

Centair CMEV.4e / CMEV.4eHT
Central Mechanical Extract Ventilation
Installation Instructions



CMEV.4e / CMEV.4eHT

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1.0 General Description / Physical Specification

1.1 Overview

- 1.1.1 The CMEV.4e range is a ventilation system designed to provide improved indoor air quality in dwellings. As a whole house system, the unit constantly extracts air from rooms generating moisture and odours in dwellings (Kitchens, Wet Rooms, Utility Rooms and WC's).
- 1.1.2 A boost speed facility is provided to increase the ventilation rate during peak times, providing a comfortable indoor environment. A boost switch (not supplied) should be wired to provide this operation (see section - 2.5 Electrical).
- 1.1.3 These products feature on PCDB and part of the process requires the Installation Checklist for MEV products to be completed and submitted to building control, available at www.ncm-pcdb.org.uk, along with all other relevant paperwork.
- 1.1.4 These instructions cover the following units –
- **CMEV.4e – Low Energy Version** - 2 or 3 speed depending on wiring & sensor configuration (see page 8).
 - **CMEV.4eHT – Low Energy with Greenwood HumidiSMART™ and Greenwood TimerSMART™ Technology** - 2 or 3 speed depending on wiring & sensor configuration (see page 8).
- 1.1.5 **Packaging Includes –** 1 x CMEV.4e or CMEV.4eHT Unit
2 x Spigot Blanking Caps
Quick User / Quick Installer Guide
- 1.1.6 Ancillary Items Required
- 125mm Ducting (rectangular ducting 204 x 60mm can be used, where appropriate)
 - 125mm Grilles
 - ZGS2 Hardwired switch providing switching between low and high (option)
 - ZGS1 Hardwired switch providing switching between low, medium and high (option).
- 1.1.7 **Warning:** This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- 1.1.8 Where an open-flued oil or gas-fuelled appliance is installed, precautions must be taken to avoid a back-flow of gases into the room.
- 1.1.9 The design, material specification and installation must only be carried out by “competent persons”. Electrical installation must be carried out by a qualified Electrician.
- 1.1.10 If the supply cord is damaged, it must be replaced by a special cord / assembly available from the manufacturer or its service agent. The replacement must be carried out by a qualified electrician in accordance with IEE or local regulations.
- 1.1.11 Observe appropriate safety precautions if working on steps or ladders. Wear eye protection when breaking out wall or window materials, etc.
- 1.1.12 To disassemble the unit, disconnect from mains supply and use a screwdriver to segregate the electronic components and motor from the plastic housing. Dispose items in accordance with WEEE.

1.1.13 WEEE Statement

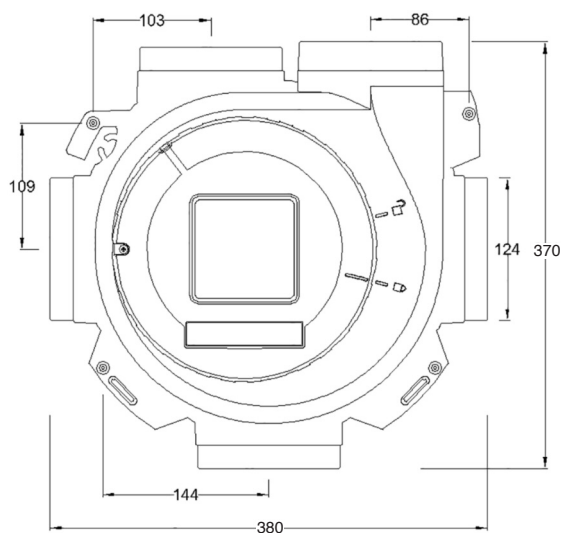
This product may not be treated as household waste. Instead it should be handed to an appropriate collection point for the recycling of electrical and electronic equipment.



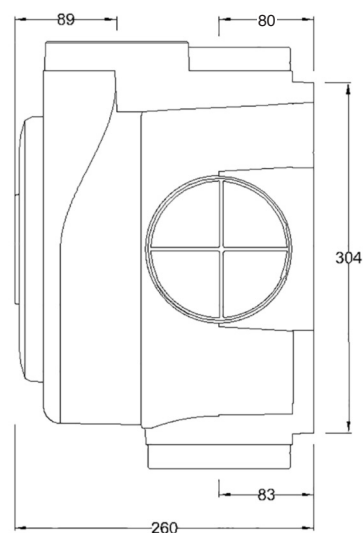
For more detailed information about the recycling of this product, please contact your local council office or your household waste disposal service.



1.2 Physical Specifications



Front View



Side View

2.0 Installation Instructions

2.1 General Preparation

- 2.1.1 The CMEV.4e range of units are supplied with 5 x 125mm ducting spigots for connection of ducts to the unit for installation and 2 x blanking caps to close or block off unused spigots. One inlet spigot is located under the base of the unit and is supplied blanked off. For installations requiring fifth inlet port, proceed to cut out the spigot blank and connect duct. (See Figure 1).
- 2.1.2 125mm duct should be used to provide the best performance levels required for compliance with building regulations. The CMEV.4e range has been tested with both 125mm and 100mm round ducting. Note; Reducing ductwork to 100mm will increase system resistance and affect overall specific fan power ratings. Technical Services can be contacted on +44 (0) 1276 408402 should you have any questions in respect of this.
- 2.1.3 Installation of the unit should be in accordance with the current editions of Building Regulations and BS7671: IEE Wiring Regulations.
- 2.1.4 The design, material specification and installation must only be carried out by 'competent persons'. Electrical installation must be carried out by a qualified Electrician.
- 2.1.5 Ducting must be installed as per the Domestic Ventilation Compliance Guide 2010 and insulation must be used if located outside of the thermal envelope.

2.2 Positioning / Application

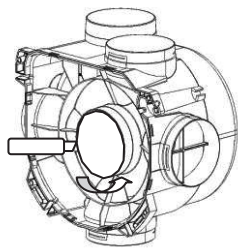
2.2.1 The unit can be installed in any plane and should be sited in a service cupboard, on a wall or ceiling or in a loft space (See Figure 2). It is not advisable to install the unit directly above a bedroom or living room ceiling, or in an area that is part of a living area or bedroom.

2.2.2 The unit must be securely mounted at each corner using either single or slotted fixing holes provided (See Figure 3).

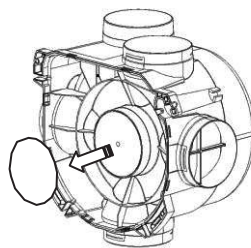
Note; Fixing points have been designed to hold screws, for ease, when positioning/mounting the product to a surface.

2.2.3 Figure 1 - Optional Fifth Spigot

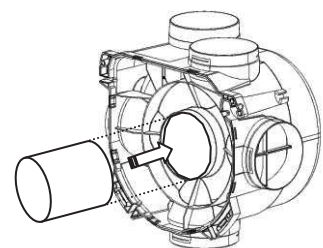
Carefully cut out spigot cap with a bladed tool



Discard waste material responsibly

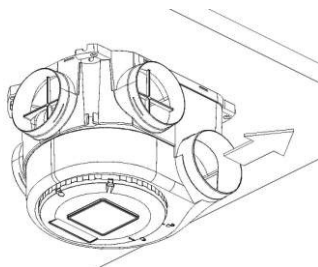


Connect ductwork as appropriate

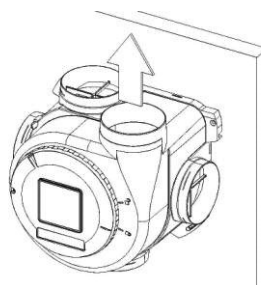


2.2.3 Figure 2 - Mounting Orientations

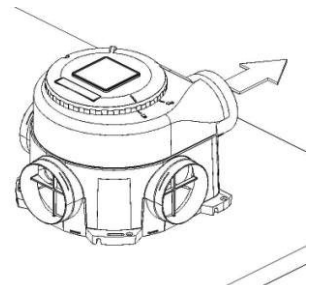
Ceiling Mounted in cupboard



Wall Mounted



Loft Mounted on platform



2.3 Mounting

2.3.1 Determine the duct inlet and exhaust configuration and the best orientation for the unit for this installation, also taking account of the access to the electrical services, and whether the fifth inlet port (supplied capped off) located on the unit base may assist with the dwelling/room layout.

2.3.2 Ensure there is adequate access for installation and eventual replacement (See Figure 4).

2.3.3 Once the fixing position and location have been determined, fit the blanking caps onto any unused spigots.

2.3.4 Securely mount the unit to the fixing surface with four screws (not supplied) and proceed to connect ducts.

Note; The fan can be fitted using one corner fixing and aligned if necessary using the slotted holes provided. (See Figure 3).

2.3.5 Figure 3 - Location of Fixing Holes

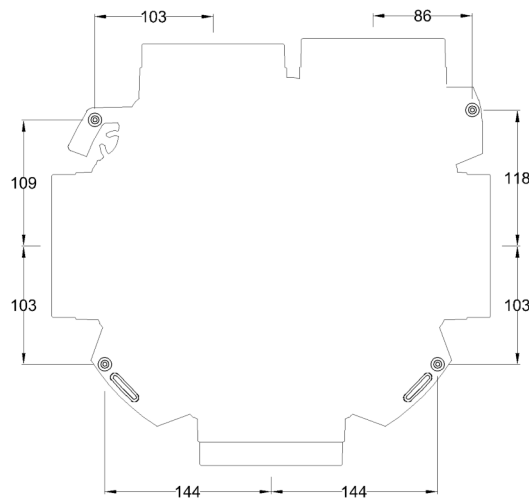
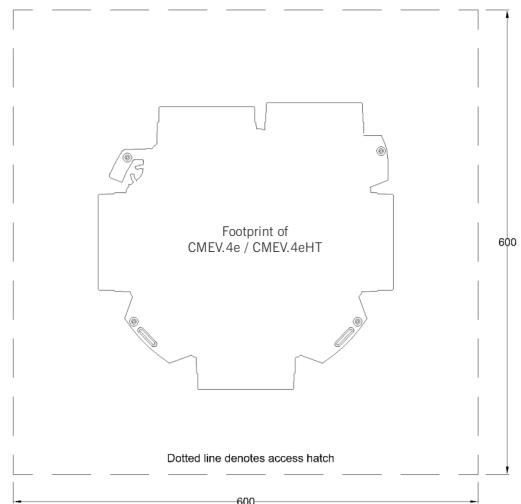


Figure 4 - Access for Maintenance



2.4 Ducting Guidelines

2.4.1 Please refer to design drawings for proposed ducting layout.

2.4.2 5 x 125mm nominal diameter spigots are provided for connection to ducting. Ductwork should be securely connected to spigots. Failure to do this will cause unnecessary air leakage and impair performance.

2.4.3 Where ducts are exposed in unheated areas, such as roof spaces, they must be insulated with at least 25mm of insulation that has a thermal conductivity of $\leq 0.04 \text{ W(m.K)}$

2.4.4 If applicable, Fire dampers **MUST BE FITTED** in accordance with Part B of the Building Regulations.

2.4.5 Rigid Ducting

- Install using the least number of fittings to minimise resistance to air flow.
- Where possible, final connection to grilles and unit should be made with a flexible connection.
- Mechanically fix ducts using metal jubilee clips or heavy duty plastic cable ties and appropriate non-hardening sealant for air tightness.

WARNING: Do not use screws for connection and ensure jubilee clips are not over tightened.

2.4.6 Flexible Ducting

- Ensure ducting lengths are kept to a minimum and ducting is pulled taut so that it is smooth and straight. Where bends are necessary and where ducting is run in restricted areas, ensure the ducting is not crushed.
- Mechanically fix ducts using metal jubilee clips or heavy duty plastic cable ties and tape seal for air tightness.

WARNING: Should be in accordance with Building Regulations.

2.4.7 The exhaust port of the unit must terminate to external air and be protected by a suitable wall or roof terminal.

- Roof terminal to have a minimum equivalent free area of $10,000 \text{ mm}^2$.

2.4.8 Ensure unused spigots are capped off using the blanking caps provided.

2.5 Electrical

2.5.1 **WARNING: The appliance MUST be earthed. All wiring must conform to BS7671: IEE Wiring Regulations.**

2.5.2 **WARNING: The CMEV.4e / CMEV.4eHT units must be isolated from the mains supply before removing the fan motor assembly.**

2.5.3 **The installation must be carried out by a qualified Electrician.**

2.5.4 When supplied from a 6 amp lighting circuit no local fuse is required. If electricity is not supplied via the lighting circuit, a localised 3 amp fuse must be used (see wiring diagrams).

2.5.5 The CMEV.4e / CMEV.4eHT units are supplied with a pre-wired mains flexible cord – PVC sheathed, 5-core green/yellow, blue, brown, black & grey & 0.75mm².

‘If the supply cord is damaged, it must be replaced by a special cord/assembly available from the manufacturer or its service agent. The replacement must be carried out by a qualified Electrician in accordance with IEE or local regulations’.

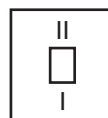
2.5.6 Depending on required wiring (see diagrams), a triple-pole or a double-pole switch having a minimum contact separation of 3.0mm must be used to provide isolation for the unit.

2.5.7 The recommended switches / sensors for use with either models are:

- For CMEV.4e, wire using either switch-live (lighting circuit) with/without external sensor or via a Zehnder ZGS2 2-position switch with an external sensor (see below for function details).
- For CMEV.4eHT, wire using either switch-live (lighting circuit), via a Zehnder ZGS2 2-position switch with/without an external sensor or via a Zehnder ZGS1 3-position switch (see below for function details).

CMEV.4e / CMEV.4eHT

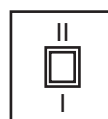
ZGS2 Remote Switch Positions	Function
Trickle (I)	Fan running at trickle speed
Boost (II)	Fan running at med/boost speed



ZGS2

CMEV.4eHT only

ZGS1 Remote Switch Positions	Function
Trickle (Centre position)	Fan running at trickle speed
Medium (I)	Fan running at medium speed
Boost (II)	Fan running at boost speed



ZGS1

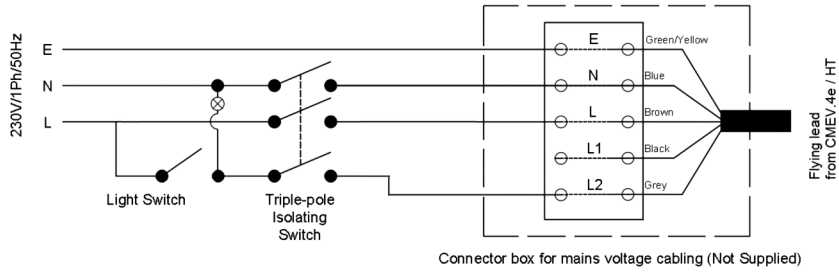
(See Wiring Diagrams on page 8).

2.5.8 The controllers must not be mounted in a bathroom or above/closer than 1 metre to a cooker where it could be affected by excessive heat or moisture.

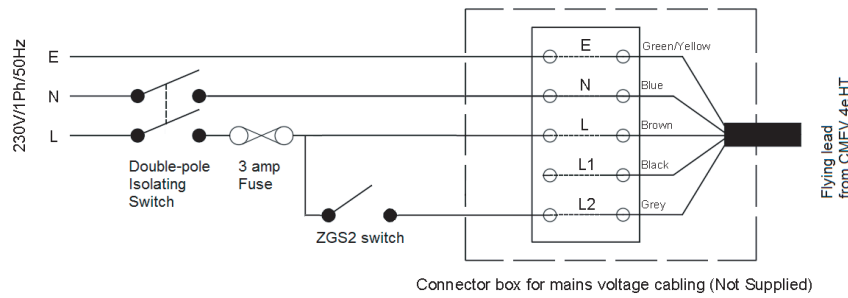
2.6 Wiring Diagrams

Key: Earth = Green / Yellow
 Neutral = Blue
 Brown = Permanent Live
 Black = Medium speed
 Grey = High speed

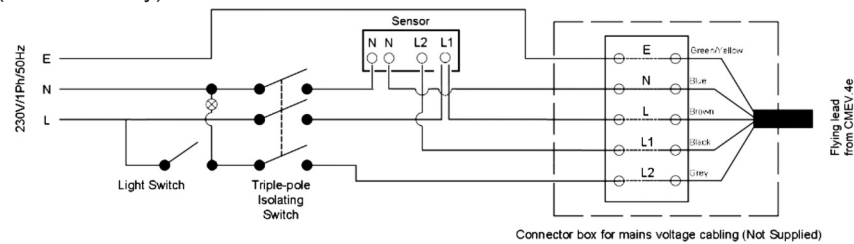
2.6.1 Two speed control via light switch (CMEV.4e / CMEV.4eHT)



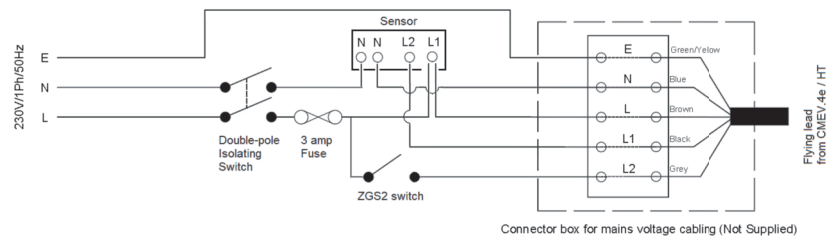
2.6.2 Two speed control via ZGS2 switch (CMEV.4eHT only)



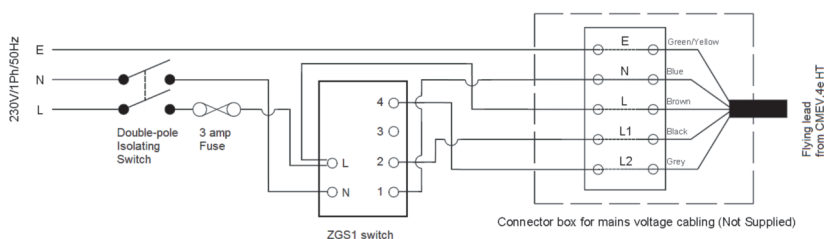
2.6.3 Three speed control via light switch for trickle & boost speeds and medium speed activation via remote sensor (CMEV.4e only)



2.6.4 Three speed control via ZGS2 switch for trickle & boost speeds and medium speed activation via remote sensor (CMEV.4e / CMEV.4eHT)



2.6.5 Three speed control via ZGS1 switch (CMEV.4eHT only)



2.7 BMS Connectivity - CMEV.4eHT Only

2.7.1 The CMEV.4eHT unit can be connected to a BMS system that can provide a variable 0-10 Volt output that will be used to control the fan operating speed, as shown within table 1.1 below:

Voltage	Speed Control
0V – 3.2V	Trickle
3.3V – 6.4V	Medium
6.5V – 10V	Boost

Table 1.1

2.7.2 Removal of Fan Motor Assembly (See Figure 5)

WARNING: The CMEV.4eHT unit must be isolated from the mains supply before removing the fan motor assembly.

- 1) Remove external locking screw (1).
CAUTION; Fan motor assembly is free to move after the next operation – in ceiling installations please ensure the fan is manually supported during the following steps.
- 2) Rotate anti-clockwise, noting 'LINE INDICATOR' moving from the 'LOCKED' to 'UNLOCKED' position (See Figure 5a).
- 3) Fan motor assembly can now be lowered / lifted out of main fan housing.

2.7.3 Figure 5 – Removal of Fan Motor

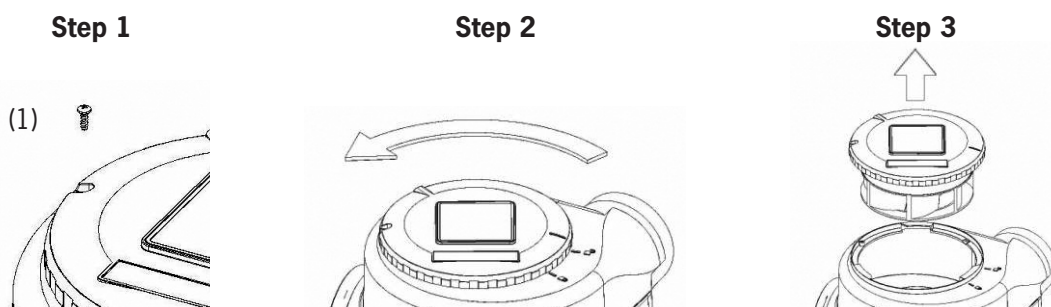
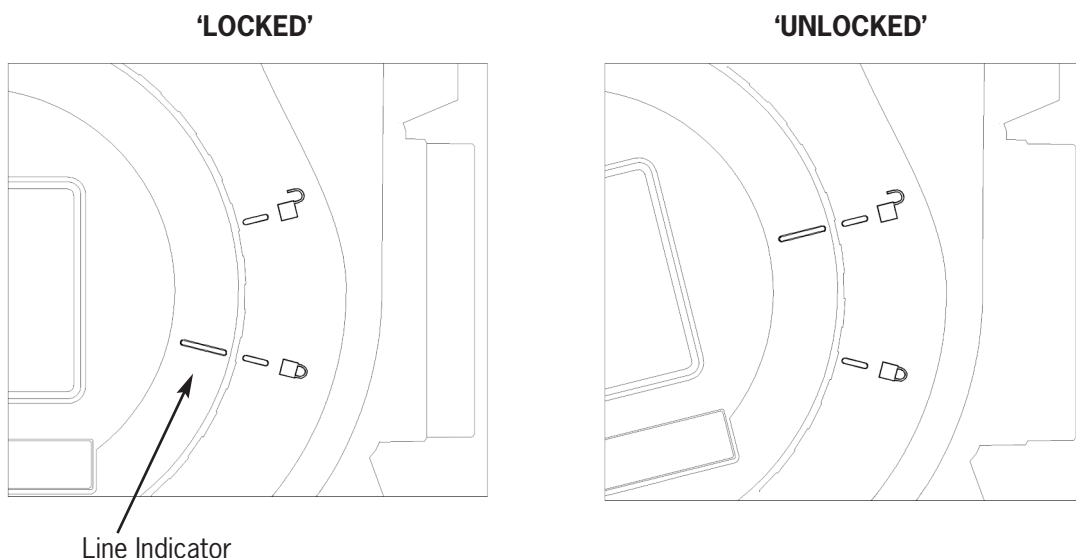


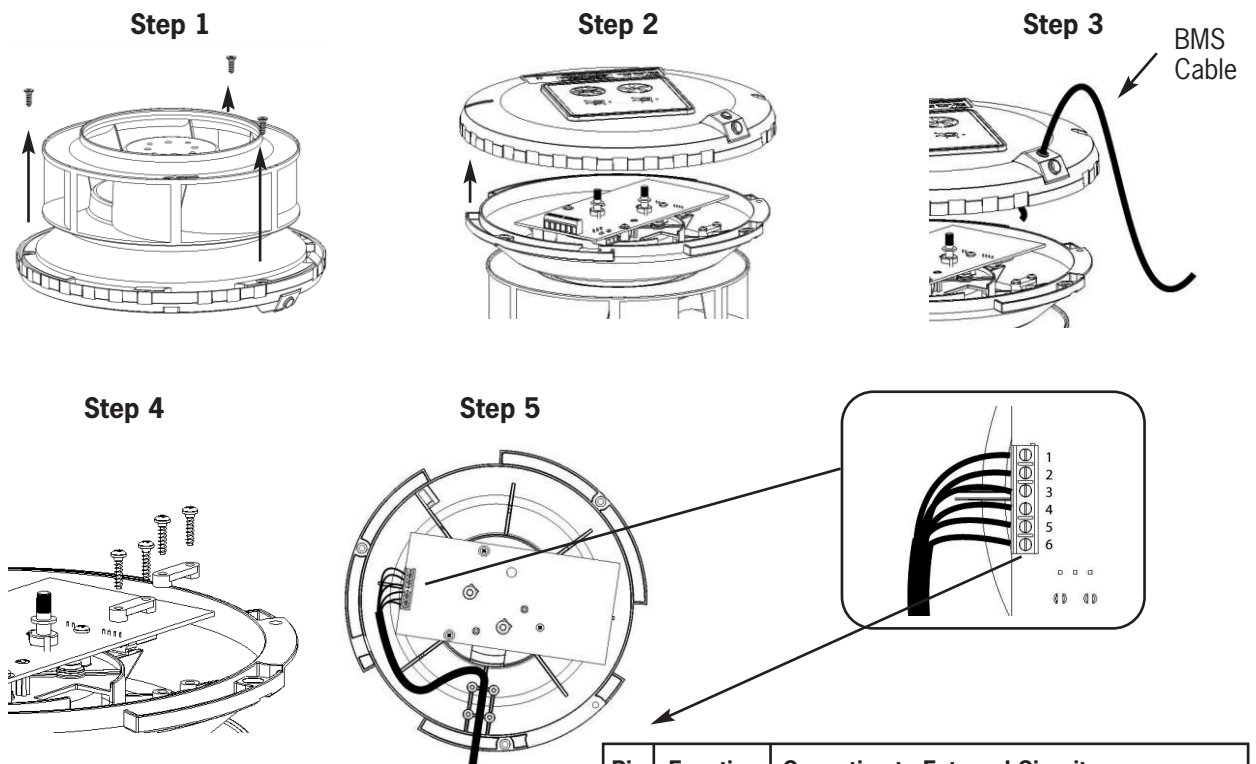
Figure 5a – 'LOCK' & 'UNLOCK' Positions



2.7.4 **Wiring of the BMS to the CMEV.4eHT** (See Figure 6)

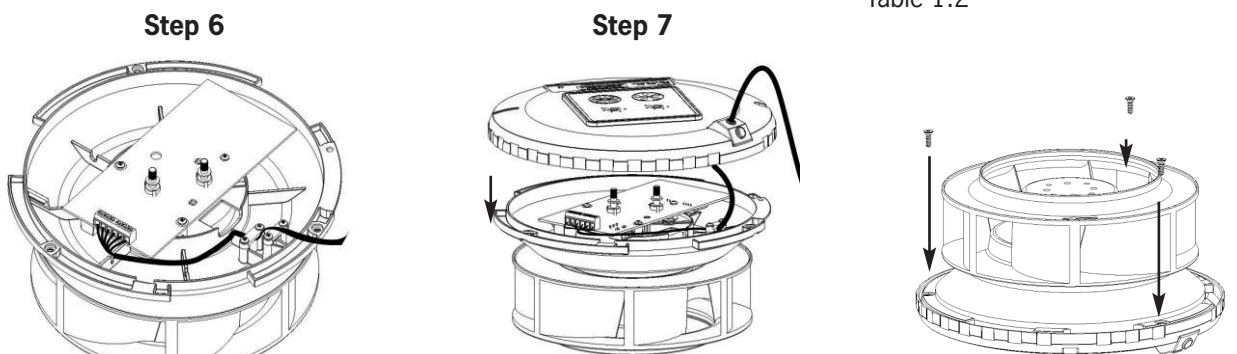
- 1) Remove the three screws connecting the lid.
- 2) Carefully remove the lid to expose the PCB.
- 3) Carefully pierce through the 'closed' top hole within the lids cable grommet and pass through the BMS cable (not provided).
- 4) Remove the internal cable clamp in readiness for the BMS wiring.
- 5) Using a 5 or 6 core cable, sized between 0.326mm² - 0.205mm², insert wires into the BMS terminal block on the PCB (as per table 1.2 below). Pin 2 is a volt free contact for additional sensors.
- 6) Secure the cable within the internal cable clamp provided.
- 7) Carefully realign the lid to the 'pot controls' and respective screw connections and secure with the three connecting screws.

2.7.5 Figure 6 – Connecting BMS Wiring



Pin	Function	Connection to External Circuit
1	Speed	0-10V positive input from PSU (analogue input)
2	Boost	Volt freecontact for additional sensors to Boost
3	Ground	0V connection to PSU and Boost signal
4	N/C	Osolated relay normaly closed contact
5	N/O	Osolated relay normaly open contact
6	Common	Osolated relay common contact

Table 1.2



2.7.6 Fan Motor Assembly Replacement (See Figure 7)

- 1) Realign the fan motor assembly 'LINE INDICATOR' with the 'UNLOCKED' symbol on main fan housing.
- 2) Ensure fan motor assembly has a positive fit, and push firmly into main fan housing. Rotate fan motor assembly until it stops. The 'LINE INDICATOR' should now be in line with the 'LOCKED' symbol (See Figure 7a).
- 3) Replace external locking screw (1).
- 4) Turn on mains supply and confirm correct operation.

2.7.7 Figure 7 – Replacement of Fan Motor

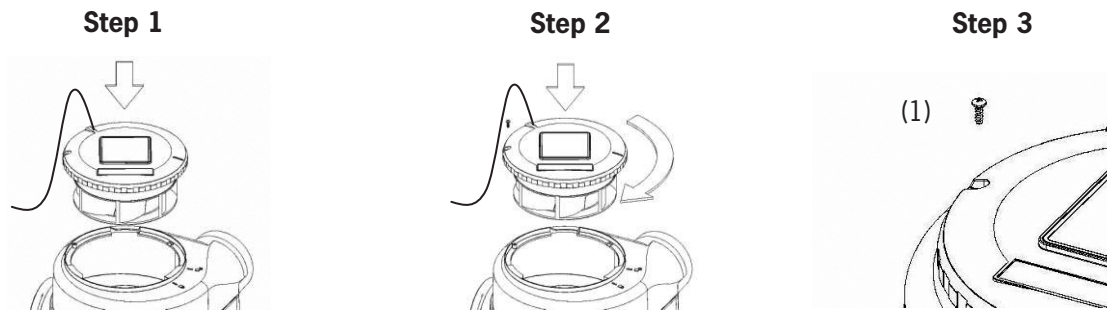
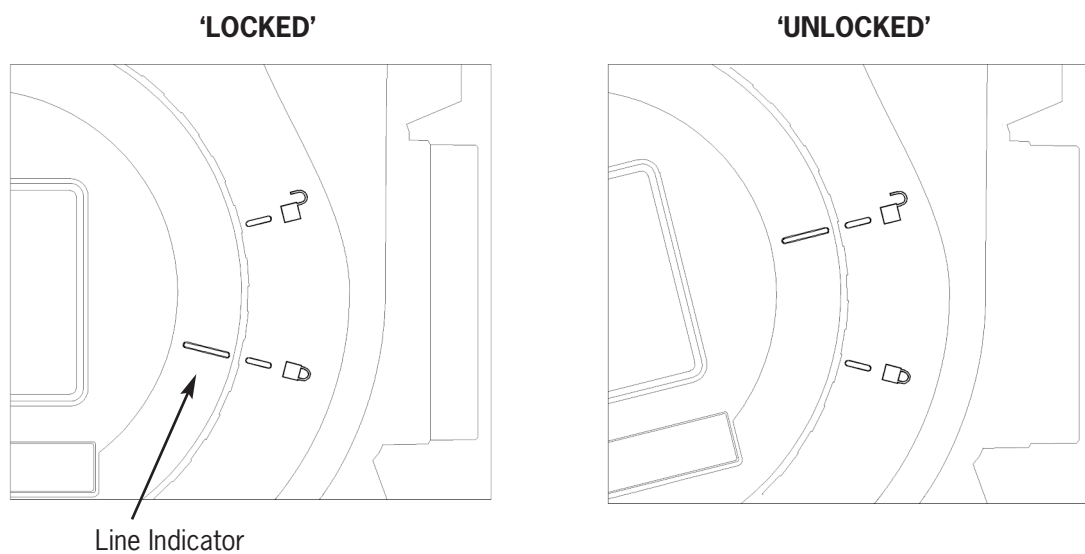


Figure 7a – 'LOCK' & 'UNLOCK' Positions



3.0 On Site Commissioning

3.1 Overview

3.1.1 This section covers set up, configuration of the unit on installation and altering pre-set factory settings. Dependant on which model has been installed the following set up and configuration will apply.

3.1.2 CMEV.4eHT Only – Greenwood TimerSMART™ and Greenwood HumidiSMART™

The CMEV.4eHT features a fully automatic integral timer function and humidity function which monitors the homeowners' environment. Neither of these functions require set-up.

3.1.3 Once the wiring connections have been checked, switch the mains supply on and check that the system is operating correctly, as per installed wiring / switch / sensor control configurations (see respective per wiring diagram).

3.1.4 Refer to performance graph for relevant model for airflow characteristics (See section 4.0).

3.1.5 Use 'turn pots' to achieve the desired motor speed at both speeds. Medium speed represents the mid speed between the two settings. For example, if the trickle speed 'pot' is set to 20% of full motor speed and the boost speed 'pot' is set at 60%, Medium speed will automatically be 40%.

3.1.6 **Commissioning – Factory Settings**

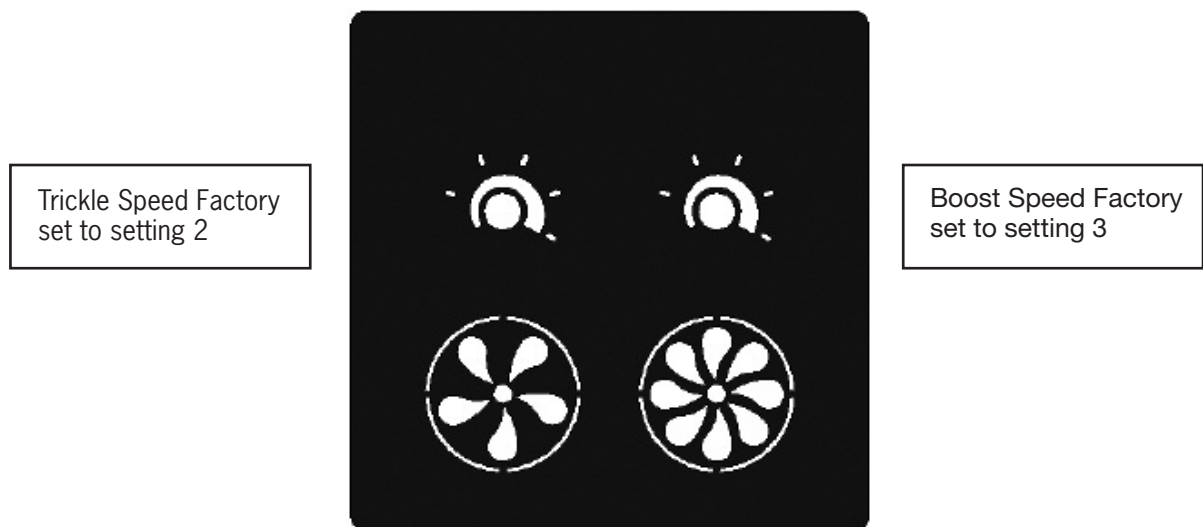
Factory settings suitable for two bedroom apartments up to 100m² floor area, with a Kitchen plus 2 Wet Rooms (such as Bathroom, Utility Room, Shower Room, Ensuite, WC).

3.1.7 **Commissioning – Fine Tuning**

Minor adjustments may be required depending on overall ductwork length.

Fine-tuning of the motor speeds can be achieved by using the 'turn pots' on the fan casing to ensure optimum efficiency (See Figure 8). Record airflow rates for room extract valves and also the 'pot' settings for trickle and boost speeds on the front page of this installer guide.

Figure 8 - 'Speed Pot' Setting Adjustment Panel



Note; Fan performance can be adjusted between these set points for further fine tuning, as the motor is 100% variable in range.

3.1.8 **Valve Set-up**

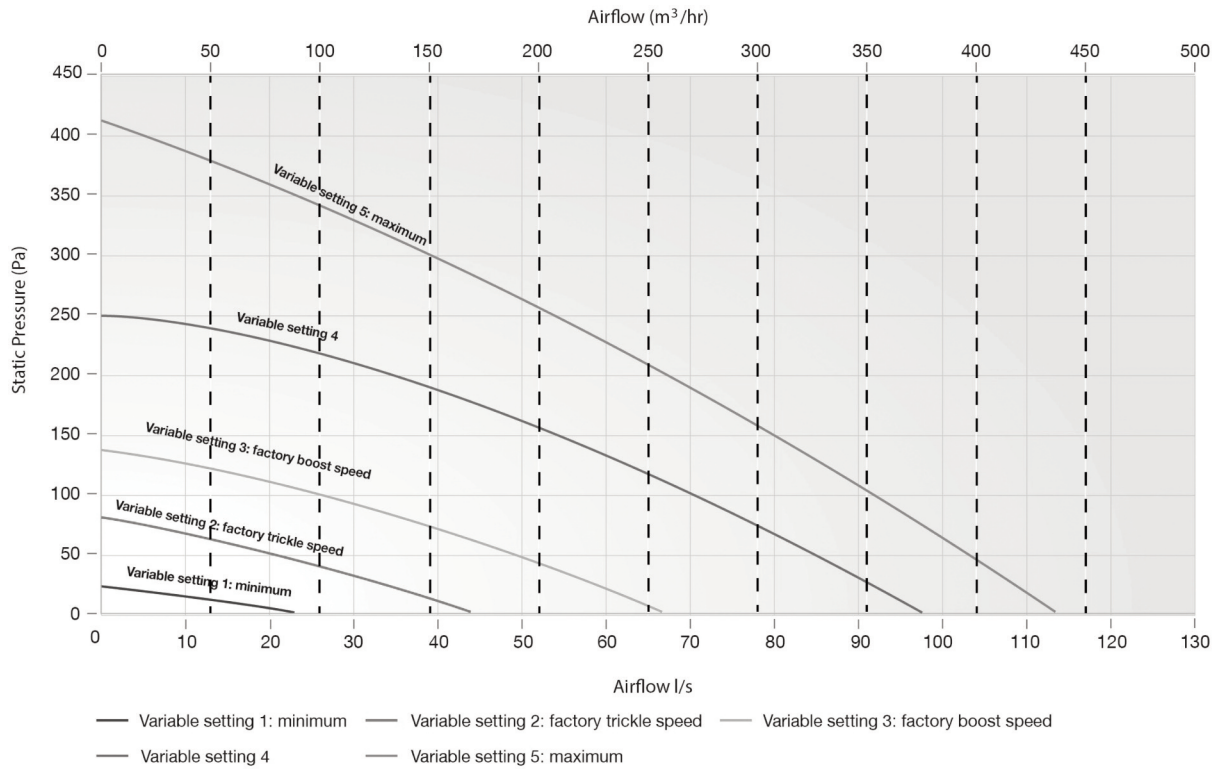
Performance levels to be verified at the extract valves using an appropriate method such as a rotating vane anemometer and air cone kit.

To adjust valves:

- Set the fan speed approximately to achieve the desired extract high flow rate.
- Close all windows and doors, including the rooms in which measurements are being carried out.
- The index terminal (the one furthest away) should be set to fully open.
- All other terminals are adjusted to achieve the required flow rate.
- If the index terminal has to be closed to achieve the correct flow rates, then reduce the fan speed and balance the terminals.
- Switch the unit to low speed to achieve the desired extract low flow rate. It should not be necessary to adjust the extract valves further.

4.0 Performance Graphs

4.0.1 Airflow Characteristics for CMEV.4e / CMEV.4eHT Models



5.0 The Guarantee Period

- 5.1 This product has a 2 Year Guarantee as standard with the option to extend to a 6 Year Guarantee, subject to registration. Terms and conditions apply.
- 5.1.1 This does not affect your statutory rights.
- 5.1.2 Full details available on request from +44 (0) 1276 408404 or www.greenwood.co.uk / info@greenwood.co.uk

All information is believed correct at time of going to press. E&OE.

All goods are sold according to Zehnder Group UK Ltd's Standard Conditions of Sale which are available on request. All dimensions referred to are in millimetres unless otherwise shown.

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