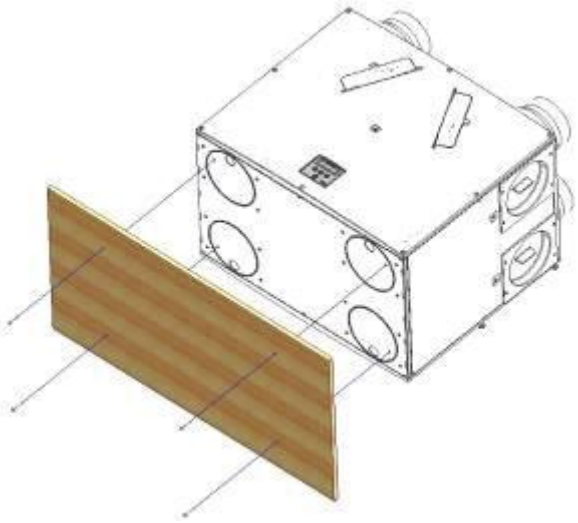
## Wall Mounting BAL405

1. Refit the front and rear covers if they have been removed.
2. Ensure the three steel wall bushes are fitted to the rear cover across the middle and upper screws.
3. Mark the condensate and wall bracket positions using the drawing below.
4. Fit the stand-off feet in place (supplied in the accessory bag).
5. Fit metal wall bracket (supplied) to the wall using appropriate fixings.
6. Lift unit and locate the steel wall bushes onto the wall brackets. The unit should now be physically installed in its intended operating location.
7. Ensure that the condensate drain is connected as described on page 9.

## Floor Mounting BAL405

1. Remove the front and rear covers.
2. Ensure that a secure, firm, flat and level surface is provided to place the BAL405 unit on.
3. Screw down through the white plastic base plate of the unit to a board which may then be screwed to joists, flooring or equivalent.
4. The unit should now be physically installed in its intended operating location.



## Electrical Installation

### Connect Switches and Sensors

The unit can be switched to boost by a variety of methods:

- Applying 240V AC to the LS input .
- Switching across 1 of 5 pairs of switch terminals.
- Applying between 0 and 10V as a proportional input to two input terminals.

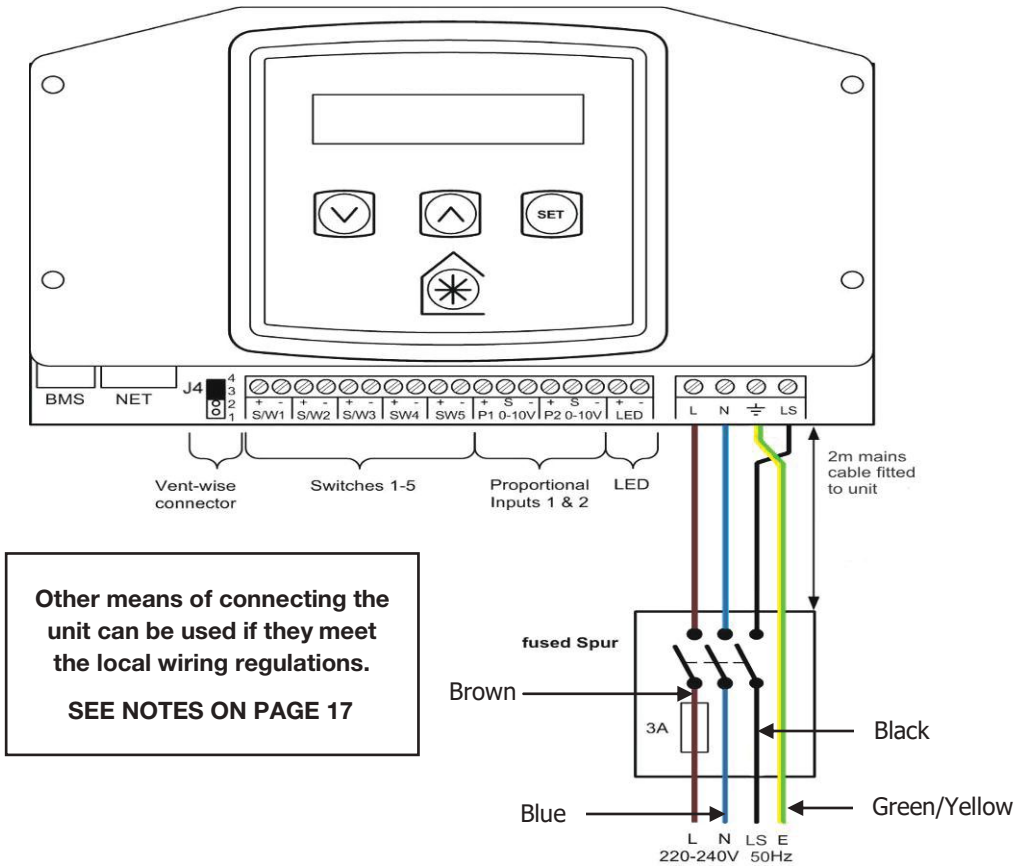
**N.B Alternative functions are assigned to SW/1, SW/2, SW/3 & SW/5 when Control Mode 02 is selected in the start-up screens see Appendix One for further details.**

In addition, fitting a Vent-Wise accessory to the unit means that switch terminals 1-3 can be connected to be switched by a current detector (for example, detecting a hob being switched on) or a temperature sensor (for example, detecting the flow of hot water). Terminal 4 can be used in conjunction with a momentary switch or switches.

Connect any switches or sensors required to control the unit by connecting to the terminal connectors at the bottom of the control unit as shown below and in Table 1. If necessary contact Vent-Axia regarding the wiring and fixing of accessories and sensors.

The cable entry back plate may have grommets or easy knock-out positions. If the knock-outs are used then ensure that you use a grommet or gland to protect against potential water ingress.

**When fitting external controls the appropriate cord anchorage and glands, according to country requirements for cable size should be fitted, these glands should have a minimum water ingress protection of IPX2.**




**Other means of connecting the unit can be used if they meet the local wiring regulations.**

**SEE NOTES ON PAGE 17**

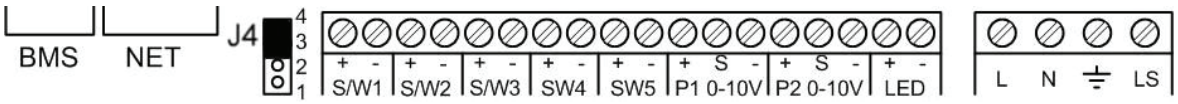



Table 1: Terminal Connections

| Terminal No. | Name | Description (Control Mode 01) |
|---|---|---|
| S/W1 | Switch 1 | With link fitted on J4 - activates volt-free contact for sensor input between + and - terminals |
| S/W2 | Switch 2 | |
| S/W3 | Switch 3 | With Vent-Wise PCB fitted to J4 - enables Vent-Wise sensor input<br><br>Note do not fit standard sensors or Volt- free switch contact in this mode. |
| SW4 | Switch 4 | Volt-free contact for sensor input between + and– terminals<br>(Momentary if SW/4 if SW4 Commissioning Screen set On)<br>With Vent-Wise PCB fitted to J4 - enables Vent-Wise momentary switch input |
| SW5 | Switch 5 | Volt-free contact for sensor input between + and - terminals |
| P1 0-10V | Proportional 1 | A 24V DC sensor supply is output between the + and - terminals.<br>A 10 V proportional sensor input is received between S and - terminals |
| P2 0-10V | Proportional 2 | A 24V DC sensor supply is output between the + and - terminals.<br>A 10 V proportional sensor input is received between S and - terminals |
| LED | Red Light Emitting Diode Output | A 5 V LED driving signal output between the + and – terminals that enables remote indication of a unit fault. See the Control Panel for fault code (see Service/Fault Code Screens on page 43). Also used for connection to a BMS or similar. |
| L | Mains Live | 220-240V AC, 50 Hz input |
| N | Mains Neutral | 220-240V AC, 50 Hz input |
| EARTH | Mains Earth | Earthing connector |
| LS | Switched Live | 220-240V AC, 50 Hz input |

**N.B Alternative functions are assigned to SW/1, SW/2, SW/3 & SW/5 when Control Mode 02 is selected in the start-up screens see Appendix One for further details.**

## Connect the Power Supply

**WARNINGS**

1. **MAINS SUPPLY VOLTAGES (220-240 V AC) ARE PRESENT IN THIS EQUIPMENT WHICH MAY CAUSE DEATH OR SERIOUS INJURY BY ELECTRIC SHOCK. ONLY A QUALIFIED ELECTRICIAN OR INSTALLER SHOULD CONNECT THE POWER SUPPLY TO THIS UNIT.**
2. **THIS UNIT MUST BE CORRECTLY EARTHED.**

This unit is designed for operation from a single-phase alternating current source (220-240V AC). A 1.5m cable is connected internally to the unit for connection to a switched fused spur.

To connect the power supply:

1. Ensure the local AC power supply is switched off.
2. One end of the power cable supplied is already connected to the unit and routed through the cable inlet plate via a suitable gland to ensure the IP rating of the unit is not affected.
3. Connect the other end of the cable to the switched fused spur.
4. Use cable clamps and clips to secure the cable, as appropriate.

## SmartVent Balance Summer Bypass Models

The SmartVent Balance systems are fitted with a Summer Bypass (SBP) and will 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.*

There are three operating modes, Normal, Evening Purge and Night-time Purge.

### Normal Mode

Air flow rate is determined by sensors, boost and timing settings, otherwise is 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 14ºC (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 Purge Mode

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

Air flow rate is always at boost.

The bypass closes and the purge stops if the temperature conditions described in normal mode are no longer met or 5 hours after the bypass opened.

### Night-time Purge Mode

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.

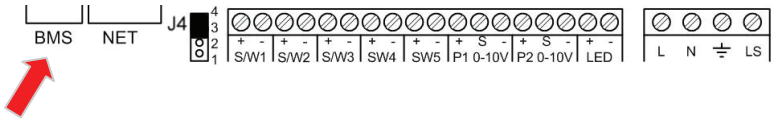
Air flow rate is boost.

The bypass closes and the purge stops if the temperature conditions described in normal mode are no longer met.

## Wired Remote Control (443283)

1. The wired remote control uses 15m long cable and has the same functionality as the control mounted on the unit, it can be permanently mounted in a living space for the end user or used for commissioning the unit. It is recommended that the unit be installed in a central easily accessible location in the home.

2. To fit the wired remote control remove the front, rear and electrical covers, using the cable assembly supplied insert the RJ11 plug into the socket marked BMS and feed the remaining cable through cable inlet plate, refit all covers.



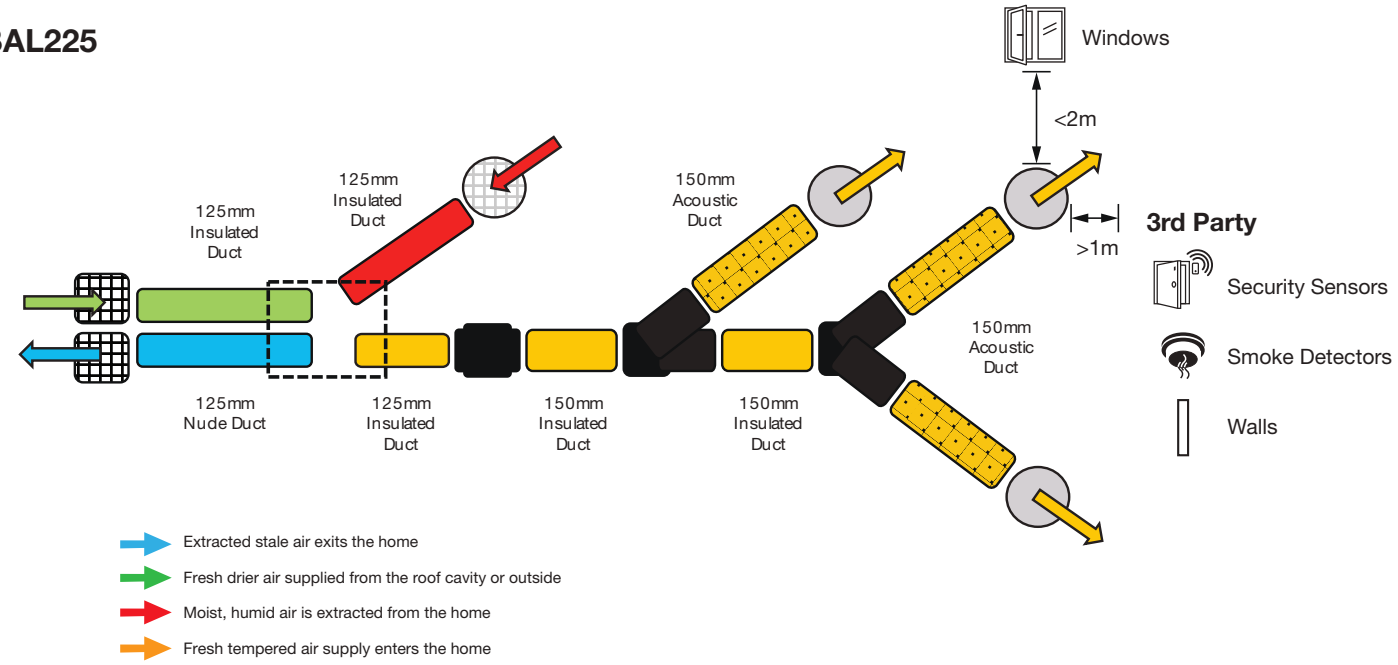

3. Connect the cable assembly (4 wires numbered 1 to 4) to the remote control terminal block and mount onto a single gang recessed wall box with the 2 screws provided. The wired remote control will automatically be detected.

## Ducting

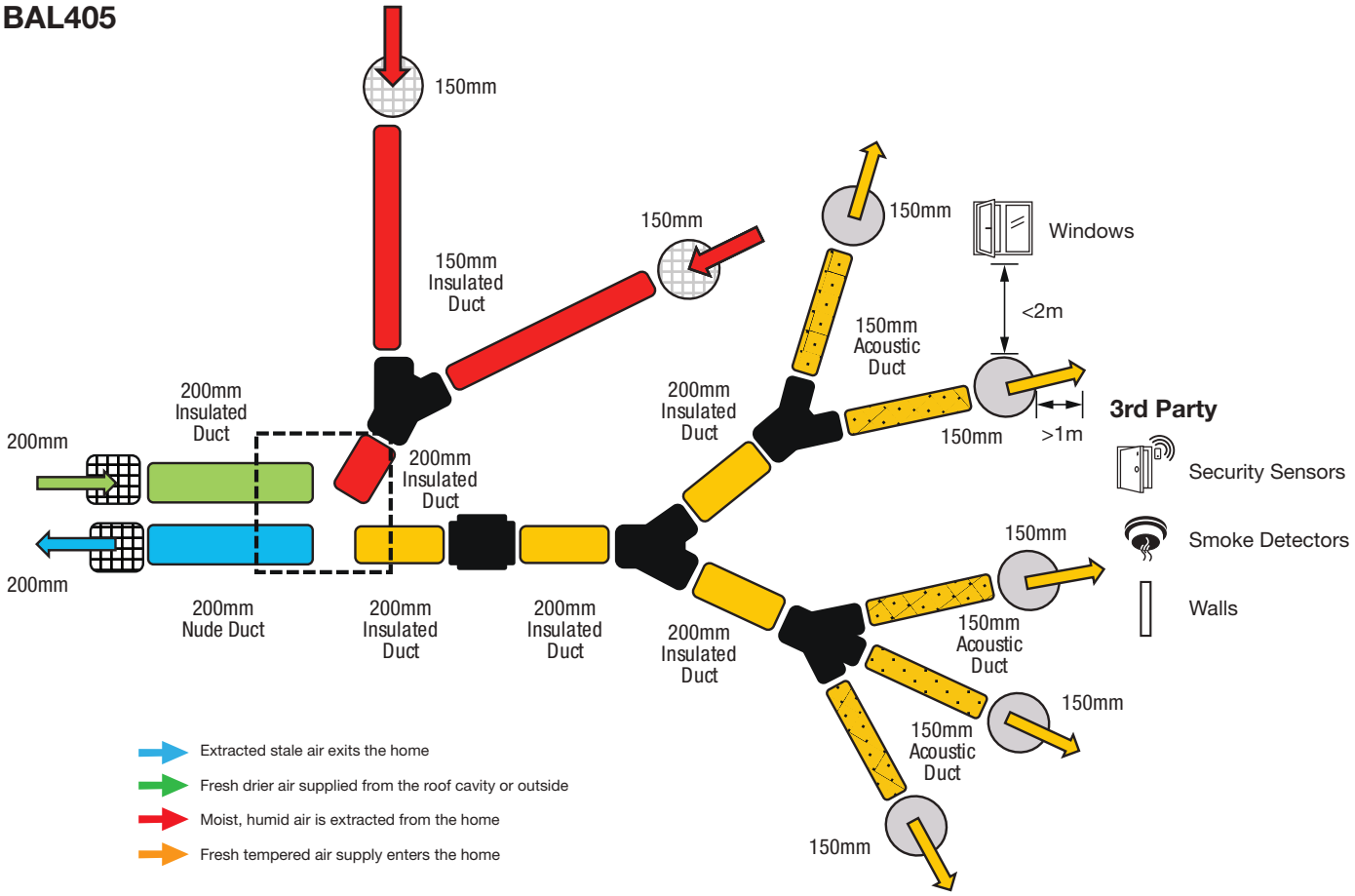
### IMPORTANT

- Take appropriate safety measures when cutting hazardous building maerials.
- Plan the installation as per the Installation Pan (see Page 20).
- Wind duct tape 3 times around duct and spigots for a secure connection.
- **DO NOT** put excessive strain on taped connections.
- Excess duct should be cut to keep the ducting path as short and straight as possible.
- Make sure the outer sleeve of the acustic duct is taped thoroughly so air cannot escape.

## BAL225




## BAL405



## Flexible Ducting Installation

There are three types of ducting used:

- Unilok ducting (non-insulated) used to channel exhaust air to the outside.
- Acoustic insulated ducting used to channel air to the outlets from the heat recovery unit.
- Insulated ducting used to channel inlet air from outside and exhausted warm air from inside, to the heat recovery unit.

Duct tape is provided to connect the ducting to the system components.

! Note: When fitting ducting, avoid sharp bends, keep duct straight and tight and lay out the ducting in the most economic fashion. This will maximise the system's efficiency.

When connecting the acoustic insulated duct to the spigots, first secure the "CORE" to the spigot with duct tape. Next, pull the "INSULATION" up to the joint and tape the "OUTER SLEEVE" to the spigot with duct tape. If this is not done correctly, heat will be lost, pressure drops may occur and acoustic performance could be compromised.


Hang the ducts connected to the heat exchange ventilator so that it runs straight for a distance of 1m off the spigot. Do not put filter, branches or joiners in the meter of straight duct. Not following these instructions can reduce the performance of the system by up to 25%, and the weight of the duct can dislodge it from the spigot.

## Installation Procedure

1. Cut a hole in the soffit and install the supply air grille.
2. Cut a second hole in the soffit for the exhaust air grille a minimum of 2m away from the supply air grille.
3. Lay out the filter, intake grille, branches and ducts in the roof space. Make sure there are mounting points for the core if mounting in the roof space.
4. Cut holes for the diffusers using the cardboard templates provided.
5. Tape ducts taught, cut off excess and tape to branches, fans, filters and grilles.

**N.B. Avoid sharp bends and u-bends where possible.**

## Installation Plan

**Diffuser Locations**

1. Install diffusers in living spaces (eg. bedrooms and living rooms).
2. **DO NOT** install supply diffusers in wet areas (eg. bathrooms, kitchens and laundries).
3. Where possible, install diffusers within 2m of windows and keep away from doorways.
4. **DO NOT** install diffusers within 1m of smoke alarms and walls, or security sensors and walls

## Circular Extract Grille

A single circular jet diffuser should be installed in the hallway to extract residual heat and stale air. Hint: when installing the diffusers into the ceiling, pull the acoustic ducting through the cut out and to the diffuser before fixing the diffuser to the ceiling.

**Location and Installation**
Identify the outlet locations in the rooms to be ventilated, additional ducting may be required to achieve the correct location. Mark and cut the holes for each diffuser using the cardboard template provided. CARE MUST BE TAKEN TO CUT AN ACCURATE NEAT HOLE. Using a hole saw for this is recommended. Before fitting the diffusers, make sure the spring loaded arms are pushed upwards, this will enable the arms to spring outwards when the diffusers are inserted into the cavity.

Note: Keep vents at least 1m away from smoke or motion detectors. **DO NOT** place directly above/next to any heat source.

## 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 series of start-up screens, described below (see Start-up Screens on page 23).

**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 on:

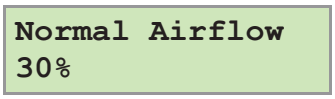
1. Turn the power off at the mains supply isolator.

## Control Unit

The control unit is located at the front of the SmartVent Balance unit. The control unit provides the user interface for commissioning and monitoring purposes.


### Display

The main display is a 16 character by 2-line liquid crystal display (LCD) with automatic backlight, which is turned off to automatically minimise power consumption.




### Buttons

Four buttons on the control unit provide the controls for configuring and monitoring the unit.

| Button | Function |
|---|---|
| SET | Press to adjust settings and press to save settings. |
| ^ | Press to go to the previous screen or to increase a parameter value.<br>Press and hold for more than 2 seconds for fast scrolling. |
| v | Press to go to the next screen or to decrease a parameter value.<br>Press and hold for more than 2 seconds for fast scrolling. |
| * | Press to activate Boost mode. See page 23 for options.<br>Press and hold for 5 seconds to activate Purge mode.<br>(Press and hold for 5 seconds to cancel Purge). |

## Start-up Screens

(Refer to Control Mode 01 unless otherwise indicated)

### BAL225 Screen

The SmartVent Balance screen displays the firmware version number for 3 seconds. No adjustments are possible on this screen.

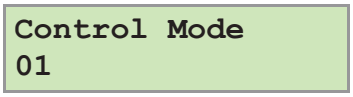

### Language Screen

The language screen displays the language used for the screens. It is typically displayed for 5 seconds, or longer if changing the setting.
(To re select a new language disconnect and then reconnect to the mains supply).



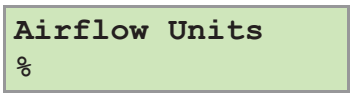
### Control Mode Screen

Selects between Control Mode 01 operation described herein and the alternative Control Mode 02 described in Appendix One.




### Airflow Units Screen

The Airflow Units is a percentage of the unit's maximum flow.




### Wireless Control Screen

The Wireless Control screen automatically displays whether the wireless boost control switch is fitted. It is typically displayed for 3 seconds.

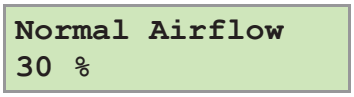

### Humidity Sensor Screen

The Humidity Sensor screen displays whether the humidity sensor is fitted. It is typically displayed for 3 seconds.

### Low Airflow / Normal Airflow / Boost Airflow Screen

When the start-up screens are finished, the low or normal screen is displayed showing operating status (Low Airflow X % or Normal Airflow X % or Boost Airflow X %).

The normal screen displays the rate of normal airflow (supply air) through the unit.

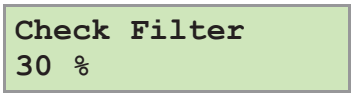



If the installation has proportional sensors or an internal humidity sensor fitted, and any of these are boosting the airflow, an α symbol will be displayed.


If Control Mode 02 has been selected then the Normal Airflow screen includes either “Auto” or “Manual” to indicate if the boost level has been triggered by the button on the controller or automatically via a sensor.

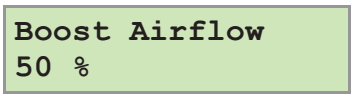
When the summer bypass is active, the normal screen top line will alternate (for 3 seconds) with Summer Bypass On.


An interval can be set, see page 40, at which the unit reminds the user to check the filters. The normal screen top line will include Check Filter as a reminder to check and, if necessary, clean or replace the filters.




When this has been done, press and hold the ⌃ and ⌄ buttons for 5 seconds to reset the automatic message.

## Boost Airflow Screen




Pressing the ✳ button activates the boost airflow mode when extra ventilation is required.

| No. of Presses | Boost Action (Control Mode 01) |
|---|---|
| 1 | Boosts for 30 minutes |
| 2 | Boosts for 60 minutes |
| 3 | Boosts continuously |
| 4 | Back to normal flow rate |

**N.B Additional airflow modes are available from the ✳ button when Control Mode 02 is selected in the start-up screens see Appendix One for further details.**

If the wireless boost option is fitted, this can be triggered from the wireless transmitter/boost switch.

If the installation has switch sensors, is wired to the lighting, has Vent-Wise sensors, Vent-Wise momentary switch or if the internal time switch is set for periodic operation, operation will change from normal to boost automatically. Pressing the ✳ button will reveal a code to show which device has activated boost.

s1 = Switch S/W1

s2 = Switch S/W2

s3 = Switch S/W3

s4 = Switch SW4

s5 = Switch SW5

v1 = Vent-Wise Input S/W1

v2 = Vent-Wise Input S/W2

v3 = Vent-Wise Input S/W3

ls = Switched live (LS)

w1-4 = Wireless controller

c1-3 = Internal Time switch

If running on boost due to pressing the ✳ button, another device may 'take over' the boost. Flow will return to normal when that device switches off. If a number of different devices are calling for boost flow, the unit will run at boost until the last one has reverted to normal.

**N.B Alternative functions are assigned to S/W1, S/W2, S/W3 & SW5 when Control Mode 02 is selected in the start-up screens see Appendix One for further details.**

### Purge Screen

Pressing and holding the ✳ button for approximately 5 seconds activates purge mode when you want to purge air from the building. The unit will revert to normal flow by pressing and holding the ✳ button again for 5 seconds. If the wireless boost option is fitted, purge can be triggered from the wireless transmitter/boost switch .

Purge mode runs the fans at full speed for 2 hours (120 minutes). The Purge screen displays a countdown of the time remaining.

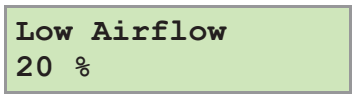

### Cooker Hood Boost Screen

Cooker Hood mode is activated when the J12, LS input is activated, see page 32 for details.


### Low Airflow Screen

Low Airflow mode is activated when the Normal Airflow is set to **Off**, (see page 26 for set up details).

The Normal Airflow mode can be set to run during the daytime i.e. from 6am to 11pm, the Low Airflow mode will then run during the night from 11pm to 6pm.



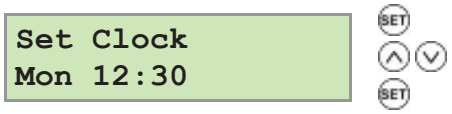

### Set Clock Screen

From the Normal Airflow screen, simply press the ⌄ button once to access the Set Clock screen.

The Set Clock Control screen enables you to change the clock settings. The clock retains its settings for approximately two weeks without mains power, after which it will need resetting when power is reconnected Values are **DDD HH:MM**.

Return to the normal display by pressing the ⌃ button or leave to timeout and return automatically after 2 minutes.

The unit will not automatically switch for daylight saving time.

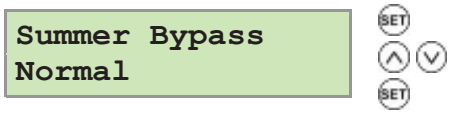



### Summer Bypass Screen

From the Normal Airflow screen, simply press the ⌄ button twice to access the Summer Bypass screen.

If the unit is a summer bypass model, the Summer Bypass screen enables you to switch the summer bypass control on or off. This screen is only displayed when the bypass is fitted. See Page 5 for a description of this function.

Options available are **Normal** (default), **Evening Purge, Night-time Purge** and **Off**.



## Indoor Temp Screen

From the Normal Airflow screen, simply press the ⌄ button until the Indoor Temp screen is displayed.

The Indoor Temp screen enables you to choose the target room temperature in degrees centigrade – only displayed when the bypass is fitted.

Selectable range is **16ºC-40ºC** (**25ºC** default).

Return to the normal display by pressing the ⌃ button or leave to timeout and return automatically after 2 minutes.

This function will only work when the Summer Bypass is set to on.





## Outdoor Temp Screen

From the Normal Airflow screen, simply press the ⌄ button until the Indoor Temp is displayed. Press SET button to choose the required temperature and then press SET button again to confirm the entry and this will call up Outdoor Temp.

The Outdoor Temp screen enables you to choose the minimum outdoor temperature at which the bypass will operate in degrees centigrade – only displayed when the bypass is fitted.

Use this to prevent cold draughts being introduced.

Selectable range is **5ºC – 20ºC** (**14ºC** default).

Return to the normal display by pressing the ⌃ button or leave to timeout and return automatically after 2 minutes.

This function will only work when the Summer Bypass is set to on.





**Return to the normal display by pressing the ⌃ button or leave to timeout and return automatically after 2 minutes**

## Overview

The instructions in this section are intended to provide configuration and operation information for setting up the equipment. In the event of problems, see *Troubleshooting* on page 42.

Follow good practice when commissioning the unit. Ensure that the system is installed according to the system designers intent incorporating any acoustic ducting, that all joints are air tight, ducting is well supported, bends are avoided close to vents, and that the vent valves are fully open at the start of the commissioning process.

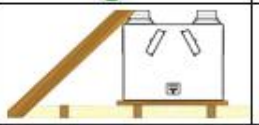
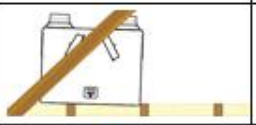
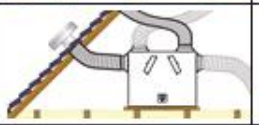
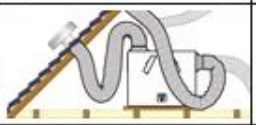
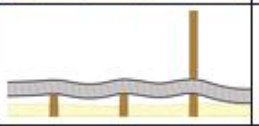
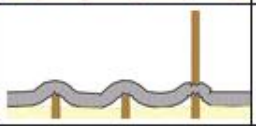
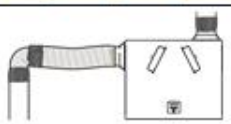
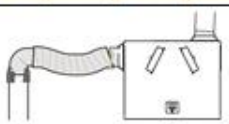
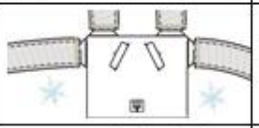
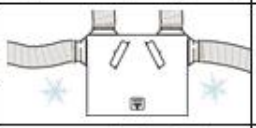
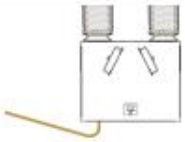
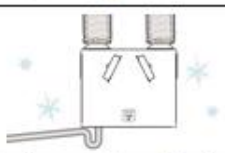
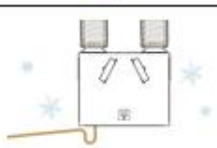
The following is attached to the unit and should be used as a check list prio r to setting the air flows .

### Installation Checklist

REQUIRED TO BE COMPLETE TO COMPLY WITH CONDITIONS OF WARRANTY,
but does not affect statutory rights.

This is a short check list of good practice do's and don'ts that may affect the safety or functionality of the installation. It is not a complete list of what is required. They must be complied with in order to ensure that the installation performs as expected.

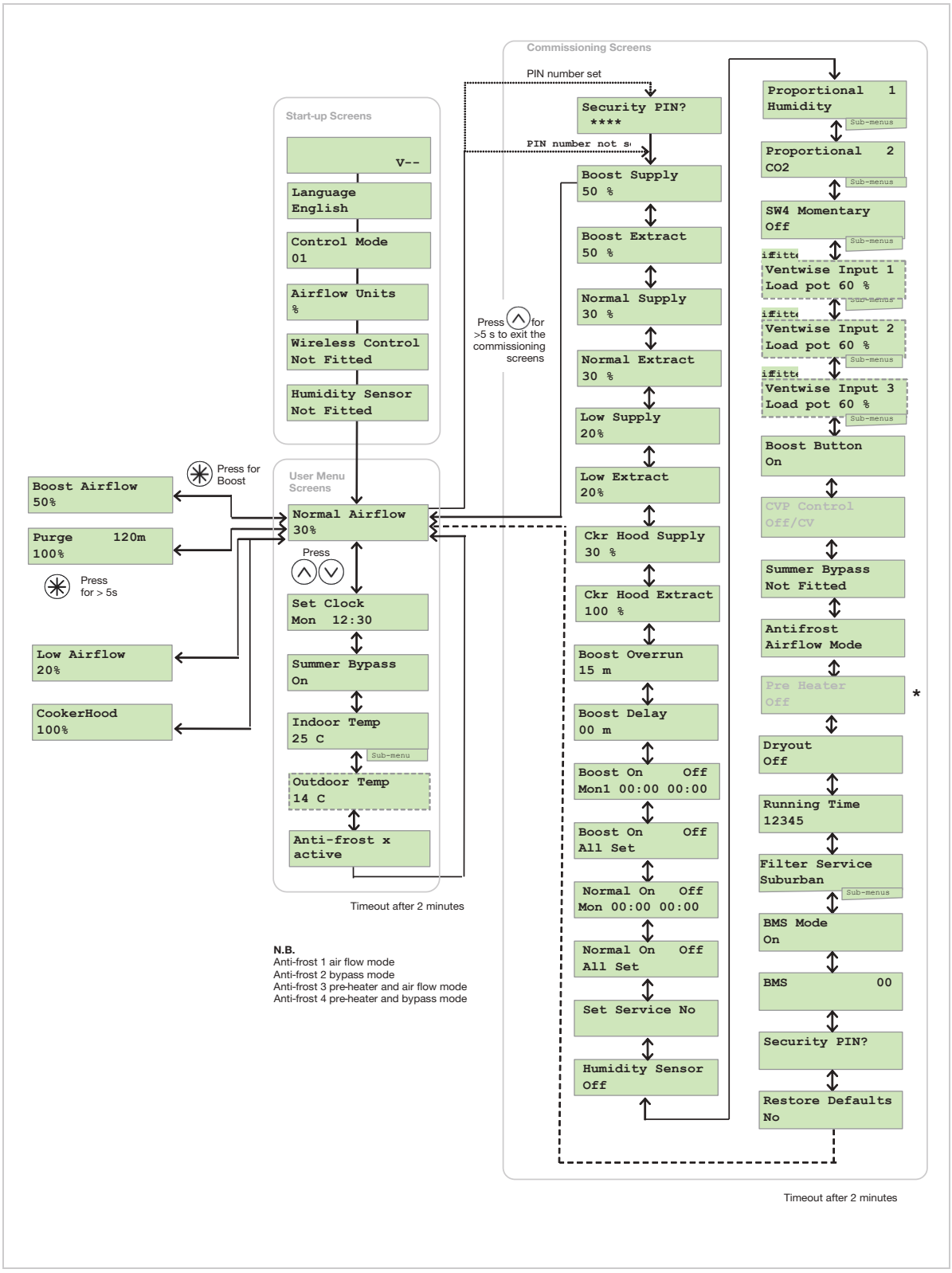
Unit Serial number: _____ Installer's name: _____

| Check |  |  | Date and initials |
|---|---|---|---|
| 1. Is the unit stable and horizontal with room around it to allow maintenance? |  |  | |
| 2. Is any flexible ducting pulled taut to prevent moisture collection and avoids airflow issues? |  |  | |
| 3. Is any flexible ducting crushed which will cause airflow issues? |  |  | |
| 4. Are all joints in the ductwork sealed to prevent air leakage? |  |  | |
| 5. Is the ducting insulated to prevent condensation and cooling or heating of the air? |  |  | |
| 6. Does the condensate drain a) have the correct slope to ensure water runs away and b) is fitted with a trap to prevent smells coming back into unit? |  |  | |
| 7. If the condensate drain passes through a cold space is it insulated to prevent freezing? |  |  | |

See the Installation Guide and Checklist at: http://www.vent-axia.com/files/domestic_ventilation_compliance_guide_2010.pdf

## Control Unit Screens Summary

When the unit is switched on (see *Powering up the Unit* on page 22), the following control unit screens are available for monitoring and configuring the unit



## Commissioning Screens

The commissioning screens enable you to configure the operational settings of the unit. Settings are stored in a non-volatile memory and will be retained irrespective of mains supply breaks.

Note: Access to the commissioning screens is prevented if the display shows **Antifrost Active, Room Too Cold** or a **Fault Code**. In this event, switch the unit off and on again and enter the commissioning screens within one minute. If you are within the commissioning screens the Antifrost and Room Too Cold Failures modes will not operate allowing the flow rates to be adjusted even in a property which is below 5ºC. For further information see *Troubleshooting* on page 42.

To access the commissioning screens: Press and hold the SET button immediately followed by the ∨∧ buttons together; continue to hold down all three buttons for 5 seconds .

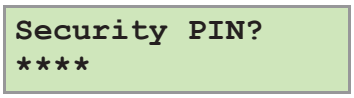
To scroll through the Commissioning Screens use the ∨∧ buttons.

To return to the normal screen, either press and hold the ∧ button to reach the first menu item and then hold for a further 5 seconds. Alternatively, the normal display will resume if no buttons are pressed for two minutes.

### Security PIN Screen

If a security PIN code has been previously set, this screen will display ****.

Enter the PIN using ∧, ∨ and SET buttons.

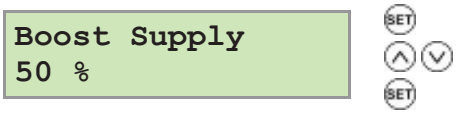



**Note 1**

Whilst displaying the Low, Normal, Boost Supply, Low, Normal, Boost Extract screens the fans will run at the displayed % flow and the bypass will remain shut. The two minute automatic return to normal display time is extended to four hours to allow time for measurements or adjustments.

### Boost Supply Screen

The Boost Supply screen enables you to set the Boost airflow speed for the Supply fan in order to balance out any differences in ductwork or other installation features.

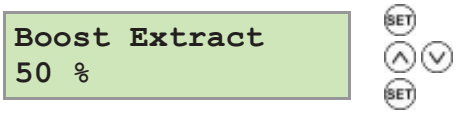



Default Boost speed = 50%. See graph on page 6 or 7 for se tting the Supply airflow.

The Boost speed cannot be set above the Cooker Hood speed or below Normal speed setting.

### Boost Extract Screen

The Boost Extract screen enables you to set the Extract airflow speed for the Extract fan in order to balance out any differences in ductwork or other installation features. Default Boost speed = 50%. See graph on page 6 or 7 for setting the extract airflow.




The Boost speed cannot be set above the Cooker Hood speed or below Normal speed setting.

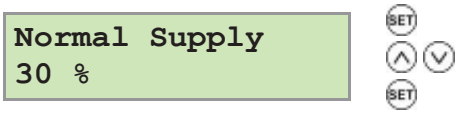
### Normal Supply Screen

The Normal Supply screen enables you to set the Normal airflow speed for the supply fan in order to balance out any differences in ductwork or other installation features.

Default normal speed = 30%

See graph on either page 6 or 7 for set ting the supply airflow.

The normal speed cannot be set below low speed or above boost speed setting.



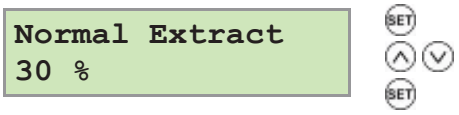

### Normal Extract Screen

The Normal Extract screen enables you to set the Normal airflow speed for the extract fan in order to balance out any differences in ductwork or other installation features.

Default normal speed = 30%

See graph on either page 6 or 7 for setting the extract airflow.

The normal speed cannot be set below low speed or above boost speed setting.



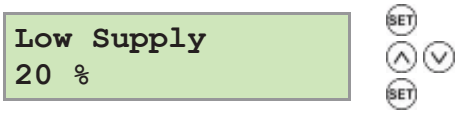

### Low Supply Screen

The Low Supply screen enables you to set the low airflow speed for the supply fan in order to balance out any differences in ductwork or other installation features.

Default low speed = 20%

See graph on either page 6 or 7 for set ting the supply airflow.

The low speed cannot be set below 1% or above normal speed setting.



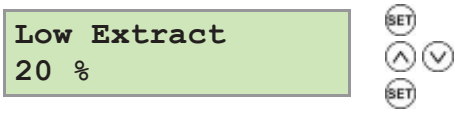

### Low Extract Screen

The Low Extract screen enables you to set the low airflow speed for the Extract fan in order to balance out any differences in ductwork or other installation features.

Default low speed = 20%.

See graph on either page 6 or 7 for setting the extract airflow.

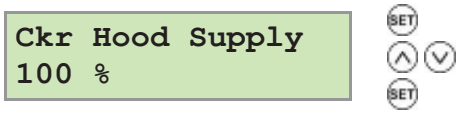
The low speed cannot be set below 1% or above normal speed setting.



### Cooker Hood Supply Screen

The Cooker Hood Supply screen enables you to set the boost speed for the supply fan.

Default cooker hood supply speed = 30%

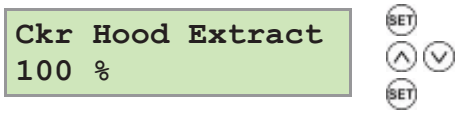



### Cooker Hood Extract Screen

The Cooker Hood Extract screen enables you to set the boost speed for the extract fan.

Default cooker hood speed = 100%

Cooker hood extract speed cannot be set below boost speed.

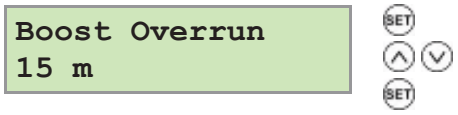



### Boost Overrun Screen

The Boost Overrun screen enables you to set a time period for the fans to boost airflow (in minutes) after the light sw itch (LS in put) is turned off. It will then return t o normal airflow.

Selectable range: minimum = **00**, maximum = **25**, default = **15**.

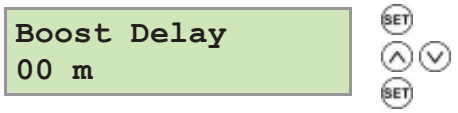
Boost overrun screen does not function for inputs S/W1 to S/W3 and SW4, SW5




### Boost Delay Screen

The Boost Delay screen enables you to set the time delay (in minutes) from the light switch (LS input) being switched on to the airflow boost being activated. This is used to prevent the unit from boosting unnecessarily when the light switch is switched on for short periods.

Selectable range: min. = **00**, max. = **10**, default = **00**.



## Boost On/Off Screen

The Boost On/Off screen enables you to set a time for boost to be activated for each day of the week.

You can set up to three **On/Off** times per day, shown as **Day1**, **Day2** and **Day3**. If **On** and **Off** times are the same, the unit will not change speed.

**On** time cannot be set earlier than a previous off time, Likewise, **Off** time cannot be set earlier than a previous **On** time.

To set a weekly schedule:
Setting starts at **Mon1** and uses SET show, by flashing, which item is available for adjustment with the ∧ and ∨ buttons (a → b → c → d → e → **Mon2** and so on).

**Mon1 10:01 11:11**

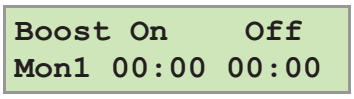
↑ ↑ ↑ ↑ ↑

a b c d e

When **Day** flashes, pressing ✳ (> 2 sec) will copy yesterday's times to today.

Setting finishes when the last off minutes for **Sun3** are accepted, at which point the screen will now show

**All Set** or holding the SET button for 3 seconds.




SET (**Day**)
∧ ∨
SET (**Day**)
SET (**On**)
∧ ∨
SET (**On**)
Repeat for **Off**
Repeat for each **Day**.
Note: if same times are used on subsequent days, ✳ will copy times found.

## Normal On/Off Screen

The **Normal Airflow** mode can be set to run during the daytime i.e. from 6am to 11pm, the **Low Airflow** mode will then run during the night from 11pm to 6pm.

The Normal On/Off screen enables you to set a time for normal to be activated for each day of the week.

You can set up to one **On/Off** time per day, If **On** and **Off** times are the same, the unit will not change speed.

**On** time cannot be set earlier than a previous off time, Likewise, **Off** time cannot be set earlier than a previous **On** time.

To set a weekly schedule:
Setting starts at **Mon** and uses SET to show, by flashing, which item is available for adjustment with the ^ and v buttons (a → b → c → d → e → **Mon** and so on).

**Mon1 10:01 11:11**

↑ ↑ ↑ ↑ ↑

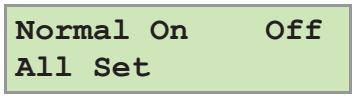
a b c d e

When **Day** flashes, pressing ✳ (> 2 sec) will copy yesterday's times to today.

Setting finishes when the last off minutes for **Sun** are accepted, at which point the screen will now show

**All Set** or holding the SET button for 3 seconds.


SET (**Day**)
^ v
SET (**Day**)
SET (**On**)
^ v
SET (**On**)
Repeat for **Off**
Repeat for each **Day**.
Note: if same times are used on subsequent days, ✳ will copy times found.

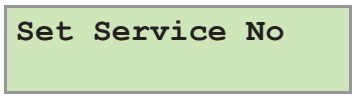



## Set Service No Screen

The Set Service No screen enables you to enter the telephone number that should be called for service in the event the unit fault.

Initially the screen is blank. Press SET to get a **0**. Use ^ and v buttons to change between **0** and **9** (or blank). Repeat until the number is entered. Finally, select a blank and press SET to finish. Maximum **16** digits.

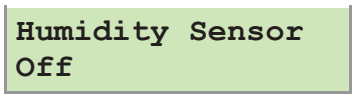
Press and hold ✳ for more than 2 seconds to clear service number.




SET
^ v
SET

## Internal Humidity Sensor Screen (if fitted)

The Humidity Sensor screen enables you to switch the sensor **On** and adjust the trigger point between 60% and 90%. (default setting 70%).




SET
^ v
SET

## Proportional 1 Screen

The Proportional 1 screen enables the conditions of the proportional sensors to be set.

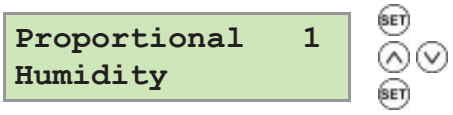
The unit can receive a 0-10V proportional signal from either a humidity, $CO_2$ or temperature external sensor, when connected to terminals P1.

By default, the Proportion 1 input is set for a humidity sensor operation.

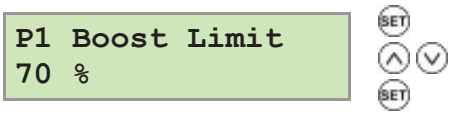
When you have selected the sensor type, screens for the appropriate boost and normal limits are displayed.

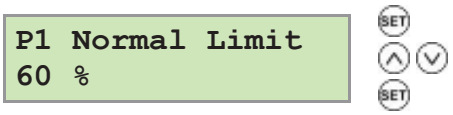
Press SET and use the ^ and v buttons to change the selection (**Humidity**-default, **$CO_2$**, **Temperature**).

When the input signal is below the 'Normal Limit', the unit runs at low / normal airflow. When the signal is above the 'Boost Limit', the unit runs at boost airflow. Between these limits the unit runs at a proportional airflow.

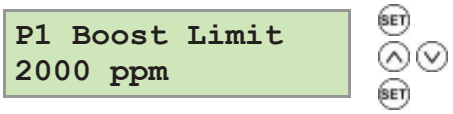


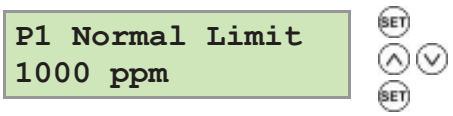

For a humidity sensor, a percentage value must be entered for boost and normal settings. For range and default values, see *Table 2* below.



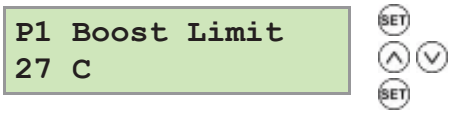




For a $CO_2$ sensor, a figure (in ppm) must be entered for boost and normal settings. For range and default values, see *Table 2* below.




For a temperature sensor, a figure (in degrees C) must be entered for boost and normal settings. For range and default values, see *Table 2* below.



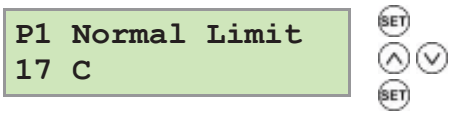



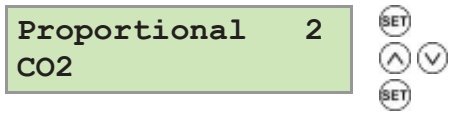

*Table 2: Boost & Normal Limits – Defaults and Adjustment Range*

| Sensor | Humidity | | $CO_2$ | | Temperature | |
|---|---|---|---|---|---|---|
| | Default (%) | Range (%) | Default (ppm) | Range (ppm) | Default (°C) | Range (°C) |
| Boost limit | 70 | 25-90 | 2000 | 200-2000 | 27 | 10-35 |
| Normal limit | 60 | 25-90 | 1000 | 200-2000 | 17 | 10-35 |

### Proportional 2 Screen

By default, the Proportional 2 input is set to $CO_2$ sensor operation.

See *Proportion 1 Screen* for a description.

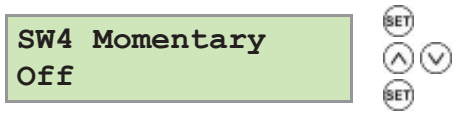



### SW4 Screen

Momentary closure (1 sec) starts or stops boost for set time.

Selectable range: min. = **15**, max. = **30**.

Default = **Off** when no Vent-Wise card fitted.




### Vent-Wise Screens

These screens are only displayed if a Vent-Wise card is fitted. Replacing J4 3-4 link with a Vent-Wise board converts S/W1, S/W2 and S/W3 from switch inputs to Vent-Wise inputs. In addition SW4 can be used by a momentary switch.

Vent-Wise sensors measure current or temperature. When the current or temperature exceeds a 'trip' level, boost airflow is selected. Low/normal airflow is resumed after a timed delay once the current or temperature has dropped below the trip level.

Any of the sensor types can be connected to S/W1, S/W2 or S/W3 but once the Vent-Wise card is fitted, ordinary switches must not be used.

In use, the Vent-Wise card with three sensors will run hot to the touch albeit well below its maximum temperature. If any input is shorted (e.g. used with switch), the board will overheat and shut down.

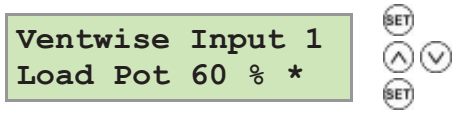
Nominal trip level is with the load pot set to (60%). A temperature sensor will trip with hot water at around 40°C and a current one around 1.5 A. Time Pot setting is from 1 to 25 minutes with a default of 20 minutes.

A one-second push on a momentary switch wired to SW4 will run boost for up to 25 minutes. The overrun timer can be set from 15 to 30 mins. A second one-second push will cancel the boost as would a "cancel boost" signal from one of the sensors. Multiple momentary switches may be wired in parallel to SW4.

Screens for each of the three switches are displayed. Enter a percentage value for the load pot setting.

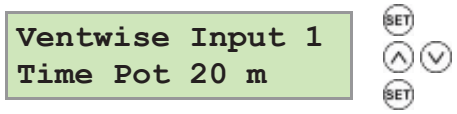
* Shows Vent-Wise signal and indicates the unit is running in boost mode

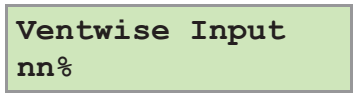
Selectable range: min. = **5**, max. = **95**, default = **60**.




Enter a time (in minutes) for the time pot setting.

Selectable range: min. = **1**, max. = **25**, default = **20**.

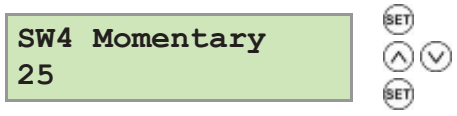



Momentary closure (1 sec) starts or stops boost for set time.

Selectable range: min. = **15**, max. = **30**.

Default = **25** when Vent-Wise card fitted



### Boost Button

The Boost Button screen allows the boost button on the front of the unit and on a remote control, if fitted, to be disabled by setting to **Off**. When set to **Off** this also disables the purge function.

Available options = **On** (default) and **Off**.

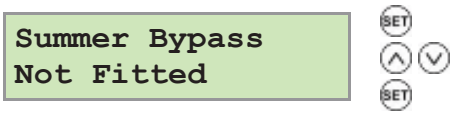

### CVP Control (Currently unavailable option)

This screen by default displays CV mode. The unit can operate by choosing Constant Volume or Constant Pressure, or can be set to Off to run on fan curve. Default for standard unit is Off and for CVP unit is CV.


### Summer Bypass Screen

The Summer Bypass screen is factory set if one has been fitted. It will only need resetting if a replacement control board has been fitted.

Available options = **Not fitted** (default) and **Fitted**.




### Antifrost Screen

The Antifrost screen is only displayed if a summer bypass is fitted. In installations where a negative pressure is not permitted such as where an open flue fireplace or appliance is fitted, set this to bypass mode.

Standard available options are **Airflow Mode** (default) and **Bypass Mode**.

An additional option is **Anti Frost with Heater Mode** which should be selected if a pre heater is fitted. See the next screen, below. (Currently unavailable option).


**Airflow Mode** - When the supply air temperature is between 0°C and -20°C, antifrost will automatically activate. This will reduce the supply airflow rate and increase the extract airflow rate to prevent frost forming on the heat exchanger. During antifrost operation the supply motor can stop for 15 minutes per hour and run for 45, depending on the temperature below 0°C. If the supply air temperature is -20°C or below the supply fan switches off and the extract fan continues to run at reduced rate to prevent frost forming on the heat exchanger.

**Bypass Mode** - While the supply air temperature is below 0°C, the antifrost mode will automatically activate. This mode will open the bypass to prevent frost forming on the heat exchanger.

### Dryout Screen

The Dryout screen enables the fans to be run at max speed for a week before returning to normal operation. This feature can help to dry out fresh plaster and paint enabling building work to be completed more quickly .

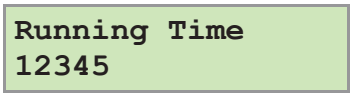
Filters may become fouled during this time and should be cleaned or replaced afterwards.

Available options: **Off** (default) and **On**.


### Running Time Screen

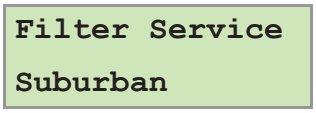
The Running Time screen displays the total running time of the unit (in hours).

No changes may be made to this screen. In the event of power failure total time will be retained.




### Filter Service

Press SET and then use the ∧ and ∨ push-buttons to select the time between filter services. The options are Urban (6 months), Suburban (default: 12 months) or Rural (18 months).




### BMS Screen

**On** for BMS (default) or **Off** for wired remote control, automatically set up by BMS signal or wired remote control when either is plugged into BMS RJ11 socket.

The BMS screen displays byte count and first 16 bytes from the Building Management System (BMS) system. The output may controlled by a BMS system to switch the unit on or off for example in conjunction with a smoke alarm.

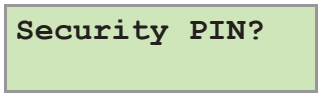
No changes may be made to this screen.


## Security PIN Screen

The Security PIN screen enables you top set a four-digit personal identification number (PIN) to access the commissioning screens. This screen will show blank if security is disabled and no PIN is used.

Press SET to reveal **0000** with the first **0** flashing and use the ^ and v buttons to change the selection (**0-9**). Press SET again to accept the digit and move to the next. Repeat until all four digits are specified.

Press and hold * for more than 2 seconds to clear security PIN.




## Restore Defaults Screen

The Restore Defaults screen enables you to restore the default settings for all screens.

Available options: **No** (default) and **Yes**.

The default commissioning settings are present when the unit is switched on and can be restored by setting the Restore Defaults screen to **Yes**.

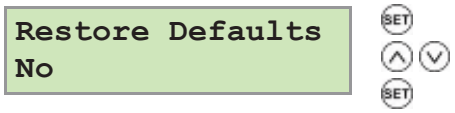


*Table 3: Default Settings*

| Parameters | Settings |
|---|---|
| **Start-up Screens** | |
| **Control Mode** | 01 |
| **Airflow Units** | %. |
| **Commissioning Screens** | |
| **Security PIN** | Not set |
| **Boost Supply/Extract** | 50% |
| **Normal Supply/Extract** | 30% |
| **Low Supply/Extract** | 20% |
| **Cooker Hood Supply/Extract** | 30% / 100% |
| **Boost Overrun** | 15 |
| **Boost Delay** | 00 |
| **Boost On/Off** | All days set to 0:00 (on), 00:00 (off) – inactive |
| **Normal On/Off** | All days set to 0:00 (on), 00:00 (off) – inactive |
| **Set Service No** | Not set |
| **Humidity** | 70% |
| **Proportional 1** | Humidity – Boost, Normal (60 %)<br>CO2 – Boost (2000 ppm), Normal (1000 ppm)<br>Temperature – Boost (27°C, Normal (17°C) |
| **Proportional 2** | CO2 – Boost (2000 ppm), Normal (1000 ppm)<br>Temperature – Boost (27°C, Normal (17°C)<br>Humidity – Boost, Normal (60%) |
| **SW4** | Off, or with Vent-Wise card fitted 25 mins |
| **Vent-Wise 1/2/3** | Load Pot (60%)<br>Time Pot (20m) |
| **Boost Button** | On |
| **Summer Bypass** | Not Fitted |
| **Antifrost** | Airflow Mode |
| **Dryout** | Off |
| **Running Time** | - |
| **Filter Service** | Suburban (default) 12 months, or can be set to Urban and Rural |
| **BMS** | On |
| **Restore Defaults** | Off |
| **User Screens** | |
| **Set Clock** | - |
| **Summer Bypass** | Summer Bypass On |
| **Indoor Temp** | 25°C |
| **Outdoor Temp** | 14°C |

## Caring for the Unit

Heat recovery units, by their very nature, require regular maintenance. SmartVent Balance systems have been designed to facilitate access to enable maintenance to be carried out easily.

## Filter Maintenance

| Item | Action |
|---|---|
| Fan Filters | When the unit displays “Check 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.<br>1. Open the filter flaps and remove the 2 filters.<br>2. Clean gently by tapping or carefully using a vacuum cleaner if necessary.<br>3. Replace the filters<br>4. Close the filter flaps.<br>5. Replace the inline supply air cartridge filter<br>(visit: *www.smartvent.co.nz/filter-replacements* for instructional video)<br>6. Reset the automatic message, press and hold the ⌃ and ⌄ buttons for 5 seconds. |

## 12 Monthly Maintenance

| Item | Action |
|---|---|
| Fan Filters<br>(Interval to suit environment) | Change the Fan Filters depending on which environment the unit has been installed; urban, suburban or rural.<br>1. Open the filter flaps and remove the 2 filters.<br>2. Insert the replacement filters.<br>3. Close the filter flaps.<br>4. Reset the automatic message, press and hold the ⌃ and ⌄ buttons for 5 seconds. |
| Unit & Heat Exchanger Cell | Inspect and clean the unit<br>1. **Isolate the mains power supply.**<br>2. Remove front cover from the unit.<br>3. Remove the 2 filters.<br>4. Slide out the heat exchanger.<br>5. Wash the outer cover and heat exchanger in warm water using a mild detergent and dry thoroughly.<br>**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. |
| Fastenings | Check that all unit and wall-mount fastenings are sufficiently tight and have not become loose. Re-tighten if necessary. |

## Spares

| Part No | Description | Part No | Description |
|---|---|---|---|
| **BAL225 SPARES** | | **BAL405 SPARES** | |
| DCT2093 | F7 Filter replacement | DCT2093 | F7 Filter replacement |
| DCT2277 | F7 Carbon | DCT2277 | F7 Carbon |
| DCT2287 | HEPA Carbon | DCT2287 | HEPA Carbon |
| DCT4493 | G3 Filters, 2 per pack | DCT4494 | G3 Filters, 2 per pack |

## Diagnosing a Problem

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

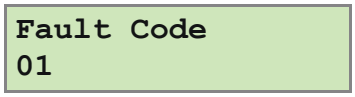
- **Fault code** displayed on the Control Unit or Remote Wired Control.

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 when a fault has caused the unit to switch off and you must phone 09 259 1662 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.



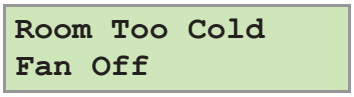

For assistance contact SmartVent and quote the fault code number. The following fault codes numbers may be displayed. Code numbers are added together if more than one is detected.

*Table 2: Fault Codes*

| Code | Problem |
|---|---|
| 01 | Supply Fan not running |
| 02 | Extract Fan not running |
| 04 | Control PCB 24 V fuse (FS1) failure |
| 08 | Temperature sensor T1 (supply) faulty |
| 16 | Temperature sensor T2 (extract) faulty |
| 32 | Wired Remote Control failure |

### Room Too Cold Screen

The Room Too Cold screen displays the status of the fan. If the heating system in the building fails or is switched off and the internal temperature drops below 5°C, the unit will stop running so as to not bring cold air into an already cold house. The unit will start up every hour and will run for a short time to measure the temperature of the property. When the temperature rises, e.g. the heating system is switched back on, the unit will restart and continue normal operation.




Bottom line of display may be (**Fan Off, Fan Restarting**)

Note: Access to the commissioning screens is prevented if the display shows **Antifrost Active, Room Too Cold** or a **Fault Code**. In this event, switch the unit off and on again and enter the commissioning screens within one minute. If you are within the commissioning screens the Antifrost and Room Too Cold Failures modes will not operate allowing the flow rates to be adjusted even in a property which is below 5C.

# Appendix One: Control Mode 02 Description

## Overview

The functional differences described in this Appendix are available when Control Mode 02 is selected from the start-up screens. Control Mode 02 assigns alternative functions to certain wiring Terminal Connections and allows additional airflow settings to be accessed via the ✳ button on the front of the SmartVent Balance units or remote control.

## Terminal Connections and Functions

The following switching Functions are available with Control Mode 02:


| Terminal No. | Name | Description (Control Mode 02) |
|---|---|---|
| S/W1 | Switch 1 | With link fitted to J4 – Volt- free switch – Low Mode |
| S/W2 | Switch 2 | With link fitted to J4 – Volt- free switch – Normal Mode |
| S/W3 | Switch 3 | With link fitted to J4 – Volt- free switch – Boost Mode |
| S/W4 | Switch 4 | Volt-free contact for sensor input between + and – terminals (Momentary if SW/4 if SW4 Commissioning Screen set On) With Vent-Wise PCB fitted to J4 - enables Vent-Wise momentary switch input |
| S/W5 | Switch 5 | Fire System or SW/5 open Stop |
| P1 0-10V | Proportional 1 | A 24V DC sensor supply is output between the + and - terminals. A 10V proportional sensor input is received between S and - terminals |
| P2 0-10V | Proportional 2 | A 24V DC sensor supply is output between the + and - terminals. A 10V proportional sensor input is received between S and - terminals |
| LED | Red Light Emitting Diode Output | A 5V LED driving signal output between the + and – terminals that enables remote indication of a unit fault. See the Control Panel for fault code (see *Service/Fault Code Screens* on page 44). |
| L | Mains Live | 220-240V AC, 50Hz input |
| N | Mains Neutral | 220-240V AC, 50Hz input |
| EARTH | Mains Earth | Earthing connector |
| LS | Switched Live | 220-240V AC, 50Hz input |

**Note: If control mode 02 is selected then S/W5 must have a link connecting the + and – terminals or a normally closed device such as a fire system.**

## Airflow Mode Selection

The following switching functions are available via the ✳ button with Control Mode 02:

| No. of Presses | Airflow Mode (Control Mode 02) |
|---|---|
| 1 | Low |
| 2 | Normal |
| 3 | Boosts for 30 minutes |
| 4 | Boosts for 60 minutes |
| 5 | Boosts continuously |
| 6 | Cancel |

Press ✳ 10 seconds after last press to cancel and return to normal operation.

# Appendix Two

**PRODUCT DATA**

| Name: | SmartVent Balance | SmartVent Balance |
|---|---|---|
| Model | BAL225 | BAL405 |
| SEC Class | A | A |
| SEC Value: Average | -41.41 | -43.81 |
| SEC Value: Warm | -16.49 | -18.55 |
| SEC Value: Cold | -85.69 | -88.70 |
| Label Required? (Yes/No = Out of scope) | Yes | Yes |
| Declared as: RVU or NRVU/UVU or BVU | RVU/BVU | RVU/BVU |
| Speed Drive | Variable Speed | Variable Speed |
| Type HRS (Recuperative, Regenerative, None) | Recuperative | Recuperative |
| Thermal Eff. [ (%), NA (if none)] | 87.00 | 90.00 |
| Max. Flow Rate (m3/h) | 237.60 | 432.00 |
| Max. Power Input (W): (@Max.Flow Rate) | 128.00 | 173.00 |
| LWA: Sound Power Level (dB) | 52.13 | 52.23 |
| Ref. Flow Rate (m3/s) | 0.04620 | 0.08400 |
| Ref. Pressure Diff. (Pa) | 50.00 | 50.00 |
| SPI [W/(m3/h)] | 0.34 | 0.20 |
| Control Factor & Control Typology: (CTRL/Typology) | | |
| Control Factor; CTRL | 0.65 | 0.65 |
| Control Typology | Local Demand Control | 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 | <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 | 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 | Refer to User Instructions |
| For UVUs (Instructions Install Regulated Supply/Extract Grilles Façade) | N/A | N/A |
| Sensitivity p. Variation @+20/-20 Pa: (for Non-Ducted VUs) | N/A | N/A |
| Air Tightness-ID/OD-(m3/h) (for Non-Ducted VUs) | N/A | N/A |
| Annual Electricity Consumption: AEC (kWh/a) | 2.23 | 1.52 |
| Annual Heating Saved: AHS (kWh/a) | | |
| AHS: Average | 46.31 | 46.93 |
| AHS: Warm | 20.94 | 21.22 |
| AHS: Cold | 90.60 | 91.82 |

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