ERV STANDARD
ERV BASIC

Installation, Operation & Maintenance

Stock Ref. N°

ERV1000S
ERV1500S
ERV1000B
ERV1500B
ERV1000HIS
ERV1500HIS
ERV1000HIB
ERV1500HIB

Vent-Axia®

PLEASE RETAIN THESE INSTRUCTIONS WITH THE PRODUCT.

CE

IMPORTANT

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE COMMENCING INSTALLATION AND LEAVE THEM WITH THE END USER.

1. THESE UNITS MUST BE SITED AND CONNECTED IN ACCORDANCE WITH CURRENT IEE REGULATIONS, BS7671 (UK) OR THE APPROPRIATE STANDARDS IN YOUR COUNTRY.

2. INSTALLATION SHOULD BE BY A QUALIFIED ELECTRICIAN AND INSTALLER.

3. 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.

4. THESE UNITS MUST BE EARTHED.

5. SITE THE UNIT AWAY FROM DIRECT SOURCES OF HEAT. AMBIENT TEMPERATURE RANGE 10 TO 40ºC.

6. WHEN INSTALLING UNIT, TAKE CARE NOT TO DAMAGE ELECTRICAL OR OTHER HIDDEN UTILITIES.

7. CHECK THE DETAILS ON THE RATING LABEL FOR CORRECT VOLTAGE AND ELECTRICAL RATING.

8. 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.

9. DUE TO THE WEIGHT OF THE UNITS, IT IS RECOMMENDED THAT MULTIPLE PERSONS ARE INVOLVED IN THE INSTALLATION. AT ALL TIMES, INSTALLATION PRACTICES MUST COMPLY WITH RELEVANT HEALTH AND SAFETY LEGISLATION.

10. SENTINEL AIR HANDLING UNITS ARE DESIGNED AND SPECIFIED FOR USE WITH VENT-AXIA CONTROLS, DAMPERS, GRILLES AND ACCESSORIES.

11. THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION.

12. YOUNG CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.

13. PRECAUTIONS MUST BE TAKEN TO AVOID THE BACKFLOW OF GASES INTO THE ROOM, FROM THE OPEN FLUE OF GAS OR OTHER FUEL BURNING APPLIANCES.

14. THIS UNIT SHOULD NOT BE USED IN A GREASE-LADEN ATMOSPHERE. IF THE UNIT IS TO BE USED IN A GREASE-LADEN ATMOSPHERE SUITABLE DUCT FILTRATION SHOULD BE USED.

PRODUCTS COVERED

Thank you for purchasing ERV.

This document describes the installation and commissioning of your equipment to help get your equipment up and running. It also provides essential maintenance and troubleshooting information to assist the operation and prolong the lifetime of your equipment.

This document covers the ERV series detailed in the following table.

Table 1: Products Covered by this Document

Model Number	Description
ERV1000S	ERV Box Mini Standard
ERV1500S	ERV Box Midi Standard
ERV1000B	ERV Box Mini Basic
ERV1500B	ERV Box Midi Basic
ERV1000HIS	ERV Hi Box Mini Standard
ERV1500HIS	ERV Hi Box Midi Standard
ERV1000HIB	ERV Hi Box Mini Basic
ERV1500HIB	ERV Hi Box Midi Basic

See *Technical Specification* for details of these models.

CONTENTS

Product Description

ERV BOX/ERV-HiBox

Energy Recovery Ventilation Box (ERV Box) and Energy Recovery Ventilation Hi Efficiency Box (ERV-HiBox) are heat recovery demand ventilation systems designed to meet modern building management and control principles.

It can respond to the ventilation requirements of a room by providing airflow at one of three speeds controlled by a room wall controller, while recovering energy from the extracted air and transferring it to the fresh supply air.

Models

- **ERV1000** designed to operate at airflows of 650 m^3/hr at 150 Pa.
- **ERV1500** designed to operate at airflows of 1000 m^3/hr at 150 Pa.

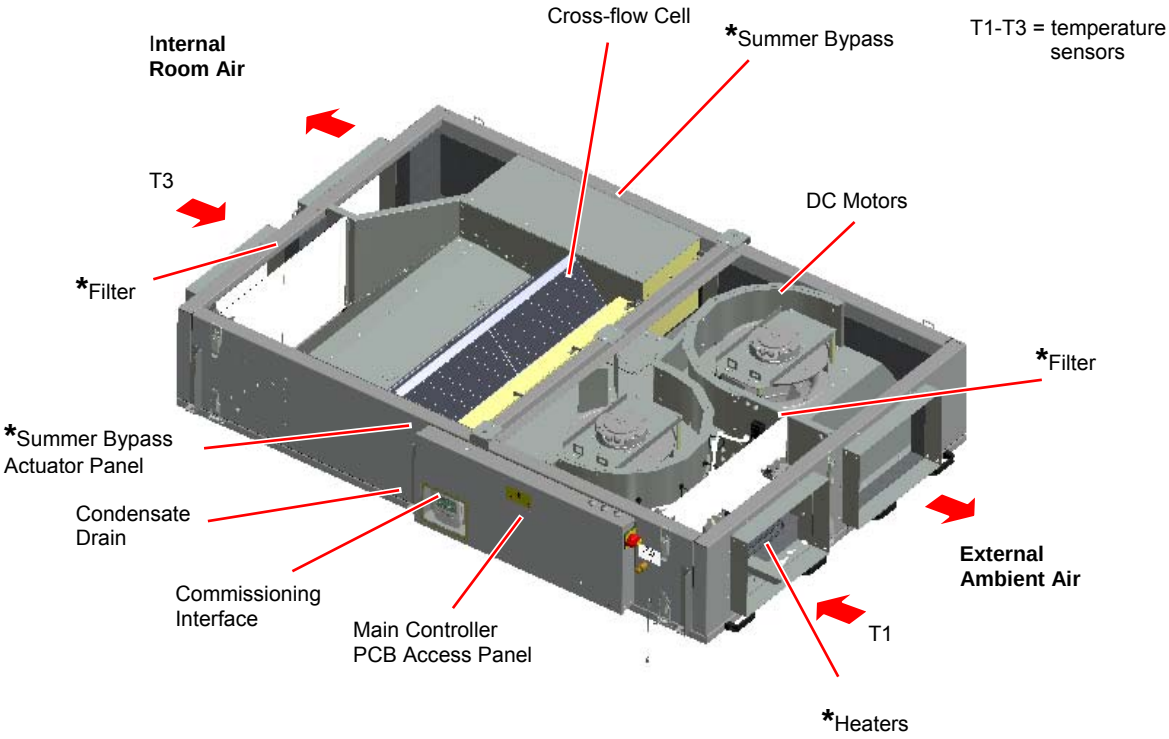


Figure 1a: ERV Box

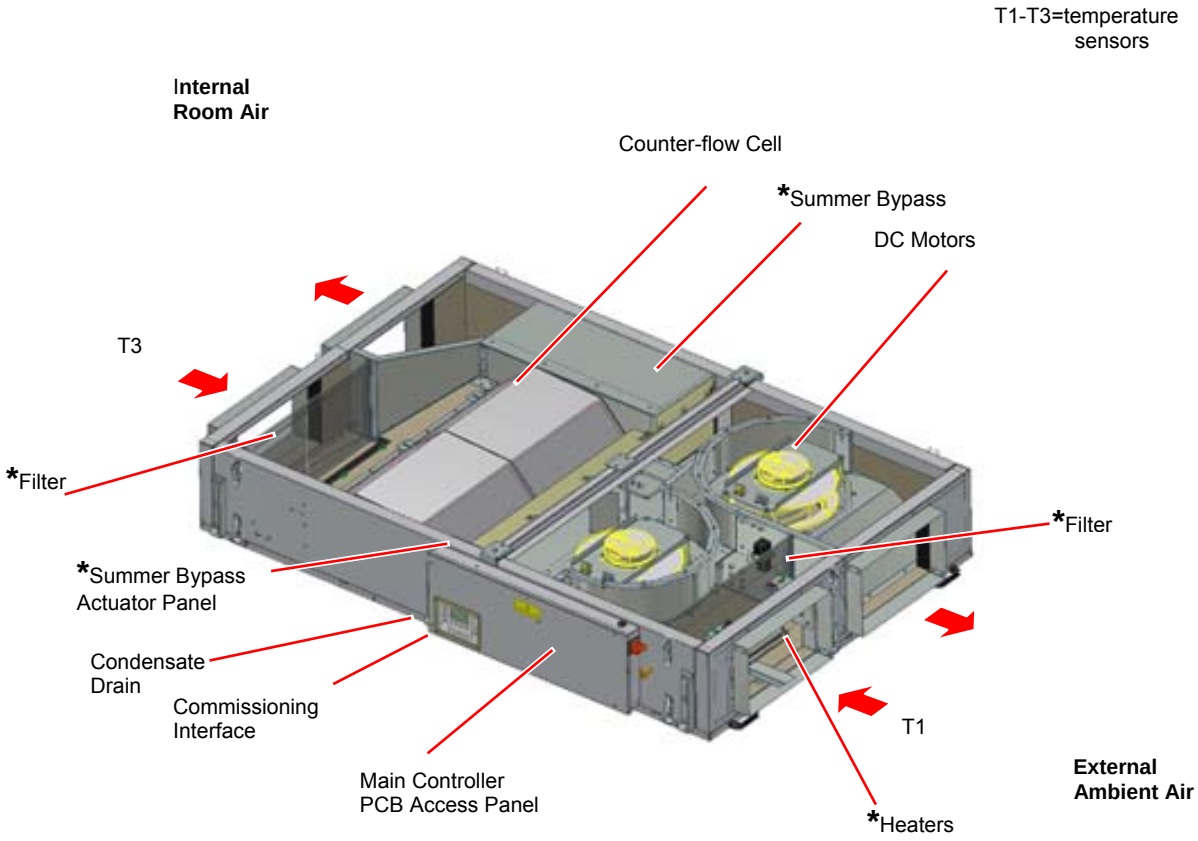


Figure 1b: ERV-Hi Box

*Standard Model Only (Not Basic)

Technical Specification (ERV)

Unit	ERV Standard/Basic		ERV HI Standard/HI Basic	
Performance	**1000**	**1500**	**1000**	**1500**
Airflow (nominal)	650 m^3/hr at 150 Pa	1000 m^3/hr at 150 Pa	650 m^3/hr at 150 Pa	1000 m^3/hr at 150 Pa
Power				
AC Voltage Input	220-240 V ac (single phase)			
AC Frequency Input	50/60 Hz nominal			
Supply Fuse or Cct Breaker STD	16 A	16 A	16 A	16 A
Supply Fuse or Cct Breaker BC	4A	4A	4A	4A
Rated Current Standard	12 A	12 A	12 A	12 A
Rated Current Basic	4A	4A	4A	4A
Rated Power Standard	1825 W	2500 W	1825 W	2500 W
Rated Power Basic	350 W	560 W	350 W	560 W
Total Fan Power (max.)	340 W	550 W	340 W	550 W
Total Frost Heater (max.) STD	1.5 kW	2 kW	1.5 kW	2 kW
Power (standby)	0.5 W	0.5 W	0.5 W	0.5 W
Efficiency	55%	55%	80%	80%
DC Voltage Output Standard	24 V dc (18-30 V dc) at 350 mA (max.) for switches and sensors			
Battery Standard	*See Table 5: 12-Monthly Maintenance on page 38*			
Product Fuses				
Power PCB	*See Table 11: Internal Fuse Values and Types on page 48*			
Main Controller PCB	*See Table 11: Internal Fuse Values and Types on page 48*			
Physical				
Height/Width/Depth	*See page 7*			
Weight	145 kg	167 kg	145 kg	167 kg
Environmental				
IP Rating - Unit	IPX4			
IP Rating - Commissioning Interface	IP42			
Operating Temperature	-10°C to +40°C			
Operating Humidity	0% to 95% (non-condensing) – weatherproof unit option			
Storage Temperature	-10°C to +40°C			
Storage Humidity	0% to 95% (non-condensing)			
Software Version	V2			

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

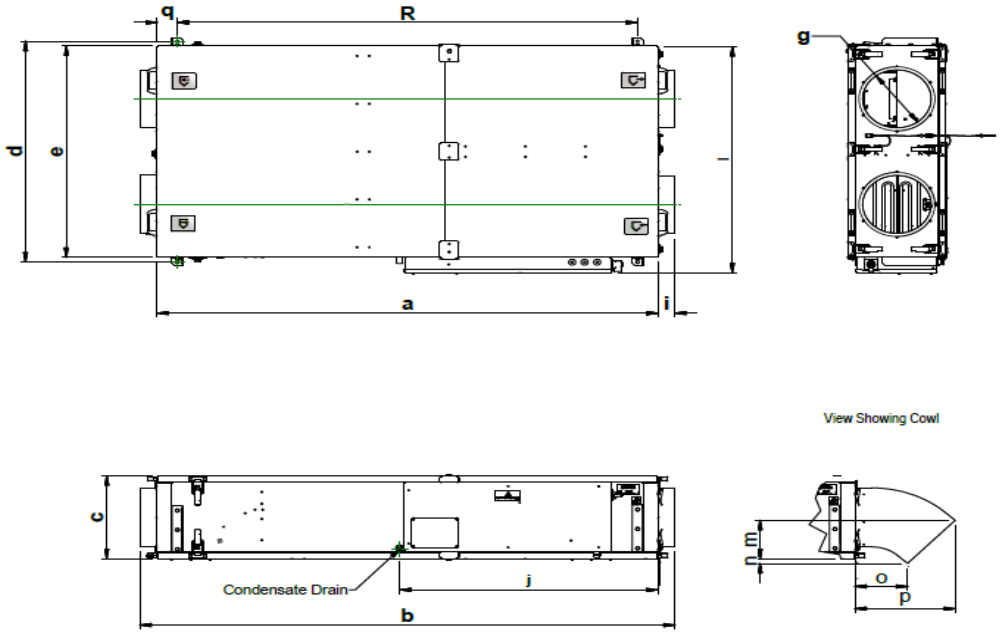
Commissioning Record

Record the unit commissioning settings here.

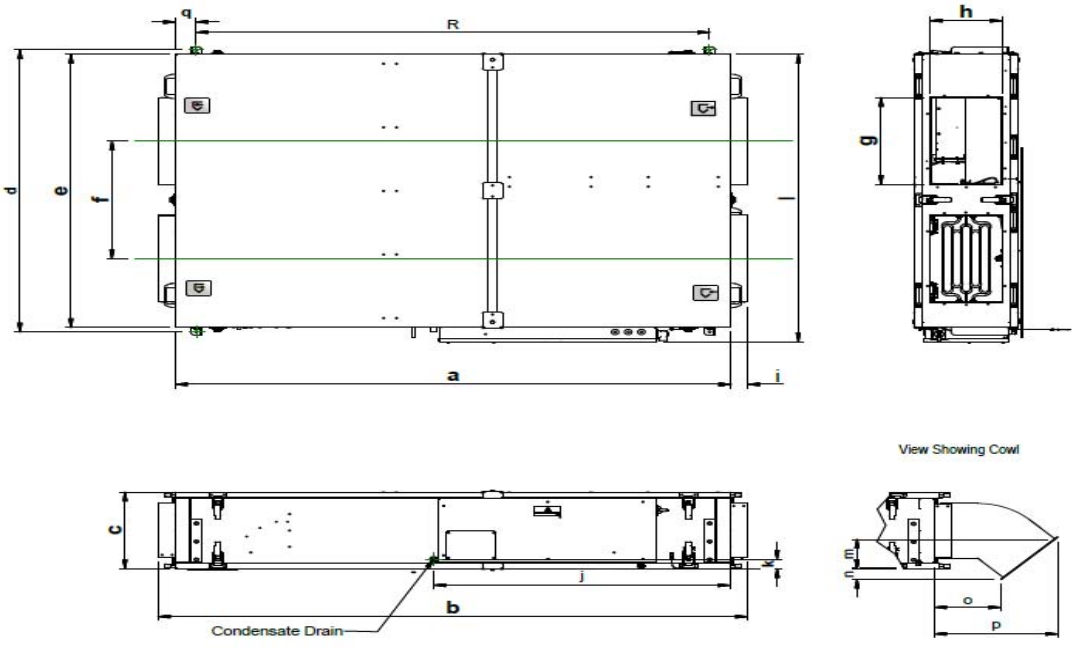
Date	Settings Code	Who

Dimensions

Model	Dimensions (mm)																	
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
1000	1800	1920	352	940	900	450	250	-	60	930	45	962	153	42	188	375	72	1656
1500	1900	2020	350	1290	1250	538	400	250	60	1014	42	1315	147	47	332	526	72	1760



ERV1000



ERV1500

Figure 2: Unit Dimensions

Installation

Installing Your Energy Recovery Ventilation System

WARNING

THIS EQUIPMENT PRESENTS ELECTRICAL, MECHANICAL AND NOISE HAZARDS. FAILURE TO USE SAFE WORKING PRACTICES AND OBSERVE THE RELEVANT REGULATIONS MAY RESULT IN DEATH OR SERIOUS INJURY.

The following instructions are intended to help prevent and/or minimize potential hazards and should be carried out only by a qualified electrician and installer.

How to Install Your Energy Recovery Ventilation System

The figure below summarises the instructions given in the following paragraphs.

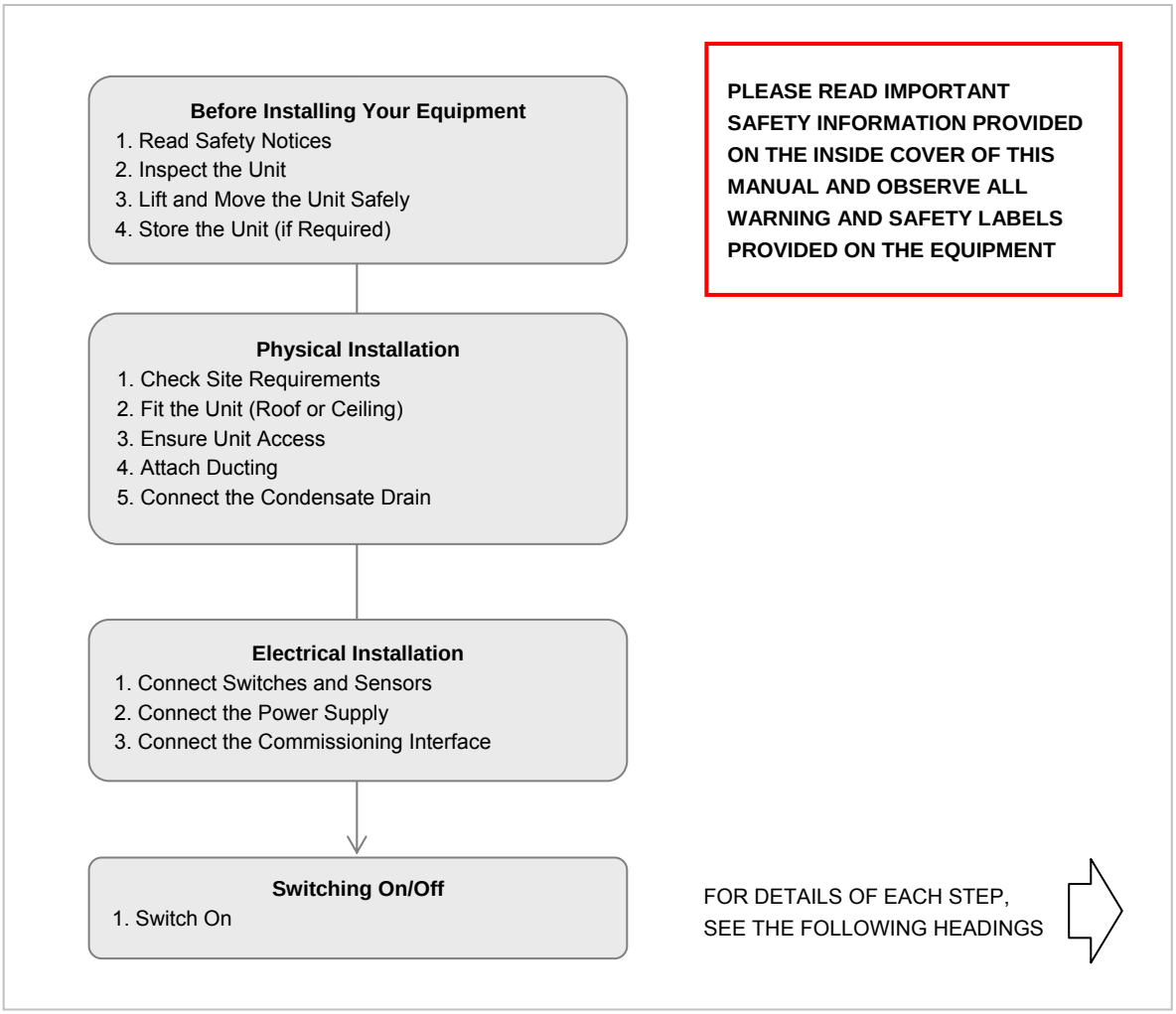


Figure 3: Installation Overview

Before Installing Your Equipment

Read Safety Notices

The equipment must be handled carefully and thoughtfully to prevent safety hazards and damage. Ensure the personnel designated to install the unit have the appropriate skills and knowledge.

Before commencing installation, please read and observe the safety notices given in the inside front cover of this manual.

Inspect the Unit

The unit is supplied on a pallet, shrink-wrapped in polythene. 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.

Lift and Move the Unit Safely

This weight of this unit is detailed in the *Technical Specification on page 6*. Always use appropriate lifting techniques and appliances when moving heavy equipment. A forklift truck, crane or similar lifting gear is required to lift and move the unit. Support the unit under the 3 support points, as shown in *4*.

Store the Unit (if Required)

If the unit is to be stored for a long period of time the fan impellers must be rotated by hand at monthly intervals to prevent hardening of the lubricant and corrosion or static indentation of the bearings.

If the unit has been stored, it is recommended that before installation, the resistance to earth should be measured. If found to be less than 2 MΩ, the unit should be left in a warn dry room for 24 hours and re-measured before applying mains voltage. If the resistance is still less than 2 MΩ, there is likely to be a fault.

The unit must be stored in clean, dry conditions.

Physical Installation

Check Site Requirements

Before installing the unit, check that the physical and environmental conditions for the site meet, or exceed, the requirements detailed in the Technical specification *on page 6.*

DO NOT install these fans in areas where the following may be present:

- **Excessive oil or grease laden atmosphere.**
- **Corrosive or flammable gases, fluids or vapours.**
- **Possible obstructions that will hinder removal.**

Fit the Unit (Roof or Ceiling)

The unit MUST be mounted horizontally to ensure drainage of the condensate tray. DO NOT mount this unit vertically.

Do not use this unit as a support for any other equipment.

Always use the appropriate fixings, supports, studs and hangers; and ensure that the unit is firmly and safely located.

Roof Mounting the Unit

The unit is designed for stationary use and MUST always be mounted horizontally to ensure drainage of the condensate tray. **DO NOT mount this unit vertically.**

The suggested method for roof mounting is to support the unit on blocks. The support blocks should provide 150 mm clearance between the unit and the roof, thereby allowing sufficient room for the fitting of the weatherproof cowls, as shown in the figure below. The blocks should be positioned directly below the support brackets provided for ceiling mounting.

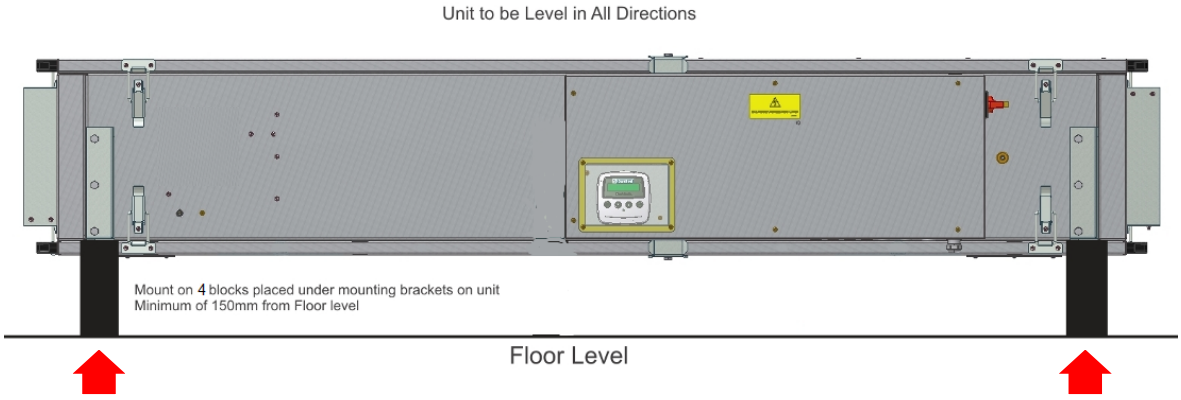


Figure 4: Unit Roof Mounted (Recommended)

If required, weatherproof cowls (see *Appendix B: Options and Accessories* on page 51) can be fitted at the ambient end (external intake and exhaust).

Note

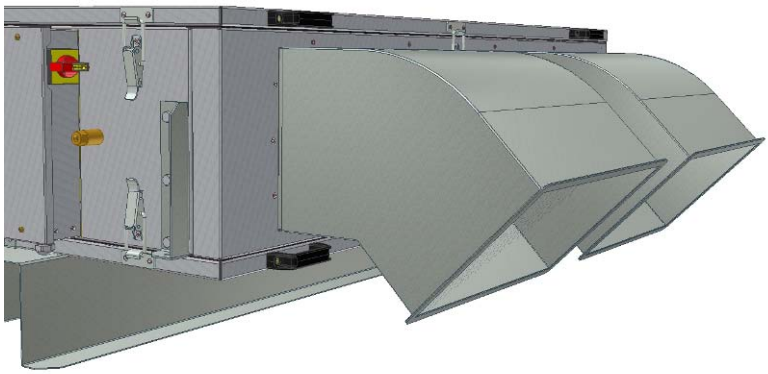
Any exposed ductwork must be insulated if the ERV is mounted on a roof or other external position.

Fitting the Weatherproof Cowl (If Required)

1. Ensure that the ERV has been mounted with sufficient clearance available (150 mm) to fit the weatherproof cowls at the external ambient air end of the unit.

> **Note**
> The weatherproof cowls are fitted at the same end as the motors.

2. Position each cowl over the flange around each opening, as shown in the figure below. Use sealant to seal the flange to the cowl to maintain the internal pressure and prevent water ingress.



3. Secure each cowl to the chassis using 6 x no. 10 self-tapping screws, drill holes ϕ 4.0

Suspending the Unit from a Ceiling

The unit is designed for stationary use and MUST always be mounted horizontally to ensure drainage of the condensate tray. **DO NOT mount this unit vertically.**

The unit provides **six** brackets, one at each corner and two half-way along the length of the unit, from which to suspended it. Ensure the drop rods & their attachment to the ceiling are of sufficient strength.

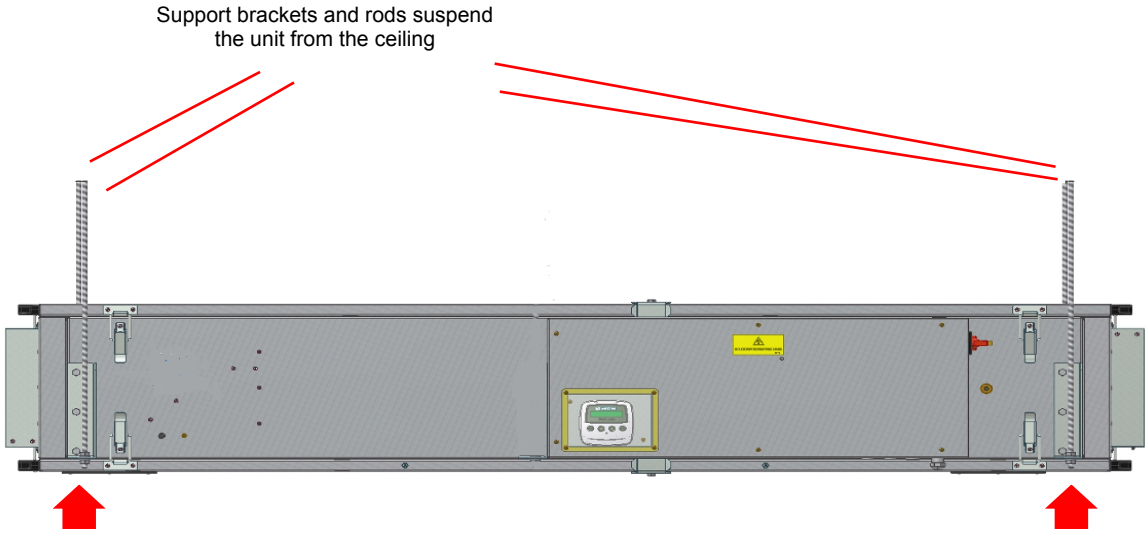


Figure 5: Unit Suspended from Ceiling (Recommended)

Ensure Unit Access

Ensure the unit is installed in such a way as to allow access to the control unit, connectors and filters (see *Filter Removal/Replacement (Ceiling-Mounted)* on page 42). Check the dimensions of the unit detailed in the *Technical Specification*.

Leave a gap of 500 mm to enable the Control Panel to be removed and to gain access to the Commissioning Interface and the Main Controller PCB.

Figure 6: Control Panel Access

On the opposite side of the unit a gap of 75 mm should be left to enable someone to be able to release the thumb catches when removing the top or bottom covers (see *Cover Removal/Replacement* on page 39).

Attach Ducting

WARNING

IF THIS EQUIPMENT IS RUN WITHOUT DUCTING FITTED, THERE IS A POTENTIAL HAZARD FROM ROTATING PARTS THAT CAN BE REACHED DURING OPERATION.

Fit appropriate ducting to the unit in accordance with the supplied drawings for the building.

Fit flexible connectors adjacent to the unit. Ensure they are taut.

When fitting clamping bands to flexible connectors, ensure that the flexible connectors are pulled tight and the ducts are not misaligned.

The unit provide rectangular ducting interfaces. Fit adapters as necessary to connect to ducting with a circular cross-section.

In order to facilitate access to, and replacement of, the extract motor on the external/ambient side, a suitable, easily disconnected section of ducting should be fitted, if ducting is required, in installations where the unit is mounted internally.

Connect the Condensate Drain

The unit should be mounted horizontally to ensure drainage of the condensate drain.

Use 22 mm pipe or flexible hose to connect to the condensate drain in order to carry away any water produced because of internal condensation. Ensure that the water is routed to a suitable outlet. This pipe should be insulated if installed in an area that could freeze, or fit a proprietary frost pipe heater. A U-Bend of proprietary.

A condensate pump is available as an accessory if required.

A U Bend with a leg height of 60 mm, or a proprietary trap should be fitted.

Electrical Installation - Standard

The main controller PCB terminals and the heater PCB terminals are all factory fitted which shall not be disconnected.

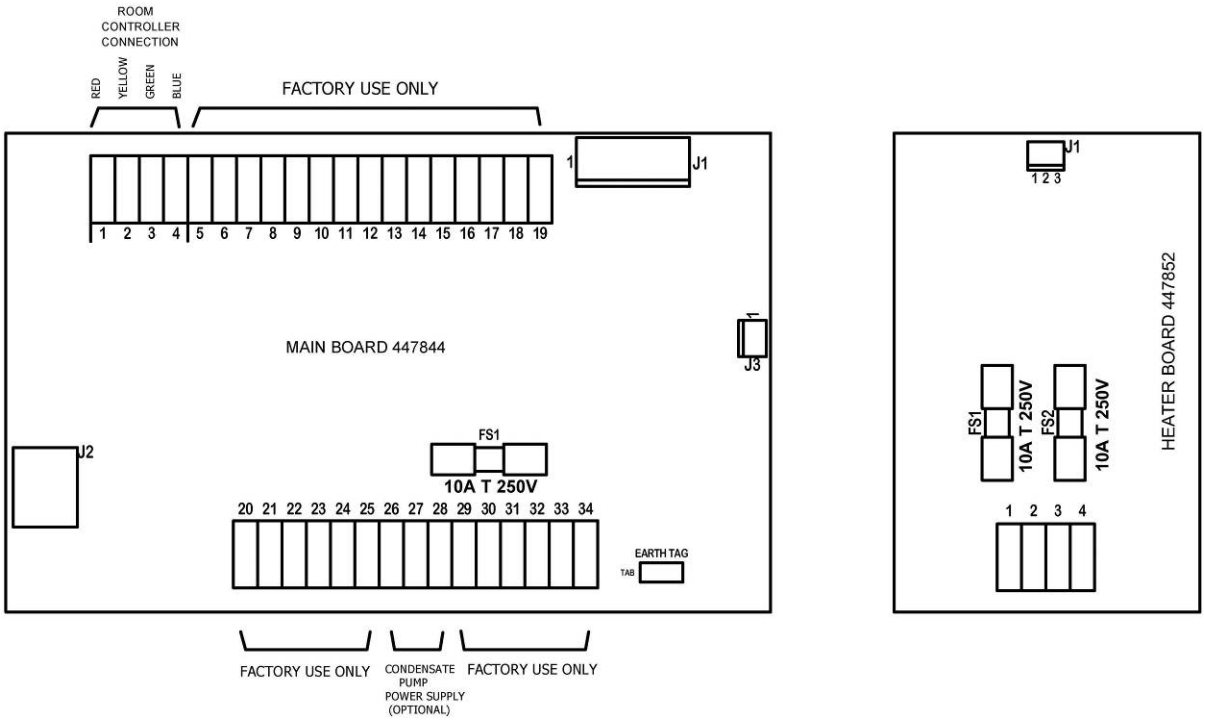


Figure7: ERV Box (Standard) Main Controller PCB Terminal Connections

Note:

1. Room Controller	Red	Terminal 1
	Yellow	Terminal 2
	Green	Terminal 3
	Blue	Terminal 4
2. Condensate pump power supply	L	26
	N	27
	E	28

Connect the Power Supply - General

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 IN ORDER TO PROVIDE OVERCURRENT AND EARTH FAULT PROTECTION.

3. DO NOT OVERLOAD WALL OUTLETS AND EXTENSION CABLES AS THIS MAY RESULT IN A RISK OF FIRE OR ELECTRIC SHOCK.

4. ENSURE THE UNIT ISOLATOR IS SET TO OFF AND LOCKED IN POSITION BEFORE REMOVING THE UNIT COVERS.

Check the *Technical Specification* for the voltage, current and fusing information relevant to this product.

This unit is designed for operation either from a single-phase alternating current source (220-240 V ac) or from three single-phase alternating current sources (220-240 V ac) that will allow you to distribute the current for the heaters, fans and unit through three separate outlets and cables, if required.

Wiring to the unit should be routed via a double-pole isolating switch (in accordance with local electrical wiring regulations) adjacent to the unit, or taken from the distribution board.

Connect the Power Supply - Standard

To connect the power supply:

1. Ensure the local ac power supply is isolated at the distribution board before connecting the supply cable.
2. Ensure the correct fuse type, or circuit breaker has been fitted to the ac power input supply. A means of disconnection should also be provided in the fixed wiring.
3. To prevent the equipment being accidentally switched on while you are away from it the unit isolator may be locked in position. Pull out the yellow inner section of the isolator switch to lock the isolator in position, revealing a hole through which a padlock, or other lockable device, may be inserted.
4. Remove the unit Control Panel cover by unscrewing the six securing screws.

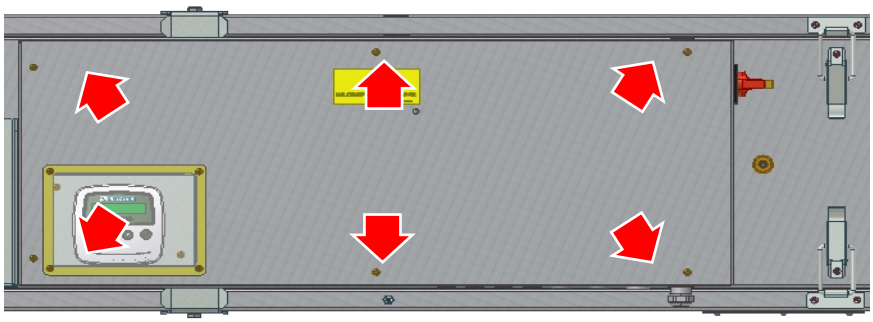


Figure 8: Control Panel Cover Removal

5. Remove the High Voltage Cover by unscrewing the two securing screws.

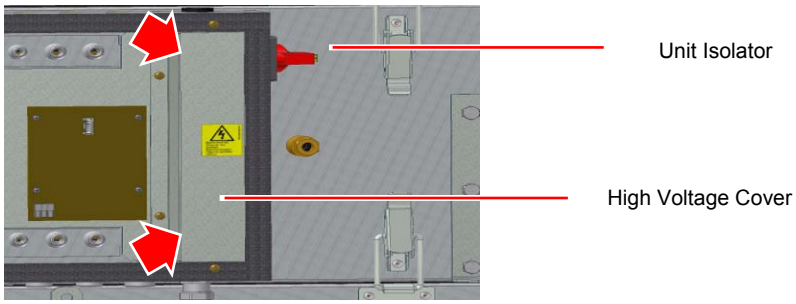


Figure9: High Voltage Cover Removal

6. The high voltage screw terminal block is now uncovered to enable you to connect the ac power cable(s).

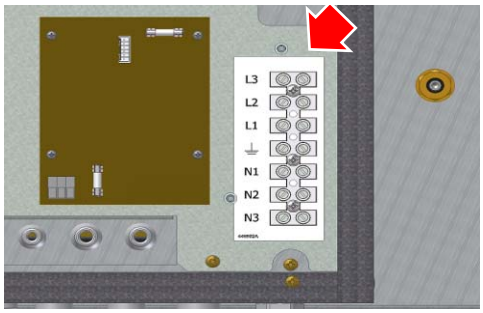


Figure10: High Voltage Terminal Block

In countries where the supply current is not available from single phase supply, the heater can be wired up to separate single phase supplies which are to be connected according to local regulations.

Using One Single-Phase Power Supply

7. Route a suitably rated round power cable through the cable gland provided on the bottom of the Control Panel directly below the High Voltage Terminal Block. A 7-10 mm diameter cable should be used to ensure sufficient grip by the cable gland. The gland MUST be sealed properly to maintain the IP rating of the unit.

8. Connect the Earth (green and yellow) wire to the Earth terminal ⏚. Connect the Live (brown) wire to all three terminal L1, L2 and L3. Connect the Neutral (blue) wire to terminals N1, N2 and N3, as shown in the figure below (wire colours apply to UK cables).

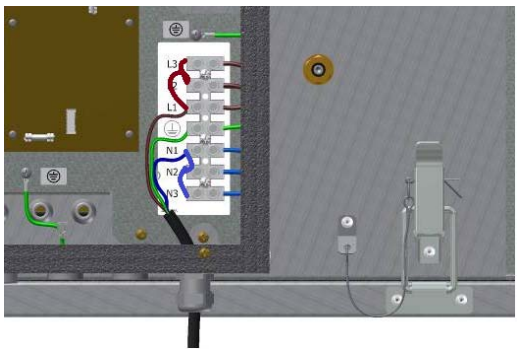


Figure11: Single-phase Terminal Connections

9. Connect the other end of the power cable to a power supply outlet or distribution board.

When replacing the cover ensure the earth bonding lead is attached to the cover.

Using Three Single-Phase Power Supplies

10. Route three suitably rated round power cables through separate cable glands on the bottom of the Control Panel (additional holes are provided for routing of power and sensor cables, as required).
A 7-10 mm diameter cable should be used to ensure sufficient grip by the cable gland. The gland MUST be sealed properly to maintain the IP rating of the unit.

11. Connect the three Earth (green and yellow) wires (one from each cable) to the Earth terminal ⏚. Connect the Live (brown) wires from each cable to a separate terminal L1, L2 or L3. Connect the Neutral (blue) wire to terminals N1, N2 or N3 (ENSURE THAT WIRES FROM THE SAME CABLE ARE CONNECTED TO THE SAME NUMBERED TERMINAL, I.E. CONNECT CABLE 1 TO TERMINAL L1 AND N1. DO NOT CROSS THE LIVE AND NEUTRAL SUPPLIES), as shown in the diagram below (wire colours apply to UK cables).

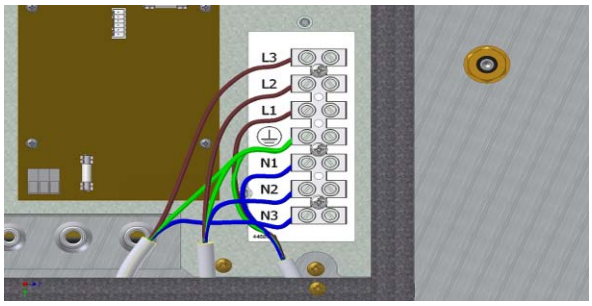


Figure12: 3x Single-phase Terminal Connections

12. Connect the other ends of the three power cables to three separate power supply outlets or distribution board terminals.

13. Replace the high voltage cover and control panel cover.

Connect the Commissioning Interface - Standard

The Commissioning Interface must be mounted indoors or inside the control enclosure.

Ensure the Commissioning Interface is accessible for commissioning and maintenance. It is recommended that it be mounted near to the main supply isolator, if not inside the control enclosure, since the unit must be switched off and on to access the commissioning screen.

To connect the Commissioning Interface:

1. Open the Commissioning Interface casing to gain access to the interior by inserting a small flat-bladed screwdriver in the slot at the base of the case. Then separate the front and rear halves at the top.

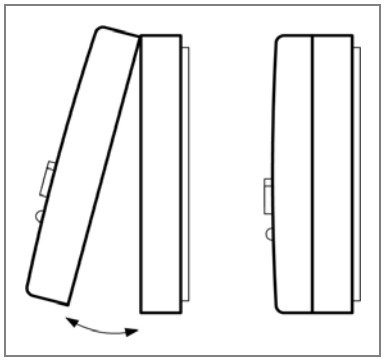


Figure13: Opening the Commissioning Interface

2. Mark and drill the holes for the two fixing screws supplied with the mounting kit. Fix the wall plugs and screws to the wall, leaving the screw heads sufficiently proud of the wall to enable the Commissioning Interface to be attached by lining up the holes in the rear of the casing with the screws and resting the case on the screws.
3. Use 4-core 0.5 mm^2 DEF STAN 61-12 Part 5 Type A cable, or equivalent, to connect the Commissioning Interface to the Main Controller PCB. The diameter of the cable used must not exceed 4 mm in order to pass through the opening of the Commissioning Interface's plastic housing. The length of the cable should not exceed 10 m. Screened cable is recommended, with screen connected to the chassis. Unscreened cable may be used if there is no threat from external electrical interference.

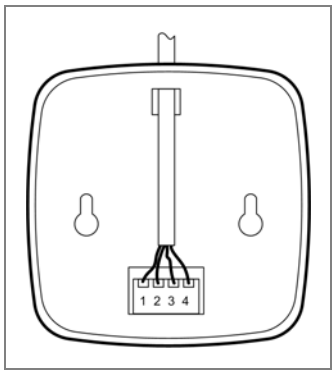


Figure14: Commissioning Interface Connections

4. Connect pins 1-4 on the Commissioning Interface terminal block to the corresponding pins 1-4 on the Main Controller PCB.
5. Re-assemble the front and rear halves of the Commissioning Interface Casing by first re-engaging the two lugs and slots along the top. Then, press together the bottom edges of the two halves, which should close with an audible click.

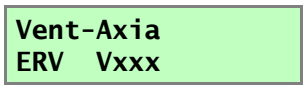
Switching On/Off - Standard

Switch On

The following procedure assumes that all necessary installation actions have been performed in accordance with the instructions given in this section of the manual.

To switch the unit on:

6. Ensure that all top and bottom covers are fitted and properly secured (see *Cover Removal/Replacement* on page 39).
7. Switch on the power at the mains outlet feeding the unit.
8. At the unit's cable entry panel, turn the isolator switch to position 1 (ON).
9. Observe the Commissioning Interface. Following switch-on, the Commissioning Interface displays a start-up screen. The start-up screen displays the ERV model and software version number.



10. Ensure that the Status LED on the Commissioning Interface is green, indicating that the unit is operating. The unit will commence operation according to the stored parameters.
11. If commissioning is required, or if the parameters are to be altered, see the *Commissioning* section on page 24.

Switching Off

To switch the unit off:

12. At the unit's cable entry panel, turn the isolator switch to position **0** (OFF).
13. 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.
14. To prevent the equipment being accidentally switched on while you are away from it the unit isolator may be locked in position. Pull out the yellow inner section of the isolator switch to lock the isolator in position, revealing a hole through which a padlock, or other lockable device, may be inserted.

Note

All commissioning settings are permanently stored in non-volatile memory and, therefore, retained in the event of a shutdown or power failure.

Electrical Installation – Basic

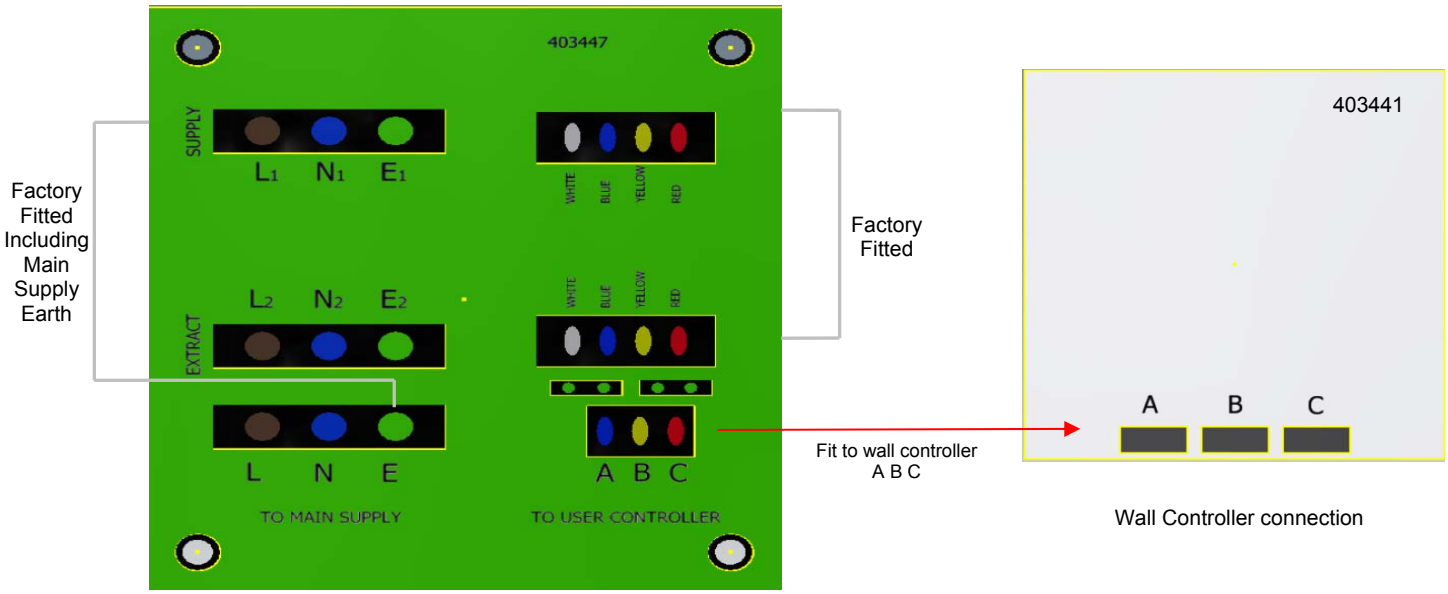
Note: The safety warnings on page 8 and page15 apply.

Factory fitted wiring should not be removed.

Connect terminals A, B and C on the PCB to terminals A, B and C in the wall controller.

Main supply earth is factory fitted via ring to PCB plate and should NOT be removed.

Customers can connect wall controller remotely by supplying their own cable with maximum length of connection between user controller and PCB is10m. (Connect only to live and natural of the PCB. Connect earth to PCB plate via ring termination where earth sign ⏚ provided).



Electrical Installation to Basic controller PCB

Note:

User Controller and PCB Connection		
A	BLUE	0v / neg of 10v from fan
B	YELLOW	Voltage speed control signal.
C	RED	+10V supply from fans

Wiring to the unit should be routed via a double-pole isolating switch (in accordance with local electrical wiring regulations) adjacent to the unit, or taken from the distribution board.

Connect the Power Supply - Basic

To connect the power supply:

1. Ensure the local ac power supply is isolated at the distribution board before connecting the supply cable.
2. Ensure the correct fuse type, or circuit breaker has been fitted to the ac power input supply. A means of disconnection should also be provided in the fixed wiring.
3. To prevent the equipment being accidentally switched on while you are away from it the unit isolator may be locked in position. Pull out the yellow inner section of the isolator switch to lock the isolator in position, revealing a hole through which a padlock, or other lockable device, may be inserted.
4. Remove the unit Control Panel cover by unscrewing the six securing screws.

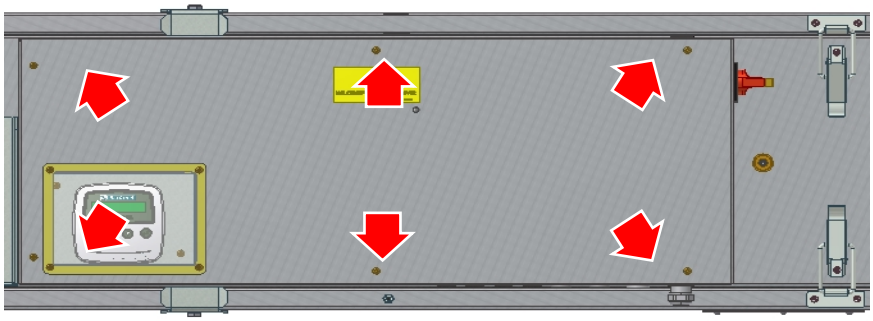


Figure 8: Control Panel Cover Removal

5. Connect power supply to the L, N and E terminals on the PCB. Ensure that the cable enters via the appropriate gland and is clamped.

Commissioning Your Energy Recovery Ventilation System

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

Commissioning Interface

The Commissioning Interface can be hard wired to any remote location. The Commissioning Interface provides the user interface for commissioning and monitoring purposes.

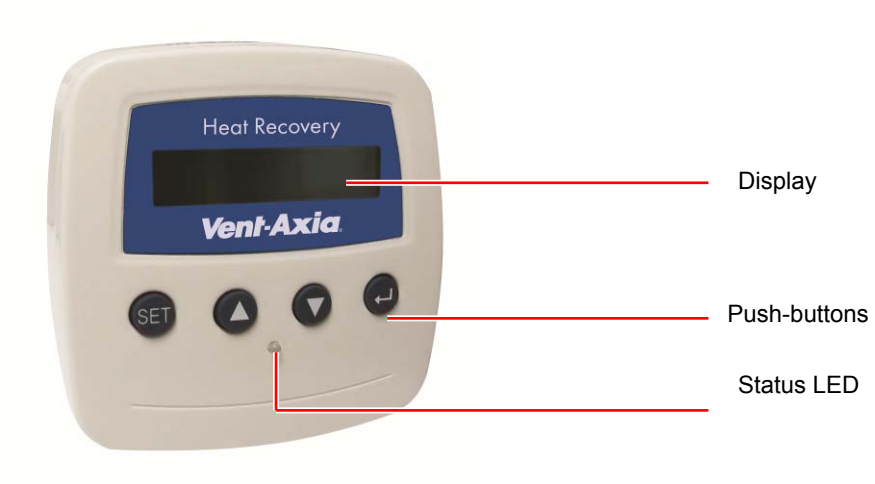


Figure15: Commissioning Interface

Display

The main display is a 16 character per line, 2-line liquid crystal display (LCD) with automatic backlight, which is turned off to minimise power consumption when the unit is operational (see *Commissioning Screens on page 24*).

```
Vent-Axia
ERV  Vxxx
```

Push-buttons

Four push-buttons on the Commissioning Interface provide the controls for configuring and monitoring the unit.

Table 2: Commissioning Interface Push-buttons

Push-button	Function
SET (Set)	Press to adjust settings and move to next menu item.
▲ (Up)	Press to go to the above screen or to increase a parameter value. Press and hold for fast response.
▼ (Down)	Press to go to the next screen or to decrease a parameter value. Press and hold for fast response.
↵ (Enter)	Press to enter or move to next menu item.

To commission your Energy Recovery Ventilation System,

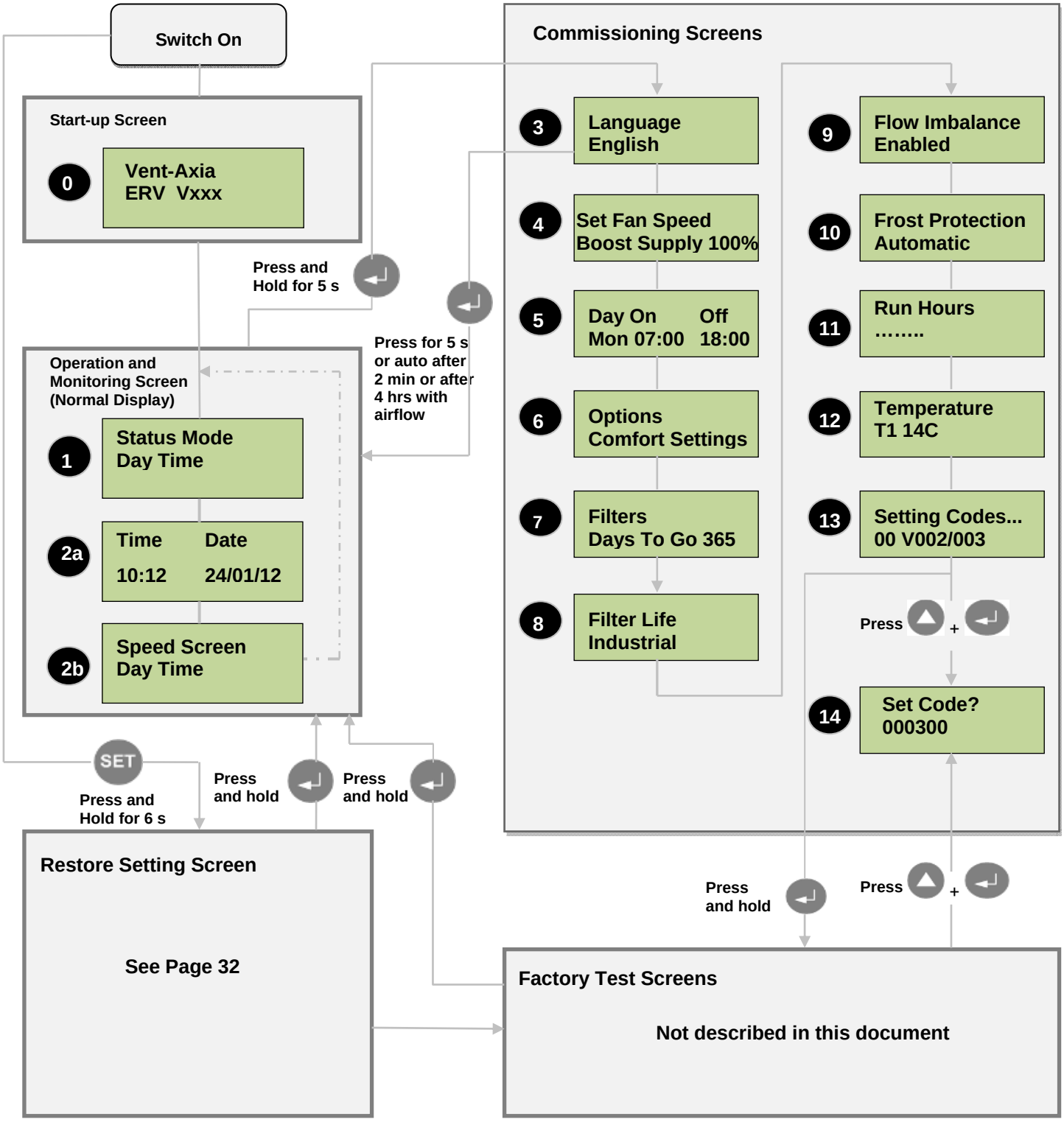
1. Ensure the unit is switched on, the start-up screen has been displayed and that the Operating and Monitoring Screens (Normal Display) are displayed on the Commissioning Interface.
2. Press and hold the (Enter) push-button for 5 seconds to access the Commissioning Screens.

Note

All commissioning settings are permanently stored in non-volatile memory and, therefore, retained in the event of shutdown or power failure.

Commissioning Screens

When the unit is switched on (see *Switching On page 19*), the following Commissioning Interface screens are available for monitoring and configuring the unit (default values shown where applicable).



Commissioning Screens

The commissioning screens are available when the (Enter) push-button is pressed and held for 5 seconds when the Normal Display is shown. These screens enable the unit to be configured to suit the installation requirements of the customer.

3 Language Screen

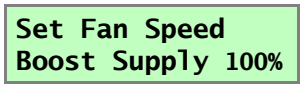
The Language screen displays the language option that is set for the software.

Press (Set) and then use the (Up) and (Down) push-buttons to change the language setting.

Press (Up) push-buttons to enter new setting and move to next screen.

4 Set Fan Speed

Set the Low, Normal and Boost Supply and Extract speeds.



Press (Set) and then use the (Up) and (Down) push-buttons to select the following:

Boost Supply and Extract

Normal Supply and Extract

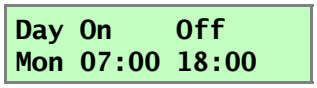
Low Supply and Extract

Press (Set) and then the (Up) and (Down) to select percentages of supply and extract fans.

Press (Up) push-buttons to enter new setting and move to next screen.

5 Time Clock

Set on and off times for each day individually, note that the minimum run or stop times is 10 min.



Press (Set) and then use the (Up) and (Down) push-buttons to select day, time on and time off.

Press and hold (Enter) push-button until screen displays All Set.

Press (Up) push-buttons to enter new setting and move to next screen.

6 Comfort Settings Screen

The Comfort Settings screen enables comfort, bypass and overheat settings to be adjusted.

- **Comfort** – cools the room by either varying the fan speed, or by opening the bypass when a threshold temperature is reached.
- **Bypass** – cools the room by opening the bypass when a threshold temperature is reached.

- **Overheat** – cools the room when triggered by a high extract air (T3) at 3 pm, then runs at night when intake air (T1) is cool. This requires switch input 4 (central heating) to be connected.

Comfort Settings – Comfort

```
Comfort Settings
.....
```

Press SET (Set) and then use the ▲ (Up) and ▼ (Down) push-buttons to select the **Comfort Enable/Disable** option.

```
Comfort Settings
Comfort  Enable
```

If **Comfort Enable** is selected, pressing SET (Set) again enables you to select a temperature (in degrees C) for the comfort setting (**20C** to **29C**). This is the target room temperature. The fans speed up above this set temperature to increase the airflow.

```
Comfort Settings
Comfort     24C
```

Press SET (Set) again to enter the new setting and move down to the next screen.

Comfort Settings - Bypass

Models fitted with a Summer Bypass will provide energy-free heating and energy-free cooling when the house temperature and ambient temperature allows.

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 bypass will open and the unit will supply cooler air to your room.

If the room is cooler than the set ("**indoor**") temperature (i.e. you need the room heating) and the outdoor air is warmer than the actual room temperature (i.e. the outdoor air could heat your room) then the bypass will open and the unit will supply warmer air to your room.

Note

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.

Use the ▲ (Up) and ▼ (Down) push-buttons to select the **Bypass Enable/Disable** option. This enables or disables the Summer Bypass.

```
Comfort Settings
Bypass   Enable
```

If **Bypass Enable** is selected, pressing SET (Set) again enables you to select a temperature (in degrees C) to initiate the bypass (**10** to **30**) using the **Up** and **Down** push-buttons. This is the target room (internal) temperature.

```
Comfort Settings
Bypass Int   21C
```

Pressing SET (Set) again enables you to select a temperature (in degrees C) to initiate the bypass (**5** to **20**) using the **Up** and **Down** push-buttons. This is the external ambient temperature.

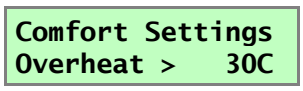
Press SET (Set) again to enter the new settings and move down to the next screen.

Comfort Settings - Overheat

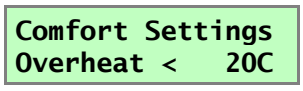
Use the ▲ (Up) and ▼ (Down) push-buttons to select the **Overheat Enable/Disable** option.

This allows an overnight purge to happen when a trigger point is reached at 3 pm and the ambient air is cooler than the room air at the following 2 am. The unit brings in the cool air via the summer bypass until the room temperature gets down to the target temperature.

If **Overheat Enable** is selected, pressing SET (Set) again enables you to select a temperature (in degrees C) for the summer overheat trigger temperature (**21C** to **40C**) using the **Up** and **Down** push-buttons.



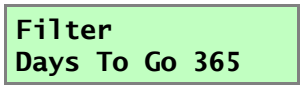
Press SET (Set) again to enter the new settings and move down to the next screen. Use the ▲ (Up) and ▼ (Down) push-buttons to select a target temperature (in degrees C) for the summer overheat stop temperature (**10C** to **20C**).



Press SET (Set) again to enter the new settings and move down to the next screen.

7 Filter Screen

The Filter screen displays the days to go before replacement of the fan filters is necessary. The number of days runs down from the value selected in the Filter Life screen (see below). There are no selectable options on this screen.

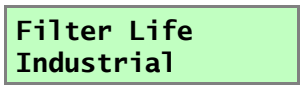


When the time runs down to **000**, a fan filter alarm will be displayed, the filters must be replaced and the screen displays **Replaced/No/Yes.** Use the ▲ (Up) and ▼ (Down) push-buttons to select **Yes** and reset the timer.

Press ▲ (Up) push-buttons to enter new setting and move to next screen.

8 Filter Life Screen

The Filter Life screen displays the days to go before replacement of the fan filters is necessary. The number of days is set depending on the environment in which the unit will be used.



Press SET (Set) and then use the ▲ (Up) and ▼ (Down) push-buttons to select the type of filter fitted (**Industrial** (091), **Urban** (182) or **Rural** (365)).

Press ▲ (Up) push-buttons to enter new setting and move to next screen.

9 Flow Imbalance (for Frost Protection) Screen

The Flow Imbalance screen enables a proportional change of supply and extract in Frost Protection mode and comfort settings.

```
Flow Imbalance
Disabled
```

Press SET (Set) and then use the ▲ (Up) and ▼ (Down) push-buttons to select one of the available options (**Enabled** or **Disabled**). Default value shown.

Press ▲ (Up) push-buttons to enter new setting and move to next screen.

10 Frost Protection Screen

The Frost Protection screen displays options for the protection of the unit against frost. Protection measures may be factory set, in which case no selectable options will be available.

```
Frost Protection
Automatic
```

Frost protection is set to **Automatic** if heaters are fitted to the unit, otherwise **Flow Imbalance** is used, if enabled. If neither of the previous two options are enabled **Bypass Mode** is used.

- **Automatic** - the default setting, if air intake heaters are fitted. In this mode when the incoming air is less than -1C and the air being discharged to atmosphere is less than 3C the first heater starts. Every 10 mins the temperatures are checked, if the air into the heat recovery cell is still less than -1C then the second heater is started. The heaters are sized so that the unit will operate down to -7C at full air flow before frost is likely to start. The air flows will continue operating at the settings called for by the control system.

Note:

The temperatures of Int -1C measured at the unit intake from ambient and Ext 03C measured at the unit discharge to ambient have been established after extensive laboratory tests and have been shown to prevent the heat recovery cell from freezing. **It is strongly recommended that these default figures are used**. The consequences of the heat exchanger freezing usually include a severe water leak when it eventually defrosts and consequential damage to the property.

- **Flow Imbalance** - in this mode the heaters are not used. If Flow Imbalance has been enabled then at the same trigger temperatures as above, the extract fan begins to speed up until it maintains the -1C temperature. If this is not achieved when it reaches the boost speed then the supply fan begins to slow.
- **Bypass Mode** - if Flow Imbalance has not been enabled then, when the trigger temperature are reached, the bypass opens and the flow goes to minimum speed. An error message is displayed.

Note:

The temperature that triggers the operation of the anti-frost features is adjustable.

Press SET (Set) and then use the ▲ (Up) and ▼ (Down) push-buttons to select the internal and external trigger temperatures.

```
Frost Protection
Int -1C  Ext 03C
```

11 Run Hours

```
Run Hours
..............
```

Press (Up) push-buttons to enter new setting and move to next screen.

12 Temperature Screen

This Temperature Screen is only displayed if relevant sensors are detected at the **Sensors** screen.

This screen indicates the outside temperature T1 by the Intake sensor and the inside room temperature T3 by the Extract sensor.

```
T1 14C
T3 18C
```

Press (Up) push-buttons to move to next screen.

13 Settings Code Screen

The Settings Code screen displays a six-digit code (**000300**) that represents the commissioning parameters that have been set (see *Press* (Set) and then use the (Up) and (Down) push-buttons to enter each of the 6 appropriate code numbers.

Press (Set) again to enter the new setting and to go to the Factory Test to calibrate the bypass drive.

The Settings Code also displays the Main Controller PCB software version number and the Commissioning Interface software version number.

```
Settings Code
000300  V002/003
```

This is the last of the Commissioning screens. After 2 minutes of inactivity you will be automatically returned to the Operating and Monitoring Screens (Running Display). Alternatively, navigate to the Language Screen using either the (Up) or (Down) push-buttons and then press and hold the (Enter) push-button for 5 seconds.

Press and hold the (Enter) push-button to exit the commissioning screens and show **ERV Test**. Press the (Down) and (Enter) push-button simultaneously to display the **Set Code** screen.

14 Code Set Screen

The Set Code screen is accessible when either:

- the (Down) and (Enter) push-button simultaneously from the **Settings Code** screen, or
- the (Down) and (Enter) push-button simultaneously from the **ERV Test** screen.

This screen enables the settings code to be changed on a replacement Main Controller PCB, as an alternative to re-entering the settings using the commissioning screens to re-establish the unit configuration, or where multiple units need to be commissioned at the same site with the same settings.

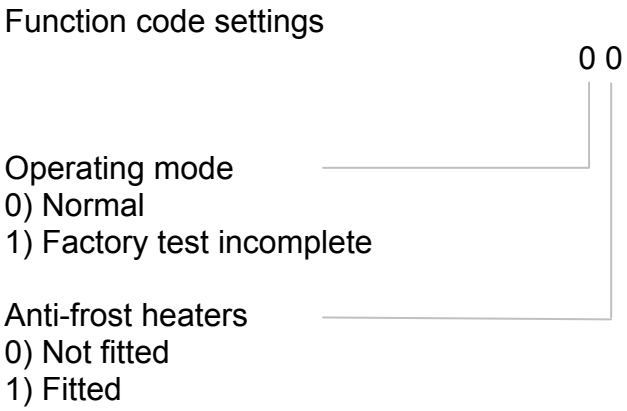
```
Set Code?
000300
```

Press (Set) and then use the (Up) and (Down) push-buttons to enter each of the 6 appropriate code numbers.

Press (Set) again to enter the new setting and to go to the Factory Test to calibrate the bypass drive.

The Settings Code

The settings code is displayed on the last commissioning screen. The code corresponds to the settings selected on the commissioning screens, as shown below.



Writing Down the Settings Code

On completion of commissioning, write down the settings code, corresponding to the chosen settings, on the **Installer Notice** label provided inside the Control Panel and on the *Technical Specification on page 6* of this manual.

Figure 17: Installer Notice Label

The commissioning settings are stored in non-volatile memory on the Main Controller PCB and will be automatically restored after a shutdown or power outage. The internal clock is maintained during a power failure by a battery on the Main Controller PCB. If this system fails for any reason, the configuration code written on the back of the door may be used to reinstate the settings.

Using the settings code is a quick way to restore the settings of a unit. It is also a quick way to configure multiple units in a large installation if they are all required to operate in the same way.

Note:

The settings code WILL NOT restore **time settings** or **comfort settings**, which will be set to the default settings. These must , therefore, be set manually on each unit using the commissioning screens provided by the Commissioning Interface.

Default Settings

The following default commissioning settings are present when the unit is switched on.

Table 3: Default Settings

Parameters	Settings
Set Clock	-
Flow Imbalance	Enabled
Frost Protection	Auto, if heaters fitted
Filter	91 days
Low Speed	20%
Normal	60%
Maximum Speed	100%
Flow Balance	Int 100% , Ext 100%
Comfort Settings	Comfort Enable (24C), Bypass Enable (21C), Ext Temperature (15C), Overheat Enable (summer overheat trigger 30C and summer overheat stop 20C)
Settings Code	-

Restoring Settings

Restore Settings Screens

Switch on the unit while holding the SET (Set) push-button (for approximately 6 seconds) to display the **Restore Settings** screens (default values shown where applicable).

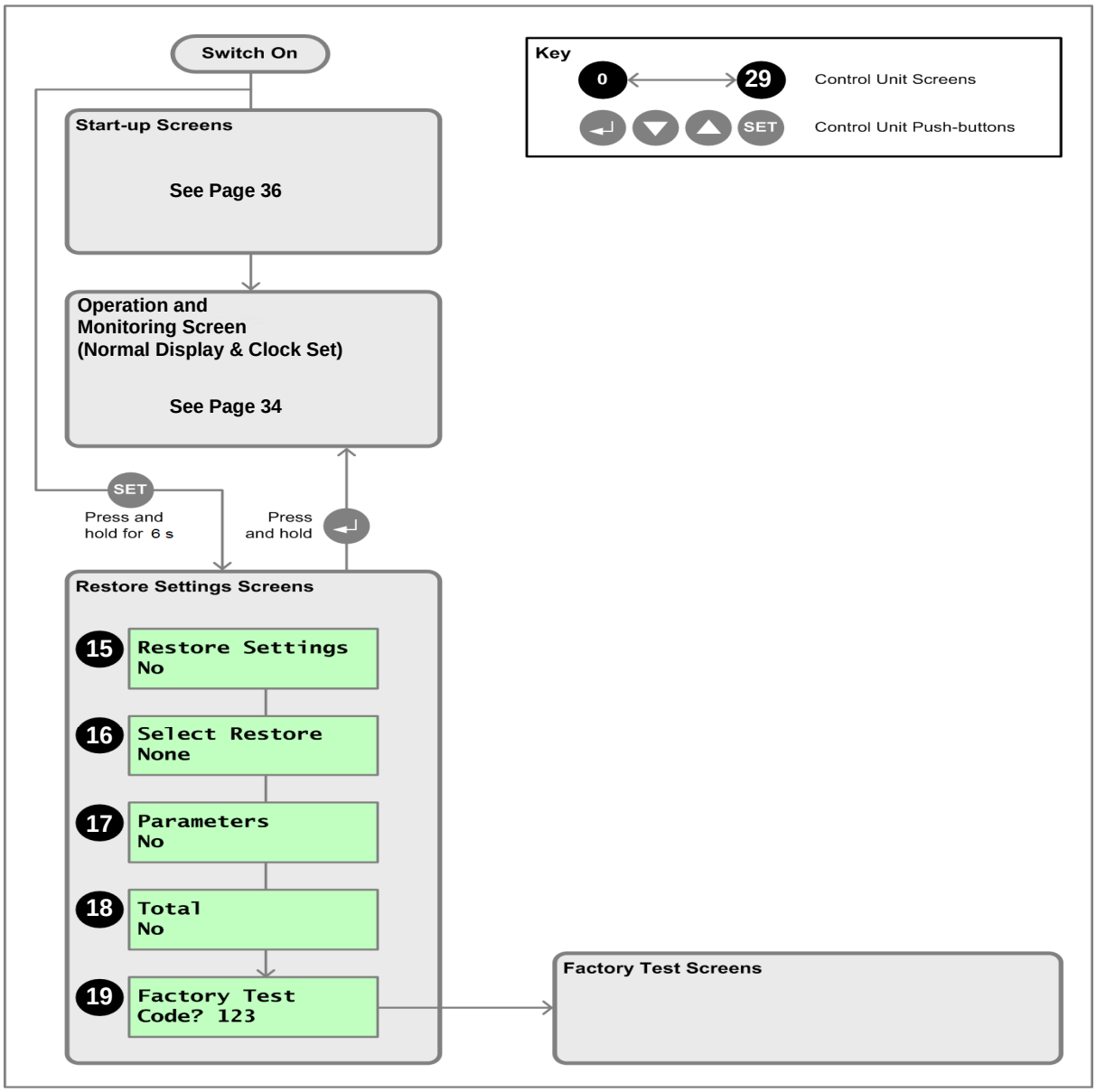


Figure 18: Commissioning Interface - Restore Screens

15 Restore Settings Screen

To restore settings to the factory defaults, switch on the unit while holding the SET (Set) push-button until the **Restore Settings** screen is displayed (approximately 6 seconds).

To leave the Restore Settings screens at any point with settings unchanged, press the ↵ (Enter) push-button.

This Restore Settings screen enables you to enable the restore settings mode.

```
Restore Settings
No
```

Press (Set) and then use the (Up) and (Down) push-buttons to select/change the option (**No** or **Yes**).

Press (Set) again to enter the new setting and move down to the next screen.

16 Select Restore Screen

This Select Restore screen enables you to select the type or restore operation to be performed.

```
Select Restore
None
```

Press (Set) and then use the (Up) and (Down) push-buttons to select from the available options (**None**, **Parameters**, **Total** or **Factory Test**).

Press (Set) again to enter the new setting and move down to the next screen.

17 Parameters Screen

This Parameters screen enables you to restore key parameters to their default values. This option restores minimum and maximum speeds, flow balance, internal clock on/off times, all sensor set points and pass bands, comfort, bypass and overheat to their default values.

```
Parameters
No
```

Press (Set) and then use the (Up) and (Down) push-buttons to select/change the option (**No** or **Yes**).

Press (Set) again to enter the new setting and move down to the next screen.

18 Total Screen

This Total screen enables you to restore additional parameters to their default values and sensors to their factory test state. This option restores dampers, heater run-on, on/off mode, operating mode to ‘uncommissioned’ and flow imbalance to their default values.

```
Total
No
```

Press (Set) and then use the (Up) and (Down) push-buttons to select/change the option (**No** or **Yes**).

Press (Set) again to enter the new setting and move down to the next screen.

19 Factory Test Screen

This Factory Test screen enables you to repeat a factory test on a previously tested Main Controller Board by entering the appropriate code number.

```
Factory Test
Code? 123
```

Press (Set) and then use the (Up) and (Down) push-buttons to enter the code.

Press (Set) again to enter the new setting and proceed with the Factory Test.

Operation and Monitoring – ERV Standard

About Operation and Monitoring

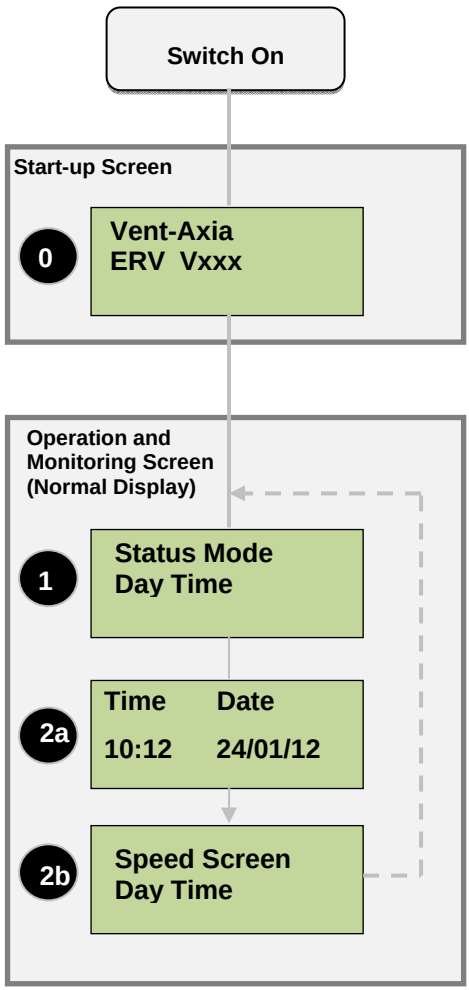
When the ERV unit has been installed and commissioned (see the previous sections) it should require no further intervention in order to operate.

When the commissioning screens are exited, the Commissioning Interface display returns to the status monitoring screens, as described below (see also on page 24).

Manual control is possible via the controller, switching the unit from low to normal to boost.

Status Monitoring Screens

The Status Monitoring (Normal Display) screens display status and key operational conditions (temperatures or pressures, etc.) according to how the unit has been configured. These screens are displayed in a loop during normal operation of the unit, either after displaying the start-up screens, or when commissioning has been completed. After a few seconds the display backlight is turned off in order to minimise power consumption. The **Up** and **Down** push-buttons can be used to stop the loop sequence in order to display individual screens for a longer period with the backlight turned on, if required.



2a Day/Time Screen

This screen displays the day and time information.

```
Time    Date
10:12   24/01/12
```

- **Day (Tue)** which could be **Sun**, **Mon**, **Tue**, **Wed**, **Thu**, **Fri**, or **Sat**.
- **Time (07:11)** in hours: minutes (24-hour clock).

To adjust the clock date and time, press SET (Set) when the **Day/Time** is displayed. then use the ▲ (Up) and ▼ (Down) push-buttons.

Press the ▲ (Up) to go to the speed menu.

2b Speed/Status Screen

This screen displays the operating mode and speed (top line) and, day, time status information (bottom line).

```
Low     Airflow
Thu     22:15
```

The top line displays mode and motor speed information (see *Operating Mode Screen on page*), depending on which operating mode is configured.

Press the ▲ (Up) to go to the time and day menu.

Manual Speed Control

Low/Normal/Boost Speed set

Press SET (Set) to select the speeds from *low* to *normal* to *boost*.

Installation – ERV Basic

Switching On/Off - Standard

Switch On

The following procedure assumes that all necessary installation actions have been performed in accordance with the instructions given in this section of the manual.

To switch the unit on:

1. Ensure that all top and bottom covers are fitted and properly secured (see *Cover Removal/Replacement* on page 39).
2. Switch on the power at the mains outlet feeding the unit.
3. Ensure that the Status LED on the wall room controller is green, indicating that the unit is operating. The unit will commence operation.
4. Turn rotary switch to appropriate position.

Switching Off

To switch the unit off:

1. Turn rotary switch to **0** (OFF).
2. 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.
3. To prevent the equipment being accidentally switched on while you are away from it the unit isolator may be locked in position. Pull out the yellow inner section of the isolator switch to lock the isolator in position, revealing a hole through which a padlock, or other lockable device, may be inserted.

Note

Please note that the wall room controller is designed to be mounted either on the unit or at a distance of no more than 10m from the unit.

Commissioning - ERV Basic

When the unit is switched on, the green LED on the wall room controller will be lit, which indicates that the unit is connected to Main power.

Speed Modes

Rotary Switch

LED

Rotary Potentiometer

Low, medium and high speeds can be adjusted individually by turning the appropriate potentiometer.

Factory set to appointed speeds

Low to 30%, Medium to 60% and High to100%

Operation and Monitoring – ERV Basic

Turn the wall room controller rotary switch at the following positions to control fan speed or for switching off.

Positioning Number	Fan Speed Mode
0	Fan is switched OFF
I	Fan is at Low Speed
II	Fan is at Normal Speed
III	Fan is at Boost Speed

Table 15: Wall Room Controller positions (ERV Basic)

Maintenance

Caring for Your Unit

Heat recovery units, by their very nature, require regular maintenance. The ERV has been designed to facilitate access to enable maintenance to be carried out easily.

In addition to the maintenance tasks outlined below, periodic sterilisation of the unit in line with current medical advice on legionella risks is required. This is contained in a separate leaflet available from Vent-Axia.

3-Monthly Maintenance

The following 3-monthly maintenance is recommended:

Table 4: 3-Monthly Maintenance

Item	Action
General	Inspect the unit internally for build-up of dust, dirt and condensation. Clean as required.
Filters	The Status LED on the Commissioning Interface, and on the cable inlet panel, will flash red and green alternately when the filters require replacement. This alarm is triggered by the number of days that the unit has been running. Replace the filters. Note the filters are NOT washable. Observe the warning label provided on the filters regarding face mask protection and disposal of the used item. When the filter has been replaced, reset the Status LED by following the instructions on the Commissioning Interface Filter screen. This will reset the timer back to selected days.

12-Monthly Maintenance

The following 12-monthly maintenance is recommended:

Table 5: 12-Monthly Maintenance

Item	Action
Heat Exchanger Cell	Inspect the cell for build-up of dust and dirt. Blow with an airline to clean it. The cell is not designed to be removed for cleaning.
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 wipe clean if necessary.
Condensate Tray	Wipe any wet surfaces with a dilute cleaning solution, such as Milton.
Condensate Drain	Check the condensate drain tube is secure and clear. Clean if necessary.

5-Yearly Maintenance

The following 5-yearly maintenance is recommended:

Table 6: 5 Yearly Maintenance

Item	Action
Battery	Replace the battery on the Main Controller PCB (type BR1225 3 V). Ensure positive (+) side is uppermost (i.e. visible) when replaced. Adjust the clock to agree with the local time. (see *Day/Time/Temp/On Off Mode Screen* on page 35).

Removal/Replacement of Parts

WARNING

THIS EQUIPMENT PRESENTS ELECTRICAL, MECHANICAL AND NOISE HAZARDS. FAILURE TO USE SAFE WORKING PRACTICES AND OBSERVE THE RELEVANT REGULATIONS MAY RESULT IN DEATH OR SERIOUS INJURY. REMOVAL AND REPLACEMENT OF PARTS SHOULD ONLY BE PERFORMED BY QUALIFIED AND VENT-AXIA APPROVED SERVICE ENGINEERS.

The following parts can be replaced in the event of failure or maintenance:

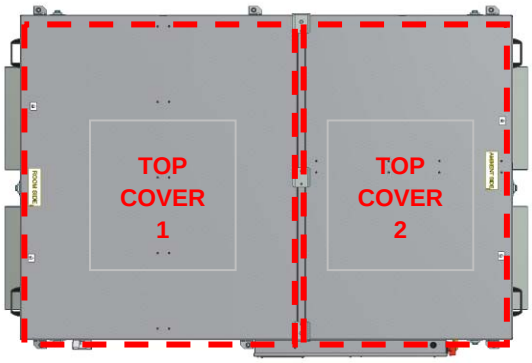
- Motors
- Filters

See *Appendix B: Options and Accessories* on page 51 for part numbers.

The procedure for replacing these parts is dependent on whether access to the unit can be gained from above (if roof-mounted) or from below (if ceiling-mounted).

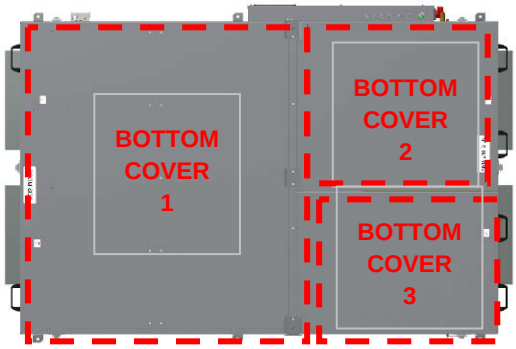
Cover Removal/Replacement

The Top and Bottom Covers are arranged in two halves, designed to be removed separately.



ERV 1500 top cover

ERV 1000 bottom cover

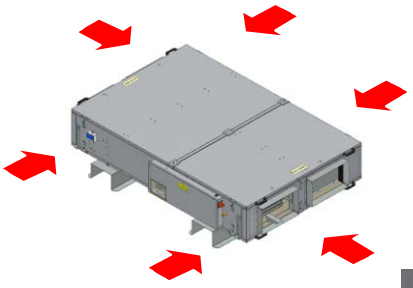


ERV 1500 bottom cover

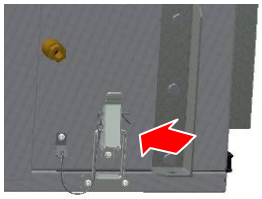
Removal

1. Turn the unit off.

2. Release the thumb-catches securing the cover to the chassis. Catches to secure each cover are positioned at the corners of the unit and half-way along the short sides. This will release the air-tight seal

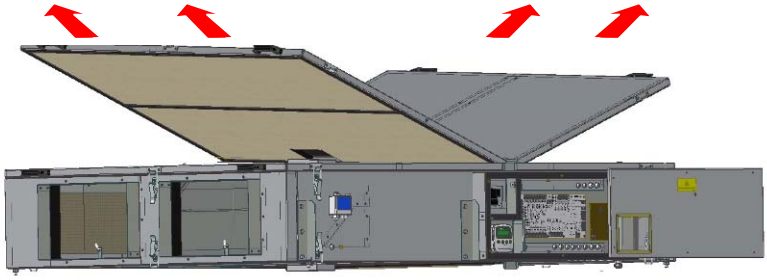


Thumb-catches secure the top covers to the unit chassis. The bottom covers are secured in the same way.



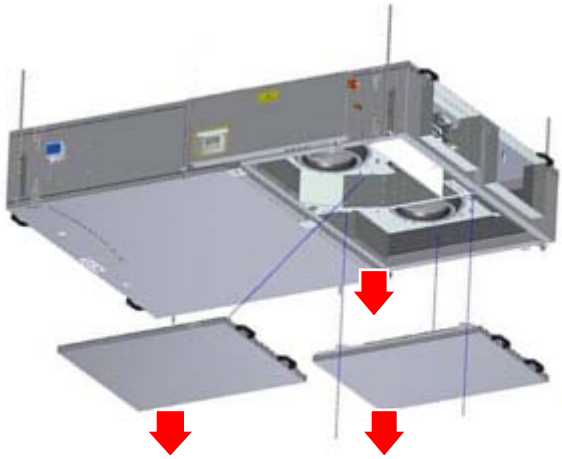
Thumb-catches secure the top & Bottom covers to the unit chassis.

4. In turn, grab hold of the two handles on each cover. Lift up the outer edge of the each cover slightly, and pull it out from underneath the retaining bar in the middle of the unit, to reveal the internal parts of the unit.



Removal of Top Covers when Roof-Mounted

Lift and slide the covers out in the direction of the arrows.



Removal of Bottom Covers when Ceiling-Mounted

Open Thumb-catches of Bottom covers to the unit chassis

Remove Bottom Cover2

Remove two screws

Replacement

1. Ensure that each cover is slotted firmly back into its retaining slot in the middle of the unit.
2. Re-attach the thumb-catches at the corners of the unit to secure the cover to the chassis. Visually check the integrity of the air-tight seal around the lid.

> **Note**
> The unit will not operate correctly unless the covers are correctly fitted to the unit.

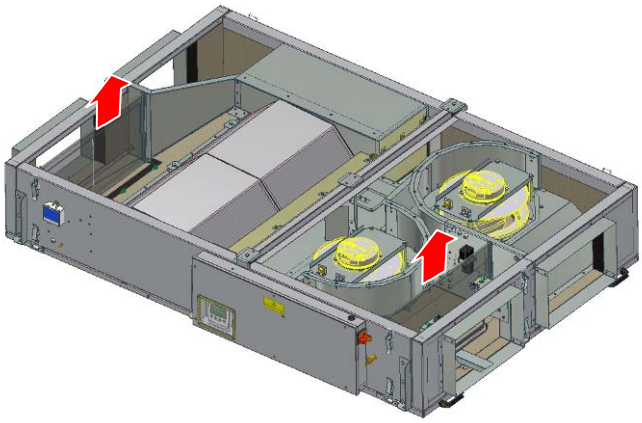
Filter Removal/Replacement (Roof-Mounted)

Filters are fitted to both the internal and external inlets to prevent dust being drawn into the unit. The unit records when new (clean) filters are fitted to the unit and a timer is used to count down the number of days to replacement (see *Filter Screen* on page 27). Filters must be removed / replaced when the counter reaches **000**.

```
Filter
Days To Go 000
```

Removal

1. **Turn the unit off**.
2. Remove both of the top covers (see *Cover Removal/Replacement* on page 39).
3. Remove each filter by holding it firmly along its edge and pulling it upward out of the filter slot (the filter is a push-fit item and not fastened in place).



Filters at either end of the unit may be removed / replaced by sliding them out / in the filter slot.

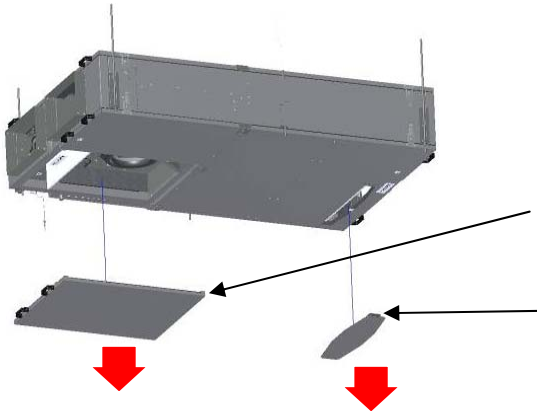
Replacement

1. Ensure that the new (clean) filters are firmly pushed back into their slots.
2. Replace the top covers (see *Cover Removal/Replacement* on page 39).
3. If filter replacement is as a result of the counter reaching **000**, as indicated by the Commissioning Interface, use the (Up) and (Down) push-buttons to select **Yes** and reset the timer (see *Filter Screen* on page 27).

Filter Removal/Replacement (Ceiling-Mounted)

Removal

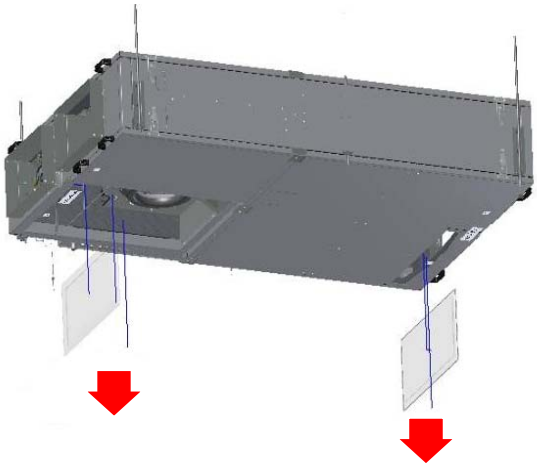
1. **Turn the unit off.**
2. Remove Panel 3 and the Filter Panel



Panel 3 - Remove split pins and release Thumb catches

Filter Panel – Remove 2 fixing screws.

3. Remove each filter by holding it firmly along its edge and pulling it downward out of the filter slot (the filter is a push-fit item and not fastened in place).



Remove filters

Replacement

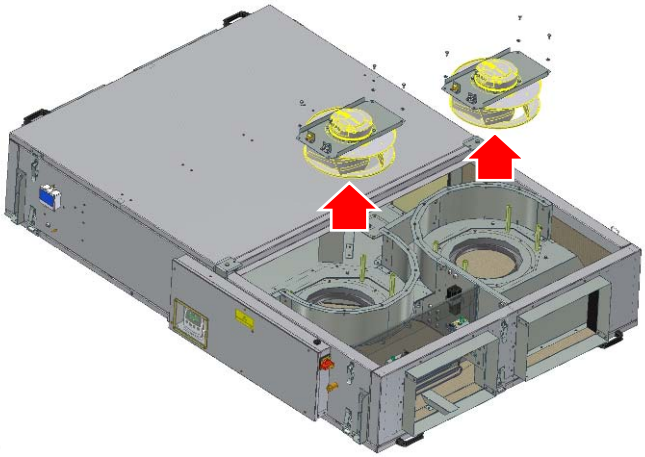
1. Ensure that the new (clean) filters are firmly pushed back into their slots.
2. Replace the access panels with the four screws.
3. If filter replacement is as a result of the counter reaching **000**, as indicated by the Commissioning Interface, use the (Up) and (Down) push-buttons to select **Yes** and reset the timer (see *Filter Screen* on page 27).

Motor Removal/Replacement (Roof-Mounted)

Two DC motors are used to draw-in and extract air from the unit. Both are positioned at the external ambient-air side of the unit and can be accessed by removing a single top cover, when roof mounted.

Removal

1. **Turn the Unit off.**
2. Remove the top cover at the external ambient-air side of the unit (see *Cover Removal/Replacement* on page 39).
3. Disconnect the motor leads/Molex connector.
4. Unscrew, and retain, the four screws securing each motor to its mounting plate on the chassis.
5. Withdraw the motor(s) upward from the unit.



Two motors are used to pull and push air through the unit.

6. Unscrew, and retain, the four screws securing each motor to its mounting plate.

Replacement

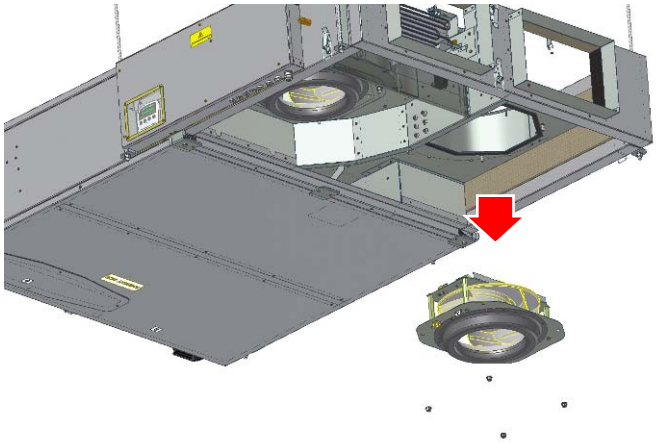
1. Place each new motor inside the unit back onto its mounting plate.
2. Secure the motor assemblies to their mounting plates using the four screws.
3. Reconnect the motor leads/Molex connector.
4. Switch on the unit and check that the air-flow (direction) is correct.
5. Replace the top cover (see *Cover Removal/Replacement* on page 39).

Motor Removal/Replacement (Ceiling-Mounted)

Two DC motors are used to draw-in and extract air from the unit. Both are positioned at the external ambient-air side of the unit and can be accessed by removing a single bottom cover, when ceiling mounted.

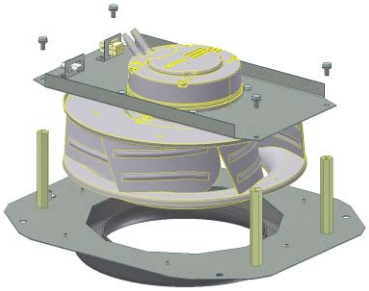
Removal

1. **Turn the Unit off.**
2. Remove the bottom cover at the external ambient-air side of the unit (see *Cover Removal/Replacement* on page 39).
3. Disconnect the motor leads/Molex connector.
4. Unscrew, and retain, the four screws securing each motor mounting plate to the chassis.
5. Withdraw each motor and its mounting plate downward from the unit.



Motors may be removed from underneath when ceiling mounted.

6. Unscrew, and retain, the four screws securing each motor to its mounting plate.



Motor and mounting plates.

Replacement

1. Secure each motor to its mounting plate using fours screws.
2. Place the new motor and its mounting plate back inside the unit into position.
3. Secure the motor assemblies mounting plates to the chassis using the four screws.
4. Reconnect the motor leads/Molex connector.
5. Switch on the unit and check that the air-flow (direction) is correct.
6. Replace the bottom cover (see *Cover Removal/Replacement* on page 39).

List of Spares - Standard

The table below lists the spares for the ERV Box and HiBox Standard (1500 & 1000):

Table 7: List of Spares

Description	Part Number (1500)	Part Number (1000)
MAIN PCB ASSEMBLY SPARE	403595	403595
HEATER PCB SPARE	403596	403596
MOTOR ASSEMBLY SPARE	446643	445850
ROOM CONTROLLER SPARE	403442	403442
POWER SUPPLY PCB SPARE	446645	446645
FILTER PACK (2 PER PACK) G4 SPARE	447251	403597
FILTER PACK (2 PER PACK) F6 SPARE	447252	403598
HEAT RECOVERY HI EFF CELL SPARE	447254	445853
HEAT RECOVERY LOW EFF CELL SPARE	403599	403600
THERMISTOR PACK (T1 & T3) SPARE	403601	403601
ISOLATOR SWITCH SPARE	447256	447256
NEON ASSEMBLY SPARE	447257	447257
ACTUATOR KIT AND CABLE SPARE	447258	447258
HEATER & BRACKET ASSY SPARE	447259	445854

List of Spares - Basic

The table below lists the spares for the ERV Box and HiBox Basic (1500 & 1000):

Table 8: List of Spares

Description	Part Number (1500)	Part Number (1000)
MOTOR ASSEMBLY SPARE	446643	445850
WALL ROOM CONTROLLER SPARE	403602	403602
HEAT RECOVERY HI EFF CELL SPARE	447254	445853
HEAT RECOVERY LOW EFF CELL SPARE	403825	403826
ISOLATOR SWITCH SPARE	447256	447256

Troubleshooting - Standard

Diagnosing a Problem

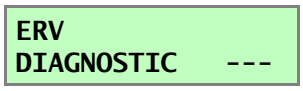
In the event of a problem, always troubleshoot the unit according to:

- **Diagnostic code** displayed on the Commissioning Interface.
- **Fault LED** on the Commissioning Interface and cable entry panel.
- **Check fuses** on the Main Controller PCB.

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

Diagnostic Codes

A diagnostic code screen is displayed on the Commissioning Interface in the event that a fault has occurred which resulted in the unit operation being stopped and placed into standby.



The following diagnostic codes may be viewed on the Commissioning Interface.

Table 9: Diagnostic Codes

Problem	Code	Description
Thermistors	1-255	T1 T3 +1 +2 = Short Circuit +16 +32 = Open Circuit Thermistors are checked continuously and one or more has to be at fault for 60 seconds before triggering this diagnostic stop.
Pump float switch open	300	Pump float switch is checked continuously and has to be open (i.e. fault or excess condensate) for 120 seconds before triggering this diagnostic stop. If the unit is 'Off' then pump mains is turned on after 30 seconds to try to reduce the water level.
Fan 1 extract relay open	310	Fan relays are checked when HR is ON, either relay has to be open for 60 seconds before triggering this diagnostic stop. This is a NC relay on board the motor itself. It goes open when motor detect fault.
Fan 2 intake relay open	320	Fan relays are checked when HR is ON, either relay has to be open for 60 seconds before triggering this diagnostic stop. This is a NC relay on board the motor itself. It goes open when motor detect fault.
24 V sensor supply fuse blown	330	24 V sensor supply fuse is checked when the unit is switched on and has to be open for 10 seconds before triggering this diagnostic stop.
Commissioning Interface but no data from HR	360	A 360 code indicates power to the remote control but no data, a wiring fault or failure on the heat recovery board.

Power Supply Troubleshooting

Troubleshoot according to the fault symptoms. If the fault cannot be rectified, contact your local dealer or sales office for a service engineer.

Table 10: Power Supply Troubleshooting

Symptom	Possible Problem	Action
No Power Supply (unit dead)	External Power Supply Failure	Check external power source is available and switched on.
	Distribution Board Input Fuse/RCD	Check fuse, or RCD if used, at distribution board. Replace/reset if necessary.
	Main Controller PCB Fuses	Check fuses on the Main Controller PCB and Power Supply PCB, see *Figure 30*. Replace if necessary.
	Other	Contact Vent-Axia Technical Support.
No 24 V supply (at sensors/switches)	Fuse F2	Check fuses on the Main Controller PCB and Power Supply PCB, see *Figure* below.
	Main Controller PCB	Contact Vent-Axia Technical Support.

Internal Fuses

Internal fuse are provided on the Power Supply PCB and the Main Controller PCB for the protection the unit.

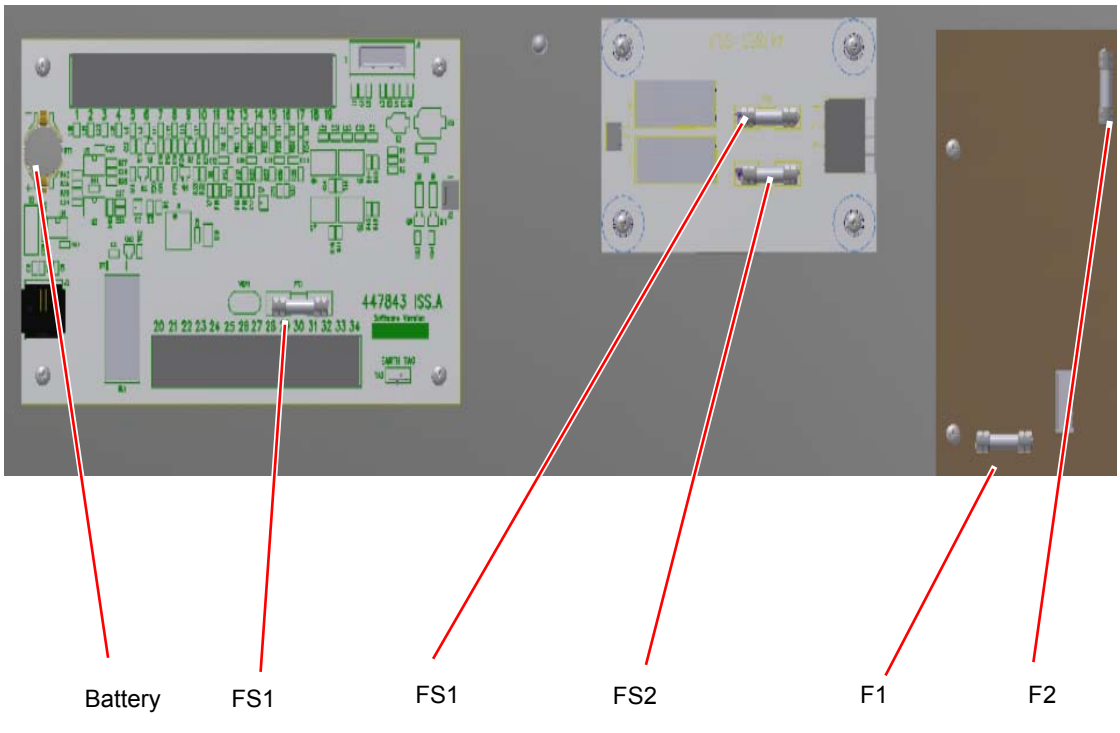


Figure 30: Internal Fuses

The following table lists the fuse values and types.

Table 11: Internal Fuse Values and Types

PCB	Label	Fuse Type	Purpose
Main Controller PCB	FS1	Ceramic 10 A anti-surge	Motors and PSU.
Heater Controller PCB	FS1	Ceramic 10 A anti-surge	Heater 1.
	FS2	Ceramic 10 A anti-surge	Heater 2.
Power Supply PCB	F1	Glass ceramic 500 mA anti-surge	Input supply.
	F2	Glass 1.25 A quick-blow	Main 24 V dc out.

Airflow/Temperature Troubleshooting

Troubleshoot according to the fault symptoms. If the fault cannot be rectified, contact your local dealer or sales office for a service engineer

Table 12: Airflow/Temperature Troubleshooting

Symptom	Possible Problem	Action
No airflow or Maximum airflow	Settings	Check the Commissioning Interface Status LED and display screens for alarm indications/messages. Check commissioning settings are correct – compare code with that written on the Installer Notice label. Re-instate settings, if necessary.
	Ducting	Check that ducting has not become loose or disengaged at any point along the airflow.
	Unit	Check airflow entering and leaving the ventilation unit. Check internal fuses, see *Figure 30*. Replace as necessary. Check operation of motors. Replace if necessary. Restore settings.
Summer Bypass Operating	Summer Bypass jammed	Connect 9V battery to terminal 18 & 19.

Condensate Troubleshooting

Troubleshoot according to the fault symptoms. If the fault cannot be rectified, contact your local dealer or sales office for a service engineer

Table 13: Condensate Troubleshooting

Symptom	Possible Problem	Action
Condensation water not being pumped out (Not fitted as a standard and its optional)	Trigger switch	Check the operation of the float switch at the corner of the condensate tray. Replace if necessary.
	Pump	Check the operation of the pump. Replace if necessary.
	External condensate pipe frozen	Fit Raychem FrostGuard frost protection cable for pipes.
	Other	Contact Vent-Axia Technical Support.
Pump running continuously	Pump	Check the operation of the float switch inputs. Replace pump if necessary.
	Trigger switch	Check the operation of the float switch. Replace if necessary.

Troubleshooting - Basic

Airflow Troubleshooting

Troubleshoot according to the table below. If the fault cannot be rectified, contact your local dealer or sales office for a service engineer

Table14: Airflow/Temperature Troubleshooting

Symptom	Possible Problem	Action
No Low, Normal or Boost airflow	Settings	Check if the Wall Room Controller indicates green light. If not then contact local service dealer or service engineer.
	Ducting	Check that ducting has not become loose or disengaged at any point along the airflow.
	Unit	Check airflow entering and leaving the ventilation unit. Check operation of motors. Replace if necessary.

Appendix A: Glossary

Terms and Abbreviations

The following technical terms and abbreviations are used in this manual.

Term/Abbreviation	Description
STD	Standard
BC	Basic
ERV BOX	Energy Recovery Ventilation Box
ERV HIBOX	Energy Recovery Ventilation Hi Efficiency Box
EC/DC	Electrically Commutated Direct Current motor
HRU	Heat Recovery Unit
LCD	Liquid Crystal Display
LED	Light Emitting Diode
Low/Normal/Boost	Minimum, Medium and Maximum speed
PCB	Printed Circuit Board
RCD	Residual Current Device
SBP	Summer Bypass
T_1	Temperature of the fresh ambient air entering the unit from outside
T_3	Temperature of the stale air leaving the room (exhaust)
T_C	Comfort setting

Appendix B: Options and Accessories

ERV

The following options and accessories are available for the ERV.

No	Item	Part Number	Description
Roof Mounting			
1.	Cowl (ERV1500)	403460	▪ Weatherproof cowl
2.	Cowl (ERV1000)	445832	
Condensate Pump			
3.		404103	▪ External condensate pump fixed in an enclosure mounted outside the unit connected to the PCB
Duct Transformation Piece			
4.	ERV1500	449645	▪ To Convert rectangular duct spigot to 315 mm Dia circular
Filters – F6			
5.	ERV1500	446607	▪ Replacement filters to grade 6. Replaces standard G4.
6.	ERV1000	445868	
LPHW			
7.	ERV1500	449643	▪ Top up heating LPHW coil to suite the duct connection size for each unit.
8.	ERV1000	449642	

Note: For acoustic jacket contact your local dealer.

Appendix C: Main Controller PCB Terminals - Standard

Terminals

The following table details the terminals on the Main Controller PCB.

Terminal No.	Name	Description
1-4	Commissioning Interface Connection	PCB terminals 1-4 connect to the Commissioning Interface terminals 1-4
5-19	-	Factory use only
20-25	-	Factory use only
26-28	Pump Main	Connection of Pump as an accessory
29-34	-	Factory use only

Vent-Axia

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SALES ENQUIRIES:	Tel: 0844 8560591	Fax: 01293 534898
TECHNICAL SUPPORT	Tel: 0844 8560595	Fax: 01293 455197

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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