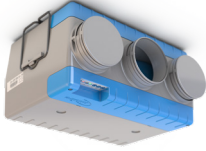


# ES-OPUSDC



## Low Power Duct Mounted Extract Fans Installation Manual



### 1.0 SAFETY INFORMATION

- The provision of the electrical supply and the connection of the unit to the electrical supply must be carried out by a qualified electrician in accordance with latest edition of the wiring regulations.
- Isolate from power supply before removing any covers. During installation / maintenance ensure all covers are fitted before switching on the mains supply.
- All-pole disconnection from the mains as shown in the wiring diagram must be incorporated within the fixed wiring and shall have a minimum contact separation of 3mm in accordance with latest edition of the wiring regulations.
- Ducting must be securely fixed with screws to the spigot to prevent access to live parts. Duct runs terminating close to the fan must be adequately protected by suitable guards.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. The replacement cord must be of the same technical specification as the original cord or greater.
- Precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances.
- This appliance should not be used by children or persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning the safe use of the appliance by a person responsible for their safety. Children shall not play with the appliance. Cleaning and user maintenance shall not be carried out by children.

#### 1.1 Hazard Symbols



##### **GENERAL WARNING**

Signifies a general warning regarding hazard specified by supplementary information.



##### **ELECTRIC SHOCK**

This unit must be completely electrically isolated before any panels are removed. Check mains supply and control connections.



##### **REFER TO INSTRUCTION MANUAL**

Read and understand the installation and maintenance manual before installing, operating or maintaining this product.

### 1.2 Important Information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

While the product has been manufactured according to the accepted rules of current technology, there is still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**

### 1.3 Personal Protective Equipment

The following minimum Personal Protective Equipment (PPE) is recommended when interacting with Nuair product:

- **Protective Steel Toed Shoes** - when handling heavy objects.
- **Full Finger Gloves (Marigold PU800 or equivalent)** - when handling sheet metal components.
- **Semi Fingerless Gloves (Marigold PU3000 3DO or equivalent)** - when conducting light work on the unit requiring tactile dexterity.
- **Safety Glasses** - when conducting any cleaning/cutting operation or exchanging filters.
- **Reusable Half Mask Respirators** - when replacing filters which have been in contact with normal room or environmental air.

Nuair would always recommend a site specific risk assessment by a competent person to determine if any additional PPE is required.

## 2.0 INTRODUCTION

The Nuair range of low power duct mounted extract fans have been specifically designed to ventilate areas such as toilets, bathrooms, small offices, etc. The range consists of units for four duty ranges, 40 l/s, 60 l/s, 75 l/s and 110 l/s maximum extraction.

The 40 l/s and 60 l/s products are available as single fan or twinfan variants, twinfan units are duty sharing. The 75 l/s and 110 l/s products are dual fan only (both fans run simultaneously).

All units incorporate speed control for both low and high speed, along with adjustable run-on facility and allow connection of Ecosmart sensors (PIR, humidistat etc.).

The unit discharges through 100mm diameter outlet spigot. Air enters the unit through 3 off 100mm diameter spigots, the central spigot is supplied open and the other two supplied closed but are easy to open (Figure 7).

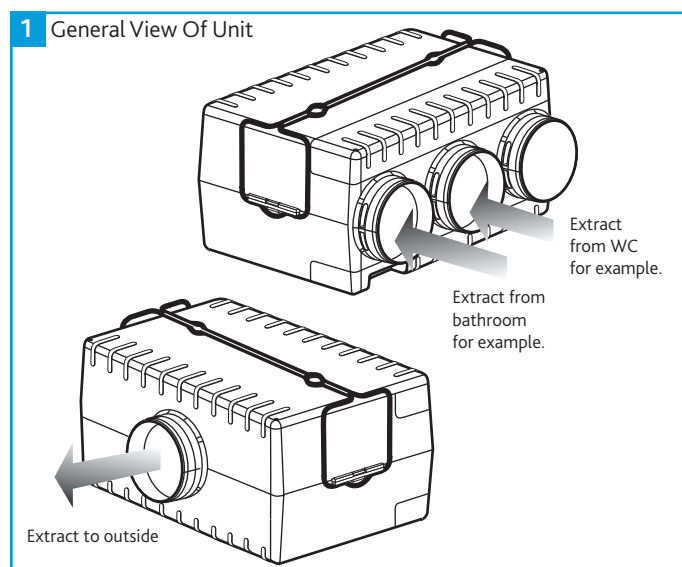
The motor is of the DC variant, fitted with self lubricating ball bearing and locked rotor protection.

The unit is supplied with a quick release fan mounting bracket which allows for installation in any configuration.

### 2.1 Code Description

1	2	-	3
ES-OPUSDC	40	-	2M

1. Range: **ES-OPUSDC** (Low Power Duct Mounted Extract Fans with Ecosmart Control)
2. Unit Size: **40** = 40 l/s  
**60** = 65 l/s  
**75** = 75 l/s  
**110** = 110 l/s
3. Fan Arrangement: **M** = Single Fan (40 & 60 Duty Only) or Dual Fan (75 & 110 Duty Only)  
**2M** = Twin Fan (40 & 60 Duty Only)



## 3.0 MECHANICAL INSTALLATION

Installation must be completed by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, etc..

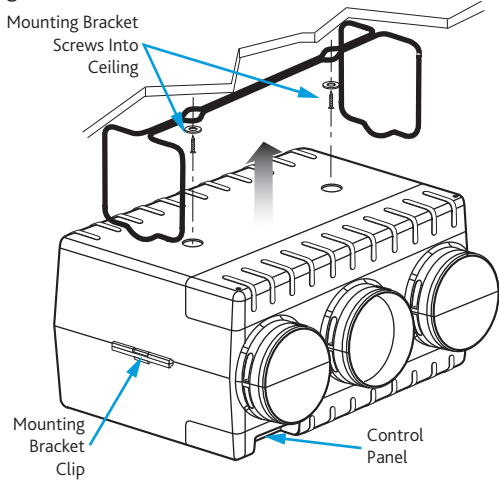
The unit is designed to be ceiling/wall mounted in any plane, with the access panel for the wiring and controls on the underside. The fan must be fitted indoors, away from any direct sources of heat, water spray or moisture generation.

**A clear working space is required around the installed unit to allow the cover to be removed and provide sufficient access for maintenance.**

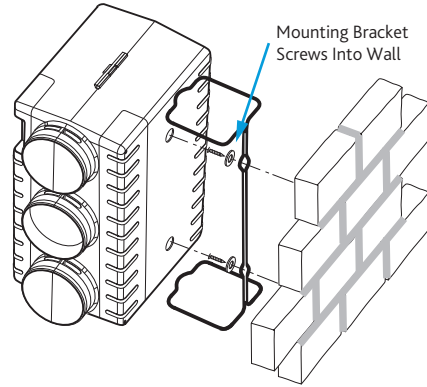
- The integral mounting bracket supplied with the unit can be offered up to position on the ceiling or wall (Figures 2 and 4).
- The fixing points for the bracket should then be marked and the bracket installed with two screws ensuring that the bracket is secure on the ceiling or wall.
- Offer the unit into position inside the bracket ensuring the access cover is face down, and locate the bracket into the moulded bracket holders on the case sides (Figure 3).

Various spigot positions can be utilised as required to suit the system ductwork and extract grilles. The unit is supplied with one spigot open and two 'closed' as knock outs when delivered but they can be opened using a hacksaw (Figure 7).

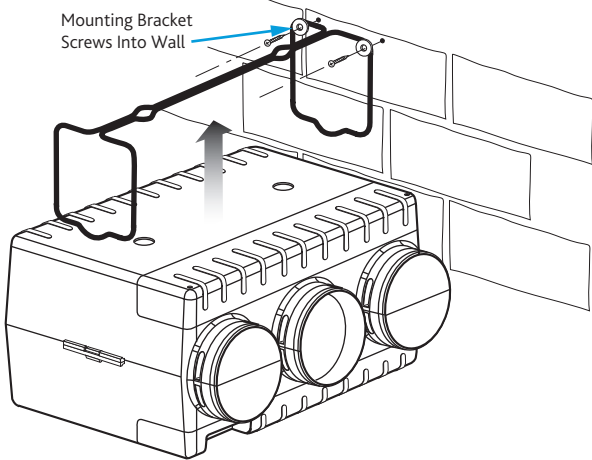
2 Ceiling Mounted Unit



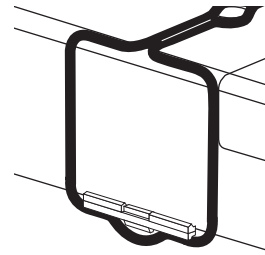
4 Wall Mounted Unit (Vertical)



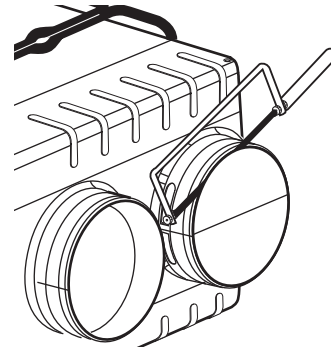
3 Wall Mounted Unit (Horizontal)



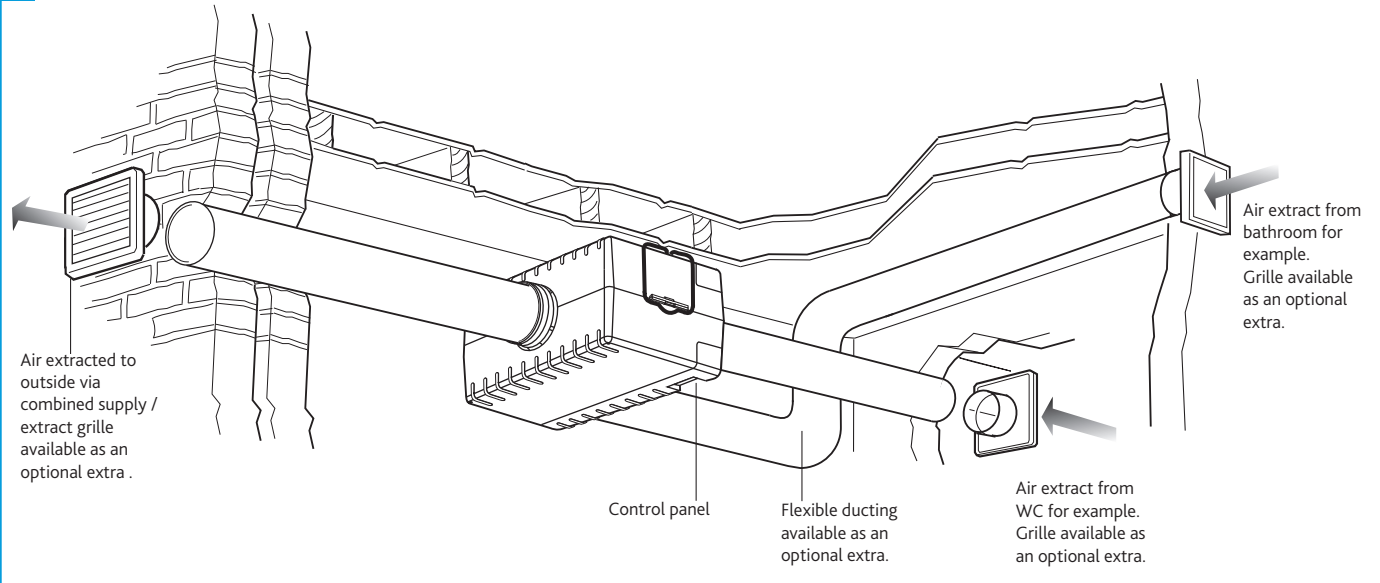
5 Bracket Clip



6 Opening Sealed Spigots



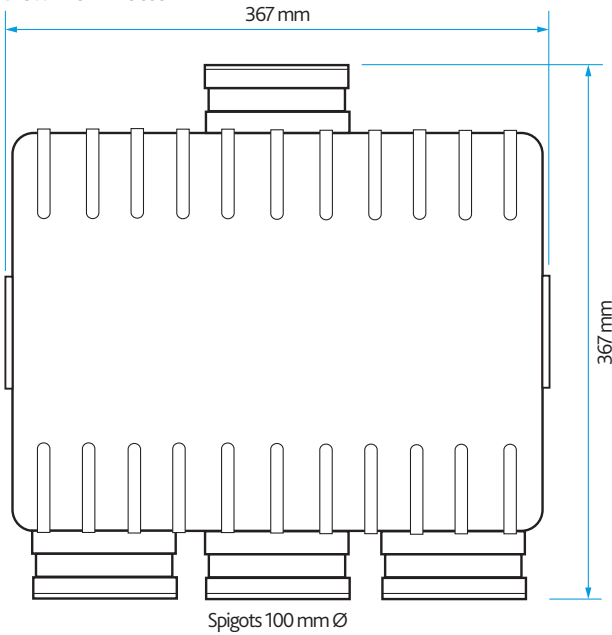
7 Typical Installation



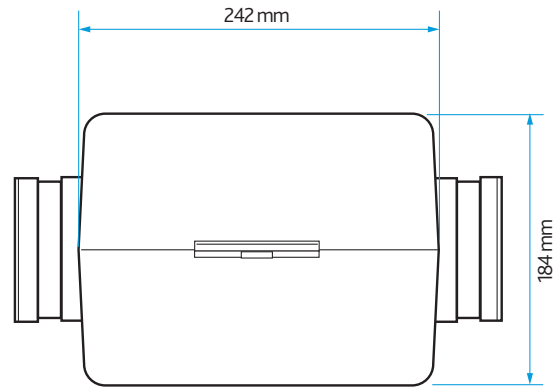
3.1 Dimensions

8 Dimensions

View From Bottom



View From Side



4.0 ELECTRICAL INSTALLATION

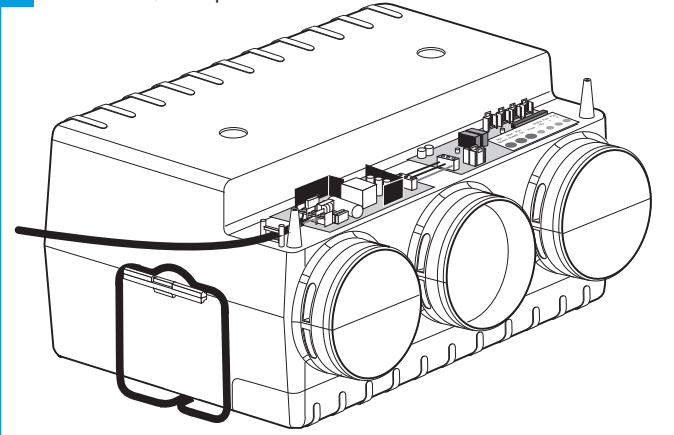
Isolate from power supply before removing any covers. During installation / maintenance ensure all covers are fitted before switching on the mains supply.

For good EMC engineering practice, any sensor cables or switched live cables should not be placed within 50mm of other cables or on the same metal cable tray as other cables.

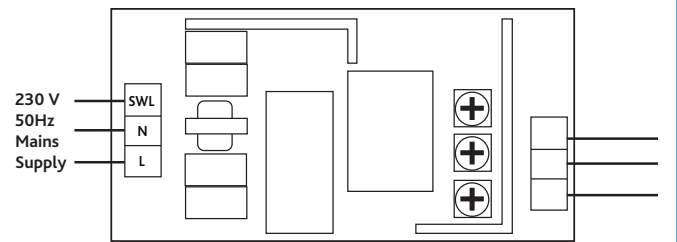
4.1 Electrical Information

Unit Size	Power Consumption	Full Load Current
ES-OPUSDC40	18 W	0.14 A
ES-OPUSDC60	44 W	0.32 A
ES-OPUSDC75	33 W	0.26 A
ES-OPUSDC110	75 W	0.61 A

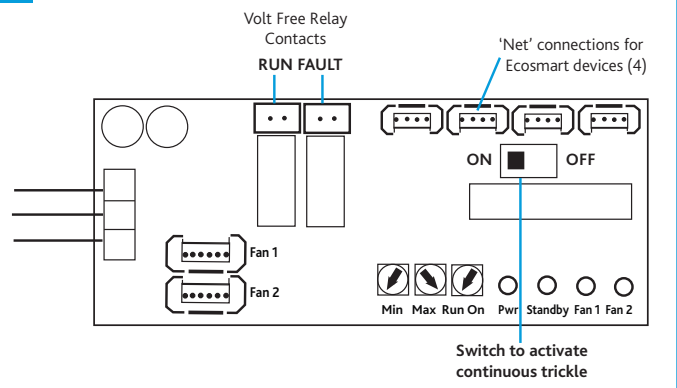
9 Mains Cable, Clamp and PCBs



10 24 V Power Supply



11 Ecosmart Control PCB

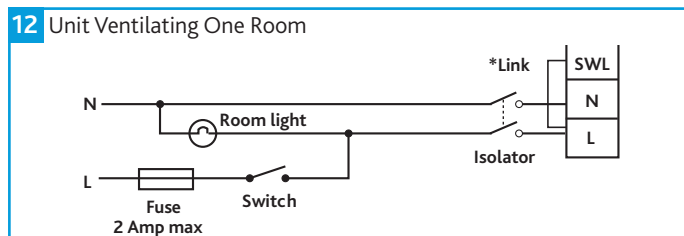


## 4.2 Wiring Diagrams

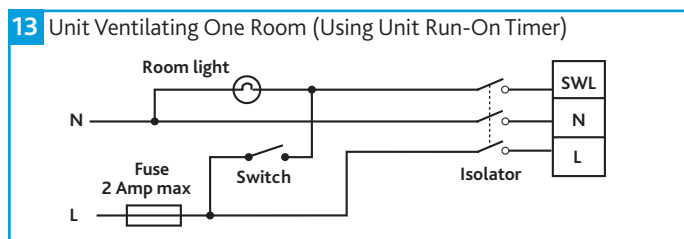
To gain access to the units power supply and control panels remove the access cover as shown in Figure 8.

\*Link also required when used in conjunction with remote user control (ES-UCF).

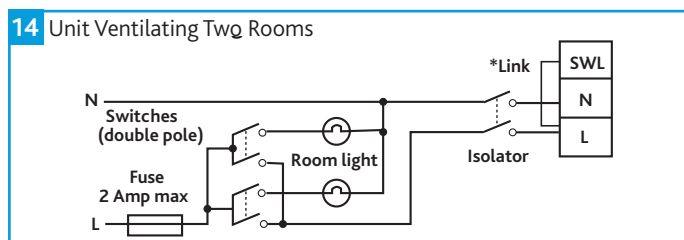
### 4.2.1 Unit Ventilating One Room



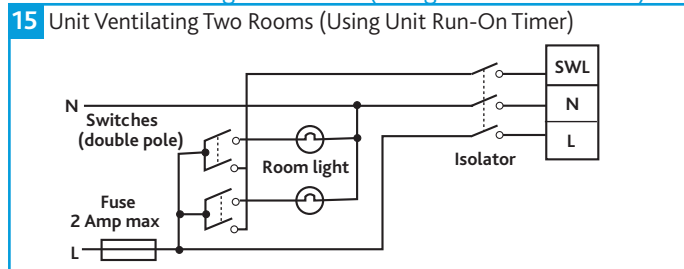
### 4.2.2 Unit Ventilating One Room (Using Unit Run-on Timer)



### 4.2.3 Unit Ventilating Two Rooms



### 4.2.4 Unit Ventilating Two Rooms (Using Unit Run-on Timer)



## 4.3 Control Connections (Optional)

### 4.3.1 Ecosmart Device 'Net' Connections

4 IDC plug-in connectors are provided for the connection of compatible sensors, manual controls and for inking the fans together under a common control. If more than four connections are required, the junction box (product code ES-JB) should be used.

**Do not run the SELV data cable in the same conduit as the mains cable and leave a 50mm separation with any power cables.**

### 4.3.2 Volt Free Relay Contacts

The volt free contacts are not fused. If used to signal low voltage external equipment the switching load must not exceed 200mA.

### 4.3.3 Run Connections

These contacts are closed when the fan is running.

### 4.3.4 Fault Connections

**No Fault:** Contacts are closed.  
**Fault:** Contacts are opened (this includes no power supply at the unit).

### 4.3.5 Data Cable installation

A 4-core SELV data cable is used to connect devices such as sensors to the fan and for interconnecting multiple fan units.

Do not run data cable in the same conduit as the mains cables and ensure there is a 50mm separation between the data cable and other cables. The maximum cable run between any two devices is 300m when it is installed in accordance with the instructions.

**Total data cable length used in any system must be less than 1000m.** Keep the number of cable joints to a minimum to ensure the best data transmission efficiency between devices.

### 4.3.6 Maximum Number of Devices

The maximum number of devices (including fans) that can be connected together via the cable is 32, irrespective of their functions.

## 5.0 CONTROLS

### 5.1 Min Speed

Used to regulate trickle speed. Can be disabled using switch.

### 5.2 Max Speed

Used to regulate full speed.

### 5.3 Run-on Timer

Adjustable between 1 and 60 minutes.

### 5.4 LED Indication

**Pwr:** GREEN - Power on and OK.  
 RED - Too much power is taken by peripherals or there is a short circuit in the net cable. Check the cable and use a junction box (ES-JB) to connect some of the peripherals.

**Standby:** LED on when fan is not running.

**Fan 1:** GREEN - Fan 1 is running.

RED - Fan 1 faulty.

**Fan 2:** GREEN - Fan 2 is running.

RED - Fan 2 faulty.

## 6.0 MAINTENANCE

It is important that maintenance checks are recorded and that the schedule is always adhered to, in all cases, the previous report should be referred to.

### 6.1 Annually

- Inspect all parts and take care to retain all control settings, with a brush or dry cloth remove all dirt and debris from the case.
- All electrical terminals within the unit should be tightened.

## 7.0 WARRANTY

The 5 year warranty starts from the day of delivery and includes parts and labour for the first year. The remaining period covers replacement parts only.

This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuaire International Sales office for further details.

**Failure to maintain the unit as recommended will invalidate the warranty.**

## 8.0 END-OF-LIFE AND RECYCLING

Where possible Nuaire use components which can be largely recycled when the product reaches its end-of-life:

- Fans, motors, controls, actuators, cabling and other electrical components can be segregated into WEEE recycling streams.
- Sheet metal parts, aluminium extrusion, heating/cooling coils and other metallic items can be segregated and fully recycled.
- EPP, plastic ducting, nylon corner pieces, plastic heat exchangers, packaging material and other plastic components can be segregated into mixed plastic and widely recycled.
- Cardboard packaging, wood, used filters and other paper components can be largely recycled or fully processed in energy from waste centres.
- Remaining Items can be further segregated and processed in accordance with the zero waste hierarchy. Please call After Sales Support for further information on items not listed above.

**Ensure that Nuaire product is made safe from any electrical / water / refrigerant supplies before dismantling commences. This work should only be undertaken by a qualified person in accordance with local authority regulations and guidelines, taking into account all site based risks.**

## 9.0 AFTER SALES AND REPLACEMENT PARTS

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales Department.

If ordering spares please quote the serial number of the unit together with the part number, if the part number is not known please give a full description of the part required. The serial number will be found on the identification plate attached to the unit casing.



**Telephone 02920 858 400**  
**[aftersales@nuaire.co.uk](mailto:aftersales@nuaire.co.uk)**

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

## DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

Designation of machinery: ES-Opus DC  
 Machinery Types: ES Opus DC 40-M, 60-M, 40-2M, 60-2M, 75-M, 110-M  
 I & M Serial No.: 671339  
 Relevant EC Council Directives: 2006/42/EC (Machinery Directive)  
 Applied Harmonised Standards: BS EN ISO 12100, BS EN ISO 9001, BS EN ISO 13857  
 Applied National Standards: BS848 Parts 1, 2.2 and 5

Signature of manufacture representatives:  
 Name: Position: Date:  
 1) C. Biggs  Technical Director 31. 12. 10  
 2) A. Jones  Manufacturing Director 31. 12. 10

Note: All standards used were current and valid at the date of signature.

### INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 2006/42/EC Machinery Directive and 2014/30/EU (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

#### 1.0 GENERAL

1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuair to be assembled into a ventilation system which may or may not include additional components.

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

#### 2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.

2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuair.

2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

#### 3.0 TRANSPORTATION, HANDLING AND STORAGE

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.

3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.

3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

#### 4.0 OPERATIONAL LIMITS

4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.

4.2 Where installation accessories are supplied with the specified equipment eg. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.

4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.

4.4 In the event of RF interference the fan may change speed. This is normal and will have no adverse effect on the fan. The speed will return to normal once the interference has subsided.

#### 5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.

5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.

5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

#### 6.0 COMMISSIONING REQUIREMENTS

6.1 General pre-commissioning checks relevant to safe operation consist of the following:

Ensure that no foreign bodies are present within the fan or casing.

Check electrical safety. e.g. Insulation and earthing.

Check guarding of system.

Check operation of Isolators/Controls.

Check fastenings for security.

6.2 Other commissioning requirements are given in the relevant product documentation.

#### 7.0 OPERATIONAL REQUIREMENTS

7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.

7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

#### 8.0 MAINTENANCE REQUIREMENTS

8.1 Specific maintenance requirements are given in the relevant product documentation.

8.2 It is important that the correct tools are used for the various tasks required.

8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.

8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.

NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.

8.5 Care should be taken when removing and storing access panels in windy conditions.

